

# **Skill Course (SC) for Semester II**

**M2 STA 07-SP 01 A**

**Skill Course Elective 01**

## **English Language Communication and Presentation**

(At the beginning of the semester, students must be provided: Detailed Lecture schedule of topics to be covered in each lecture, tutorial topics, clearly defining chapters/ sections of reference books followed, link to web resources etc. Examiners are expected to take into consideration the lecture schedule while setting the question papers to ensure questions are set within scope of the syllabus).

External: 80 Marks

Internal: 20 Marks

Contact Hours: 40hrs

### **Note:**

- a. Of the 40 contact hours, atleast 30 hours must be devoted to practical exercises.
- b. Five assignments and five internal assessments, one from each unit are to be carried out.
- c. Use of audio/ visual aids must be made.

### **UNIT I**

**Introduction:** Theory of Communication, types and modes of communication.

### **UNIT II**

**Language of Communication:** Verbal and non-verbal (Spoken and Written) personal, Social and Business Barriers and Strategies Intra-personal, Inter-personal and Group Communication.

### **UNIT III**

**Speaking Skills:** Monologue, Dialogue, Group Discussion, Effective communication/ Miscommunication, Interview, Public Speech.

### **UNIT IV**

**Reading and Understanding:** Close Reading Comprehensive Summary Paraphrasing Analysis and Interpretation Translation (from Indian Language to English and vice-versa) Literary/ Knowledge Texts.

### **UNIT V**

**Writing Skills:** Documenting, Report Writing Making notes Letter Writing.

**SWOC Analysis**

### **Reference Books:**

1. Bansal, R.K. & Harrison, J.B. (2013). Spoken English: A Manual of Speech and Phonetics, 4<sup>th</sup> ed. New Delhi: Orient Black Swan.
2. Sharma, N. (2010). Communication Skill. Satya Prakashan, New Delhi.
3. Lesikar R.V., Flatley M E, Rentz K & Pandey. (2009). Business Communication: Making Connections in a Digital World. New Delhi, Tata McGraw Hill.
4. Vibrant English. (2013). Hyderabad: Orient Black Swan.
5. Raymond Murphy, Essential English Grammar, 2<sup>nd</sup> Ed, Cambridge University Press, Cambridge, 2007.
6. Any other related Reading may be recommended.

### **List of sample practical exercises: (Spoken and Written)**

1. Greeting and Self Introduction
2. Introducing people
3. Talking about favorite things
4. Making offers
5. Expressing shock and disbelief
6. Making appointments
7. Talking about preferences
8. Inviting, advising, giving suggestions
9. Expressing thanks and gratitude
10. Responding to thanks
11. Giving opinion, complaints
12. Talking about hope, expressing regret
13. Agreement, disagreement, apologizing, requesting
14. Talking about fear, making predictions, expressing certainty and uncertainty
15. Lack of understanding and asking for clarifications
16. Asking for and giving directions
17. Shopping, phone conversations
18. Giving and responding to bad and good news
19. Interrupting people, expressing feelings (good and bad), congratulating
20. Narration of an incident, storytelling
21. Writing a resume
22. Letters to various authorities/ offices (eg. Electricity, Bank, etc.)

# Skill Course (SC) for Semester IV

**M4 STA 07-SC 01**

**Skill Course Elective 01**

**NUMERICAL ANALYSIS**

L-T-P	2-0-0
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TIME: 3 hours

External Assessment 80

Internal Assessment 20

## **UNIT I**

Theory of Iteration: Simple iteration, Rate of Convergence, Acceleration a convergence, method for multiple and complex roots.

## **UNIT II**

Convergence of iteration process in the case of several unknowns.

## **UNIT III**

Real and complex roots, solution of transcendental and polynomial equations by using bisection method, secant method.

## **UNIT IV**

Regula-Falsi method, Newton Raphson method, Chebyshev method and Muller method.

## **UNIT V**

Concept of synthetic division, the Birge – vita, Bairstow and Graeffe’s root squaring method. System of Simultaneous equations(Linear): Direct method of determinant, Gauss–Elimination.

### **Books Recommended:**

1. Jain, Iyenger and Jain : Numerical Analysis.
2. Jain, M. K. : Numerical solutions of differential equation.
3. Chouhan D.S., Vyas P. & Soni. V. : Studies in Numerical Analysis

**SKILL COURSE**  
**MOHANLAL SUKHADIA UNIVERSITY, UDAIPUR**  
**SEMESTER IV M. Sc. MATHEMATICS 2016-17**

**M4 MAT -SC 01**  
**Skill Course Elective 01 for IV Semester**  
**BASIC STATISTICAL TECHNIQUES**

L-T-P	2-0-0
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(30 L)

**(For M.Sc. Students not having Statistics as a subject in UG Course)**

**UNIT I**

An introduction to Statistics: Data collection and data presentation, frequency distribution, graphical representation, measures of central tendency, dispersion, skewness and kurtosis.

**UNIT II**

Concept of probability, Probability distributions: Binomial, Poisson and Normal distribution (Simple applications only).

**UNIT III**

Introduction to bivariate frequency data and its measurement: covariance, correlation, scatter diagram, Regression analysis: Linear regression, regression coefficient, fitting of regression equation by least square method.

**UNIT IV**

Population, sample, Statistica, standard error, estimation, confidence interval and confidence level, confidence interval estimate of proportion and mean. Hypothesis and its types, errors, level of significance. Test statistics (only Practicals Problems): Student's Chi-square, F and Z-Statistics and their applications in testing of hypothesis.

**UNIT V**

An introduction to Analysis of Variance (ANOVA), its definition, assumptions and uses, One way classification and statistical analysis of the model involved in it (Only Practicals Problems).

**Text Books:**

- (1) Hogg, R. V. & Tanis, E. A. (2002): Probability and Statistical Inference Pearson Education, Asia.
- (2) Mood, A.M., Graybill, F. A. and Boes D. C. (1999): Introduction to the theory of Statistics, MCGraw Hill, New York.
- (3) Arora, P.N. and Malhan, P.K. (2001): Biostatistics, Himalaya Publishing House, New Delhi.
- (4) Goon, A.M., Gupta, M.K. and Das Gupta, B. (2006): Basic Statistics, World Publication, Kolkata.
- (5) Gupta, S.C.: Fundamental of Statistics.



**Bridge Course Structure for B.Tech. Engineering Graduates who are seeking admission in M.Sc. (Mathematics) Programme under CBCS and Non Collegiate Scheme effective from 2018-19**

The B.Tech. Graduate students are regularly enquiring about their admission in PG programme in Mathematics in MLSU. Since the papers/topics which are covered in B.Tech. programme are not sufficient to consider the candidates eligible for admission in PG Mathematics programme therefore we have not been considering their cases for admission in the PG Programme.

In the curriculum of B.Tech. Courses of RTU , Rajasthan for different branches of B.Tech. Engineering degree a student studies at least 8 courses/papers of mathematics each of one semester duration .

So to provide an opportunity to the B.Tech. Graduates students in our PG programme, the Departmental Committee has resolved that if the candidate passes the additional three papers which are not available in the B.Tech. Programmes. Then their eligibility may be considered for admission in our PG Programme on regular basis as well as for non collegiate. B.Tech. students should be permitted to appear in additional three papers and it will be treated as Bridge Course for M.Sc. (Mathematics) Programme. The schedule of examination of this Bridge Course will be same as our UG Programme in B.Sc. Mathematics.

During the admission process for PG Mathematics through entrance exam the total percentage ( according to CGPA/SGPA conversion rules of the concerned university) of theory papers alongwith the additional three papers will be considered at the time of preparing merit for the admission in PG course in Mathematics under CBCS scheme and total percentage of B.Tech. course along with the additional three papers will be considered for the non collegiate scheme.

The nomenclature and syllabus of Bridge Course is as follows

1. Algebra( First Year B.Sc. Mathematics, Paper-I)
2. Real Analysis ( Third Year B.Sc. Mathematics, Paper-I)
3. Abstract Algebra(Third Year B.Sc. Mathematics, Paper-II)

Hence the rules of passing and syllabus will be same which are available for B.Sc. programme of our university. Time of qualifying of this course (3papers) is two years. After successful completion of this course student will be eligible to get admission in M.Sc. Programme on regular basis as well as non collegiate basis..

## **2.6.1 Program Outcome, Program Specific Outcomes and Course Outcomes for all courses in a word file/ PDF**

### **M.A. PSYCHOLOGY**

#### **SEMESTER I**

##### **M1/ PSY 01- CT01: Theoretical Perspectives of Psychology**

Course Outcomes: on the completion of this course students will be able to learn the following:

CO1: Students will understand the Brief history of psychology and will learn application of Freudian and Neo- Freudian approach.

CO2: Students will understand the Behaviouristic perspective and basic concepts of personality

CO3: Students will get a better understanding of Hedonism ,purpovism and implications of Hormic Psychology

CO4: Students will study the theories related to Cognitive balance and dissonance,Brehm Dissonance,Bandura social learning theory and its application.

CO5: Students will understand Humanistic and Existential Perspectives and its application

##### **M1/ PSY 02- CT02: Advanced Experimental Psychology**

Course Outcomes: On the completion of this course students will be able to learn the following:

CO1: Students will have the knowledge of procedure of experiment and will develop basic understanding of perception, and determinants of perception.

CO2: Students will be able to understand dynamics of perception

CO3: Students will have understanding of different theories of learning, role of reinforcement in learning, and factors affecting learning.

CO4: Students will understand basic concepts of verbal learning, memory and forgetting and their factors

CO5: Students will understand the concept of motivation and emotion

##### **M1/ PSY 03- CT03: - Biopsychology**

Course Outcomes: On the completion of this course students will be able to learn in following:

CO1:Students will understand the concepts of Biopsychology.They will also be able to learn the various research methods used in Biopsychology for assessing various phenomena.Students will be able to know the detailed knowledge about endocrine glands that is its types and functions and how they affect our behavior.

CO2: This will help students to have a detailed concept clarity about neuron structure, types and functions. They will get an understanding of structure and functions of Central nervous system and peripheral nervous system. They will be able to have the understanding of Synaptic transmission and neurotransmitters.

CO3: Students will have a conceptual clarity neural mechanisms of learning and memory process. They will be studying the various disorders of memory. They will be able to learn about the stages of sleep and various disorders of sleep.

CO4: Students will be able to get a better understanding of cerebral lateralization of Brain. They will learn the functions of left and right hemispheres. They will also learn the cortical localization of language and language disorders.

CO5: Students will learn about the emotions and autonomic nervous system. They will be able to understand the emotions and facial expression. They will be able to understand the mechanisms of human emotion and also the mechanisms of hunger and thirst.

### **M1/ PSY 04- CT04: Research Methodology**

Course Outcomes: On the completion of this course students will be able to learn the following:

CO1: Students will understand fundamental concepts of research and will learn application of scientific research. Students will study different steps involved in research process.

CO2: Students will study basic concepts of variables and hypothesis. Students will understand concept of probability with the normal probability curve

CO3: Students will have conceptual clarity of sample design and different determinants of sample size. Students will understand different data collection methods

CO4: Students will be able to differentiate between different experimental, quasi experimental and non-experimental designs

CO5: Students will get a better understanding of basics of report writing and features of a good report. Conceptual details of APA format of writing report.

### **M1/ PSY 01- CP01: Practical- I: Experimental Psychology**

CO1: Students will be able to design and conduct experiments on perception, motivation, learning, emotions, memory, forgetting

CO2: Students will be able to observe different phenomena of perception, motivation, learning and memory

### **M1/ PSY 02- CP02: Practical- II: Research Methods**

CO1: Students will be able to identify and formulate problems, hypothesis and variables.

CO2: Students will be able to plan research having experimental designs, factorial design etc.

CO3: Students will be able to prepare synopsis.

CO4: Students will learn to write research reports.

CO5: Students will learn to use different techniques of data collection.

## **SEMESTER II**

### **M2/PSY 01- CT05: Cognitive Psychology**

Course Outcomes: On the completion of this course students will be able to learn the following:

CO1: Students will understand the fundamental concepts of attention and perception

CO2: Students will understand the concepts of intelligence and creativity and their theories

CO3: Students will develop understanding regarding consciousness and its functions

CO4: Students will have theoretical and practical knowledge of Language and Executive processes.

CO5: Students will have a better understanding and Practical applications of Problem solving, Reasoning and Decision Making.

### **M2/PSY 02- CT06: Applied Social Psychology**

Course Outcomes: On the completion of this course students will be able to learn the following:

CO1: Students will have theoretical and practical knowledge of social psychology fundamental concepts. Students will study different research methods in social psychology

CO2: Students will have knowledge of developmental views of eminent researchers and a deep understanding of attribution. Students will develop understanding regarding establishing new relationship and impression formation

CO3: Students will have orientation towards theoretical and practical framework of leadership styles. Dimensions of violence and maintenance of relationship.

CO4: Students will be able to apply different strategies of Anger Management. Students will understand structural and functional characteristics of a group.

CO5: Students would gain basic understanding of origin and maintenance of prejudice. Students will understand theoretical and practical framework of attitude.

### **M2/ PSY 03- CT07: Psychological Testing**

Course Outcomes: On the completion of this course students will be able to learn the following:

CO1: Students will learn the meaning, types, uses and ethical issues of psychological testing

CO2: Students will understand the procedure of construction and standardization of psychological tests

CO3: Students will develop understanding of reliability, validity and norms

CO4: Students will have knowledge of different intelligence, aptitude, interest and achievement tests

CO5: Students will become aware of different personality tests.

### **M2/ PSY 04- CT08: Psychological Statistics**

Course Outcomes: On the completion of this course students will be able to learn in following:

CO1: Students will be able to learn about the normal distribution, its properties and its importance. They will also be able to learn about the Normal probability distribution, skewness and kurtosis.

CO2: Students will be able to understand the concept of correlation and types of correlation. They will also be able to calculate some advanced correlation.

CO3: Students will be able to learn about the Analysis of Variance, its general uses and limitations. They will be able to learn the F test, t test and z test and interpretation.

CO4: Students will be able to understand the difference between non parametric and parametric statistics. They will also be able to learn types of non-parametric tests.

CO5: Students will be able to learn about the regression, its types and uses. They will also be understanding Factor analysis, its types and uses.

### **M2/PSY 01- CP03: Practical – I Social Psychology and Testing**

Course Outcomes: on the completion of this course students will be able to learn the following:

CO1: Students will have Practical knowledge of Interpersonal attraction and Impression Formation.

CO2: Students will learn how to control the aggression and release the stress in the circumstances.

CO3: Students will understand the theoretical and practical knowledge of social psychology and its fundamental concepts

CO4: Students will learn how to communicate with other people and to handle the group pressure wherever needed

CO5: Students will learn how to measure the intelligence of an individual by the help of Wechsler intelligence test battery/ Bhatia's battery.

CO6: Students will learn how to behave in social settings and develop a personality.

### **M2/PSY 01- Skill 01: Understanding Self**

Course Outcomes-

CO1: Understand and explore one's own self

CO2: Understanding the self-concept and the factors affecting it

CO3: Measurement of own self-concept

CO4: To understand about various aspect of self through exercises

CO5: To know and understand one's own strengths, weakness, opportunities and threats

CO6: To identify and measure own career preferences and personality

CO7: To understand various aspects of self-concept such as motivation, intelligence

### **SEMESTER III**

#### **M3/ PSY 01- CT09: Personality Theories**

Course Outcomes: On the completion of this course students will be able to learn the following:

CO1: Students will understand the Personality theories and current issues in personality theories

CO2: Students will understand concept of personality proposed by Psychoanalytic and Post Freudian theorists

CO3: Students will get a better understanding of personality from Post Neo Freudian and trait theorists' perspectives

CO4: Students will study the personality from behaviourists and socio cognitive perspectives

CO5: Students will understand Humanistic phenomenological theories of personality

#### **M3/ PSY 02- CT10: Positive Psychology**

Course Outcomes: On the completion of this course students will be able to learn the following:

CO1: Students will understand goals of positive psychology and western and eastern perspectives on positive psychology

CO2: Students will learn about classification and measures of human strengths

CO3: Students will understand the concepts of positive emotional states and processes.

CO4: Students will develop understanding of positive cognitive states and processes. They will learn about self-efficacy, optimism, hope, mindfulness, wisdom, spirituality

CO5: Students will learn about pro-social behaviour. Students will understand building positive environment and institutions.

#### **M3/ PSY 03-ET11A: Clinical Psychopathology**

Course Outcomes: On the completion of this course students will be able to learn in following:

CO1:Students will be able to understand the concepts of normality and pathology.They will be able to understand the paradigm of vulnerability, resilience and coping.They will also learn about the mental health and mental disorder and about various models of abnormality.

CO2:Students will be able to classify the mental disorder according to APA and WHO classification and also the advantages and disadvantages of classification system.They will also be able to learn about the causal factors like biological, psychosocial and socio cultural factors behind the abnormal behavior.They will also learn the diathesis- stress model.

CO3:Students will gain a knowledge of mood disorders, depression and bipolar disorders.They will also be able to learn about anxiety disorders like panic disorder, phobic disorders, PTSD, Generalized anxiety disorders.

CO4:Students will be able to get a better understanding the psychotic diseases like schizophrenia and its types.They will also be able to learn about the memory related disorders, sleep disorders and personality related disorders.

CO5:Students will be able to get to know about somatoform disorders, substance abuse disorders, learning disorders, eating disorders.They will also be able to learn about the prevention of mental disorders and its levels also the situation focused and competency focused prevention.

### **M3/ PSY 03- ET11B: Organisational Behaviour**

Course Outcomes: On the completion of this course students will be able to learn the following:

CO1 Students will develop general awareness of history, importance, challenges and opportunities of industrial and organizational psychology

CO2 Students will learn about factors, importance & techniques of job satisfaction and measurement and methods of boosting morale

CO3 Students will understand different theories of motivation in reference to employees

CO4 Students will have better understanding of human performance, and accident proneness and prevention

CO5 Students will learn theories of leadership and leadership styles

### **M3/ PSY 03- ET11C: Educational Psychology**

Course Outcomes: On the completion of this course students will be able to learn in following:

CO1:Students will be able to understand the concepts of educational psychology.Students will also be able to learn the importance and developmental characteristics of child development with relation to different aspects.

CO2:Students will be able to understand the concept of learning.They will be able to learn the different approaches of the learning.They will be able to learn the educational concept of motivation.They will be able to learn the motivational devices for classroom teaching.

CO3:Students will have a deep understanding of individual differences in the classroom.They will have a deeper understanding of intelligence and its theories.They will also be able to learn the concept of emotional intelligence and its theories.They will also be able to utilize various psychological test and intelligence test, both verbal, non- verbal and performance test.

CO4:Students will be able to get a better understanding of teaching and learning principles of teaching approaches.

CO5:Students will be able to gain the knowledge regarding the various methods of teaching.They will also be able to understand the differences based on cognitive abilities in children.

### **M3/ PSY 04- ET12A: Psychological Therapies -I**

Course Outcomes: On the completion of this course students will be able to learn the following:

CO1:Students will have theoretical and practical knowledge of psychological intervention. Its professional and ethical issues.Students will get a better understanding regarding characteristics of a good therapist. Students will study different psychotherapeutic development. Yoga and Buddhistic traditions

CO2: Students will have knowledge of psychoanalytical therapies and their evaluation.Students will develop understanding regarding Neo Freudian approach

CO3: Students will have orientation towards Humanistic Existential approach. Dimensions of Rogerian and gestalt.

CO4:Students will be able to apply different group therapy. Students will understand practical issues of family therapy and its types.

CO5:Students would gain basic understanding of community based intervention. Students will understand theoretical and practical framework of crisis intervention and rehabilitation.

### **M3/ PSY 04- ET12B: Human Resource Management**

CO1: Understand the role, importance and functions of human resource management in organizations

CO2: Understanding recruitment and selection processes in organizations

CO3: Understanding the strategies for effective communication in organizational setup

CO4: To know and understand employee management through conflict resolution through effective HR policies

CO5: To understand the techniques of performance appraisal and its implementation

CO6: To understand the concept and types of organizational structure

CO7: To understand and apply psychological tools and techniques for employee selection in organizations



### **M3/ PSY 04- ET12 C: Disorders of Childhood and adolescents**

Course Outcomes: On the completion of this course students will be able to learn about the various disorders including nature, types, clinical picture and causal factors which are mainly occurring in the stage of in childhood and adolescents and the topics are as follows:

CO1:Students will be able to understand about mental retardation.

CO2:Students will be able to understand about learning and motor skills disorders.

CO3:Students will have a conceptual clarity on attention- deficit and disruptive behavior disorders.

CO4:Students will be able to get a better understanding of pervasive developmental and communication disorders.

CO5:Students will also be able to understand about eating disorders and obesity.

CO6:Students will be able to gain the knowledge regarding sexual variants.

### **M3/PSY 01- CP05: Practical- I**

Course Outcomes: on the completion of this course students will be able to learn the following:

CO1: Students will able to assess the strengths of an individual.

CO2: Students learn and develop the self-assessment techniques i.e.self-concept method or bysocial adjustment method.

CO3: Students will learn to measure the creativity by different techniques

CO4: Students will able to understand to behave in social setting and develop a personality andalso can measure the personality by personality assessment techniques.

CO5: students can learn to write the case study of the recently issue highlighted in the media.

### **M3/ PSY 02- EP06 A: Practical II Clinical Psychology**

Course Outcomes: On the completion of this course students will be able to learn the following:

CO1:Students will have practical knowledge of issues related to mental health.

CO2: students will get a better understanding regarding Characteristics of a scientific clinical interview.

CO3: Students will have knowledge of different aspects of health by conducting PGI health scale

CO4:Students will be able to apply progressive muscle relaxation for physical and mental relaxation

CO5: students will have practical knowledge of projective technique like TAT, Rorschach

CO6: students will have practical guide of analyzing biofeedback responses.

CO 7: students will study how to take a detailed case history.

### **M3/ PSY 02- EP06B: Practical II- Industrial Psychology**

Course Outcomes: On the completion of this course students will be able to learn the following:

CO1 Students will develop skills to do job analysis

CO2 Students will learn to assess job satisfaction, and leadership

CO3 Students will learn identification of team role

CO4 Students will learn to measure risk taking behaviour

CO5 Students will learn to do performance appraisal

CO6 Students will be able to study organisational structure in the field

CO7 Students will be able to experience the climate of organisation

### **M3/PSY 02- EP06C: Practical- II Educational Psychology**

CO1:Students will able to assess the social adjustment, emotional adjustment/ emotional quotient, intelligence.

CO2:Students will be able to learn to prepare the case study related to intelligence, aptitude and interest test.

CO3:Students will able to apply the intervention therapies like rational emotive therapy.

CO4:Students will get a better knowledge that is having a different socio cultures background affect the learning of children.

CO5:Students will able to formulate the case study of a child with learning difficulties..

CO6:Students will be able to apply the counseling interview techniques.

## **SEMESTER IV**

### **M4/PSY 01- CT13:Psychometrics and Scaling**

CO1: Understand meaning and application of psychophysics

CO2: Understand basic concepts such as Absolute Limen, Difference Limen, and Point of Subjective Equality etc.

CO3: Understand the various laws of psychophysics

CO4: Understand the types and role of scaling methods in measurement in Psychology

CO5: Understand and differentiate among various methods of classical psychophysics

CO6: Understand various experiments involved in calculation of various human sensitivity measures through classical methods

CO7: To be able to differentiate between classical and modern psychophysical methods

CO8: Understand signal detection theory and its applications

CO9: Understand Likert and Thurston scaling methods

CO10: To be able to apply the principles of scaling in construction of test items

#### **M4/ PSY 02- CT14: Developmental Psychology**

Course Outcomes: On the completion of this course students will be able to learn the following:

CO1: Students will understand the scope of developmental psychology, and method of studying developmental behaviour. They will also become aware of influences of development

CO2: Students will learn the concept of self and self-identity

CO3: Students will be able to understand psychoanalytic and psychodynamic theories, social learning and cognitive theories

CO4: Students will understand functions and development of emotional expression and temperament. Students will also learn theories of moral development

CO5: Students will learn different theories of aging and building blocks of successful aging.

#### **M4/ PSY 03- ET 15 A: Clinical Assessment**

Course Outcomes: On the completion of this course students will be able to learn in following:

CO1: Students will be able to understand the concepts of clinical assessment and in which scenario there is so much need of clinical assessment. Students will also be able to learn the assessment process and about formal and informal assessment.

CO2: Students will be able to understand the concept of Clinical interview, and the skills needed for the clinical interview and what should be the environment when the interview is taking place.

CO3: Students will have a conceptual clarity on the Projective tools of assessing personality like TAT, Draw a person test, Rorschach test and others.

CO4: Students will be able to get a better understanding neuropsychological assessment. And also how to assess sensory, motor and perceptual problems. Students will also be able to understand about GSR, EEG, ERP, PET and MRI.

CO5: Students will be able to gain the knowledge regarding the objective test and techniques of personality and intelligence. They will also be able to understand about the ethical issues in assessment. They will also be able to understand about the cross cultural tests and child assessment techniques.

#### **M4/ PSY 03- ET15B: Training and Development**

CO1: To know and understand the concept, importance, and process of employee training in organizations

CO2: To understand the training needs identification, designing a training program

CO3: To understand and apply various methods of delivering training program and evaluating its effectiveness

CO4: To understand and impart training programs on leadership, emotional intelligence and team work

CO5: To understand the importance of assessment centres

CO6: To learn and administer psychological tools such as MBTI, Big five, 16 PF for assessment purposes

#### **M4/PSY 03- ET15C: Vocational Psychology**

Course Outcomes: On the completion of this course students will be able to learn in following:

CO1:Students will be able to understand the concept of vocational psychology including definition, meaning, and subject matter.Students will also be able to learn about vocational choice and what are its determinants.

CO2:Students will be able to understand the theoretical perspectives of vocational psychology.

CO3:Students will have a better understanding of vocational choice and what are the problems faced during vocational choice.They will also learn about the career decision making processes.

CO4:Students will be able to get a better learning to other dimensions of vocational choice.They will be able to learn the systems of defining vocational problems.They will bale to learn about vocational indecision and vocational unrealism.

CO5:Students will be able to gain the knowledge regarding the clients with special needs that are individuals with disabilities.They will also learn about the clients that are women in workforce, displaced workers and economically disadvantaged group.

CO6:Students will also be able to understand about the ethical issues and competencies needed for career development.They will also be able to understand about the future concerns of vocational development.

#### **M4/PSY 04- ET16A: Psychological Therapies II**

Course Outcomes: On the completion of this course students will be able to learn the following:

CO1:Students will understand fundamental concepts of behavior modification and will learn its application. Students will study different operant methods in self-control. By developing

different modules they will understand the use of self-control methods in obesity, study behavior

CO2:Students will study basic procedure of aversion therapy. Students will understand its different methods like ECT, covert sensitization. Progressive muscle relaxation will be explained along with its practical therapy sessions

CO3:Students will have conceptual clarity of systematic desensitization. Students will understand its nature, implications and empirical findings.

CO 4: Students will be able to differentiate between different behavior styles and the superiority of Assertive style over the others. Students will understand the basic procedure of Assertive training and behavior rehearsals. Fundamental procedure of modelling will be explained

CO 5:Students will get a better understanding of cognitive therapies like CBT, REBT, Thought Stopping etc.Conceptual details of sex therapy will be explained.

#### **M4/ PSY 04- ET16B: Entrepreneurship Psychology**

CO1: To understand the concept, importance and factors of Entrepreneurship Psychology

CO2: To understand the psychological theoretical framework of entrepreneurship

CO3: To understand the measurement of entrepreneurship skills in an individual

CO4: To understand the psychological characteristics requires for an entrepreneur

CO5: To implement the entrepreneurship education/ development programs to create an entrepreneurial mind-set

CO6: To understand the social responsibility of entrepreneurs

CO7: To understand the concept of tele-preneurship and tech-preneurship

CO8: Understanding skill development challenges and Global entrepreneurship monitor (GEM) in Indian context

#### **M4/PSY 04- ET16C: Counseling Psychology**

Course Outcomes: On the completion of this course students will be able to learn in following:

CO1:Students will be able to understand the concepts of counseling. Students will also be able to learn the counsellor's roles and functions.Students will able to understand the ethics and legal concerns related to the theme.

CO2:Students will be able to understand the broadened perspective of counseling process and skills.Students will able learn the counseling relationships. Will able to learn the counseling interview and about basic communications skills which involves rapport building, assessment

of problem, setting goals, selecting and designing interventions. Students will be able to learn when to terminate the counseling process.

CO3: Students will have a conceptual clarity about different theories related to counseling. Students will be able to learn about different therapies related to counseling.

CO4: Students will be able to get a better understanding of group techniques which include group guidance, group counseling. They will be able to learn to deal with many types of groups. They will get a better understanding of group process and group dynamics.

CO5: Students will be able to gain the knowledge regarding the counseling for career planning and decision making. They will get a knowledge about current interest in career planning. They will be able to understand the development of human potential and career planning and decisions making in schools. They will also learn about the career counseling in non-school settings.

#### **M4 /PSY 01 –CP07: Practical I: Psychophysics and Developmental Psychology**

Course Outcomes: On the completion of this course students will be able to do the following:

CO1: Students will be able to determine illusion, AL, DL with different psychophysical methods

CO2: Students learn and develop Likert and Thurston type scale

CO3: Students will learn to develop reliability, validity and norms of a psychological test

CO4: Students will be able to understand cognitive development of a child

#### **M4 /PSY 02 –EP08A Clinical Practical II**

Course Outcomes: on the completion of this course students will be able to learn the following:

CO1: Students will be able to assess the stress/anxiety and will learn the stress management techniques.

CO2: students will learn about the etiology of the Depression and to implement the therapy regarding the Depression

CO3: students will assess the mental health and well-being of general population during COVID-19

CO4: students will understand the theoretical and practical knowledge of about RCBT (Loneliness)

CO5: students will learn the diagnostic features and factors behind anorexia nervosa and also the implications of operant method (Behaviour Therapy).

#### **M4/ PSY 02- EP08B: Industrial Practical II**

Course Outcomes: On the completion of this course students will be able to learn the following:

CO1: Students will be able to assess training need

CO2: Students will learn to administer and interpret MBTI/FIRO-B/ 16PF

CO3: Students will understand leadership & entrepreneurship through case study method

CO4: Students will have better understanding of team work exercises

CO5: Students will learn about corporate social responsibility

CO6: Students will to use role play /simulation in training

**M4/PSY 02- EP08C: Educational Practical II**

CO1:Students will able to assess the problematic children in classroom and will be able to apply the therapy regarding the problem.

CO2:Students will be able to learn to construct the objective type tests in a school subject.

CO3:Students will able to give the career counseling according to the assessment of aptitudes and interest in a school.

CO4:Students will get a better knowledge that how by the feedback, rewards, reinforcement and punishment have a proper pace in learning.

CO5:Students will able to give a personal counseling to adolescent or child for some persona behavioral problem.

CO6:Students will be able to group counsel in school by giving career talks or by implementing the various activities of life skills.

**M4 /PSY 01 –Skill 02: Counselling Interview**

Course Outcomes: On the completion of this course students will be able to do the following:

CO1: Students will be able to perform attending behaviour in counselling interview

CO2: Students will be able to listen actively and frame right type of questions in counselling interview. They will also learn paraphrasing and summarizing in interview session.

CO3: Students will develop skills of noting and reflecting feeling and conduction of counselling interview

CO4: Students will be able to confront, and eliciting & reflecting meaning

CO5: Students will learn to apply influencing skills and strategies used in counselling interview

## **Program Outcomes**

### **BLISc, MLISc and Diploma**

The student will be able to manage the libraries in the ICT environment. The students will be equipped with the advanced skills of literature searching, networks, database management and related areas. The student will have necessary analytical skills to solve the problems in managing the libraries in the traditional system and in ICT enabled library services. The students are introduced to the basic areas of research, style manuals and will be able to scientifically communicate the research results with the peers.



**Program outcomes**  
**बी.ए. संस्कृत 2020-2021**

1. आवश्यक संस्कृत व्याकरण का सूत्रात्मक एवं प्रायोगिक ज्ञान प्राप्त होना।
2. हिंदी से संस्कृत एवं संस्कृत से हिंदी भाषा के अनुवाद में दक्षता सिद्ध होना।
3. संस्कृत शब्दकोश के ज्ञान में अभिवृद्धि होना।
4. प्राचीन भारतीय संस्कृति एवं ग्रंथों का परिचय प्राप्त होना।
5. संस्कृत साहित्य के इतिहास से परिचित होना।
6. विश्व के प्राचीनतम ग्रंथ ऋग्वेद के कतिपय सूक्तों का अध्ययन-लाभ होना।
7. कठोपनिषद् एवं श्रीमद्भगवद्गीता का अल्प अध्ययन लाभ होना।
8. भारतीय दर्शन परंपरा का परिचय प्राप्त होना।
9. नीतिपद्यों एवं नीतिकथाओं से व्यवहार-ज्ञान में अभिवृद्धि होना।
10. संस्कृत साहित्य के प्रसिद्ध कवियों के अन्तर्गत महाकवि भास, महाकवि कालिदास, महाकवि भर्तृहरि, नारायण पंडित, महाकवि बाणभट्ट एवं महाकवि भारवि की रचनाओं के कतिपय भागों का मूलपाठ के साथ जानार्जन होना।
11. प्रमुख छंद एवं अलंकारों का ज्ञान प्राप्त होना।
12. संस्कृत विषय में उच्च अध्ययन करने हेतु प्रारंभिक एवं आवश्यक ज्ञान की प्राप्ति होना।

## Course Outcomes

बी.ए. प्रथम वर्ष संस्कृत 200-2021

प्रश्नपत्र कूट संख्या - 1641

प्रथम प्रश्न पत्र: काव्य, नाटक एवं प्रायोगिक व्याकरण

1. संस्कृत सुभाषित परम्परा के उत्कृष्ट ग्रन्थ नीतिशतकम् का अधिगम।
2. संस्कृत साहित्य की नाटक परंपरा में महाकवि भास के प्रसिद्ध नाटक स्वप्नवासवदत्तम् का अधिगम।
3. संस्कृत व्याकरण का प्रायोगिक ज्ञान प्राप्त करना।

प्रश्नपत्र कूट संख्या - 1642

द्वितीय प्रश्न पत्र: गद्य, व्याकरण एवं अनुवाद

1. संस्कृत साहित्य के प्रसिद्ध कथा ग्रंथ नारायण पंडित विरचित हितोपदेश (मित्रलाभ) की कथाओं एवं शिक्षाओं का अधिगम।
2. वरदराज आचार्य विरचित लघुसिद्धांतकौमुदी के संज्ञाप्रकरण एवं संधिप्रकरण का सूत्रसहित अधिगम।
3. संस्कृत व्याकरण के मूलभूत बिंदुओं यथा- समास, कारक एवं शब्दरूपों का अध्ययनलाभ।
4. हिंदी से संस्कृत अनुवाद में दक्षता प्राप्त करना।

बी. ए. द्वितीय वर्ष संस्कृत परीक्षा 2020-2021

प्रश्नपत्र कूट संख्या - 2641

प्रथम प्रश्न पत्र: नाटक, छन्द एवं अलंकार

1. महाकवि कालिदास के विश्वप्रसिद्ध नाटक अभिज्ञानशाकुंतलम् का संपूर्ण अध्ययन।
2. अभिज्ञानशाकुंतलम् नाटक में प्रयुक्त मुख्य छंदों का अधिगम।
3. काव्यदीपिका (अष्टम शिखा) ग्रंथ के अनुसार प्रमुख अलंकारों के लक्षणों का सोदाहरण अधिगम।

प्रश्नपत्र कूट संख्या - 2642

द्वितीय प्रश्न पत्र: प्राचीन भारतीय संस्कृति, धर्मशास्त्र

व्याकरण, अनुवाद एवं निबन्ध

1. प्राचीन भारतीय संस्कृति के प्रमुख बिंदुओं का अध्ययन।
2. संस्कृत धर्मशास्त्र परंपरा के प्रमुख ग्रंथ मनुस्मृति के द्वितीय अध्याय (श्लोक 1 से 150 तक) का अधिगम।

3. वरदराज आचार्य विरचित लघुसिद्धांतकौमुदी ग्रंथ के अनुसार व्यंजन संधि एवं विसर्ग संधि के सूत्रों का सोदाहरण अध्ययन।
4. संस्कृत भाषा दक्षता में वृद्धि करने हेतु प्रमुख शब्दरूपों एवं धातुरूपों का अध्ययन।
5. हिंदी से संस्कृत अनुवाद करने में दक्षता प्राप्त करना।
6. संस्कृत एवं अन्य विषयों पर निबंध लेखन में दक्षता प्राप्त करना।

**बी. ए. तृतीय वर्ष संस्कृत परीक्षा 2020-2021**

**प्रश्नपत्र कूट संख्या - 3641**

**प्रथम प्रश्न पत्र: वैदिक व लौकिक काव्य एवं गद्य**

1. ऋग्वेद के कतिपय प्रमुख सूक्तों एवं कठोपनिषद् का प्रारंभिक ज्ञानार्जन।
2. संस्कृत साहित्य की गद्य परंपरा के प्रतिनिधि ग्रंथ कादम्बरी के शुकनासोपदेश का अधिगम।
3. महाकवि भारवि विरचित किरातार्जुनीयम् महाकाव्य के प्रथम सर्ग का अध्ययन।

**प्रश्नपत्र कूट संख्या - 3642**

**द्वितीय प्रश्न पत्र: इतिहास, दर्शन, अनुवाद, व्याकरण एवं निबन्ध**

1. संस्कृत साहित्य का ऐतिहासिक परिचय प्राप्त करना।
2. भारतीय दर्शन के प्रतिनिधि ग्रंथ श्रीमद्भगवद्गीता के द्वितीय अध्याय का अधिगम।
3. प्रमुख भारतीय दर्शनों के प्रमुख सिद्धांतों का अधिगम।
4. हिंदी से संस्कृत अनुवाद करने में दक्षता प्राप्त करना।
5. संस्कृत व्याकरण के प्रचलित प्रत्ययों का अध्ययन।
6. संस्कृत माध्यम से निबंध लेखन में दक्षता प्राप्त करना।

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**Program outcomes**  
**बी. ए. ऑनर्स (संस्कृत) 2020-2021**

1. आवश्यक संस्कृत व्याकरण का सूत्रात्मक एवं प्रायोगिक ज्ञान प्राप्त होना।
2. संस्कृत व्याकरण के अन्तर्गत सन्धि (हल् एवं विसर्ग), समास (अव्ययीभाव, तत्पुरुष, बहुव्रीहि, कर्मधारय, द्विगु तथा द्वन्द्व), कारक (प्रमुख सूत्र), प्रत्यय (प्रमुख कृदन्त, तद्धित एवं स्त्रीप्रत्यय), शब्दरूप एवं धातुरूप का विशिष्ट ज्ञान होना।
3. हिंदी से संस्कृत एवं संस्कृत से हिंदी भाषा के अनुवाद में दक्षता सिद्ध होना।
4. संस्कृत शब्दकोश के ज्ञान में अभिवृद्धि होना।
5. संस्कृत भाषा में निबंध लेखन की दक्षता सिद्ध होना।
6. भाषा विज्ञान का सामान्य अध्ययन-लाभ होना।
7. प्राचीन भारतीय संस्कृति एवं ग्रंथों का परिचय प्राप्त होना।
8. संस्कृत साहित्य एवं वैदिक साहित्य के इतिहास एवं विशिष्टताओं से परिचित होना।
9. विश्व के प्राचीनतम ग्रंथ ऋग्वेद एवं यजुर्वेद तथा अथर्ववेद के कतिपय सूक्तों का अध्ययन-लाभ होना।
10. सम्पूर्ण कठोपनिषद् एवं श्रीमद्भगवद्गीता के प्रथम एवं द्वितीय अध्याय का अधिगम होना।
11. भारतीय दर्शन परंपरा का परिचय एवं मूल अवधारणाओं का अध्ययन-लाभ प्राप्त होना।
12. दर्शनशास्त्र में तर्कसंग्रह ग्रन्थ का मूलपाठ के साथ अधिगम होना।
13. नीतिपद्यों एवं नीतिकथाओं से व्यवहार-ज्ञान में अभिवृद्धि होना।
14. संस्कृत साहित्य के प्रसिद्ध कवियों के अन्तर्गत महाकवि अश्वघोष, महाकवि भास, महाकवि कालिदास, महाकवि भर्तृहरि, महाकवि बाणभट्ट, महाकवि भारवि, पं. विष्णु शर्मा एवं पं. अम्बिकादत्त व्यास की रचनाओं के कतिपय भागों का मूलपाठ के साथ जानार्जन होना।
15. प्रमुख छंद एवं अलंकारों का ज्ञान प्राप्त होना।
16. काव्यशास्त्र के सरल ग्रंथ काव्यदीपिका का अधिगम होना।
17. भरतमुनिविरचित नाट्यशास्त्र के प्रथम एवं द्वितीय अध्याय का अधिगम होना।
18. संस्कृत विषय में उच्च अध्ययन करने हेतु विशिष्ट ज्ञान की प्राप्ति होना।
19. संस्कृत विषय की विभिन्न प्रतियोगी परीक्षाओं हेतु पूर्वसज्जता सिद्ध होना।
20. भारतवर्ष की प्रतिष्ठास्वरूप संस्कृत एवं संस्कृति का सम्यक् ज्ञान होना।

### Course outcomes

बी. ए. ऑनर्स (संस्कृत) पार्ट-1 परीक्षा 2020-2021

प्रश्नपत्र कूट संख्या - 1651

प्रथम प्रश्न पत्र - संस्कृत काव्य

1. संस्कृत साहित्य के प्राचीन कवियों के अंतर्गत महाकवि अश्वघोष, महाकवि कालिदास तथा महाकवि भर्तृहरि के कवित्व का परिचय।
2. महाकवि अश्वघोषविरचित बुद्धचरितम् (प्रथम सर्ग), महाकवि कालिदासविरचित कुमारसंभवम् (पंचम सर्ग) तथा महाकवि भर्तृहरिविरचित सम्पूर्ण नीतिशतक का अधिगम।
3. संधि, समास एवं प्रकृति-प्रत्ययविवेक आधारित प्रायोगिक व्याकरण का ज्ञानार्जन।

प्रश्नपत्र कूट संख्या - 1652

द्वितीय प्रश्न पत्र - संस्कृत नाटक

1. महाकवि भासविरचित स्वप्नवासवदत्तम् तथा दूतवाक्यम् रूपकों का अधिगम।
2. उपर्युक्त रूपकों के आधार पर संधि, समास एवं प्रकृति-प्रत्ययविवेक आधारित प्रायोगिक व्याकरण का ज्ञानार्जन।

प्रश्नपत्र कूट संख्या - 1653

तृतीय प्रश्न पत्र - संस्कृत गद्य

1. संस्कृत साहित्य के विश्वप्रसिद्ध कथाग्रंथ पंचतंत्र (मित्रभेद) का अधिगम।
2. संस्कृत साहित्य के प्रसिद्ध ऐतिहासिक उपन्यास शिवराजविजयम् (प्रथम विराम के दो निःश्वास) का अधिगम।
3. उपर्युक्त पुस्तकों के आधार पर संधि, समास एवं प्रकृति-प्रत्ययविवेक आधारित प्रायोगिक व्याकरण का ज्ञानार्जन।

प्रश्नपत्र कूट संख्या - 1654

चतुर्थ प्रश्न पत्र - व्याकरण अनुवाद एवं निबंध

1. लघुसिद्धांतकौमुदी के आधार पर हल् संधि एवं विसर्ग संधि का सूत्रोदाहरण सहित अधिगम।
2. संस्कृत व्याकरण के प्रमुख प्रत्ययों का सूत्रोदाहरण सहित अधिगम।
3. अव्ययीभाव, तत्पुरुष, बहुब्रीहि, कर्मधारय, द्विगु तथा द्वन्द्व समास का अधिगम।
4. प्रमुख शब्दरूपों एवं धातुरूपों का अधिगम।
5. हिंदी से संस्कृत अनुवाद करने में दक्षता प्राप्त करना।

6. संस्कृत भाषा में निबंध लेखन की दक्षता प्राप्त करना।

**बी. ए. ऑनर्स संस्कृत पार्ट-2 परीक्षा 2020-2021**

**प्रश्नपत्र कूट संख्या - 2651**

**प्रथम प्रश्न पत्र - संस्कृत काव्य (गद्य एवं पद्य)**

1. महाकवि कालिदास, महाकवि भारवि एवं महाकवि बाणभट्ट के कवित्व का परिचय।
2. रघुवंशम् (13वाँ सर्ग), किरातार्जुनीयम् (प्रथम सर्ग) तथा शुकनासोपदेश का अधिगम।

**प्रश्नपत्र कूट संख्या - 2652**

**द्वितीय प्रश्न पत्र - नाटक, छन्द एवं अलंकार**

1. महाकवि कालिदास के विश्वप्रसिद्ध नाटक अभिज्ञानशाकुंतलम् का संपूर्ण अध्ययन।
2. अभिज्ञानशाकुंतलम् नाटक में प्रयुक्त मुख्य छंदों का अधिगम।
3. काव्यदीपिका (अष्टम शिखा) ग्रंथ के अनुसार प्रमुख अलंकारों के लक्षणों का सोदाहरण अधिगम।

**प्रश्नपत्र कूट संख्या - 2653**

**तृतीय प्रश्न पत्र - प्राचीन भारतीय संस्कृति एवं संस्कृत साहित्य का इतिहास**

1. प्राचीन भारतीय संस्कृति के विविध बिंदुओं का अधिगम।
2. रामायण एवं महाभारत महाकाव्य का परिचयात्मक अध्ययन-लाभ।
3. संस्कृत साहित्य के इतिहास के अंतर्गत महाकाव्य, नाटक, गद्यकाव्य, कथा साहित्य, गीतिकाव्य, सुभाषित एवं अलंकार शास्त्र का परिचयात्मक अध्ययन-लाभ।

**प्रश्नपत्र कूट संख्या - 2654**

**चतुर्थ प्रश्न पत्र - भाषाविज्ञान, व्याकरण, अनुवाद एवं निबंध**

1. भाषाविज्ञान का सामान्य अधिगम।
2. लघुसिद्धांतकौमुदी के अन्तर्गत अजन्त पुलिङ्ग प्रकरण (राम तथा सर्व शब्द), अजन्त स्त्रीलिङ्ग प्रकरण (रमा एवं मति शब्द) तथा अजन्त नपुंसकलिङ्ग प्रकरण (ज्ञान एवं वारि) का सूत्र एवं सिद्धियों सहित अधिगम।
3. कारक प्रकरण के प्रमुख सूत्रों एवं वार्तिकों का सोदाहरण अधिगम।
4. हिंदी से संस्कृत अनुवाद करने में दक्षता प्राप्त करना।
5. संस्कृत माध्यम से निबंध लेखन में दक्षता प्राप्त करना।

**बी. ए. ऑनर्स संस्कृत पार्ट-3 परीक्षा 2020-2021**

**प्रश्नपत्र कूट संख्या - 3651**

**प्रथम प्रश्न पत्र - वैदिक साहित्य**

1. ऋग्वेद, यजुर्वेद एवं अथर्ववेद के कतिपय सूक्तों का अधिगम।
2. संपूर्ण कठोपनिषद् का अधिगम।
3. वैदिक साहित्य का परिचयात्मक अधिगम।

**प्रश्नपत्र कूट संख्या - 3652**

**द्वितीय प्रश्न पत्र - भारतीय दर्शन**

1. सम्पूर्ण तर्कसंग्रह ग्रन्थ के मूलपाठ का अधिगम।
2. भगवद्गीता के प्रथम एवं द्वितीय अध्याय का अधिगम।
3. भारतीय दर्शन की मूल अवधारणाओं का परिचयात्मक अधिगम।

**प्रश्नपत्र कूट संख्या - 3653**

**तृतीय प्रश्न पत्र - काव्यशास्त्र एवं नाट्यशास्त्र**

1. काव्यशास्त्र के अंतर्गत काव्यदीपिका (अष्टम शिखा एवं परिशिष्ट अंश को छोड़कर) ग्रंथ का अधिगम।
2. भरतमुनिविरचित नाट्यशास्त्र के प्रथम एवं द्वितीय अध्याय का अधिगम।

**प्रश्नपत्र कूट संख्या - 3654**

**चतुर्थ प्रश्नपत्र - व्याकरण, अनुवाद एवं निबन्ध**

1. लघुसिद्धान्तकौमुदी के तिङन्त प्रकरण के अन्तर्गत भ्वादिगण की भू धातु की सभी लकारों में रूप सिद्धि का अधिगम।
2. लघुसिद्धान्तकौमुदी के तद्धित प्रकरण के प्रमुख प्रत्ययों का सूत्रोदाहरणसहित अधिगम।
3. लघुसिद्धान्तकौमुदी के स्त्रीप्रत्ययों के अन्तर्गत टाप्, डीप्, डीष् एवं डीन् प्रत्ययों का सोदाहरण अधिगम।
4. हिंदी से संस्कृत अनुवाद करने में दक्षता प्राप्त करना।
5. संस्कृत माध्यम से निबंध लेखन में दक्षता प्राप्त करना।

## Program outcomes

### एम.ए. संस्कृत (सी.बी.सी.एस.), 2020-2021

1. वैदिक साहित्य के इतिहास एवं विशेषताओं से परिचय के साथ ऋग्वेद एवं अथर्ववेद के कतिपय सूक्तों, निरुक्त (प्रथम अध्याय), ईशावास्योपनिषद् तथा बृहदारण्यकोपनिषद् (तृतीय अध्याय) का अधिगम।
2. प्राचीन भारतीय संस्कृति के विविध बिन्दुओं, विशेषताओं एवं संस्कृत शास्त्रों के इतिहास का अधिगम।
3. रामायण एवं महाभारत के परिचयात्मक अध्ययन के साथ श्रीमद्भगवद्गीता (द्वितीय अध्याय) तथा याज्ञवल्क्यस्मृति (आचाराध्याय) का अधिगम।
4. संस्कृत विषय में निबंधलेखन दक्षता प्राप्त करना।
5. हिंदी से संस्कृत अनुवाद करने में दक्षता प्राप्त करना।
6. संस्कृत शब्दकोश एवं भाषाज्ञान में वृद्धि होना।
7. भाषाविज्ञान का विशिष्ट अधिगम होना।
8. कारकप्रकरण (सिद्धान्तकौमुदी का), समासप्रकरण (लघुसिद्धान्तकौमुदी का) तथा तद्धित प्रकरण (लघुसिद्धान्तकौमुदी में शैषिक पर्यन्त) का विशेष अधिगम।
9. संस्कृत साहित्य के प्रसिद्ध कवियों एवं संस्कृत साहित्य के इतिहास का विशिष्ट अधिगम।
10. महाकवि कालिदास के व्यक्तित्व एवं कृतित्व का विशेष अध्ययन-लाभ।
11. संस्कृत काव्यशास्त्र के आचार्यों एवं संप्रदायों का अधिगम।
12. भारतीय नाट्यशास्त्र परंपरा में नाट्यशास्त्र (प्रथम, द्वितीय एवं षष्ठ अध्याय) तथा दशरूपक (प्रथम एवं तृतीय प्रकाश) का अधिगम।
13. काव्यशास्त्र के प्रमुख ग्रंथों में साहित्यदर्पण (प्रथम, द्वितीय एवं तृतीय परिच्छेद), काव्यप्रकाश (प्रथम से अष्टम उल्लास पर्यन्त), रसगंगाधर (प्रथम आनन), ध्वन्यालोक (प्रथम उद्योत) एवं वक्रोक्तिजीवितम् (प्रथम उन्मेष) का विशिष्ट अधिगम।
14. संस्कृत महाकाव्यों के अन्तर्गत रघुवंशम् (सर्ग 1,2,6 एवं 13), कुमारसंभवम् (सर्ग 1 से 5), शिशुपालवधम् (प्रथम सर्ग) तथा नैषधीयचरितम् (प्रथम सर्ग) का अधिगम।
15. अन्य पद्य साहित्य में मेघदूतम्, ऋतुसंहारम् (बसन्त ऋतु) तथा नीतिशतकम् का अधिगम।
16. संस्कृत रूपक साहित्य के अन्तर्गत कर्णभारम्, मृच्छकटिकम्, उत्तररामचरितम् एवं वेणीसंहारम् का सम्पूर्ण मूलपाठ सहित अधिगम।
17. संस्कृत गद्य साहित्य के अन्तर्गत कादम्बरी (कथामुख तक) तथा शिवराजविजयम् ( प्रथम विराम के प्रथम एवं द्वितीय निःश्वास) का अधिगम।
18. भारतीय दर्शनशास्त्र परम्परा के अन्तर्गत सांख्यकारिका, वेदान्तसार, तर्कभाषा (प्रामाण्यवाद पर्यन्त), सर्वदर्शनसंग्रह (चार्वाक, जैन एवं बौद्ध मत), ब्रह्मसूत्र शांकरभाष्य (चतुःसूत्री एवं द्वितीय अध्याय में द्वितीय पाद के 1-45 सूत्र), सांख्यतत्त्वकौमुदी (1 से 72 कारिका तक), न्यायसिद्धान्तमुक्तावली (78 वीं कारिका तक), अर्थसंग्रह, योगसूत्र (समाधिपाद, साधनपाद और



विभूतिपाद के 1 से 6 सूत्र), विवेकचूडामणि, आचार्य शंकर का व्यक्तित्व-कृतित्व और वेदान्त दर्शन एवं उसके प्रमुख आचार्यों का अधिगम।

19. संस्कृत विषय में उच्च अध्ययन एवं शोधकार्य करने हेतु विशिष्ट ज्ञान की प्राप्ति होना।
20. संस्कृत विषय की विभिन्न प्रतियोगी परीक्षाओं हेतु पूर्वसज्जता सिद्ध होना।
21. भारतवर्ष की प्रतिष्ठास्वरूप संस्कृत एवं संस्कृति का सम्यक् ज्ञान होना।
22. व्यावहारिक रूप से संस्कृतनिष्ठ सदाचार, विद्या एवं विनय की प्राप्ति होना।

### Course outcomes

#### एम.ए. संस्कृत (सी.बी.सी.एस.)

एम.ए. सेमेस्टर I ( संस्कृत ) 2020-2021

प्रश्न पत्र कूट संख्या M1 SAN 01 CT01

प्रश्न-पत्र - I वैदिक साहित्य

1. वैदिक साहित्य के इतिहास ज्ञानसहित कतिपय संहिता सूक्तों के अध्ययन में निपुणता ।

प्रश्न पत्र कूट संख्या M1 SAN 01 CT02

प्रश्न-पत्र - II सांख्य दर्शन

1. भारतीय दर्शन शास्त्र की सांख्य दर्शन परंपरा का परिचय एवं प्रमुख ग्रन्थ सांख्यकारिका का अधिगम।

प्रश्न पत्र कूट संख्या M1 SAN 01 CT03

प्रश्न-पत्र - III वेदान्त दर्शन

1. भारतीय दर्शन शास्त्र की वेदान्त दर्शन परंपरा का परिचय एवं प्रमुख ग्रन्थ वेदान्तसार का अधिगम ।

प्रश्न पत्र कूट संख्या M1 SAN 01 CT04

प्रश्न-पत्र - IV - नाटक एवं नाट्य शास्त्र

1. संस्कृत की काव्यशास्त्रपरंपरा में नाट्यशास्त्र तथा नाटक साहित्य का अधिगम ।

प्रश्न पत्र कूट संख्या M1 SAN 01 CT05

प्रश्न-पत्र V - व्याकरण एवं अनुवाद

1. संस्कृत की व्याकरणशास्त्रपरंपरा में लघुसिद्धान्तकौमुदी का अधिगम ।

प्रश्न पत्र कूट संख्या M1 SAN 01 CT06

प्रश्न-पत्र VI - संस्कृत शास्त्रों का इतिहास, संस्कृति एवं निबन्ध

1. संस्कृत के शास्त्रीय इतिहास एवं भारतीय संस्कृति का अधिगम तथा निबंधलेखन में निपुणता ।

एम.ए. सेमेस्टर II ( संस्कृत ) 2020-2021

प्रश्न पत्र कूट संख्या M2 SAN 01 CT01

प्रश्न-पत्र -I उपनिषद् साहित्य

1.उपनिषद् साहित्य के परिचयसहित प्रमुख उपनिषदों के मूल पाठ का अध्ययन ।

प्रश्न पत्र कूट संख्या - M2 SAN 01 CT02

प्रश्न-पत्र II - न्यायदर्शन

1.भारतीय दर्शनशास्त्र की न्यायदर्शनपरंपरा के प्रमुख ग्रन्थ तर्कभाषा का अधिगम ।

प्रश्न पत्र कूट संख्या - M2 SAN 01 CT03

प्रश्न-पत्र III - काव्य एवं साहित्य -शास्त्र

1.संस्कृत काव्यशास्त्र तथा खंडकाव्य के अध्ययन में निपुणता ।

प्रश्न पत्र कूट संख्या - M2 SAN 01 CT04

प्रश्न-पत्र IV - साहित्यशास्त्र के आचार्य एवं सम्प्रदाय

1.संस्कृत के साहित्य शास्त्र के प्रमुख आचार्य तथा उनके सम्प्रदायों का अधिगम ।

प्रश्न पत्र कूट संख्या - M2 SAN 01 CT05

प्रश्न-पत्र V - भाषा विज्ञान, व्याकरण एवं अनुवाद

1.भाषा विज्ञान, व्याकरणशास्त्रीय ग्रन्थ तथा अनुवाद का अधिगम ।

प्रश्न पत्र कूट संख्या - M2 SAN 01 CT06

प्रश्न-पत्र VI - आर्ष काव्य एवं स्मृति

1.रामायण एवं महाभारत के परिचयसहित धर्मशास्त्रीय परंपरा के प्रमुख ग्रन्थ याज्ञवल्क्यस्मृति के प्रारंभिक अंश का अधिगम ।

प्रश्न पत्र कूट संख्या - M2 SAN 07 AU01

प्रश्न-पत्र VII - प्राचीन संस्कृत साहित्य

1.विश्व के साहित्य की प्राचीनतम परंपरा और भारतीय साहित्यिक धरोहर का परिचय ।

एम.ए. सेमेस्टर III (संस्कृत) 2020-2021  
प्रश्न पत्र कूट संख्या - M3 SAN 01 CT01

प्रश्न-पत्र I - गद्य, काव्य एवं पुराण

1. संस्कृत गद्यकाव्यपरंपरा के प्रमुख ग्रन्थ शिवराजविजय तथा नैषधीयचरित के प्रारंभिक अंशों के अध्ययनसहित पुराणों के परिचय का अधिगम।

प्रश्न पत्र कूट संख्या - M3 SAN 01 CT02

प्रश्न-पत्र II - संस्कृत कवि

1. संस्कृत साहित्य के प्रमुख कवि तथा उनके साहित्य का परिचय।

प्रश्न पत्र कूट संख्या - M3 SAN 01 EP03 (A)

प्रश्न-पत्र III - काव्य शास्त्र

1. संस्कृत काव्यशास्त्र परंपरा के प्रमुख ग्रन्थ काव्यप्रकाश का अधिगम।

एम.ए. सेमेस्टर III (संस्कृत) 2020-2021

प्रश्न पत्र कोड संख्या M3 SAN 01 EP03 (B)

प्रश्न-पत्र III - वेदान्त दर्शन

1. दर्शनशास्त्र परंपरा में वेदान्तदर्शन के प्रतिनिधि ग्रन्थ ब्रह्मसूत्र के प्रारंभिक अंश तथा उस पर आचार्य शंकर के भाष्य का अधिगम।

प्रश्न पत्र कूट संख्या - M3 SAN 01 EP04 (A)

प्रश्न-पत्र IV- साहित्य शास्त्र

1. संस्कृत साहित्यशास्त्र परंपरा के प्रतिनिधि ग्रन्थ रसगंगाधर तथा ध्वन्यालोक के प्रारंभिक अंशों का अधिगम।

प्रश्न पत्र कूट संख्या M3 SAN 01 EP04 (B)

प्रश्न-पत्र IV - सांख्य दर्शन

1. संस्कृत दर्शनशास्त्रीय परंपरा में सांख्यदर्शन के प्रतिनिधि ग्रन्थ सांख्यकारिका की टीका - सांख्यतत्त्वकौमुदी के अधिगमसहित सांख्यशास्त्रीय तत्वों का परिचय।

प्रश्न पत्र कूट संख्या - M3 SAN 01 EP05 (A)

प्रश्न-पत्र V- संस्कृत नाटक

1. संस्कृत साहित्य की दृश्यकाव्य परंपरा में महाकवि भवभूति एवं भास की प्रतिनिधि रचनाओं उत्तररामचरितम् एवं कर्णभारम् का अधिगम।

**प्रश्न पत्र कूट संख्या - M3 SAN 01 EP05 (B)**

**प्रश्न-पत्र V- न्याय वैशेषिक दर्शन**

1. संस्कृत दर्शनशास्त्रीय परंपरा में न्यायदर्शन के प्रमुख ग्रन्थ न्यायसिद्धान्तमुक्तावली के प्रत्यक्ष खण्ड का अधिगम।

**प्रश्न पत्र कूट संख्या - M3 SAN 01 EP06 (A)**

**प्रश्न-पत्र VI- विशेष अध्ययन - कालिदास (खंडकाव्य एवं नाटक)**

1. भारतीय और संस्कृत साहित्य के प्रमुख महाकवि कालिदास एवं उनके साहित्य का अधिगम।

**प्रश्न पत्र कूट संख्या - M3 SAN 01 EP06 (B)**

**प्रश्न-पत्र VI- वेदान्त दर्शन के प्रमुख आचार्य**

1. भारतीय दर्शनशास्त्रीय परंपरा में वेदान्तदर्शन का परिचय एवं उसके प्रमुख आचार्यों के योगदान का अधिगम।

**एम.ए. सेमेस्टर IV (संस्कृत) 2020-2021**

**प्रश्नपत्र कूट संख्या M4 SAN 01 CT01**

**प्रश्न-पत्र I . काव्य (गद्य, पद्य , और निबन्ध)**

1. संस्कृत की गद्यकाव्य एवं महाकाव्य परंपरा की प्रतिनिधि रचनाओं का अधिगम।

**प्रश्नपत्र कूट संख्या M4 SAN 01 CT02**

**प्रश्न-पत्र II - चार्वाक,बौद्ध एवं जैन दर्शन**

1. भारतीय दर्शनशास्त्रीय परंपरा में नास्तिक दर्शन - चार्वाक, जैन एवं बौद्ध दर्शन का सर्वदर्शनसंग्रह ग्रंथानुसार अधिगम ।

**प्रश्नपत्र कूट संख्या M4 SAN 01 EP03 (A)**

**प्रश्न-पत्र III - साहित्य -शास्त्र - II**

1. संस्कृत साहित्य शास्त्र के प्रमुख ग्रन्थ काव्यप्रकाश एवं वक्रोक्तिजीवितम् के प्रमुख अंशों का अध्ययन।

**प्रश्नपत्र कूट संख्या M4 SAN 01 EP03 (B)**

**प्रश्न-पत्र III - मीमांसा दर्शन**

1. भारतीय दर्शनशास्त्र परंपरा में मीमांसा दर्शन के प्रतिनिधि ग्रन्थ अर्थसंग्रह का अधिगम ।

**प्रश्नपत्र कूट संख्या M4 SAN 01 EP04 (A)**

**प्रश्न-पत्र IV- नाटक एवं काव्य**

1. संस्कृत की दृश्य एवं श्रव्यकाव्य परम्परा में वेणीसंहार नाटक एवं रघुवंश महाकाव्य के प्रथम सर्ग का अधिगम ।

**प्रश्नपत्र कूट संख्या M4 SAN 01 EP04 (B)**

**प्रश्न-पत्र IV - योग दर्शन**

1. भारतीय दर्शनशास्त्र परंपरा में योगदर्शन के प्रतिनिधि ग्रन्थ योगसूत्र का अधिगम।

**प्रश्नपत्र कूट संख्या M4 SAN 01 EP05 (A)**

**प्रश्न-पत्र V- नाट्यशास्त्र**

1. संस्कृत कि नाट्यशास्त्रीय परंपरा में प्रमुख ग्रन्थ नाट्यशास्त्र एवं दशरूपक का अधिगम।

**प्रश्नपत्र कूट संख्या M4 SAN 01 EP05 (B)**

**प्रश्न-पत्र V - न्याय वैशेषिक दर्शन -II**

1. भारतीय दर्शन परंपरा में न्याय दर्शन के प्रमुख ग्रन्थ न्यायसिद्धान्तमुक्तावली का अधिगम।

**प्रश्नपत्र कूट संख्या M4 SAN 01 EP06 (A)**

**प्रश्न-पत्र VI - विशेष अध्ययन - कालिदास (महाकाव्य)**

1. संस्कृत साहित्य के महाकवि कालिदास एवं उनकी रचनाओं का विशेष अधिगम।

**प्रश्नपत्र कूट संख्या M4 SAN 01 EP06 (B)**

**प्रश्नपत्र VI - विशेष अध्ययन - शंकर**

1. भारतीय दर्शन की अद्वैतवेदान्तपरंपरा के प्रमुख आचार्य शंकराचार्य के व्यक्तित्व एवं कृतित्व का विशेष अधिगम।

**प्रश्नपत्र कूट संख्या M4 SAN 07 AU02**

**प्रश्नपत्र VII - प्राचीन भारतीय संस्कृति एवं श्रीमद्भगवद्गीता**

1. प्राचीन भारतीय संस्कृति का परिचय एवं श्रीमद्भगवद्गीता का अधिगम।



## PROGRAM OUTCOMES FOR M.Sc. BOTANY (CBCS)

Plant sciences is now an amalgamation of basic and applied science. Plants besides being the unique capability of plants to trap solar energy and provide food to all cannot be replicated by any system. Conventional studies like plant identification is now being supplemented with molecular techniques like DNA Barcoding. The courses have been designed to benefit all Botany students to study various aspects of plant science including its practical applications. Keeping in mind that these students can take up teaching at different levels, research work in research institutes and or industry, doctoral work, environment impact assessment, biodiversity studies, entrepreneurship, scientific writing relevant topics have been included in the curriculum. Students would be benefited with knowledge of core subjects like plant diversity, physiology and biochemistry, molecular cytogenetics and application of statistics etc. which are offered in these subjects modules on analytical techniques, plant tissue culture and phytochemistry would make them obtain skills in doing research. All the courses in the programme are carefully designed to equip the students for competitive exams like CSIR NET, SET etc. and to write research proposals for grants.

PO1	Understanding the classification of plants from cryptogams to Spermatophyte. Identification of the flora in field. Study of biodiversity in relation to habitat correlate with climate change, land and forest degradation. Application of Botany in agriculture through study of plant pathology. Palaeobotany to trace the evolution of plants.
PO2	Understand the ultrastructure and function of cell membranes, cell communications, signaling, genetics, anatomy, taxonomy, ecology and plant physiology and biochemistry.
PO3	Molecular and Physiological adaptations in plants in response to biotic and abiotic stress. Genes responsible for stress tolerance genetic engineering of plants
PO4	To understand the multi functionality of plant cells in production of fine chemicals. There wide spread industrial applications.

## Overall development

After completion of this course, it will educate students about plant science and inculcate strong fundamentals on modern and classical aspects of Botany, build life skills in Edible mushroom cultivation, Biofertilizer production, Greenhouse maintenance and Seed technology through value-added courses and create platform for higher studies in Botany and facilitate students to take-up successful career in Botany. Maintain a high level of scientific excellence in botanical research with specific emphasis on the role of plants. Create, select and apply appropriate techniques, resources and modern technology in multidisciplinary way. Practice of subject with knowledge to design experiments, analyse and interpret data to reach to an effective conclusion. They would identify, formulate and analyse the complex problems with reaching a substantiated conclusion. Logical thinking with application of biological, physical and chemical sciences. Learning that develops analytical and integrative problem-solving approaches. Best problem-solving skills in students would encourage them to carry out innovative research projects thereby making them to use knowledge creation in depth.

M1BOT01-CT01	BIOLOGY AND DIVERSITY OF ALGAE AND BRYOPHYTES
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## Course Outcomes

After completion of this course, students will be able to

**CO1:** Learn criteria of classification, diversity, life form, reproduction, phylogeny, nutritional and economic importance of the plants.

**CO2:** Develop critical understanding on morphology, anatomy and reproduction.

**CO3:** Develop proficiency in the experimental technique and methods of appropriate analysis of plant of these groups.

**CO4:** Explore many unexplored plants for the economic benefits of human like medicine, biofertilizers and other uses because Rajasthan have diversified climatic condition.

**CO5:** Understand plant origin, evolution and their transition to land habitat because algae and bryophytes are one of the basics of botany.



M1BOT02-CT02	MICROBIOLOGY, MYCOLOGY AND PLANT PATHOLOGY
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**Course Outcomes**

After completion of this course, students will be able to

**CO1:** Understand the general characteristic of archaeobacteria and eubacteria

**CO2:** Develop a good knowledge of characteristics of different microorganisms and their significance.

**CO3:** Understand common characteristics of different classes of fungi with their economic and ecological importance.

**CO4:** Identify plant diseases and their control measures.

**CO5:** Develop skill to perform basic experiments to grow and study vegetative and reproductive structure of microorganism in laboratory.

M1BOT03-CT03	CYTOGENETICS, GENETICS AND PLANT BREEDING
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**Course Outcomes**

After completion of this course, students will be able to

**CO1:** To develop conceptual understanding of chromosomes, law of inheritance, genetic basis of loci, alleles and their linkage.

**CO2:** Comprehend the effect of chromosomal abnormalities in numerical as well as structural changes leading to genetic disorders and study of chromosomal basis of inheritance.

**CO3:** Develop critical understanding of chemical basis of genes and their interactions at population and evolutionary level.

**CO4:** Develop conceptual understanding of plant genetic resources, plant breeding, gene bank and gene pool.

**CO5:** Learning the methods of crop improvement along with development of mapping population in plants, QTL mapping, and molecular marker assisted breeding.

M1BOT04-CT04	PLANT ECOLOGY, CONSERVATION AND EVOLUTION
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**Course Outcomes**

After completion of this course, students will be able to

**CO1:** Understand the concept of population ecology and population genetics.

**CO2:** Learn about community structure and interaction.

**CO3:** Have knowledge of ecosystem functioning and global pollution phenomenon.

**CO4:** Understand concept of biodiversity and conservation strategies.

**CO5:** Conceptualize the phenomenon of evolution and speciation.

M2BOT01-CT05	PTERIDOPHYTES, GYMNOSPERMS AND PALAEOBOTANY
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**Course Outcomes**

After completion of this course, students will be able to

**CO1:** Understand about the evolution of stellar system and heterospory.

**CO2:** Gain knowledge about the general character and classification of pteridophytes.

**CO3:** Understand about the general character of gymnosperms.

**CO4:** Learn about evolutionary relationship of Cycadopsida, Coniferopsida, Gnetopsida, Coniferales

**CO5:** Understand about the basic principle of paleobotany and know about prominent scientist.

M2BOT02-CT06	PLANT DEVELOPMENTAL BIOLOGY AND RESOURCE UTILIZATION
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**Course Outcomes**

After completion of this course, students will be able to

**CO1:** Learn about the organization of meristem and vascular tissue differentiation

**CO2:** Understand about the anatomical structure of stem and roots and learn the genetic and molecular aspects of flower development.

**CO3:** Understand the structure of anther and pollen wall because ultrastructure of pollen grain plays an important role in taxonomy. Evaluate the special structures and types of male and female gametophyte and learn the reproductive process in angiospermic plants.

**CO4:** Understand the mechanism of pollination and fertilization and can relate between embryo, endosperm and seed. Comprehend the causes of polyembryony and apomixis with its classification.

**CO5:** Learn about the ethnobotanical practices and economic importance of plants. Increase an awareness and appreciation of plants and plant products encountered in everyday life of human use

M2BOT03-CT07	CELL AND MOLECULAR BIOLOGY
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**Course Outcomes**

After completion of this course, students will be able to

**CO1:** Understand the structure and function of cell organelle at ultrastructure level

**CO2:** Explore molecular level regulation of cell cycle and cancer.

**CO3:** Understand the nucleic acid structure, replication and transcription mechanism

**CO4:** Develop the knowledge of functioning of protein synthesis machinery

**CO5:** Learn the gene regulation mechanism and basic techniques of genomics and proteomics

M2BOT04-CT08	PLANT GROWTH AND DEVELOPMENT
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**Course Outcomes**

**CO1:** Students will be able to understand the plant-water relationship and various mechanisms of active and passive transportation of molecules across the living membranes.

**CO2:** Students will be able to understand the importance of micro and macro-nutrients on plant growth and development. They will also understand the various factors controlling seed development and germination.

**CO3:** Students will be skilled theoretically about the biosynthesis and physiological effects of various plant growth regulators.

**CO4:** Students will learn about the importance of photoperiods and role of various photoreceptors in flowering.

**CO5:** Students will learn various mechanisms of signal transduction in plants.

M3BOT01-CT09	PLANT BIOCHEMISTRY AND PHYSIOLOGY
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**Course Outcomes**

**CO1:** Students will be able to understand the principles of the thermodynamics. They will also learn about the classification, structure and functions of various biomolecules.

**CO2:** Students will understand the mode of action of enzymes in detail. They will also understand the mechanism of nitrogen fixation in detail.

**CO3:** Students will be skilled theoretically about the mechanism of photosynthesis in C<sub>3</sub>, C<sub>4</sub> and CAM plants.

**CO4:** Students will understand the various pathways of respiration and the mechanism of ATP biosynthesis in mitochondria.

**CO5:** Students will study the plant responses to various biotic and abiotic stresses.

M3BOT02-CT10	PLANT SYSTEMATICS
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**Course Outcomes**

After completion of this course, students will be able to

**CO1:** Understand the theory and practices of describing, naming, classifying and preparing herbarium of plants because such work is essential for understanding of biodiversity and its conservation including nomenclature, principles and evolutionary trends in taxonomy.

**CO2:** Assess terms and concepts related to taxonomy of plants and systems of classification and generalize the characters of the families according to various proposed systems of classification.

**CO3:** Learn about the various terminology used for description of flower characteristics and plant species

**CO4:** Understand the diagnostic features of various angiosperm families

**CO5:** Gain knowledge about role of various discipline in serving as evidence for taxonomic purpose.

M4BOT01-CT11	PLANT TISSUE CULTURE AND GENETIC ENGINEERING
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**Course Outcomes**

- CO1:** Students will be able to understand the hormonal regulation of morphogenesis *in vitro* in plants..
- CO2:** Students will understand the various techniques of protoplast isolation and somatic hybridization. They will also understand the development of variations in somatic cells during *in vitro* conditions.
- CO3:** Students will learn modern tools and techniques of plant genetic engineering.
- CO4:** Students will be able to understand the various methods of plant transformation. They will also study the importance of genetic modified plants in detail.
- CO5:** Students will learn various applications of plant genetic engineering. They will also learn various issues and processes of patenting in plant biotechnology.

M4BOT02-CT12	TOOLS AND TECHNIQUES IN PLANT SCIENCES
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**Course Outcomes**

- After completion of this course, students will be able to
- CO1:** Understand the basic principle of microscopy, centrifugation and electrophoresis
- CO2:** Explore chromatography and spectrophotometry techniques.
- CO3:** Understand the basic principle of bioinformatics
- CO4:** Develop the knowledge of central tendency and dispersion
- CO5:** Learn the application of correlation, regression and analysis of variance

M3BOT03-ET01-A	BIOSYSTEMATICS–I
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**Course Outcomes**

- After completion of this course, students will be able to
- CO1:** Understand the basic principle of taxonomic classification.
- CO2:** Develop the knowledge of rules related with nomenclature.
- CO3:** Understand the basic principles of botanical nomenclature.
- CO4:** Gain the knowledge related with pioneer classification of plants.
- CO5:** Learn about the evolutionary history of angiosperms.

M4BOT03-ET03-A	BIOSYSTEMATICS–II
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**Course Outcomes**

- After completion of this course, students will be able to
- CO1:** Understand the method of plant collection and preservation of samples.
- CO2:** Learn about the documentation of taxonomic literature.
- CO3:** Assess the concept of evolution of characters and their application in taxonomy
- CO4:** Gain the knowledge of current advancement in plant taxonomy
- CO5:** Explore evolutionary history of angiosperm

M3BOT03-ET01-B	PRINCIPLES OF PATHOLOGY AND PLANT DISEASES
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**Course Outcomes**

After completion of this course, students will be able to

**CO1:**Apply the conceptual and the practical training to differentiate between a healthy and disease plant in field.

**CO2:**Isolation and Identification of plant pathogen.

**CO3:**To ascertain the cause of the disease by Koch's Postulates.

**CO4:**To Know the source, symptoms and etiology of diseases of major concern.

**CO5:**To know about Disease forecasting

M4BOT03-ET03-B	MOLECULAR PLANT PATHOLOGY AND DISEASE MANAGEMENT
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**Course Outcomes**

After completion of this course, students will be able to

**CO1:**Plant disease diagnosis by serological and molecular methods.

**CO2:**To learn the application of information technology and bioinformatics in plant pathology.

**CO3:**To have a brief idea about GIS and Remote sensing techniques in plant pathology.

**CO4:**To know about institute of repute of plant pathology in India and Abroad.

**CO5:**Learn about integrated pest management to reduce the risk of use of chemical agents for control

M3BOT03-ET01-C	BIOLOGY AND EVOLUTION IN BRYOPHYTES-I
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**Course Outcomes**

After completion of this course, students will be able to

**CO1:**Develop critical understanding on characterization, reproduction, evolution of gametophytes and sporophytes of bryophytes.

**CO2:**Understand the comparative knowledge of Hepaticopsida, Anthocerotopsida, Bryopsida.

**CO3:**Recall and recognize the contributions of legends of bryology such as S.R. Kashyap, P.N. Mehra, S.K. Pande and Ram Udar along with the understanding of morphology and germination of spores.

**CO4:**Understand the mechanism of protonemal differentiation and bud formation and can relate the factors affecting physiology of reproduction.

**CO5:** Explore micro techniques used in bryological study and understand the economic importance of this ignored group of plants.

M4BOT03-ET03-C	BIOLOGY AND EVOLUTION IN BRYOPHYTES-II
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**Course Outcomes**

After completion of this course, students will be able to

- CO1:** Learn about the various life cycle pathway of bryophytes.
- CO2:** Gain knowledge about photomorphogenesis of liverworts and mosses.
- CO3:** Understand role of bryophytes as indicator species.
- CO4:** Explore the conduction mechanism in the bryophytes.
- CO5:** Study the importance of model bryophytes for scientific research.

M3BOT03-ET01-D	RESTORATION ECOLOGY
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**Course Outcomes**

After completion of this course, students will be able to

- CO1:** Understand about role of habitat in species conservation.
- CO2:** Gain knowledge about the ecosystem functioning in disturbed ecosystem.
- CO3:** Develop basic understanding of restoration ecology
- CO4:** Learn about the case studies of restoration of degraded ecosystem.
- CO5:** Understand about role of biotechnology in solving the environmental problems.

M4BOT03-ET03-D	CONSERVATION BIOLOGY
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**Course Outcomes**

After completion of this course, students will be able to

- CO1:** Understand the population dynamics for conservation purpose
- CO2:** Learn about the life history pattern
- CO3:** Basic principles of conservation genetics
- CO4:** Gain knowledge about genetic differentiation, geneflow and molecular variance
- CO5:** Skilled about conservation genetics using study of some case studies

M3BOT04-ET02-A	PLANT BIOENERGETICS AND APPLIED BIOCHEMISTRY
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**Course Outcomes**

After completion of this course, students will be able to

- CO1:** Learn about the bioenergetics of photosynthesis
- CO2:** Gain knowledge about various fluorescence parameters
- CO3:** Understand metabolism related with carbohydrate and fatty acid
- CO4:** Understand biosynthetic pathway of amino acids
- CO5:** Learn about concept of stress physiology

M4BOT04-ET04-A	SECONDARY METABOLITES AND BIOPROCESS ENGINEERING
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**Course Outcomes**

After completion of this course, students will be able to

**CO1:** Understand different types of secondary metabolites and Knowledge generation of medicinal plants and various bioactive molecules

**CO2:** Study basic pathway for production of secondary metabolites and Standardization of isolation and extraction protocols of Secondary metabolites

**CO3:** Learn about different types of bioreactors and concept of bioprocess engineering and Scale up production of Secondary metabolites

**CO4:** Understand role of culture system in production of important drugs. Drug discoveries from medicinal plants.

**CO5:** Learning of genetic engineering tools for heterologous expression of genes to enhance secondary metabolite production, concept generation of functional foods and Nutraceuticals

M3BOT04-ET02-B	PRINCIPLES OF MICROBIAL TECHNOLOGY
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**Course Outcomes**

After completion of this course, students will be able to

**CO1:** Learn about principles of fermentation technology, types of bioreactors and bioprocess parameters

**CO2:** Understand the overall fermentation process

**CO3:** Learn about strain selection and their improvement from the point of industry

**CO4:** Gain knowledge about the downstream processing

**CO5:** Develop the understanding of aerobic and anaerobic fermentation technology

M4BOT04-ET04-B	APPLICATIONS OF MICROBIAL TECHNOLOGY
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**Course Outcomes**

After completion of this course, students will be able to

**CO1:** Understand role of microorganism in agriculture.

**CO2:** Gain knowledge about the application of microbes in environmental studies

**CO3:** Learn about microbial degradation of pesticides and toxic chemicals

**CO4:** Understand the role of micro-organisms in food industry

**CO5:** Assess the role of microbes in preservation technology

M3BOT04-ET02-C	ADVANCED PHYCOLOGY
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**Course Outcomes**

After completion of this course, students will be able to

- CO1:** Learn about the different types of culture media used for algal culture
- CO2:** Gain knowledge about the molecular systematics of algae
- CO3:** Understand molecular mechanisms of photodamage and photoprotection
- CO4:** Learn about pigments of algae for photosynthesis
- CO5:** Understand the role of toxins in algal blooms and their ecological implications

M4BOT04-ET04-C	APPLIED PHYCOLOGY
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**Course Outcomes**

After completion of this course, students will be able to

- CO1:** Understand application of algae for biodiesel production
- CO2:** Learn about the high value by-products of bioprocess engineering
- CO3:** Understand the role of algae in nanoparticle synthesis and nanoecotoxicology
- CO4:** Gain knowledge about role of algae in bioremediation
- CO5:** Understand the genetic engineering of algae

M3BOT04-ET02-D	APPLIED PLANT SCIENCES
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**Course Outcomes**

Overall, the paper has been designed to inculcate the basic and applied knowledge and skill enhancement with a view of entrepreneurship, self-employment and livelihood security among PG students of plant sciences. After completion of this course, students will be able to

- CO1:** To make the students aware about organic farming, biofertilizers and sustainable agriculture package and practices for productivity enhancement.
- CO2:** To learn different nursery and gardening techniques.
- CO3:** To get the knowledge and scope of landscape gardening and cultivation of flowers of commerce.
- CO4:** To make them aware about the pest and pathogens of plants of ornamental and floriculture value.
- CO5:** To get them aware about the Intellectual Property Rights, Copyrights and how to draw a patent for biological specimens/ processes, etc.

M4BOT04-ET04-D	COMMERCIALIZATION OF MICROPROPAGATION TECHNOLOGIES
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**Course Outcomes**

After completion of this course, students will be able to

**CO1:** Learn about the micropropagation technology

**CO2:** Commercialization of micropropagation technique

**CO3:** Understand about greenhouse technology

**CO4:** Understand application of micropropagation technology for commercialization of important groups of plants

**CO5:** Understand the industrial scale setup based on micropropagation

DEPARTMENT OF ECONOMICS  
UNIVERSITY COLLEGE OF SOCIAL SCIENCES & HUMANITIES, MLSU, UDAIPUR  
M.A. I SEMESTER 2021-22 Merit list of Economics(CBCS)

SNO	NAME	FATHERNAME	MOTHERNAME	GENDER	STUDENTCATEGORY
1	ANJALI RANGI	MR.BAGDESH RANGI	MRS.RADHA RANGI	F	SC
2	ARJUN LAL MEENA	MR.LACHCHI RAM MEENA	MRS.GANGA DEVI	M	ST
3	ASHIN KUMAR CA	MR.AJIT KUMAR CS	MRS.SHUJITHA CS	M	GENERAL
4	CHARMY JAIN	MR.SURESH KUMAR JAIN	MRS.MEENA JAIN	F	GENERAL
5	DILIP SINGH SARANGDEVOT	MR.ONAR SINGH SARANGDEVOT	MRS.GOVIND KUNWAR	M	GENERAL
6	GAVESH PUROHIT	MR.RAMESHWAR LAL MENARIYA	MRS.VIMLA MENARIYA	M	GENERAL
7	GYANCHAND CHOUDHARY	SHRI.BALURAM CHOUDHARY	SMT.GOVIND DEVI	M	OBC(NON CREAMY LAYER)
8	JAYESH WADHWA	MR.RAM KUMAR WADHWA	MRS.SANGEETA WADHWA	M	GENERAL
9	KANIKA SOLANKI	MR.KULDEEP SOLANKI	MRS.RENU SOLANKI	F	GENERAL
10	KANISHKA SALVI	MR.GOVERDHAN LAL SALVI	MRS.RANJANA SALVI	F	SC
11	KAPIL KUMAR MEENA	MR.SHANTI LAL MEENA	MRS.TULSI DEVI	M	ST
12	MAN SINGH CHOUHAN	MR.MAKAN SINGH CHOUHAN	MRS.SATU DEVI	M	ECONOMICALLY WEAKER SECTION
13	MOHIT GURJAR	MR.BABULAL GURJAR	MRS.CHAND KUNWAR	M	MBC(NON CREAMY LAYER)
14	MONA MANGAL	MR.TARUN MANGAL	MRS.BABITA MANGAL	F	GENERAL
15	NISHITA SONI	MR.PUSHKARLAL SONI	MRS.RADHA DEVI	F	OBC(NON CREAMY LAYER)
16	PRADEEP GAMETI	MR.PREM GAMETI	MRS.KANKU BAI	M	ST
17	PRIYA DANGI	MR.SANJAY KUMAR DANGI	MRS.TARA DANGI	F	GENERAL
18	RAKESH TANK	MR.GANPAT LAL	MRS.PUSHPA DEVI	M	OBC(NON CREAMY LAYER)
19	RATAN LAL	MR.RAGHU LAL	MRS.MATHRA DEVI	M	OBC(NON CREAMY LAYER)
20	ROHIT NAGDA	MR.DILIP NAGDA	MRS.GEETA NAGDA	M	GENERAL
21	SANJAY KUMAR	MR.SAVA	MRS.KAMLA DEVI	M	ST
22	VAIBHAV KACHHARA	MR.MAMLESH KACHHARA	MRS.SNEHLATA KACHHARA	M	GENERAL

DEPARTMENT OF ECONOMICS I SEM. PROVISIONAL ADMISSION FORM 2020-21

Sl. No.	Name of Student	Father's Name	Mother's Name	Gender	Category
1	AKSHITA SAXENA	MR.RAGHUNANDAN SAXENA	MRS.RASHMI SAXENA	F	GENERAL
2	ANEESH SINGH GARASIYA	MR.SARDAR SINGH GARASIYA	MRS.KANTA DEVI GARASIYA	M	GENERAL
3	ANJALI PRAJAPAT	MR.RAJENDRA PRAJAPAT	MRS.VARSHA PRAJAPAT	F	OBC(NON CREAMY LAYER)
4	CHANDAN KUMAR	MR.BHURA RAM	MRS.PABU DEVI	M	SC
5	DINESH KUMAR SHESMA	MR.MAKHAN LAL	MRS.CHANDA DEVI	M	OBC(NON CREAMY LAYER)
6	FATIMA ATTARI	MR.ASHFAQ HUSSAIN ATTARI	MRS.ZUMMANA ATTARI	F	GENERAL
7	HRITHIK MEHTA	MR.SANJEEV MEHTA	MRS.SONAL MEHTA	M	GENERAL
8	IRUM AMAR	MR.SIKANDER ALI AMAR	MRS.SHAHNAZ AMAR	F	GENERAL
9	JAYLALITA DINDOR	MR.PRABHULAL DINDOR	MRS.RAKU DINDOR	F	ST
10	JYOTI BHATT	MR.RAJENDRA BHATT	MRS.KUNDAN BHATT	F	GENERAL
11	JYOTI RANA	MR.OM SINGH RANA	MRS.RENU RANA	F	GENERAL
12	KRISHNA BHATI	MR.PUKHRAJ BHATI	MRS.MADHU BHATI	F	SC
13	LALITA CHOUHAN	MR.BHERU SINGH CHOUHAN	MRS.SOHAN CHOUHAN	F	GENERAL
14	LAYBA NOOR	MR.SHAHDAD KHAN	MRS.SHAHIDA KHANAM	F	GENERAL
15	MANOHAR LAL KHARADI	MR.HAJA RAM KHARADI	MRS.LAXMI DEVI	M	ST
16	NAGMA SHEIKH	MR.MOHD. ISRARUL HAK SHEIKH	MRS.SALMA BEGUM	F	GENERAL
17	NIDHI ACHARYA	MR.LOKESH ACHARYA	MRS.SUMAN ACHARYA	F	GENERAL
18	PUSHKER LAL SUTHAR	MR.ROOP LAL SUTHAR	MRS.CHANDA DEVI	M	OBC(NON CREAMY LAYER)
19	RAHUL KUMAR NANAMA	MR.NANA LAL NANAMA	MRS.KAVITA DEVI NANAMA	M	ST
20	RAJPUT MANISA BHAGWAN	MR.BHAGWAN SINGH RAJPUT	MRS.REKHA KUNWAR	F	GENERAL
21	RISHABH MEHTA	MR.SANJEEV MEHTA	MRS.SONAL MEHTA	M	GENERAL
22	SIMRAN MOTWANI	MR.SURESH MOTWANI	MRS.SANGITA MOTWANI	F	GENERAL
23	SONU KUNWAR RANAWAT	MR.NAHAR SINGH RANAWAT	MRS.JANAK KUNWAR	F	GENERAL
24	VIKARAM CHANDRA GURJAR	MR.BABU LAL GURJAR	MRS.SAYRI BAI	M	MBC(NON CREAMY LAYER)

S. no.	Registration no.	Name of the Student	Father's Name	Mother's Name	Gender	Category
1	M21P115480	ANJALI WANGI	MR. BAGDESH BANGI	MRS. RADHA BANGI	W	OBC(NON CREAMY LAYER)
2	M21P144193	ARJUN LAL MEENA	MR. LACHCHI RAM MEENA	MRS. GANGA DEVI	W	OBC(NON CREAMY LAYER)
3	M21P122552	ASHIK KUMAR CA	MR. AJIT KUMAR CS	MRS. SHIITHA CS	W	GENERAL
4	M21P169988	CHARMY JAIN	MR. SURESH KUMAR JAIN	MRS. MEENA JAIN	W	GENERAL
5	M21P130093	DILIP SINGH SARANGDEVOT	MR. ONAB SINGH SARANGDEVOT	MRS. GOVIND KUNWAR	W	GENERAL
6	M21P156269	GAVESH PURDHIT	MR. RAMESHWAR LAL MENARIYA	MRS. VINILA MENARIYA	W	SC
7	M21P184015	GHANCHAND CHOUDHARY	SHRI. BALURAM CHOUDHARY	SMT. GOVIND DEVI	W	GENERAL
8	M21P155818	JAYESH WADHWIA	MR. RAM KUMAR WADHWIA	MRS. SANGEETA WADHWIA	W	ECONOMICALLY WEAKER SECTION
9	M21P147773	KANKA SOLANKI	MR. KULDEEP SOLANKI	MRS. RENU SOLANKI	W	ST
10	M21P132305	KANUSHA SALVI	MR. GOVERDHAN LAL SALVI	MRS. BANJANA SALVI	W	GENERAL
11	M21P169939	KAPIL KUMAR MEENA	MR. SHANTI LAL MEENA	MRS. TULSI DEVI	W	ST
12	M21P181230	MAN SINGH CHOUDHAN	MR. MAKAN SINGH CHOUDHAN	MRS. SATU DEVI	W	ST
13	M21P136656	MOHIT GUJAR	MR. BABULAL GUJAR	MRS. CHAND KUNWAR	W	OBC(NON CREAMY LAYER)
14	M21P127337	MONA MANGAL	MR. TARUN MANGAL	MRS. BABITA MANGAL	W	GENERAL
15	M21P161543	NIJITHA SONI	MR. PUSHKARLAL SONI	MRS. RADHA DEVI	W	GENERAL
16	M21P177960	PRADEEP GAMETI	MR. PREN GAMETI	MRS. KANKU BAI	W	GENERAL
17	M21P158718	PRIYA DANGI	MR. SANJAY KUMAR DANGI	MRS. TARA DANGI	W	OBC(NON CREAMY LAYER)
18	M21P187341	RAKESH TANK	MR. GANPAT LAL	MRS. PUSHPA DEVI	W	GENERAL
19	M21P131064	RAVAN LAL	MR. BAGHU LAL	MRS. MATHRA DEVI	W	ST
20	M21P160449	ROHIT NAGDA	MR. DILIP NAGDA	MRS. GEETA NAGDA	W	GENERAL
21	M21P115783	SANJAY KUMAR	MR. SAVA	MRS. KAMILA DEVI	W	SC
22	M21P130286	VAIBHAV KACHHARA	MR. MAMLESH KACHHARA	MRS. SNEHLATA KACHHARA	W	GENERAL



## M.A. I SEM 2022-23

SNO	NAME	FATHERNAME	MOTHERNAME	MOBILENO
1	LAKSHITA SONI	MR.MANOJ SONI	MRS.DEEPA SONI	7414049975
2	KHUSHI SHRIMALI	MR.SUSHIL SHRIMALI	MRS.LEENA SHRIMALI	9352689386
3	KESAR KHATIK	MR.MADAN LAL KHATIK	MRS.PUSHPA DEVI	9521627563
4	TANISHA JAIN	MR.SANDEEP JAIN	MRS.SAROJ JAIN	6377099162
5	KIRTI DEVRA	MR.MANO HAR DEVRA	MRS.PRAMILA DEVRA	9887845269
6	KASHISH SUMAN	MR.SURENDRA DEV SUMAN	MRS.SHEETAL SUMAN	9079780755
7	BHAVYA RATHORE	MR.VIKRAM JEET SINGH RATHORE	MRS.RAJSHREE RATHORE	8107659875
8	SHAIFALI NATHIYA BHAGYASHREE	MR.SUNIL KUMAR TAILOR MR.BHAGWAT SINGH	MRS.SONAL	9587485043
9	CHOUHAN	CHOUHAN	MRS.NIRU KUNWAR	9588890332
10	ASHISH ROAT	MR.RAMESH ROAT	MRS.KESHAR DEVI	7023059661
11	HEMLATA MEENA	MR.KANIRAM MEENA	MRS.NALINI DEVI	6377897139
12	VIKRAM MEENA	MR.NARAYAN LAL MEENA	MRS.SHARDA DEVI	7727024883
13	EKTA AGRAWAL	MR.RAKESH AGRAWAL	MRS.SONIYA AGRAWAL	9352975871
14	AKSHAT SHARMA	MR.RAKESH SHARMA	MRS.MEENU SHARMA	9461329554
15	DHEERAJ JAIN	MR.MANOJ KUMAR JAIN	MRS.MANJULA JAIN	9602947464
16	SHIVANI SHARMA	MR.MAHIPAL SHARMA	MRS.SEEMA SHARMA	7665117394

Provisional Merit List for Admisson M.A. ECONOMICS(CBCS),UCSSH,MLSU-2022-23

Merit No.	Name	Father's Name	Category	Degree	Merit %	Weightage/Faculty	Final Merit %	Remarks
1	ASHISH ROAT	MR. RAMESH ROAT	ST	B. A.	76.16	5	81.16	
2	AAKARSH PANERI	MR. LAXMIKANT PANERI	GENERAL	B. A.	74	5	79	
3	KHUSHI SHRIMALI	MR. SUSHIL SHRIMALI	GENERAL	B. A.	71.32	5	76.32	
4	CHRISTIE LATTA	MR. BRATAN KUMAR LATTA	ST	B. A.	69.63	5	74.63	
5	GORANG MEENA	MR. RATULAL MEENA	ST	B.E/B-Tech	72.34		72.34	
6	GARIMA MEENA	MR. BANSHI LAL MEENA	ST	B. A.	65.32	5	70.32	
7	EKTA AGRAWAL	MR. RAKESH AGRAWAL	GENERAL	B. A.	64.42	5	69.42	
8	DHEERAJ JAIN	MR. MANOJ KUMAR JAIN	GENERAL	B. A.	64.05	5	69.05	
9	AKSHAT SHARMA	MR. RAKESH SHARMA	GENERAL	BA HONS	63.11	5	68.11	
10	LAKSHITA SONI	MR. MANOJ SONI	GENERAL	B. A.	63.15	5	68.1	
11	KESAR KHATIK	MR. MADAN LAL KHATIK	SC	B. A.	62.74	5	67.74	
12	BHAVYA RATHORE	MR. VIKRAM JEET SINGH RATHORE	GENERAL	B. COM	65.5	-	65.5	T.C. Migration
13	SHANKAR SINGH RAO	MR. HARI SINGH RAO	OBC(NON CREAMY LAYER)	B. A.	59.11	5	64.11	
14	SHIVANI SHARMA	MR. MAHIPAL SHARMA	GENERAL	BBM/BB A	62.27		62.27	

III year student  
B.A. HONS



15	BHAGYASHREE CHOUHAN	MR. BHAGWAT SINGH CHOUHAN	GENERAL	B. SC.	61.38				61.38	
16	ASHISH KUMAR	MR. MAN BAHADUR	GENERAL	BCA (SEM)	61				61	
17	HEMLATA MEENA	MR. KANIRAM MEENA	ST	B. A.	54.58	5			59.58	
18	PUSHPENDRA CHOUHARY	MR. MOHANLAL CHOUHARY	OBC(NON CREAMY LAYER)	B. A.	53.72	5			58.72	
19	HITESH KUMAR	MR. TEJRAM MEENA	ST	B. COM	56.95				56.95	
20	VIKRAM MEENA	MR. NARAYAN LAL MEENA	ST	B. COM	56.9				56.9	
21	RAJU AHIR	MR. CHUNNI LAL AHIR	OBC(NON CREAMY LAYER)	B. SC.	56.8				56.8	
22	MANOJ NAYAK	MR. KHEM RAJ NAYAK	SC	B. COM	52.9				52.9	
23	TANISHA JAIN	MR. SANDEEP JAIN	GENERAL	B. A.	80.05	5			5	B.A.III year marksheet not attach
24	KIRTI DEVRA	MR. MANOHAR DEVRA	OBC(NON CREAMY LAYER)	B. A.	0	5			5	B.A.III year marksheet not attach
25	KASHISH SUMAN	MR. SURENDRA DEV SUMAN	SC	B. A.	0	5			5	B.A.III year marksheet not attach
26	RONAK TANWAR	MR. NARPAT SINGH	GENERAL	B. A.	0	5			5	B.A.III year marksheet not attach
27	SHAIFFALI NATHIYA	MR. SUNIL KUMAR TAILOR	GENERAL	B. A.	74.8	5			5	B.A.III year marksheet not attach
28	GAURI BHOI	MR. NARAYAN LAL BHOI	OBC(NON CREAMY LAYER)	BBM/BB A	0				0	B.A.III year marksheet not attach

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Provisional Merit List for Admission M.A. ECONOMICS(CBCS), UCSSH, MI, SU-2022-23

Merit No	Name	Father's Name	Category	Degree	Merit %	Weightage/Faculty	Final Merit %	Remarks
1	ASHISH ROAT	MR. RAMESH ROAT	ST	B. A.	76.16	5	81.16	
2	AAKARSH PANERI	MR. LAXMIKANT PANERI	GENERAL	B. A.	74	5	79	
3	KHUSHI SHRIMALI	MR. SUSHIL SHRIMALI	GENERAL	B. A.	71.32	5	76.32	
4	CHRISTIE LATTA	MR. BRATAN KUMAR LATTA	ST	B. A.	69.63	5	74.63	
5	GORANG MEENA	MR. RATULAL MEENA	ST	B.E/B. Tech	72.34		72.34	
6	GARIMA MEENA	MR. BANSHI LAL MEENA	ST	B. A.	65.32	5	70.32	
7	EKTA AGRAWAL	MR. RAKESH AGRAWAL	GENERAL	B. A.	64.42	5	69.42	
8	DHEERAJ JAIN	MR. MANOJ KUMAR JAIN	GENERAL	B. A.	64.05	5	69.05	
9	AKSHAT SHARMA	MR. RAKESH SHARMA	GENERAL	BA HONS	63.11	5	68.11	
10	LAKSHITA SONI	MR. MANOJ SONI	GENERAL	B. A.	63.11	5	68.11	
11	KESAR KHATIK.	MR. MADAN LAL KHATIK	SC	B. A.	62.74	5	67.74	
12	BHAVYA RATHORE	MR. VIKRAM JEET SINGH RATHORE	GENERAL	B. COM	65.5		65.5	
13	SHANKAR SINGH RAO	MR. HARI SINGH RAO	OBC(NON CREAMY LAYER)	B. A.	59.11	5	64.11	
14	SHIVANI SHARMA	MR. MAHIPAL SHARMA	GENERAL	BBM/BB A	62.27		62.27	



BHAGYASHREE CHOUHAN	MR. BHAGWAT SINGH CHOUHAN	GENERAL	B. SC.	61.38			61.38	
ASHISH KUMAR	MR. MAN BAHADUR	GENERAL	BCA (SEM)	61			61	
HEMLATA MEENA	MR. KANIRAM MEENA	ST	B. A.	54.58	5		59.58	
PUSHPENDRA CHOUHARY	MR. MOHANLAL CHOUHARY	OBC(NON CREAMY LAYER)	B. A.	53.72	5		58.72	
HITESH KUMAR	MR. TEJRAM MEENA	ST	B. COM	56.95			56.95	
VIKRAM MEENA	MR. NARAYAN LAL MEENA	ST	B. COM	56.9			56.9	
RAJU AHIR	MR. CHUNNILAL AHIR	OBC(NON CREAMY LAYER)	B. SC.	56.8			56.8	
MANOJ NAYAK	MR. KHEM RAJ NAYAK	SC	B. COM	52.9			52.9	B.A.III year marksheet not attach
TANISHA JAIN	MR. SANDEEP JAIN	GENERAL	B. A.	0.5			5	
KIRTI DEVRA	MR. MANOHAR DEVRA	OBC(NON CREAMY LAYER)	B. A.	0	5		5	B.A.III year marksheet not attach
KASHISH SUMAN	MR. SURENDRA DEV SUMAN	SC	B. A.	0.5			5	B.A.III year marksheet not attach
RONAK TANWAR	MR. NARPAT SINGH	GENERAL	B. A.	0.5			5	B.A.III year marksheet not attach
SHAIFALI NATHIYA	MR. SUNIL KUMAR TAILOR	GENERAL	B. A.	0.5			5	B.A.III year marksheet not attach
GAURI BHOI	MR. NARAYAN LAL BHOI	OBC(NON CREAMY LAYER)	BBM/BB A	0			0	B.A.III year marksheet not attach

Provisional Merit List for Admission M.A. ECONOMICS(CBCS), UCSSH, M.L.S.U-2022-23

Sl. No.	Name	Father's Name	Category	Degree	Merit %	Weightage/Faculty	Final Merit %	Remarks
1	ASHISH ROAT	MR. RAMESH ROAT	ST	B. A.	76.16	5	81.16	
2	AAKARSH PANERI	MR. LAXMIKANT PANERI	GENERAL	B. A.	74	5	79	
3	KHUSHI SHRIMALI	MR. SUSHIL SHRIMALI	GENERAL	B. A.	71.32	5	76.32	
4	CHRISTIE LATTA	MR. BRATAN KUMAR LATTA	ST	B. A.	69.63	5	74.63	
5	GORANG MEENA	MR. RATULAL MEENA	ST	B.E/B-Tech	72.34		72.34	
6	GARIMA MEENA	MR. BANSHI LAL MEENA	ST	B. A.	65.32	5	70.32	
7	EKTA AGRAWAL	MR. RAKESH AGRAWAL	GENERAL	B. A.	64.42	5	69.42	
8	DHEERAJ JAIN	MR. MANOJ KUMAR JAIN	GENERAL	B. A.	64.05	5	69.05	
9	AKSHAT SHARMA	MR. RAKESH SHARMA	GENERAL	BA	63.11	5	68.11	
10	LAKSHITA SONI	MR. MANOJ SONI	GENERAL	HONS	63.15	5	68.1	
11	KESAR KHATIK	MR. MADAN LAL KHATIK	SC	B. A.	62.74	5	67.74	
12	BHAVYA RATHORE	MR. VIKRAM JEET SINGH RATHORE	GENERAL	B. COM	65.5		65.5	
13	SHANKAR SINGH RAO	MR. HARI SINGH RAO	OBC(NON CREAMY LAYER)	B. A.	59.11	5	64.11	
14	SHIVANI SHARMA	MR. MAHIPAL SHARMA	GENERAL	BBM/BB A	62.27			

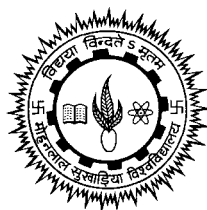


BHAGYASHREE CHOUHAN	MR. BHAGWAT SINGH CHOUHAN	GENERAL	B. SC.	61.38		61.38	
ASHISH KUMAR	MR. MAN BAHADUR	GENERAL	BCA (SEM)	61		61	
HEMLATA MEENA	MR. KANIRAM MEENA	ST	B. A.	54.58	5	59.58	
PUSHPENDRA CHOUDHARY	MR. MOHANLAL CHOUDHARY	OBC(NON CREAMY LAYER)	B. A.	53.72	5	58.72	
HITESH KUMAR	MR. TEJRAM MEENA	ST	B. COM	56.95		56.95	
VIKRAM MEENA	MR. NARAYAN LAL MEENA	ST	B. COM	56.9		56.9	
RAJU AHIR	MR. CHUNNI LAL AHIR	OBC(NON CREAMY LAYER)	B. SC.	56.8		56.8	
MANOJ NAYAK	MR. KHEM RAJ NAYAK	SC	B. COM	52.9		52.9	B.A.III year marksheet not attach
TANISHA JAIN	MR. SANDEEP JAIN	GENERAL	B. A.	0	5		
KIRTI DEVRA	MR. MANOHAR DEVRA	OBC(NON CREAMY LAYER)	B. A.	0	5		B.A.III year marksheet not attach
KASHISH SUMAN	MR. SURENDRA DEV SUMAN	SC	B. A.	0	5		B.A.III year marksheet not attach
RONAK TANWAR	MR. NARPAT SINGH	GENERAL	B. A.	0	5		B.A.III year marksheet not attach
SHAIFALI NATHIYA	MR. SUNIL KUMAR TAILOR	GENERAL	B. A.	0	5		B.A.III year marksheet not attach
GAURI BHOI	MR. NARAYAN LAL BHOI	OBC(NON CREAMY LAYER)	BBM/BB A	0		0	B.A.III year marksheet not attach

**MOHANLAL SUKHADIA UNIVERSITY: UDAIPUR**

**SYLLABUS  
OF  
ECONOMICS**

**FACULTY OF SOCIAL SCIENCE**



MA Economics CBCS

**2019-20** onwards



**DEPARTMENT OF ECONOMICS**  
**UNIVERSITY COLLEGE OF SOCIAL SCIENCES AND HUMANITIES**  
**MOHANLAL SUKHADIA UNIVERSITY : UDAIPUR**

**Programme Specific Outcomes of MA Economics (CBCS)**

- PSO1: This programme will develop conceptual clarity of economic phenomena among students.
- PSO2: The students will be able to discuss and explain theories related to Economics.
- PSO3: This programme is designed to develop critical thinking skills among students. They will be able to correlate economic theory with everyday problems in real world.
- PSO4: This programme will enable the students to apply the mathematical and statistical techniques to evaluate the validity of an economic argument.
- PSO5: The students will be able to discuss the current economic issues and problems with the clear understanding of theoretical framework.
- PSO6: This programme will provide the students a well structured learning framework and environment for Economics.
- PSO7: Through this programme students will be well acquainted with the core branches of Economics.
- PSO8: This programme provides an opportunity to the students to be specialized in a particular branch of Economics.
- PSO9: This programme opens job avenues for students especially in economic data analysis and jobs required understanding and application of Economics
- PSO10: This programme gives a thorough exposure about Indian Economy and Economy of Rajasthan as well as Global Economic Scenario. So students will be able to compare the economic aggregates in national and international perspective.

**Paper Code: *MIECO01-CT-01***

**M.A. ECONOMICS  
SEMESTER I  
CORE PAPER- I  
MICRO ECONOMICS**

**Course Outcome:**

**CO1:** This course develops the basic idea of fundamentals of Micro Economics and market mechanism.

**CO2:** It enhances the ability of students to discuss economic concepts in an articulate manner in a classroom.

**CO3:** It develops the reasoning ability of the students to understand the consumer behaviour and producers' behaviour in real market situation market.

**UNIT I**

**Theory of Consumer Behaviour -I**

Utility analysis – Cardinal Approach - Law of Demand , Elasticity of Demand, Ordinal Approach- Indifference Curve Approach, Derivation of Demand Curve, Consumer's Equilibrium, Price, Income and Substitution Effect: Normal, Inferior and Giffen Goods, Consumers' Surplus.

**UNIT II**

**Theory of Consumer Behaviour-II**

Compensated demand curve, Recent Developments in the Theory of Demand – Constant Elasticity of Demand Function, Linear Expenditure System, Lancaster's Theory, Revealed Preference Theory, Consumer Behaviour under Uncertainty & Risk- N-M Theorem, Individual Consumer behavior towards Risk, Asset Portfolio Selection.

**UNIT III**

**Theory of Production**

Production function – Short Run: Law of Variable Proportions and Long Run: Returns to Scale, Economies and Diseconomies of Scale, Isoquants-Least Cost Combinations of Inputs, Elasticity of Technical Substitution, Technical Progress and Production Function.

## UNIT IV

### **Theory of Product Pricing-I**

Cost Concepts, Cost Curves- Short Run & Long Run Curves, L-Shaped Long Run Cost Curves, Concept of Revenue, Revenue Curves-TR, AR, MR and their Relationship, Break-Even Analysis.

Theory of Supply- Law of Supply and Elasticity of Supply.

## UNIT- V

### **Theory of Product Pricing II.**

Price and Output Determination under Perfect Competition- Short run & long Run Analysis

Price & output Determination under Monopoly- Short run & long Run Analysis, Price Discrimination under Monopoly, Regulation and Control.

Monopolistic Competition- General and Chamberlin Approach to Equilibrium, Selling Costs, Excess Capacity.

### **Reading List:**

- Ahuja, H.L. (Latest Addition), Advanced Economic Theory, Sultan Chand and Company, New Delhi (Hindi and English Versions).
- Misra and Puri .(Latest Addition), Advanced Economic Theory, Himalaya Publishing Company, Bombay (Hindi and English Versions).
- Barla, C.S. .(Latest Addition), Advanced Micro Economics, National Publishing House, Jaipur, New Delhi (Hindi and English Versions).
- Jhingan, M.L. (Latest Addition), Advance Economic Theory, Vrinda Publication, New Delhi (Hindi and English Versions).
- Koutsoyiannis, A. (1979), Modern Microeconomics, (2nd Edition), Macmillan Press, London.
- Kreps, David M. (1990), A Course in Microeconomic Theory, Princeton University Press, Princeton
- Mankiw, G. (2010), Principles of Microeconomics, 6<sup>th</sup> ed., South-Western College Publication, USA.

- Salvatore D. (2006), *Microeconomics-Theory and Applications*, Oxford University Press
- Salvatore D, (2002) *Theory and Problems of Microeconomic Theory*, Schaum's Outline Series, McGraw-Hill Book Company, Singapore.
- Varian, H. (2000), *Microeconomic Analysis*, W.W. Norton, New York.
- Varian, H. (2003), *Intermediate Microeconomics*, East-West Press. Additional
- Karl E. Case and Ray C. Fair, (2007), *Principles of Economics*, 8th Ed., Pearson Education Inc.



**Paper Code: M1ECO02-CT-02**

**M.A. ECONOMICS  
SEMESTER – I  
CORE PAPER – II  
MACRO ECONOMICS**

**Course Outcome:**

- CO1:** This course enables the students to learn about the development of various theories and approaches of macro economics like classical, Keynesian, Monetarist, New classical theories and New Keynesian theory.
- CO2:** Macro economics deals with the study of economic aggregates like income, employment, interest rates and the price level. It analyses various theories of determination of National Income in greater detail.
- CO3:** It covers various theories related to consumption and investment.
- CO4:** It also introduces students to concept of inflation, its relationship with unemployment and some basic concepts related to it.

**UNIT – I**

National Income – Concepts, Measurement and problem in measurement of National Income. Circular flow of Income in two, three and four sector Economy, Different forms of National Income Accounting – Social Accounting, Green Accounting.

**UNIT II**

Classical and keynesian theory of income and employment. Introduction to AS-AD model. Derivation of AD-AS curve (with varying price level), Shift in AD and AS curve, Short run and long run AD and AS curve. Classical and Keynesian view on AS-AD model.

Macro Equilibrium with AS-AD model (short run and long run)

**UNIT – III**

Consumption Function- Meaning, Keynes' Psychological Law of Consumption. Theories of consumption- Absolute Income, Relative Income, Life Cycle and Permanent Income Hypothesis.

Investment – Meaning, types of investment, Marginal Efficiency of Investment, Marginal Efficiency of Capital. Theories of Investment- The Accelerator theory of

Investment, Duesenberry Financial theory of Investment, Jorgenson Neo-Classical theory of Investment.

#### UNIT – IV

Main features of the New Classical Macroeconomics: Efficient market hypothesis; Rational

Expectation Model- Anticipated and Unanticipated shocks, Policy irrelevance; Basic Proposition of Supply side economics. New Keynesian models of price stickiness: The Mankiw model.

#### UNIT – V

Inflation – Classical, Keynesian and Monetarist approaches to inflation, Structuralist theory of inflation; Philips curve analysis - Short run and long run Philips curve; Tobin's modified Philips curve. Samuelson and Solow - the natural rate of unemployment hypothesis.

Policies to control inflation.

#### **Reading List:**

- Ackley, G. (1978) – Macroeconomics: Theory and Policy, McMillan, New York.
- Branson, W.A. (1989) Macroeconomic Theory and Policy, (3<sup>rd</sup> Edition) Harper and Row, New Delhi.
- Dornbusch, Fischer, Startz-Macroeconomics, The McGraw Hill Company Ltd., New York.
- H.L. Ahuja –Advanced Macro Economic Theory, S Chand and Co. New Delhi
- Shapiro, E. (1996) – Macroeconomic Analysis, Galgotia Publications, New Delhi.
- Keynes, J. M. (1936) – The General Theory of Employment, Interest and Money, Macmillan, London.
- M.L. Jhingan- Macro Economic Theory, Vrinda publication, New Delhi
- Romar, D. L. (1996) – Advanced Macroeconomics, McGraw Hill Company Ltd., New York.
- Patinkin, D. (1965) – Money, Interest and Prices. Haper and Row, New York.
- Culbertson, J. M. (1968) – Macroeconomic Theory and Stabilization Policy, McGraw Hill, Kogenkoshi, Tokyo.
- Friedman, M. (1957) – The Theory of Consumption Function, Princeton University Press, Princeton.

- Duesenberry, J. S. (1949) – Income saving and the Theory of Consumer Behaviour, Harvard University Press, Harvard.
- Hicks, J. R. (1950) – A contribution to the Theory of Trade Cycles, Clarendon Press, Oxford.
- Hicks, J. R. (1974) – The Crisis in Keynesian Economics, Oxford University Press, New Delhi.
- Frisch, H. (1983) – Theories of inflation, Cambridge University Press, Cambridge.
- Turnovsky, S. J. (1977) – Macroeconomic Analysis and Stabilization Policy, Cambridge University Press, Cambridge.
- Mithani, D.M. – Macroeconomics, Himalaya Publishing Company, New Delhi.
- Mankiew.G. – Macroeconomics, Worth publishers, Newyork.
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***MIECO03-CT-03***

**M A ECONOMICS  
SEMESTER I  
CORE PAPER-III  
PUBLIC ECONOMICS**

**Course Outcome:**

**CO1:** To make students understand the theories and concepts of Public Economics.

**CO2:** To understand the Government Economic Policy's Goals, Targets and Mechanism

**CO3:** To understand the Importance and Uses of Government Economic Policy Instruments and their Effects on Economy.

**CO4:** To understand the Interdependency between Public and Private sector.

**UNIT I**

Meaning and Scope-Classical, Keynesian and modern approach on Public economics, Public Finance and Private finance-Similarities and Dissimilarities, Major Fiscal Functions, Concept of Social Goods, Merit good, Club good.

**UNIT II**

Public Expenditure-Reasons for increase in Public Expenditure, Pattern of Public Expenditure, Pure Theories of Public Expenditure-British Classical Views, Lindahl, Pigou and Samuelson's Principles, General Theories-Wagner's Hypothesis, Peacock-wiseman's Hypothesis, Economic effects of Public Expenditure.

**UNIT III**

Public revenue-Tax and Non-Tax Revenue, Taxation-Objectives, Tax Ratio, Tax Elasticity, Theories of Taxation-Benefit Theory, Ability to Pay Theory, Principle of Maximum Social Advantage, Objectives of Taxation for Developing Countries, Role of Taxes in Economic Development

**UNIT IV**

Public Debt-Classical, Keynesian and Post-Keynesian Approaches, Importance and Problems of Public Debt, Economic Effects of Public Debt, Methods of Debt Redemption, Burden of Public Debt, Management of Public Debt, Deficit Financing

**UNIT V**

Fiscal Policy- Concept and Objectives, Theories-Automatic and Discretionary Fiscal Policies, Fiscal Policy and Economic Development, Budget- Classification and Principles, Types of Budgets, Budgetary Deficits.

**Reading List:**

- Hindrick, Jean and Gareth D Myles (2006): Intermediate Public Economics, Prentice Hall of India
- Singh, S. K (2010): Public finance-Theory and Practice, 6th ed, S Chand, New Delhi.
- Andley and Sundaram (2006): Public Economics and Public Finance, Ratan Prakash, Agra.
- Kennedy, Maria John (2012): Public Finance, Prentice Hall of India.
- Hajela, T N(2010): Public Finance, 3rd ed, Ann's Books, New Delhi
- Agarwal, R.C (2007): Public Finance Theory and Practice, Leksmi Narayan Agarwal, Agra,India.
- Mithani, D M(1998): Modern Public Finance, 1st ed, Himalaya Publishing House, New Delhi.
- Lekhi, R K (2003): Public Finance, Kalyani Publications, New Delhi.

**MIECO04-CT-04**

**M.A. ECONOMICS  
SEMESTER I  
CORE PAPER- IV  
MATHEMATICAL METHODS FOR ECONOMICS**

**Course Outcome:**

**CO1:** This course imparts the knowledge of various mathematical techniques used for economic analysis.

**CO2:** It train the students to apply these techniques to economic theory in general like, explaining the relationship among economics variables, calculating maxima and minima, explaining the time path of variables etc.

**CO3:** It also develops the skill of students to use matrix algebra in solution of economic models.

**UNIT I**

**Matrix and Determinant**

Matrix – Concept of Matrix and their types, Simple operations on Matrices, Inverse of Matrices.

Determinants and their Properties, Solution of Simultaneous Equations through Cramer's Rule and Inverse Matrix Method.

**UNIT II**

**Differential Technique**

Simple Differentiation – Process of Differentiation, Rules of Differentiation, Partial and Total Differential

**UNIT III**

**Integration Technique**

Integration – Simple Rules of Integration, Integration by parts, Integration by substitution, Integration by Partial Fraction and Definite Integration.

**UNIT IV**

**Application of Differential and Integration**

Problems of maxima and minima in single and multivariable functions; Unconstrained and constrained optimization

Application to Cost and Revenue Functions and Consumer's Surplus.

## UNIT V

### Differential and Difference Equations

Differential Equations- Introduction, non-linear and linear differential equations of the first order and first degree. Solutions of differential equations when variables are separable, homogenous equations and non-homogenous equations,

Difference equations – Solution of first order and second order difference equations.

### Reading List:

- Allen, R.G.D. (1974) – Mathematical Analysis for Economists, Macmillan Press and ELBS, London.
- Black, J. and J.F. Bradley (1973), Essential Mathematics for Economists, John Wiley and Sons.
- Chiang, A.C. (1986), Fundamental Methods of Mathematical Economics (3<sup>rd</sup> Edition), McGraw Hill, New Delhi.
- Handry, A. T. (1999) – Operations Research, Prentice Hall of India, New Delhi.
- Madnani, G.M.K.- Arthshastra Me Ganit Ke Prayog .(Hindi Version)
- Mehta, B.C. and Madnani, G.M.K. (2008) – Mathematics for Economists, Sultan Chand and Company, New Delhi.
- Nathuramka L.N. (2016), Arthshastra Me Ganit Ke Prayog, College Book House, Jaipur.(Hindi Version)
- Simon C.P. and L. Blume (2010), Mathematics for Economists, W.W. Norton & Company, New York.
- Sydsaeter K. And P.J. Hammond (2002), Mathematics for Economic Analysis, Pearson Education India.
- Veerachamy.R (2002), Quantitative Methods for Economists, New Age International Publisher, New Delhi.
- Yamane, Taro (1975), Mathematics for Economists, Prentice Hall of India, New Delhi.

**MIECO05-CT-05**

**M.A. ECONOMICS  
SEMESTER- I  
CORE PAPER- V  
GROWTH AND DEVELOPMENT ECONOMICS**

**Course Outcome:**

**CO1:** The students will be able to understand the theories of growth and development, difference between the two and importance of both in current scenario.

**CO2:** It explains the social and institutional aspects of development and infrastructure-linkages.

**CO3:** It helps them to understand the importance of domestic macroeconomic policies importance of agriculture and the rationale and pattern of industrialization for development in developing countries.

**UNIT 1**

**Introduction**

Concepts of Growth and Development. Measurement and Determinants of Development, Indicators of Development – Basic Needs Approach, GDP, PCI, PQLI, HDI, Gender Empowerment Measure (GEM), Gender Inequality Index, Human Poverty Index. Rise in International inequalities.. Structural Diversity and common characteristics of Developing and Developed Nations. Sustainable Development.

**UNIT II**

**Issues in Economic Growth and Development**

Factors of Economic Growth and Development, Obstacles to Growth and Development, Vicious Circle of Poverty, Features of Modern Economic growth, Modern Growth and the rise in International Inequalities- The inverted U-hypothesis, Structural Changes under Development, Economic Growth and Social Justice.

**UNIT III**

**Theories of Growth and Development II**



Theories of Development -Malthus, Karl Marx & Schumpeter, Rostow's Stages of Economic Growth, Harvey Leibenstein's Critical Minimum Effort Thesis, Nelson's Theory of Low Level Equilibrium Trap.

#### **UNIT IV**

##### **Theories of Growth and Development II**

Growth Balanced and Unbalanced Growth- Nurkse Model, Rosenstein Rodan's Big Push Theory, Hirschman's Strategy, Lewis and Fei-Ranis Models, Theories of Dualism- Social, Technological, International and Financial. Myrdal's Theory of Circular Causation.

#### **UNIT V**

##### **Domestic and International Measures for Economic Development**

Capital formation and Economic Development, Role of Agriculture and Industry in Economic Development, Terms of Trade between Agriculture and Industry.

Role of Monetary and Fiscal Policy in Economic Development. Prices, Inflation and Economic Development. Foreign Trade and Economic Development.

##### **Reading List:**

- Behrman, S. and T.N. Srinivasan (1995). Handbook of Development Economics, Vol. 3, Elsevier, Amsterdam.
- Ghatak, S. (1986). An introduction to Development Economic, Allen & Unwin, London.
- Jhingan, M.L. (2016) – Economics of Growth and Development, Vrinda Publication. (English & Hindi Version)
- Kapila, Uma, Ed. (1980). Indian Economy Since Independence, Vol.1, Academic Foundation, Delhi.
- Little, I. M. D. & J. E. Mirrlees (1974). Project Appraisal and Planning for Developing Countries, Basic Books, New York.
- Meier, G.M. and James E. R. (2006). Leading Issues in Economic Development, Oxford University Press, New York.
- Puri, V.K. and S.K. Misra (2016). Economics of Development and Planning, Himalaya Publishing House, New Delhi.
- Singh, S.P.(2001). Economic Growth and Planning, Himalaya Publishing House, New Delhi.
- Ray, Debraj-(2004). Development Economics, Oxford University Press, New Delhi

- Taneja, M. L. and R. M. Myer (2008). Economics of Development and Planning, Vishal Publishing Company, Jalandhar.
- Thirwall, A.P.(1999). Growth and Development with special reference to developing economics, Macmillan and ELBS, London.
- Todaro, M. P. (1996) (6<sup>th</sup> edition). Economic Development, Longman, London.

**MIECO06-CT-06**

**M A ECONOMICS  
SEMESTER I  
CORE PAPER-VI  
HISTORY OF ECONOMIC THOUGHT**

**Course Outcome:**

**CO1:** The course develops critical analytical skills and exposes students to understanding the historical perspective on the evolution and process of transformation of economic thought.

**CO2:** The students learn the major ideas associated with thinker studied, and there by better comprehend the origins of contemporary theory.

**CO3:** This course allows students to place the theories and ideas studied within the context of the times in which they developed.

**UNIT-I**

History of Economic Thought-Subject Matter and Importance, Ancient Economic Thought, Medieval Economic Thought, Mercantilism and Physiocracy

**UNIT-II**

Classical Economic Thought-Development and Characteristics, Adam Smith, Thomas Robert Malthus, David Ricardo

**UNIT-III**

Socialist Economic Thought- Robert Owen, Charles Fourier, Pierre Joseph Proudhon, Johan Karl Rodbertus, Karl Marx

**UNIT IV**

Neo-Classical Thought- Alfred Marshall, John Maynard Keynes, Some Modern Economists- Schumpeter, Leonal Robbins, J R Hicks.

**UNIT -V**

Indian Economic Thought-Kautilya, Raja Rammohan Rai, Mahatma Gandhi, B R Ambedkar, Jawaharlal Nehru, J K Mehta.

**Reading list:**

- L.H. Haney, History of Economic Thought
- Eric Roll, A History of Economic Thought

- Gide & Rist, A History of Economic Doctrines
- J.F.Bell, A History of Economic Thought
- M.C.Vaish, Aarthik Vicharon Ka Itihas,2002,S.Chand & Co., New Delhi
- J.C.Pant & M.L.seth, Aarthik Vicharon Ka Itihas,2015,Laxmi Narain Agarwal, Agra
- Bell John Fred (1963), History of Economic Thought, the Ronald Press Company, New York
- Bhatia, H.L (1980), History of Economic Thought, Vikas publishing house Pvt. Ltd. India.
- Schumpeter, J.A. (1954), History of Economic Analysis, Oxford University Press, New York.
- Seshadri, G.B. (1997), Economic Doctrines, B.R. Publishing Corporation, Delhi.

**M2ECO01-CT-07**

**M.A. ECONOMICS**

**SEMESTER II**

**CORE PAPER- I**

**ADVANCED MICRO ECONOMICS**

**Course Outcome:**

**CO1:** This course will formed the theoretical foundation of the students about pricing in imperfect market conditions and enable them to apply in real market situations.

**CO2:** This paper enhanced the understanding of various concepts and theories of welfare economics.

**CO3:** The students will be able to demonstrate the theories related to factor market and its equilibrium .

**Unit I**

**Market Behaviour I**

Oligopoly-Non collusive Sollutions: Cournot Model, Bertrand Model, Paul Sweezy's Kinked Demand Curve Model and Stakelberg Model; Collusive Solutions: Cartel and Price Leadership Model.

Pricing of Public Utility Services-Marginal Cost pricing Rule, No Profit –No Loss Policy, Profit-Price Policy

**Unit II**

**Market Behaviour II**

Full Cost Pricing Theory, Baumol's Sales Maximisation Model, Williamson's Model of Managerial Discretion, Marris Model of Managerial Enterprise, Bain's Limit Pricing Theory.

**Unit III**

**Theory of Distribution**

Marginal Productivity Theory, Theory of Product Exhaustion.

Wages-Determination of Wages in Competitive Market (Modern Theory), Monopsony in Labour Market.

Rent- Ricardian Theory, Modern Theory, Quasi Rent.

Interest- Classical Theory, Keynesian Theory, Loanable Fund Theory and Modern Theory.

Profit- Dynamic Theory, Innovation Theory, Risk Theory, Uncertainty-Bearing Theory, , Shackle's Theory and Modern Theory.

#### **Unit IV**

##### **General Equilibrium and Welfare Economics**

Partial and General Equilibrium, Walrasian Approach to General Equilibrium.

Welfare Economics- Pigouvian Welfare Economics, Pareto Optimal Conditions, Kaldor Hicks Compensation Criterion. Bergson's Social Welfare function, Point of Bliss, Theory of Second Best, Arrow's Impossibility Theorem, Rawl's Theory of Justice, Equity- Efficiency Trade off.

#### **Unit-V**

##### **Theories of Insurance, Search and Assymmetric Information**

Insurance – Risk Aversion theories, The Insurance Market and Adverse Selection. Moral Hazard and Allocate Inefficiency, Choice between Insurance and Gambling.

Theories of Search, Information Problem and Markets with Asymmetric Information: Problems of Lemons- Asymmetric Information and the Market Failure –The adverse selection, Market Signaling. Behavioural Economics- A new branch of Economics.

##### **Reading List:**

- Ahuja, H.L. (Latest Addition), Advanced Economic Theory, Sultan Chand and Company, New Delhi (Hindi and English Versions).
- Misra and Puri .(Latest Addition), Advanced Economic Theory, Himalaya Publishing Company, Bombay (Hindi and English Versions).
- Barla, C.S. .(Latest Addition), Advanced Micro Economics, National Publishing House, Jaipur, New Delhi (Hindi and English Versions).
- Jhingan, M.L. (Latest Addition), Advance Economic Theory, Vrinda Publication, New Delhi (Hindi and English Versions).
- Koutsoyiannis, A. (1979), Modern Microeconomics, (2nd Edition), Macmillan Press, London.

- Kreps, D. M. (1990), A Course in Microeconomic Theory, Princeton University Press, Princeton
- Mankiw, G. (2010), Principles of Microeconomics, 6<sup>th</sup> ed., South-Western College Publication, USA.
- Salvatore D. (2006), Microeconomics-Theory and Applications, Oxford University Press
- Salvatore D, (2002) Theory and Problems of Microeconomic Theory, Schaum's Outline Series, McGraw-Hill Book Company, Singapore.
- Varian, H. (2000), Microeconomic Analysis, W.W. Norton, New York.
- Varian, H. (2003), Intermediate Microeconomics, East-West Press. Additional
- Karl E. Case and Ray C. Fair, (2007), Principles of Economics, 8th Ed., Pearson Education Inc.

**Paper Code: M2ECO02-CT-08**

**M.A. ECONOMICS 2017-18**  
**SEMESTER – II**  
**CORE PAPER – II**  
**ADVANCED MACRO ECONOMICS**

**Course Outcome:**

- CO1:** The present course is designed to acquaint the students with the functioning of the monetary and financial sector in India.
- CO2:** It covers different approaches and theories related to demand for and supply of money and rate of interest.
- CO3:** It also deals with the Concept and various theories of business cycles..
- CO4:** The operation of financial markets and their regulation are to be studied to appreciate their key role in an economy, especially after the far-reaching financial sector reforms in India.

**UNIT – I**

Supply of Money: Measures and Determinants of money supply, High Powered Money and Money Multiplier. Monetary policy – Meaning, Objectives, Targets and Instrument. Latest Monetary policy. Measures to Control of Money Supply.

**UNIT – II**

Quantity Theory of Money – Fisher's equation and Cambridge approach, Keynesian Restatement Quantity Theory of Money, Its superiority over Traditional Theory and its criticism.

Post Keynesian approaches to Demand for Money – Patinkin Real Balance Effect, Approaches of Baumol and Tobin, Friedman Modern Quantity Theory,

**UNIT – III**

Neo-classical, Keynesian and Modern view of Interest, The IS-LM model – Derivation of LM curve and IS curve, Dynamic Disequilibrium: Explaining Fluctuations with the IS – LM



Model; Extension of IS-LM model with government sectors, Relative Effectiveness of Monetary and fiscal policies.

#### UNIT – IV

Business Cycle Theories – Schumpeter, Kaldor, Samuelson, Goodwin and Hick's Theories, Real Business cycle theory. Measures to Control of Business Cycles.

#### UNIT V

Financial System in India – Structure and functions of financial markets; Money market and its constituents-Call money market, Treasury bill market, Commercial bill market, Repo market; Capital market- Government securities market; Corporate security market; Primary and secondary market for securities; SEBI-Objectives, functions and its performance in the working of capital market in India.

Financial Sector Reforms in India.

#### Reading List

- Melvin : International Money and Finance
- Ackley, G. (1978) – Macroeconomics: Theory and Policy, McMillan, New York.
- Chandeller, L.V. and Goldfeld, S. H. : The Economics of Money and Banking
- G. Crowther : An Outline of Money
- Gurley and Shaw : Money in a Theory of Finance
- H.L. Ahuja –Advanced Macro Economic Theory, S Chand and Co. New Delhi.
- Sayers, R.S. : Modern Banking
- Gupta, S.B. : Monetary Economics: Institutions, Theory and Policy
- Gupta, S.B. : Monetary Planning for India
- M.L. Jhingan- Macro Economic Theory, Vrinda publication, New Delhi.
- Mitthani, D.M. – Money and Banking, Himalaya Publishing Company, New Delhi.
- Patinkin, D. (1965) – Money, Interest and Prices, Harper and Row, New York.
- Tarapore S.S. : Issues in Financial Sector Reforms
- Stoneir and Shapiro : Money and Banking
- Sethi, T.T. – Monetary Economics, Laxmi Narayan Agarwal, Agra.
- Sethi, M. L. – Money and Banking, Lakshmi Narayan Agrawal, Agra.
- Ojha, B.L. – Money Banking and Public Finance, Ramesh Book Depo., Jaipur.
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***M2ECO03-CT-09***

**M A ECONOMICS  
SEMESTER II  
CORE PAPER-III  
INDIAN PUBLIC FINANCE**

**Course Outcome:**

**CO1:** To understand the Federal Economic System of Indian Government and its component.

**CO2:** To Understand the Economic Resource of Indian government institutions and Distribution's criteria.

**CO3:** To Understand the Taxation, Debt and Expenditure Policies and Problems of Indian Government Institutions.

**CO4:** To Understand the Budget, Finance Commission Report and Fiscal Policy their role in economy.

**UNIT – I**

Indian Federal Finance-Brief History, Constitutional Provisions ,Centre-State Financial Relations, Financial Imbalances, Finance Commissions and their functions, Detailed study of latest Finance commissions and its recommendations. Issues Between centre-State Financial Relations.

**UNIT – II**

Public Expenditure in India- Development and Non-Development, Plan and Non-Plan Expenditure, Major heads of Expenditure of Government of India. Trends and Issues of Expenditure of Centre and State, Reasons for increase in Public Expenditure,

**UNIT – III**

Indian Tax System-Major trends in Tax Revenue, Tax-GDP Ratio, Structural Changes in Tax Revenue, Structural Changes in Direct and Indirect Taxes, Elasticity of Tax Revenue, Burden of Indian Taxes, Problems of Taxation in India, Major Tax Reforms, GST and Its Implications,

**UNIT-IV**

Public Debt in India- Reasons and Trends for Increase in Internal and External Debt of Centre Government, Burden of Public Debt in India, Public Debt of State Governments, Public Debt and Development Finance in India, Is India in Debt Trap?

#### UNIT – V

Fiscal Policy In India-Objectives, Evaluation of Effectiveness of Fiscal Policy in India, Challenges of Maintaining Fiscal Deficit, Recent Tax Reform Measures, Deficit Financing In India, Detailed Study of Latest Budget of Government of India.

#### **Reading List:**

- J.R.Gupta, Public Economics in India, 3<sup>rd</sup> Edition, 2017, Atlantic Publication, New Delhi
- Bhatia, H. L. (Latest) – Public Finance: Theory and Practice, Vikas Publication House, New Delhi
- Stiglitz, J. E. (1986) – Economic of Public Sector, Norton, New York.
- Mundle, S. (1999) – Public Finance Policy: Issues for India, Oxford University Press, New Delhi.
- Andley, K.K. and K.P.M. Sundharam – Public Finance: Theory and Practice, S. Chand and Company, New Delhi
- Bhargava, P. K. (1991) – India's Fiscal Crisis, Ashish Publishing House, New Delhi.
- Reports of Various Finance Commissions
- Government of India Budget (Latest)
- Government of India Long term Fiscal Policy
- Economic Survey, Government of India.

**Paper Code: M2ECO04-CT-10**

**M.A.ECONOMICS**

**SEMESTER – II**

**CORE PAPER – IV**

**ELEMENTARY STATISTICS AND ECONOMETRICS**

**Course Outcome:**

**CO1:** The basic aim of this course is to acquaint the students with various Statistical Methods (techniques) and basic econometrics.

**CO2:** This Paper covers those statistical tools which are frequently used in social sciences research such as estimation, hypothesis testing, Regression & correlation, concept and use of probability theory

**CO3:** The Econometrics part covers the basic concept and estimation of ordinary least square method which is essential for practical understanding of economic relations and framing economic models

### **UNIT-I**

Central Tendency and Dispersion: Measures of central tendency: Mean, Median, Mode. Measures of dispersion: Range, Mean Deviation, Standard deviation, coefficient of variation. Skewness and Kurtosis.

Correlation and Regression: Correlation; Simple, Coefficient of correlation – Karl Pearson and Rank Correlation,

Regression analysis – Estimation of regression line in a bivariate distribution – Least squares method, interpretation of regression coefficients.

### **UNIT- II**

Time series analysis: Concepts and components, Determination of Regular Trend and Seasonal Indices.

Index numbers – Concept, Price relative, Quantity relative and Value relative, Index Methods – Laspeyer's, Pasche's and Fisher, Family budget method, Problems in the construction and limitations of Index Numbers, Test for ideal Index Number.

### **UNIT-III**

Probability Theory and Distribution: Elementary Probability Theory, addition and multiplication theorems, Bay's theorem, Random variables, Mathematical Expectation. Probability distribution: Binomial, Poisson and Normal.

### **UNIT-IV**

Basic Econometrics- Nature, Meaning and Scope of Econometrics, Goals of Econometrics, Methodology of Econometric Research. The Simple Linear Regression Model -Ordinary Least-Squares Method, Assumptions and Properties of OLS Estimations(without derivation), Gauss Markov's Theorem, Numerical Application of Regression Analysis. Concept of  $R^2$ , Statistical Tests of Significance of the OLS Estimates – T test and their Numerical Application in OLS estimation.

### **UNIT-V**

Problems in Regression Analysis- Autocorrelation, Multicollinearity, Heteroscedasticity – Nature and Causes.

Meaning and uses of Dummy variables; Reasons and role of Lags in Economics; Difference between Autoregressive and Distributed Lag Model.

Simultaneous equation models- Nature and meaning.

#### **Reading List:**

- Allen, R.G.D. : Mathematical Analysis for Economists.
- Black, J. and J.F. Bradley : Essential Mathematics for Economists.
- Chiang, A.C. : Fundamental Methods of Mathematical Economics.
- Croxton, F.E., D.J. Cowden and : Applied General Statistics.
- Gupta, S.P. – Statistical Methods.
- Nagar, A.L. and Das, R.K. (1993) – Basic Statistics, Oxford University Press, New Delhi.

- Gupta, S.C. – Fundamentals of Applied Statistics, Sultan Chand and Sons, New Delhi
- Rao, N.S., Suthar, S.P., Gupta, S.L. (2008) – Business Statistics, Arvind Prakashan, Udaipur.
- Mehta and Madnani – Elementary Mathematics in Economics, Educational Publisher, Agra.
- Gupta, S.C. and V.K. Kapoor : Fundamentals of Applied Statistics.
- Spiegel, M.R. : Theory and Problems of Statistics.
- Agarwal, D.R. : Quantitative Methods (Mathematics and Statistics)
- Gujrati, D. (1995), Basic Econometrics, (3rd Edition), McGraw Hill, New Delhi.
- Johnston, J. and J.D. Nardo (1997), Econometric Methods, McGraw Hill, New York.
- Mmenta, J. (1997), Elements of Econometrics, Michigan Press, New York.
- Koutsoyiannis, A. (1977), Theory of Econometrics, (2nd Edition), The Macmillan Press Ltd., Hampshire.
- Maddala, G.S. (1993), Econometrics – An Introduction, McGraw Hill, New York

*M2ECO05-CT-11*

**M.A. ECONOMICS**

**SEMESTER- II**

**CORE PAPER- V**

**ECONOMICS OF DEVELOPMENT AND PLANNING**

**Course Outcome:**

**CO1:** This course enables students to understand the models of economic development and their application for underdeveloped or developing economies.

**CO2:** It discuss important issues in the context of development such as, role of Population, International Trade, importance of domestic macroeconomic policies, investment criteria, and theory of economic planning.

**CO3:** It explains the project evaluation techniques, which will enable them to evaluate the profitability of projects.

**UNIT I**

**Population, Human Capital formation and Economic Development**

Population and Economic Development - Theory of Demographic Transition, Population as Limit to Growth and as Ultimate Source.

Human Capital Formation – Meaning, Need and Objectives. Measures, Problems and Limitations of Human Capital Formation. Criteria of Human Capital Formation.

**UNIT II**

**Models of Economic Development I**

Harrod and Domar Growth Models, Neo Classical Growth Models – Solow and Meade, Mrs. Joan Robinson's Growth Model- Golden Rule of Accumulation, Kaldor Model of Distribution.

**UNIT III**

**Models of Economic Development II**

Models of Technical Change: Neutral and Non-Neutral (Hicks and Harrod), Romer's Endogenous Growth Model. Jorgensons Model of Dual Economy. Uzawa Two Sector Model of Growth. Harris-Todaro Model of Rural-Urban Migration.

## UNIT IV

### **Economic Planning**

Economic Planning – Meaning, Objective and Principles. Planned Vs. Unplanned Economy. Plan Models- Meaning and Types. Control under Planning – Meaning, Need, Types and Limitations. Role of State in Economic Development.

## UNIT V

### **Techniques and Problems of Economic Planning**

Planning Techniques- Input-Output Analysis, Linear Programming and Capital-Output Ratio (Only Concept). Shadow Prices, Criterion of Project Evaluation, Investment Criterion. Choice of techniques- Labour Intensive Vs. Capital Intensive Technique. Resource mobilization for planning : Domestic resources and External resources- Foreign borrowings Vs. foreign direct investment.

### **Reading List:**

- Behrman, S. and T.N. Srinivasan (1995). Handbook of Development Economics, Vol. 3, Elsevier, Amsterdam.
- Ghatak, S. (1986). An introduction to Development Economic, Allen & Unwin, London.
- Jhingan, M.L. (2016) – Economics of Growth and Development, Vrinda Publication. (English & Hindi Version)
- Kapila, Uma, Ed. (1980). Indian Economy Since Independence, Vol.1, Academic Foundation, Delhi.
- Little, I. M. D. & J. E. Mirrlees (1974). Project Appraisal and Planning for Developing Countries, Basic Books, New York.
- Meier, G.M. and James E. R. (2006). Leading Issues in Economic Development, Oxford University Press, New York.
- Puri, V.K. and S.K. Misra (2016). Economics of Development and Planning, Himalaya Publishing House, New Delhi.
- Singh, S.P.(2001). Economic Growth and Planning, Himalaya Publishing House, New Delhi.
- Ray, Debraj-(2004). Development Economics, Oxford University Press, New Delhi
- Taneja, M. L. and R. M. Myer (2008). Economics of Development and Planning, Vishal Publishing Company, Jalandhar.



- Thirwall, A.P.(1999). Growth and Development with special reference to developing economics, Macmillan and ELBS, London.
- Todaro, M. P. (1996) (6<sup>th</sup> edition). Economic Development, Longman, London.
- Wadhwa, C.D., Ed., (1988). Some Problems of India's Economic Policy, 2nd Ed., Tata McGraw-Hill, New Delhi.

**Paper Code: M2ECO06-CT-12**

**M.A. ECONOMICS  
SEMESTER – II  
CORE PAPER –VI  
INDIAN ECONOMY**

**Course Outcome:**

- CO1:** The objective of the paper would be to sharpen the analytical faculty of the students by highlighting on broad overview of the Indian economy.
- CO2:** The paper also emphasis on social and economic infrastructure; Natural resources of India.
- CO3:** To get familiar with the issues related to agriculture, industry, foreign trade and Economic Planning in India.
- CO4:** The course is expected to enable the student to appreciate the evaluation of the economy, its institutional frame work and various problems associated with it, for analysing public policy.

**UNIT – I**

An Overview of Indian Economy: Structural Transformation in India- Sectoral trends and growth rates. Broad Demographic Features of Indian Population, Occupational pattern in India. Rural-Urban Migration, Urbanisation and Civic Amenities, Population Policy (Latest). Social Infrastructure- Education, Health and Malnutrition. Indicators of Human Development- Human Development Index (HDI), Gender Related Development Index (GDI). Happiness Index.

**UNIT – II**

Agriculture – Need for Land Reforms, Technological changes in Agriculture, Pricing of Agriculture Inputs and Output, Agriculture Finance Policy, Agriculture Marketing, Issues in Food Security, Policies for Sustainable Agriculture, Need for Agriculture Insurance.

Industry – Growth and Pattern of Industrialization, Industrial Policies and New Economic Reforms, Privatisation and Disinvestment, Exit Policy Issues in Labour Market Reforms.

### **UNIT –III**

Resource Base Economic Infrastructure: Economic Infrastructure (Power, Transport and Communication), Issues and Policies in Infrastructural Development.

Natural Resources and Economic Development- Land Resource, Forest Resource, Livestock Resources, Water Resource; Environmental Degradation and Economic development.

### **UNIT – IV**

Poverty, Inequality and Unemployment- Concepts, Estimation, Trends and measures to eradicate them. Problem of corruption and parallel economy. Challenges to inclusive growth in India. Need for and issues in good governance

Planning in India – Relevance of Planning in the Liberalised/Free Market Economy. Objectives and Strategies, Failures and Achievements of Plans, Latest Five Year Plan. Evolution of Niti Ayog and its approach towards planning in India.

### **UNIT-V**

Foreign Trade – Volume, Structure and direction of Foreign Trade, Balance of Payments, Issues in Export-Import Policy and FEMA, Exchange Rate Policy, The management of Foreign Exchange, Issue of the Convertibility of Rupee on Capital Account. , WTO -objectives, various issues and a critical review of the working of WTO.

Key Economic Reforms introduced in India and their impact; Globalisation of Indian Economy – Foreign Capital and MNCs in India.

### **Reading List**

- Mishra and Puri – Indian Economy, Himalaya Publishing House, New Delhi.
- Rudra Dutt and Sundaram – Indian Economy, S. Chand and Company, New Delhi.
- Alok Ghosh – Indian Economy Its Nature and Problems, The New Book Stall.
- Hariharan, N. P. (2008) – Lights and Shades of Indian Economy, Vishal Publishing Co., Jalandhar.
- Uma Kapila (20<sup>th</sup> Edition) (2009) – Indian Economy Since Independence, Academic Foundation, New Delhi.
- Jalan, B. (1992) – The Indian Economy, Problems and Prospects, Viking, New Delhi.
- Reserve Bank of India – Report on Currency and Finance (Annual).
- Indian Economy (Extra issue) – Pratiyogita Darpan, Upkar Prakashan, Agra.

- Todaro, M. (1997) – Economic Development in the third world, Addison Wesley, England.
- Brahmananda, P. R. and V. R. Panchmukhi (Eds.) (1987) – The Development Process of the Indian Economy, Himalaya Publishing House, Bombay.
- World Bank (2000) – Indian Reducing Poverty, Accelerating Economic Development, Oxford University Press, New Delhi.
- Government of India, Planning Commission, 11<sup>th</sup> Five Year Plan, New Delhi.
- Vijay Nagesh Gumma (2008) – The Impact of Globalization on Small Scale Industries, Deep and Deep Publication Pvt. Ltd., New Delhi.
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***M2ECO01-Skill- 01***

**MA ECONOMICS  
SEMESTER II  
SKILL COURSE PAPER-01  
BASIC ECONOMIC ANALYSIS WITH SPSS**

**Course Outcome:**

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**CO1:** A Student of Economics must have knowledge of data analysis through software.

This course aims at giving the exposure of data analysis package SPSS and make students familiar with its applications .

**CO2:** This paper aims to skill them in analysing the data with the help of SPSS by providing hands on experience.

**UNIT I**

**Introduction to SPSS**

Starting SPSS, SPSS main menus, Working with the data editor -General description, functions, menus, commands , SPSS file management.

Input and data cleaning - Defining variables, Manual input of data , Automated input of data and file import.

Data manipulation - Data Transformation, Syntax files and scripts, Output management.

Theoretical Framework: Types of Variables - Qualitative Vs. Quantitative Variables, Nominal, Ordinal, Interval and Ratio Scale Data. Hypothesis Testing, Type I and Type II Errors, Significance Level, One Tailed and Two Tailed Tests.

**UNIT-II**

**Descriptive Statistics**

Basic Concepts - Measures of Central Tendency, Measures of Variability, Percentiles, Quartiles and Interquartile Range, Skewness, Kurtosis.

Using SPSS Descriptive Statistics- Frequencies, Descriptives, Explore, Crosstabs.

## UNIT- III

### **Data Presentation**

Different Types of Charts- Histogram, Bar Charts, Pie, Cluster and Stacked Bar , Line Charts.

Use of SPSS in making Charts: Chart Builder, Constructing and editing Charts.

## UNIT-IV

### **Correlation**

Correlation Coefficient , Pearson Correlation, Spearman Correlation, Kendall Tau B, Scatter Plots, Partial Correlation.

## UNIT-V

### **Chi - Square Test**

Basic Concepts – Chi-Square test of Independence and goodness of fit, Contingency Tables.

using SPSS Test of Independence, 2x2 Cross tabulation, Layered cross tab, Goodness of fit.

### **Basic Readings:**

- Gaur A. S. & Gaur S. S (2009). Statistical Methods for Practice and Research: A guide to data analysis using SPSS, Sage Response, Second edition.
- IBM SPSS Training Manual
- Parameswaranm R. (2010).Computer Applications in Business, S. Chand and Company, New Delhi.
- Sudalaimuthu, S. & Anthony R. S. (2008), Computer Applications in Business, Himalays Publishing House, New Delhi.

***M3ECO01-CT-13***

**M.A. ECONOMICS  
SEMESTER III  
CORE PAPER I  
INTERNATIONAL ECONOMICS**

**Course Outcome:**

**CO1:** The paper presents clear comprehensive exposition of the theories of international economics.

**CO2:** The paper aims at developing the understanding and analytical skill of the students of international trade in real and complex situations.

**CO3:** It will greatly help the students to examine the impact of the trade policies on gains from trade and terms of trade of a country.

**UNIT I**

**Theories of International Trade**

Difference between Inter Regional and International Trade, Purpose and Subject Matter of International Economics. Theories of Absolute Advantage and Comparative Costs Advantage. Refinements of Comparative Cost Theory- in money terms, for more than two commodities, for more than two countries, multiproduct and multination trade model, in case of transportation cost, Opportunity Costs theory. Modern Theory of International Trade and its Empirical Testing.

**UNIT – II**

**New Theories of International Trade I**

Factor Price Equalization Theorem- Relative and Absolute Factor Price Equalisation, Factor Intensity Reversal, Kravis and Linder's Theorem, The Rybczynski Theorem, Stolper – Samuelson Theorem.

**UNIT – III**

**New Theories of International Trade II**

Posner's Theory, Vernon's Theory, Kenen's Theory, Emmanuel's Theory. Intra-industry Trade and Neo Heckscher-Ohlin Model by Falvey, Brander-Krugman Oligopolistic Model.

#### UNIT – IV

##### **The Gains from Trade**

Meaning, Potential and Actual Gain from International Trade. Measurement of Gains from Trade and their Distribution- Argument of Ricardo-Malthus, Findle, Taussing, Mill and Modern argument. Static and Dynamic Gains from Trade. Gain From Trade for Small and Large Nation.

#### UNIT – V

##### **The Terms of Trade**

Different Concepts, Determination of Terms of Trade, Factors Affecting Terms of Trade, Terms of Trade and Economic Development, Secular Deterioration Hypothesis. Trade as an Engine of Economic Growth.

##### **Reading List:**

- Acharya, R. (2014). International Economics, Oxford University Press.
- Bhagwati, J. (Ed.) (1981). International Trade: Selected Readings, Cambridge University Press, Mass.
- Cherunilam, F. (2008). International Economics, The Tata McGraw-Hill Companies, New Delhi. 5th Ed.
- Dunn R.M. and J.H. Mutt (2000), International Economics, Routledge, London.
- Goldstein, M. (1998) – The Asian Financial Crisis: Causes, Cure and Systematic Implication, Institute for International Economics, Washington, D.C.
- Grable, J. O. (1996) – International Financial Markets, Prentice Hall, Englewood Cliffs, New York.
- Jhingan M.L. (2015). International Economics, Vrinda Publications, New Delhi (English & Hindi Version)
- Kindlberger, C. P. (1991). International Economics, R D Irwin, Homewood. 8th Ed.
- Krugman, P.R. and Obstfeld, M. (1994). International Economics: Theory and Policy, Glenview, Foresman.
- Mithani, D. M. – International Economics, Himalaya Publication House, Bombay.
- Mundell, R. (1968) – International Economics, The Macmillan Company Ltd., New York.

- Vaish, M.C. and S. Singh (2000). International Economics, Oxford and I.B.H. Publishing Company Pt. Ltd., New Delhi.
- Rana, K.C. and K.N. Verma (2010). International Economics, Vishal Publishing House, Ludhiyana. (English & Hindi Version)
- Salvator, D. (2014): International Economics: Trade and Finance, 11<sup>th</sup> Ed., John Willey & Sons, Singapore.
- Soderston, Bo. (1999), International Economics, The Macmillan Press Ltd. London.
- Swami, K. D. (2008) – International Economics, Scientific Publications, Jodhpur.



***M3ECO02-CT-14***

**M.A. ECONOMICS  
SEMESTER- III  
CORE PAPER-II  
RESEARCH METHODOLOGY**

**Course Outcome:**

**CO1:** This course has an objective of explaining the theoretical framework and concepts of research to students.

**CO2:** It make them understand and use the various data collection and analysis tools for research.

**CO3:** Students will be skilled to frame a good research proposal and write its report.

**UNIT I**

**Introduction**

Research- Meaning, Objectives and Types. Characteristics of Good Research. Research Process.

Research Problem- Identification and Formulation. Review of Literature-Meaning and Importance, Formulation of Objectives.

**UNIT II**

**Research and Sampling Design**

Research designs- Meaning, Need, Features of Good Research Design, Types- Exploratory, Descriptive, Causal. Experimental and Non-Experimental Research Design.

Sampling Design- Meaning, Importance, Characteristics. Difference in Sample and Census Survey. Types of Sampling Design- Probability and Non-Probability Sampling Designs and their different types.

**UNIT III**

**Data Collection and Processing**

Types and measurement of Data. Sources of Data Collection- Primary and Secondary. Methods and Instruments of Data Collection. Problems of data collection. Designing of questionnaire - Meaning, types of questionnaire, Stages in questionnaire designing, Essentials of a good questionnaire

Data Editing and Coding. Data Classification, Tabulation- Importance, Components and Types of Tables, Diagrammatic and Graphical Representation of Data- Importance and Types.

#### UNIT IV

##### **Data Analysis and Hypothesis Testing**

Multivariate Data Analysis- Multiple Regression, Factor Analysis, Principal Component Analysis, Cluster and Discriminant Analysis (Meaning and uses of these techniques).

Hypothesis Testing: Meaning and Formulation of Hypothesis, Types of Hypothesis, Procedure of Hypothesis Testing. Types of Errors, Level of Significance, Power of test. Types of Tests- Parametric and Non-Parametric. Parametric Test- z test, t-test, f-test, ANOVA. Non-Parametric Test-  $\chi^2$  test, Sign test, Run Test, Mann-Whitney U test, Median test, Kolmogorov-Smirnov test, Kruskal-Wallis test.

#### UNIT V

##### **Content Analysis, Report Writing and Referencing**

Content Analysis- Meaning, Features and Process. Merits and Demerits of Content Analysis.

Meaning and Importance of Report Writing. Cautions in writing a report. Components of Report.

Citation, References and Bibliography- APA style.

##### **Reading List:**

- Goode. W.J and Hatt. P.K (1952). *Methods in Social Research*, New York: McGraw Hill
- Kothari, C. R. (2008). *Research Methodology: Methods and Techniques*, New Delhi: New Age International.
- Sadhu A.N. and Singh A. (2005). *Research Methodology and Social Sciences*, New Delhi: Himalaya Publishing.
- Tandon.B.C (Ed.) (1979). *Research Methodology in Social Sciences*, Allahabad: Chaitanya Publishing House.
- Wilkinson, S. and Bhandarkar, P.L. (1989). *Methodology and Techniques of Social Research*, New Delhi: Himalaya Publishing.
- William N. (2005). *Your Research Project*, New Delhi: Vistar Publications.

- Young, P. V. (1949). *Scientific Social Surveys and Research*, New Jersey: Prentice Hall, Englewood Cliffs.
- Kataria, S.K. and Paliwal, N. (2018). *Shodh Pravidhi*, National Publishing House, Jaipur.

**Paper Code: M3ECO-A1-ET-15**

**M.A. ECONOMICS**  
**SEMESTER – III**  
**Group A: Elective Paper – A1**  
**BASIC ECONOMETRICS**

**Course Outcome:**

- CO1 :** Econometrics is a very powerful tool for understanding of applied economic relationships and for meaningful research in economics.
- CO2:** This paper is designed to equip the students with the basic theories and assumptions of econometrics.
- CO3:** Student will learn how to construct econometric models, estimate the parameters of these models (in case of quantitative and qualitative data) and interpret the parameters estimates

**UNIT – I**

Meaning , objectives and Scope of Econometrics, Methodology of Econometric Research. The Simple Linear Regression Model -Ordinary Least-Squares Method, Assumptions and Properties of OLS Estimations, Gauss Markov's Theorem, Numerical Application of Regression Analysis. Goodness of fit  $R^2$ - Concept and Derivation of  $R^2$  and Adjusted  $R^2$ , (i.e.  $\bar{R}^2$  and Numerical Application, Confidence Intervals of the Parameters, Statistical Tests of Significance of the OLS Estimates – t and F test and its importance.

**UNIT – II**

Multiple Regression Model with Two Explanatory Variables: An application in Multiple Regression Model (without derivation), Matrix Approach to Linear Regression Model- Numerical Application. Hypothesis testing in Multiple Regression using T test and F -Test. Problems in Regression Analysis- Autocorrelation: Assumptions, Causes, Consequences, Tests to detect the problem and Remedial steps to solve these problems

### **UNIT – III**

Problems in Regression Analysis- Multicollinearity, Heteroscedasticity – Assumptions, Sources, Causes, Consequences, Tests to detect the problem and Remedial steps to solve these problems. Errors of Measurement and Solutions for the Case of Errors in Variables.

### **UNIT –IV**

Regression with Qualitative Variables: Dummy Variable Techniques- Testing structural stability of regression models; Comparing two regressions, Interaction Effects, Seasonal analysis, Piecewise linear regression, Use of dummy variables.

Regression with dummy dependent variables; The LPM, Logit, Probit and Tobit Models.

### **UNIT -V**

Autoregressive and Distributed Lag Models-Koyek Model, Almon Model, Partial Adjustment Model, Adaptive Expectations Model; Functional forms of Regression Models- The log linear Model, Semilog Models, Reciprocal models, Logarithmic reciprocal model

#### **Reading List**

- Gujarati, D. (1995) – Basic Econometrics, (3<sup>rd</sup> Edition), McGraw Hill, New Delhi.
- Johnston, J. (1985) – Econometric Methods, McGraw Hill, New York.
- Koutsoyiannis, A. (1977) – Theory of Econometrics, (2<sup>nd</sup> Edition), The Macmillan Press Ltd., Hampshire.
- Maddala, G. S. (1993) – Econometrics: An Introduction, McGraw Hill, New York.
- Shyamala, S., Navdeep Kaur and T. Arul Pragasam – A Text Book on Econometrics – Theory and Applications, Vishal Publishing Co., Jalandhar.
- Madhani, G.M.K. – Introduction to Econometrics: Principles and Applications, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
- Chow, G. C. (1983) – Econometrics, McGraw Hill, New York.
- Dhrymes, P. J. (1970) – Econometrics – Statistical Foundations and Applications, Harper and Row Publishers, New York.
- Intriligator, M. D. (1978) – Econometric Methods, Techniques and Applications, Prentice Hall, Englewood Cliffs, New Jersey.
- Pindyck, R. S. and D. L. Rubinfeld (1976) – Econometric Models and Econometric Models and Economic Forecasts, McGraw Hill, Kogakusha, Tokyo.
- Franses, P. H. (1998) – Time Series Models for Business and Economic Forecasting, Cambridge University Press, Cambridge.

- Kmenta, J. (1997) – Elements of Econometrics, University of Michigan Press, New York.
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**M3ECO- A2 -ET-16**

## **M.A. ECONOMICS**

### **SEMESTER – III**

#### **GROUP A: ELECTIVE PAPER –A 2**

#### **MATHEMATICAL APPROACH TO MICRO ECONOMICS**

#### **Course Outcome:**

**CO1:** This course is designed to equip students to apply mathematical tools and techniques to understand and elaborate the concepts and theories related to Micro Economics.

**CO2:** It will enable students to elaborate Micro Economic theories and Models with mathematical derivations.

**CO3:** It develops the quantitative reasoning among the students regarding behavior of consumers and producers in market and market mechanism.

### **UNIT – I**

#### **Consumer Behaviour Analysis I**

Utility Function and types of Utility function, Indifference curve and Its Characteristics. Ordinal Utility Maximisation, Slutsky Equation – Income, Substitution and Price Effects, Derivation of Ordinary and Compensated Demand Curve, Elasticity of Demand.

### **UNIT – II**

#### **Consumer Behaviour Analysis II**

Theory of Revealed Preference, Consumer Behaviour under Uncertainty- N-M Theorem. Dynamic Demand Function. And Linear Expenditure System.

### **UNIT III**

#### **Production Analysis**

Production Function –Homogenous and Non-Homogeneous Production Function, Stages of Law of Variable Proportion, Cobb-Douglas Production Function, C.E.S. Production Function, Concept of VES and Translog Production Function, Producer's equilibrium under constraints.

## UNIT – IV

### Cost and Revenue Analysis

Simple derivation of Short and Long run Cost Functions and their relations, Concept of modern approaches to Theory of Costs, The concept of Revenue Functions, Total, Average and Marginal Revenue, Relation between AR, MR and Elasticities. Input Demand Function.

## UNIT – V

### Market Analysis

Product and factor market equilibrium; Existence, uniqueness and stability of equilibrium; Static stability, dynamic stability-lagged adjustment, dynamic stability continuous adjustment; Dynamic equilibrium with lagged adjustment-Cobb-Web Model. Price determination in Perfect Competition and Monopoly. Pricing under Monopolistic Competition.

### Reading List:

- Allen, R.G.D. (1974) – Mathematical Analysis for Economists, Macmillan Press and ELBS, London.
- Chiang, A.C. (1986) – Fundamental Methods of Mathematical Economics, McGraw Hill, New York.
- Henderson, J. M. and R. E. Quandt (1980) – Microeconomic Theory: A Mathematical Approach, McGraw Hill, New Delhi.
- Mehta, B. C. (1987) – Mathematical Economics: Microeconomic Models. Sultan Chand and Sons, New Delhi.
- Madnani, G.M.K. (2008) – Mathematical Economics, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
- Mehta, B.C. and G.M.K. Madnani (2008) – Mathematics for Economists, Sultan Chand and Company, New Delhi.
- Arrow, K. J. and M. Intrigator (Eds.) (1982) – Handbook of Mathematical Economics, Vol. I, II and III, North Holland, Amsterdam.
- Chung, J. W. (1993) – Utility and Production: Theory and Applications, Basil Blackwell, London.
- Ferguson, C. E. (1976) – Neo Classical Theory of Production and Distribution.
- Hadley, G. (1962) – Linear Programming, Addison Wesley Publishing Co., Massachusetts.
- Mankiw, N. G. and D. Romer (Eds.) (1991) – New Keynesian Economics (2 Vols.), MIT Press, Cambridge, Mass.

- Nash, J. F. (1996) – Essays on Game Theory, Cheltenham, U.K.

*M3ECO- A3-ET-17*

**M.A. ECONOMICS**  
**SEMESTER III**  
**GROUP A: ELECTIVE PAPER- A3**  
**AGRICULTURAL ECONOMICS**

**Course Outcome:**

**CO1:** To understand the theories and Principles of Agriculture Economics.

**CO2:** To understand input–output of agriculture sector and their inter relationship with Economy.

**CO3:** To understanding the models of agricultural development.

**CO4:** To understand the farm management and agriculture marketing system.

**UNIT – I**

**Introduction**

Agricultural Economics: Definition, Nature and Scope; Role of Agriculture in Economic Development. Inter-Sectoral Linkages of Agriculture. Complementarity between Agriculture and Industry. Resource management in Agriculture- Land, Labour and Capital in Farming.

**UNIT – II**

**Agricultural Production, Supply and Demand**

Agricultural Production- Stock and Flow Resources, Production functions – Factor-product, factor-factor and Product-product relationships. Types of Production function–Constant Return, Increasing Return and Diminishing Return Functions. Elasticity of Production. Cobb-Douglas production. Size of Farm and Laws of Returns . Factors determining Supply of and demand for farm products.

**UNIT – III**

### **Models of Agricultural Development**

Models of agricultural development of Lewis, Fei-Ranis, Jorgenson. Schultz's Transformation of Traditional Agriculture, Mellor's Model of Agricultural Development, Boserup Model of Agriculture Development, Hayami - Ruttan Induced Innovation Hypothesis.

### **UNIT – IV**

#### **Farm Organization and Management**

System of Farm Organisation- Peasant, Corporate, State and Cooperative Farming.

Farm Efficiency Measures, Farm Planning, Budgeting and Programming Techniques. Organic farming: definition, Principles, components and relevance in present context. Farm Management- Meaning, objectives, Scope, Principals and limitations.

### **UNIT – V**

#### **Agricultural Marketing and Agri-Business**

Agricultural Marketing -Concepts, Need and pre-requisites for efficient agricultural marketing, Process and Functions of Marketing, Role in Economic Development, Agricultural Marketing Efficiency Criteria. Marketed and Marketable Surplus.

Agri-business – Meaning, nature and Scope of Agri-Business. Importance of Agri-business in agricultural development

#### **Reading List:**

- Bilgrami, S.A.R. (1996) – An introduction to Agriculture Economics, Himalaya Publishing House, New Delhi.
- Desai, R. G. (Latest) – Agriculture Economics, Himalaya Publishing House, New Delhi.
- Rudra, A. (1982) – Indian Agricultural Economics: Myths and Reality. Allied Publishers, New Delhi.
- Sadhu, A. N. and Amarjit Singh (Latest) – Fundamentals of Agriculture Economics, Himalaya Publishing House, New Delhi.
- Saini, G.R. (1979) – Farm size, Resource Use Efficiency and Income Distribution, Allied Publishers, New Delhi.
- Agrawal N. L.( 2003)- Bhartiya Krishi Ka Arthtantra, Rajasthan Hindi Granth Academy.
- Srivatsava O.S. (1987), Theoretical Issues of Agricultural Economics, Allied Publishers Pvt. Ltd. Delhi.



- Reddy S.S., R. Ram, N. Sastry and B. Devi (2012), Agricultural Economics, Oxford & IBH, New Delhi.

**M3ECO- A4- ET-18**

**M A ECONOMICS  
SEMESTER III  
GROUP –A ELECTIVE PAPER-A4  
LABOR ECONOMICS**

**Course Outcome:**

**CO1:** To understand the main features, problems and mechanism of the labour market

**CO2:** To understand the theory and concept of productivity, unemployment and migration.

**CO3:** To understand man power planning and resources management.

**CO4:** To explain wage theory and related issues.

**UNIT – I**

Nature, Scope and Importance of Labour Economics, Nature and Problems of Labour, Labour Market – Forms and characteristics, Demand and Supply of Labour,

**UNIT – II**

Productivity of Labour – Factors affecting productivity of Labour, Productivity and wage relationship, Migration, Absenteeism and Turnover in labour market, Labour and Rationalization

**UNIT – III**

Unemployment and development relationship; Unemployment – Concept, types and Principles, Automation and its impacts on Employment, Exit Policy and Need For Safety Nets,

**UNIT – IV**

The Concept of Evaluation of Personal Management, Manpower planning, Methods of Recruitment and placement,

**UNIT – V**

Wages – Meaning and Methods of wage payment, Theories of wage determination, Concept of minimum wage, living wage and fair wage, wage differentiations, Wage Standardisation, Non-wage component of labour remuneration.

**Reading List :**

- Datta, G. (1996) – Bargaining Power, Wages and Employment: Analysis of Agricultural Labour Markets in India, Sage Publications, New Delhi.
- Papola, T.S. and Rodgers, (Eds.) (1992) – Labour Institutions and Economic Development in India, International Institute for Labour Studies, Geneva.
- Sen, A. K. (1975) – Employment, Technology and Development, Oxford University Press, New Delhi.
- Solow, R. M. (1990) – Labour Market as an Institution, Blackwell, London.
- Hicks, J. R. (1932) – The Theory of Wages, Clarendon Press, Oxford.
- Misra, L. (2000) – Child Labour in India, Oxford University Press, New Delhi.
- Lester, R. A. (1964) – Economics of Labour (2<sup>nd</sup> Edition), Macmillan, New York.
- McConnell, C. R. and S. L. Bruce (1986) – Contemporary Labour Economics, McGraw Hill, New York.
- Sinha, V.C. Audhyogik Arthshastra.

***M3ECO- B1- ET-15***

**M A ECONOMICS  
SEMESTER III  
GROUP –B ELECIIVE PAPER-B1  
INDUSTRIAL ECONOMICS**

**Course Outcome:**

- CO1:** To understand the concepts of industrialization and related issues.
- CO2:** To understand the theories and concepts related to firm and markets.
- CO3:** To understand the process of growth, merger and settlement of firm in different market conditions.
- CO4:** To understand the product pricing, balance sheet statements and related issues.

**UNIT-I**

Industrial Economics – Definition and Scope, Industrialization – pattern and Stages, Determinants of Industrial Growth, Effects of Industrialization. Problems of Industrialization.

**UNIT II**

Concept of Firm-Its Organization and Different Forms of Ownership ,Objectives of a Firm, Theories of Industrial Localization-Alfred Wever and Sargent Florence’s Theories

**UNIT III**

Market Structure: Sellers concentration, product differentiation, conditions of entry and economies of scale, market structure and profitability, Growth of firms: Vertical integration, diversification, mergers and innovation; constraints on growth – demand, financial and managerial.

**UNIT-IV**

Market conduct and product pricing- Methods of product pricing, Methods of evaluating investment expenditure, Capital budgeting- concepts and methods.

Mergers and Acquisitions of firms- meaning, types and methods, various forms of mergers in India, Market performance, size and growth of firms

### UNIT V

Financial Statements – Balance Sheet, Profit and Loss Account, Ratio Analysis – Meaning and Forms, Classification of Ratios, Limitations, Cost – Profit Analysis, Techniques of Project Evaluation

#### **Reading List:**

- Barthwal, R R (2010): Industrial Economics, New Age International (P) Limited, New Delhi, 2010.
- Penrose, E (1959): The theory of growth of the Firm, Blackwell, Oxford.
- Ahluwalia (1985): Industrial Growth in India, Oxford University Press, New Delhi.
- Umakapila (2003) : Understanding the problems of Indian Economy, Academic Foundation
- Agarwal, A N (1995): Indian Economy Problems of development and planning Vishwas publication
- Desai, B. (1999) – Industrial Economy in India (3<sup>rd</sup> Edition), Himalaya Publishing House, Mumbai.
- Kuchhal, S. C. (1980) – Industrial Economy of India (5<sup>th</sup> Edition), Chaitanya Publishing House, Allahabad.
- Singh, A. and A. N. Sadhu (1988) – Industrial Economics, Himalaya Publishing House, Bombay
- Matoria and Matoria (2000) – Dynamics of Industrial Relations in India, (15<sup>th</sup> Edition), Himalaya Publishing House, Mumbai
- Government of India, Economic Survey (Annual), New Delhi

***M3ECO- B2- ET-16***

**M A ECONOMICS  
SEMESTER III  
GROUP – B ELECTIVE PAPER-B2  
FINANCIAL ECONOMICS**

**Course Outcome:**

**CO1:** This course introduces students to the economics of finance.

**CO2:** This course enables students to know the operation of the Indian Financial System and activities in the financial markets.

**CO3:** The students will understand how the theoretical concepts learned in the class apply to the real world through interpretation of real world events.

**UNIT I**

Financial system-Structure,Functions, Financial markets, Financial Instruments,Role of Financial system,Financial system and Economic development.

**UNIT II**

Money market-Meaning,Functions,Instruments of money market,Call loans, Collateral loans, Promissory notes, Bills of Exchange, Treasury Bills, Gilt edged securities, Certificate of Deposits', Commercial papers, REPOS-Components of money market,Call money market, Collateral loan market, Acceptance market, Bill market.

**UNIT III**

Institutions of money market-Acceptance houses, Discount houses, Central bank, Commercial bank,Features of Indian money market, DFHI and RBI in Indian Money market.

**UNIT IV**

Capital market- Meaning, Functions, Structure, Primary and Secondary markets, Primary market (New issue market), Functions of NIM, Intermediaries in NIM (merchant bankers, underwriters, registrar and share transfer agents, bankers to an issue, stock broker)

### UNIT V

Instruments of Capital market- -Preference shares, Differed shares, Equities Ordinary shares- Bonds and debentures, Government promissory notes, Public sector bonds-Initial Public Offer- Methods of floatation of shares –Dematerialization of Shares- Depository-Functioning of depository. Secondary Market- Nature and functions of stock exchanges -Settlement and trading in stock exchange- Players in stock exchanges-Speculators-Bulls, Bears, Lame duck, Stag- Kerb trading, Insider trading- Listing of securities.

#### Reading List:

- Keith, P Ibeam (2005): Finance and Financial Markets, 2nd ed, Palgrave Mc Milan.
- Bhole, L M (1999): Financial Institutions and Markets, TATA Mc Graw Hill Co Ltd, New Delhi
- Gupta, S B (2007): Monetary Economics Institutions Theory and Policy, Chand and Co Ltd
- Smith, P F (1978): Money and Financial Intermediation: The Theory and Structure of the Financial System, Prentice Hall, New Delhi
- Khan, N Y (1996): Indian Financial system, TATA Mc Graw Hill Co Ltd, New Delhi
- Bharathi V Pathak( 2003): Indian Financial system, Pierson Education, New Delhi
- Preethi Singh (2009) : Dynamics of Indian Financial system, markets, institutions and services, Annes Books Pvt Ltd, New Delhi
- Guru Swamy, S (2009): Financial Markets and Institutions, 3rd ed, Vijay Nicole Imprints Pvt Ltd, Chennai, TATA Mc Graw Hills Co Ltd, New Delhi.
- Guru Swamy, S(2006): Capital Markets, 2nd ed, Vijay Nicole Imprints Pvt Ltd, Chennai, TATA McGraw Hills Co Ltd, New Delhi.
- Faboozi, J Frank, Modigliani Franco(2008): Capital Markets-Institution and Instruments, 4th ed, Pearson Education, New Delhi (PHI).
- Avadhani, V A (1993): Investments and Securities markets in India, Himalaya Publishing House, Mumbai.
- Kevin, S (2008): Security Analysis and Portfolio Management, 2nd ed, Prentice Hall of India.

- Avadhani, V A (2008): Security analysis and Portfolio Management, Himalaya Publishing House
- Sasidharan, K, Mathews K Alex (2013): Security analysis and Portfolio Management, Tata McGraw Hills Co Ltd, New Delhi
- RBI Reports

***M3ECO- B3- ET-17***

**MA ECONOMICS**  
**SEMESTER III**  
**Group B: Elective Paper –B3**  
**MANAGERIAL ECONOMICS**

**Course Outcome:**

**CO1:** This course introduces students to the role and importance of Managerial Economics.

**CO2:** The students will understand the internal and external decisions to be made by managers.

**CO3:** The students will understand the importance of economic approaches in managerial decision making.

**CO4:** The students will be able to use theoretical knowledge of economic theories to analyse real-world business problems.

**UNIT I**

Meaning, scope and role of managerial economics. Marginal and Incremental Analysis. Meaning and types of demand, demand function and Law of Demand, increase and decrease in demand, elasticity of demand, consumer's surplus. Demand Forecasting. Indifference curves and consumer's equilibrium. Price effect, Substitution Effect and Income Effect. Supply- meaning and supply function. Law of Supply.

**UNIT II**

Meaning and types of production function, application and importance of production function in managerial decision making, Economies of scale and scope. Producer's surplus. Iso-Cost lines, Iso-quant and Producers' Equilibrium. Cost concepts, cost- output relationships and its importance, types of cost, functional form

of short- run and long- run cost, LAC as a decision making tool. Impact of learning curve.

Revenue concepts- TR, MR, AR.

### UNIT III

Market structure- meaning, types, and need for analysing market structure.

Perfect Competition- features, representative firm and industry, Equilibrium in short and long run, price and output determination with diagrams, normal profits and losses, supernormal profits.

Monopoly- features, equilibrium in short and long run, Price discrimination, Dumping

### UNIT IV

Oligopoly- definition and characteristics, collusion and cartel, non-price competition, price stickiness and kinked demand. Game theory.

Monopolistic competition- definition and characteristics, equilibrium price and output determination.

Pricing policies and practices- role of cost, demand and consumer psychology in pricing.

Pricing methods: full cost pricing, marginal cost pricing, pricing of new products, penetration pricing, skimming pricing.

### UNIT V

Introduction to National Income – National Income Concepts and methods of Measurement.

Business Cycles – Phases – Management of Cyclical Fluctuations. Fiscal and Monetary Policies. Inflation- Meaning and measures to control.

The Investment selection process - Evaluating and Ranking Investment projects, Cost – Benefit Analysis

#### Reading List

- William Boyes (2009) The New Managerial Economics (Indian Adaptation), New Delhi, Sigtantra
- Joseph Nellis and David Parken (2003) The essence of Business Economics, Prentice – Hall India
- SalvatoreD. and Srivastava R (2012). Managerial Economics, Oxford; Seventh edition
- Ahuja, H. L. (2014). Managerial Economics, S Chand Publishing; Eight edition



- Dwivedi, D.N. (2010). Managerial Economics S.Chand (G/L) & Company Ltd;  
Seventh edition

**M3ECO- B4- ET-18**

**M A ECONOMICS**  
**SEMESTER III**  
**GROUP –B ELECTIVE PAPER-B4**  
**HUMAN RESOURCE MANAGEMENT (HRM)**

**Course Outcome:**

**CO1:** The course is designed to make student understand the significance and problems of Human Resource Management in constituting economic growth.

**CO2:** This course will explain basic principles of strategic human resource management and the various aspects of human resource planning.

**UNIT I**

**Nature and Scope of HRM** -Meaning and Definitions, Objectives, Scope and Functions of HRM ,Perspectives of Human Resource Management , Role of HRM in the Emerging Economic Scenario.

**UNIT II**

*HRM in India:* Introduction, Changing Role of Human Resource in India, Globalization, Its Impact on HR

**UNIT III**

Concept of Human capital – The economic principle of ‘Labour theory of value’. Human Resource Development (HRD) - The trend of Working age population in India (compared to other countries) and future potential in global scenario. Distinction between HRD and HRM.

#### **UNIT IV**

Meaning and Objectives of HRP - Need for HRP at Macro Level, Methods of Recruitment, Selection and Placement, Defining Training, Needs and Benefits of Training, Training Methods.

#### **UNIT V**

Promotion, Transfer, Demotion, Separation. Concept and Meaning of Discipline, Disciplinary Action Procedure. Industrial Democracy, Workers' Participation in Management in India, Collective Bargaining in India.

#### **Reading List:**

- Michel, U.P (2001): Human Resources Development and Human Relations, Himalaya Publishing House, Mumbai.
- Ü Tripathi, P.C (2004): Human Resources Management, S.Chand & Sons, New Delhi.
- Ü Duderja, V.D (2000): HRM and Development in New Millennium, Common Wealth Publishers, New Delhi.
- Pattanayak, B (2001): Human Resource Management, PHI, New Delhi.

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**M.A. ECONOMICS**

**SEMESTER IV**

**CORE PAPER I**

**INTERNATIONAL TRADE AND COMMERCIAL POLICIES**

**Course Outcome:**

**CO1:** This course enables students to understand how restrictions to international trade would be used for the nation's development and how it limits the same.

**CO2:** This course explains the importance of maintaining equilibrium in the balance of payments and suggests suitable measures to correct disequilibrium as well.

**CO3 :** It develops a complete understanding of role of international economic institutions in present global scenario.

**UNIT – I**

**Tariff Barriers**

Free Trade V/s Protection, Tariffs – Meaning and Types, Effects of Tariff under partial and general equilibrium, Optimum Tariff, Stolper – Samuelson Theorem in case of Tariff, Effective Rate of Protection.

**UNIT – II**

**Non-Tariff Barriers (NTBs)**

Meaning and Types, Import Quotas – Meaning, Objectives, Types, Import Quotas V/s Tariffs, Voluntary Export Restraints, Export Subsidies, International Cartels, Technical and Administrative Regulations, Dumping. Dumping – Meaning, Objective, Types and Effects. Anti Dumping Measures. Economic Integration-The Theory of Customs Union, its Partial and general equilibrium analysis.

**UNIT – III**

**Balance of Payment**

Balance of Trade and Balance of Payments – Meaning and Components, Disequilibrium in Balance of Payments, Measures to correct Disequilibrium in Balance of Payments, Adjustment Mechanism of Balance of Payments- Automatic Price Adjustment, Elasticity Approach, Absorption Approach, Expenditure Policies and Monetary Approach.

#### **UNIT – IV**

##### **Exchange Rate and Internal & External Balance**

Foreign Trade Multiplier, Foreign Exchange Rate- Meaning and Determination. Theories of Foreign Exchange Rate Determination-Mint Parity, PPP, BoP, Monetary Approach, Portfolio Balance Approach. Fixed v/s Flexible Exchange Rate Policies, Intermediate or Hybrid Exchange Rate Systems, Multiple Exchange Rates System. Exchange Rate Regimes in Practice. Internal and External Balance Simultaneously- Mundellian Model of Monetary and Fiscal Policies, IS-LM-BP Model with Flexible Exchange Rate.

#### **UNIT – V**

##### **International Economic Institutions**

International Monetary Fund, World Bank and WTO- Objectives, Organization, Functions, Activities and their role in Economic Development of India. The Problem of International Liquidity. Multilateralism and Regionalism- Contemporary Regionalism, economic effects and gains from Regionalism, Multilateralism in post WTO Era and global free trade.

##### **Reading List**

- Acharya, R. (2014). International Economics, Oxford University Press.
- Bhagwati, J. (Ed.) (1981). International Trade: Selected Readings, Cambridge University Press, Mass.
- Cherunilam, F. (2008). International Economics, The Tata McGraw-Hill Companies, New Delhi. 5th Ed.
- Dunn R.M. and J.H. Mutt (2000), International Economics, Routledge, London.
- Goldstein, M. (1998) – The Asian Financial Crisis: Causes, Cure and Systematic Implication, Institute for International Economics, Washington, D.C.
- Grable, J. O. (1996) – International Financial Markets, Prentice Hall, Englewood Cliffs, New York.
- Jhingan M.L. (2015). International Economics, Vrinda Publications, New Delhi (English & Hindi Version)
- Kindlberger, C. P. (1991). International Economics, R D Irwin, Homewood. 8th Ed.

- Krugman, P.R. and Obstfeld, M. (1994). International Economics: Theory and Policy, Glenview, Foresman.
- Mithani, D. M. – International Economics, Himalaya Publication House, Bombay.
- Mundell, R. (1968) – International Economics, The Macmillan Company Ltd., New York.
- Vaish, M.C. and S. Singh (2000). International Economics, Oxford and I.B.H. Publishing Company Pt. Ltd., New Delhi.
- Rana, K.C. and K.N. Verma (2010). International Economics, Vishal Publishing House, Ludhiana. (English & Hindi Version)
- Salvator, D. (2014): International Economics: Trade and Finance, 11<sup>th</sup> Ed., John Willey & Sons, Singapore.
- Soderston, Bo. (1999), International Economics, The Macmillan Press Ltd. London.
- Swami, K. D. (2008) – International Economics, Scientific Publications, Jodhpur.

***M4ECO01-CT-20A***

**M.A. ECONOMICS  
SEMESTER – IV  
CORE PAPER – IIA  
PROJECT WORK- DISSERTATION**

**Course Outcome:**

The course outcome of the paper is as follows-

- CO1:** This course is introduced to develop the understanding of practical problems one has to face during research and how to overcome it.
- CO2 :** It will enhance the ability of students to conduct surveys and analysing the data collected. They will choose the topic of their interest under the guidance of faculty members which has some relevance to economic issues.
- CO3:** It aims to make student familiar with economic issues of local communities and surroundings and to study in depth with practical application on any economic phenomenon.

***M4ECO01-CT-20B***

**M.A. ECONOMICS  
SEMESTER – IV  
CORE PAPER – IIB  
PUBLIC POLICY IN INDIA**

**Course Outcome:**

**CO1:** To enable students to learn about the economic aspects of various public policies related to Indian Economy, which are directly and indirectly affecting the economic welfare of the people.

**CO2:** Student will have the knowledge about the formulation, implementation, monitoring, evaluation, analysis and limitations of public policies in India.

**UNIT- I**

**Understanding Public Policy in India**

Concept of Public and Policy, Meaning Nature and Significance of Public Policy, Models of Public Policy: Rational Policy Making Model, Political Public Policy Approach, Mixed Approach by Hogwood and Gunn.

**UNIT- II**

**Public Policy Formulation in India**

Process of Policy Formulation, Role of Government (Union, State and Local Bodies), Civil Societies, International Agencies (World Bank, IMF, WTO).

Constraints in Public Policy Formulation in India.

**UNIT- III**

**Implementation of Public Policy in India**

Policy Implementation System- Network , Allocation of Tasks, Decision Making . Implementation Approaches/ Models – Top-bottom, Bottom-up, Policy Action Relationship, inter-organisational interaction, Synthesis of Bottom-up and Top- bottom approach.

Problems of Public Policy Implementation in India.

**UNIT- IV**

**Monitoring and Evaluation of Public Policy in India**

Monitoring: Meaning and Significance, Constraints , Remedial Measures of Effective Monitoring.

Evaluation: Concept, Nature and Significance. Criteria for Evaluation, Evaluating Agencies, Problems in Policy Evaluation.

## UNIT-V

### **Analysis of Economic Policies in India (Few Case Studies)**

Agricultural Price Policy in India (Current Policy): Evolution, Goals, Significance, Prerequisites, Impact , Limitations.

Industrial Policy in India (Current Policy): Objectives, Strategy – Liberalisation and Privatisation, Impact, Limitations, Criticism, Superiority over Previous Policies.

Foreign Trade Policy in India (Current Policy): Meaning, Objective, Significance and Achievements, Limitations.

### **Reading List**

- Acharya, S. (2010). Macroeconomic Performance and Policies 2000-08, in Shankar Acharya and Rakesh Mohan edited *India's Economy: Performances and Challenges: Development and Participation*, Oxford University Press.
- B.N. Goldar and S.C. Aggarwal, (2005). Trade Liberalisation and Price-Cost Margin in Indian Industries, *The Developing Economics*, September.
- Dunn, W. N. (1981). *Public Policy Analysis: An Introduction*. Englewood Cliffs, NJ: Prentice-Hall.
- Fischer, Frank. 2003a. *Reframing Public Policy: Discursive Politics and Deliberative Practices*. New York: Oxford University Press.
- Indira Gandhi National Open University, 1993, *BDP Course Material*, EPA.06 Public Policy, Block No.8 Models of Public Policy-Making (Hindi and English Version).
- J. Dennis Rajakumar, (2011). Size and Growth of Private Corporate Sector in Indian Manufacturing, *Economic and Political Weekly*, April.
- Kaldor, N. (1939). Welfare Propositions of Economics and Interpersonal Comparisons of Utility, *Economic Journal*, 49 (195): 549-552.
- Lane, Jan-Erik and S.O. Ersson (2000). *The New Institutional Politics: Performance and Out comes*, Routledge, London.
- Madan, K.D., K. Deish, Ashok Pradhan and C. Chandra Shekharan (Eds), 1982, *Policy-Making in Government*, Publications Division, Ministry of Information and Broadcasting, Government of India .



- Mishra and Puri (2108). Indian Economy, Himalaya Publishing House, New Delhi (Hindi and English Version).
- Nagel S.S. (1990). Policy Theory and Policy Evaluation: Concept, Knowledge, Cause and Norms, Delhi: Greenwood Press.
- Pulapre Balakrishnan, Ramesh Golait and Pankaj Kumar (2008). Agricultural Growth in India Since 1991, RBI DEAP Study no. 27.
- Rudra Dutt and Sundaram (2018) – Indian Economy, S. Chand and Company, New Delhi (Hindi and English Version).
- Sabatier, P.A. (1986). Top-down and Bottom-up Approaches to Implementation Research: A Critical Analysis and Suggestive Synthesis, *Journal of Public Policy*, V01.6.
- Sapru, R.K. (1998). "Environmental Policy and Politics in India", Uday Desai (Ed.) *Ecological Policy and Politics in Developing Countries*, State University NY Press, New York. Sapru, R.K., 1994, *Public Policy: Formulation, Implementation and Evaluation*, Sterling Publishers, New Delhi.
- Saxena, P.K. ( ed.) (1993). Comparative Public Policy, Jaipur: Rawat Publication.
- Sen K. (2010). “Trade, Foreign Direct Investment and Industrial Transformation in India”, in edited book *The Rise of Asia* by Premachandra Athukorala, Routledge.
- Uma Kapila (20<sup>th</sup> Edition) (2009) – Indian Economy Since Independence, Academic Foundation, New Delhi.
- Sinha, M. (2015-16). Prashasan Evam Lok Niti, Orient Longman Publication, Jaipur.i (Hindi Version).
- Sharma A. and R. Dogra (2016). Lokniti, New Age Publications, New Delhi.

#### **E-Source**

- E-PG Pathshala: (2015-16). Module ECO\_P9\_M20 and Title: Transfers of Resources from Union & States to Local bodies, Paper No. 9, Paper Title: Public Finance and policy in India, Module, MHRD, Government of India. (<https://epgp.inflibnet.ac.in/ahl.php?csrno=29>).
- E-PG Pathshala (2015-16). Module ECO\_P9\_M19 and Title: Problems of states resources and Indebtedness, Paper No. 9, Paper Title: Public Finance and policy in India, MHRD, Government of India (<https://epgp.inflibnet.ac.in/ahl.php?csrno=29>).
- Institute of Lifelong Learning (2016): “Industrial policy and Performance in India: Pre reform period” Published in E-containt of Indian Economics (ISSN 2349-154X), University of Delhi, New Delhi.

- Institute of Lifelong Learning (2016): "Industrial Policy and Performance in India : Post-reform period" Published in E-containt of Indian Economics (ISSN 2349-154X), University of Delhi, New Delhi.

**Paper Code: M4ECO-A1-ET-21**

**M.A. ECONOMICS**  
**SEMESTER – IV**  
**GROUP A: ELECTIVE PAPER – A1**  
**ADVANCED ECONOMETRICS**

**Course Outcome:**

- CO1:** A primary objective of teaching this course is to engage students in active learning and critical thinking about econometrics using advanced tools.
- CO2:** This course introduces the theory and application of time series techniques which is crucial for the economic and financial research.
- CO3:** Another objective of this course is to relate economic questions to empirical observations and try to select those econometric models which are best suited.

**UNIT – I**

Simultaneous Equation Models – Meaning and basic concepts- Structural, Reduced form Model. Consequences of applying OLS to simultaneous model, Recursive models. Problem of identification and Conditions for Identification (Rank and Order Conditions).

**UNIT – II**

Estimation of Simultaneous Equation Models – Indirect Least Square Method (ILS), Two Stage Least Square Methods (2 SLS), The Method of Instrumental Variables (IV), Identification and Choice of Estimation Method. Estimation under linear restrictions, Specification Bias.

**UNIT – III**

Time Series Econometrics: Basic Concepts- Stationary and Non stationary Stochastic Processes, unit root stochastic processes, Trend stationary and Difference stationary stochastic process. Random walk model. The Unit root test- Augmented Dickey-Fuller test. The phenomenon of co-integration-spurious regression. The Granger Causality test.

#### **UNIT-IV**

Time Series Model: Forecasting with ARMA, Forecasting with ARIMA model, Box-Jenkins methodology. ARCH and GARCH Model to measure the volatility.

Vector autocoregression: Problems with VAR modelling .

#### **UNIT-V**

Econometric Modelling: Model selection criterion- Hendry and Richard criterion, The  $R^2$  Criterion, Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC).

Panel data Regression Model- Meaning, Uses and estimation of Panel data Regression Model using Fixed effects model, Random effects model.

#### **Reading List:**

- Gujrati, D. (1995) – Basic Econometrics, (3<sup>rd</sup> Edition), McGraw Hill, New Delhi.
- Johnston, J. (1985) – Econometric Methods, McGraw Hill, New York.
- Koutsoyiannis, A. (1977) – Theory of Econometrics, (2<sup>nd</sup> Edition), The Macmillan Press Ltd., Hampshire.
- Maddala, G. S. (1993) – Econometrics: An Introduction, McGraw Hill, New York.
- S. Shyamala, Navdeep Kaur and T. Arul Pragasam – A Text Book on Econometrics – Theory and Applications, Vishal Publishing Co., Jalandhar.
- G. M. K. Madnani – Introduction to Econometrics: Principles and Applications, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
- Chow, G. C. (1983) – Econometrics, McGraw Hill, New York.
- Dhrymes, P. J. (1970) – Econometrics – Statistical Foundations and Applications, Harper and Row Publishers, New York.

- Intriligator, M. D. (1978) – Econometric Methods, Techniques and Applications, Prentice Hall, Englewood Cliffs, New Jersey.
- Pindyck, R. S. and D. L. Rubinfeld (1976) – Econometric Models and Econometric Models and Economic Forecasts, McGraw Hill, Kogakusha, Tokyo.
- Franses, P. H. (1998) – Time Series Models for Business and Economic Forecasting, Cambridge University Press, Cambridge.
- Kmenta, J. (1997) – Elements of Econometrics, University of Michigan Press, New York.
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***M4ECO- A2 -ET-22***

**M.A. ECONOMICS**

**SEMESTER – IV**

**GROUP A: ELECTIVE PAPER –A 2**

**MATHEMATICAL ECONOMICS**

**Course Outcome:**

**CO1:** This course aims to develop understanding of the economic concepts and theories using mathematical tools and techniques to refine the verbal logic.

**CO2:** It helps student to use modern algebraic tools which allow convenient handling of simultaneous equations in the context of linear programming, game theory and input-output analysis.

**CO3:** This course covers important aspects of microeconomics, macroeconomics and development theory to elaborate with mathematical explanation.

**UNIT – I**

Linear Programming – Meaning and definitions, Basic concepts and Solution of LPP through Simplex Method, Primal and Dual problem, Problem of Degeneracy in LPP, Application of LPP in Transport and Storage problems and other problems in Economics.

**UNIT – II**

Input-Output Model – Static and Dynamic Model, Closed and Open Input Output Model, Solution of Input Output Model, Hawkins Simon conditions.

**UNIT – III**

Game Theory – Concept of Game, Two Person Zero Sum Game, Pay-off Matrix, Pure and Mixed Strategies, Maximin in and Minimax criteria and Saddle Point, Non-constant Sum Game, Prisoner's Dilemma, Linear Programming Equivalence.

#### UNIT – IV

Pricing under Duopoly- The Cournot Model, The Bertrand Model, and the Stackelberg Model. Collusive Oligopoly. Kinked Demand Curve Model. Bilateral Monopoly. Pareto Optimality; The efficiency of perfect and imperfect competition; Social welfare function. General Equilibrium.

#### UNIT – V

Trade Cycle Model of Hicks and Samuelson. Harrod Growth Model, Neoclassical Growth Model – Solow and Meade Growth Models, Endogenous Growth Model of Romer and Harris-Todaro Model of Rural-Urban Migration.

#### Reading List:

- Allen, R.G.D. (1974) – Mathematical Analysis for Economists, Macmillan Press and ELBS, London.
- Chiang, A.C. (1986) – Fundamental Methods of Mathematical Economics, McGraw Hill, New York.
- Henderson, J. M. and R. E. Quandt (1980) – McGraw Hill, New Delhi.
- Mehta, B. C. (1987) – Mathematical Economics: Microeconomic Models, Sultan Chand and Sons, New Delhi.
- Madnani, G.M.K. (2008) – Mathematical Economics, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
- Mehta, B.C. and G.M.K. Madnani (2008) – Mathematics for Economists, Sultan Chand and Company, New Delhi.
- Arrow, K. J. and M. Intrigator (Eds.) (1982) – Handbook of Mathematical Economics, Vol. I, II and III, North Holland, Amsterdam.
- Chung, J. W. (1993) – Utility and Production: Theory and Applications, Basil Blackwell, London.
- Ferguson, C. E. (1976) – Neo Classical Theory of Production and Distribution.
- Hadley, G. (1962) – Linear Programming, Addison Wesley Publishing Co., Massachusetts.

- Mankiw, N. G. and D. Romer (Eds.) (1991) – New Keynesian Economics (2 Vols.), MIT Press, Cambridge, Mass.
- Nash, J. F. (1996) – Essays on Game Theory, Cheltenham, U.K.

***M4ECO- A3 -ET-23***

**M.A. ECONOMICS  
SEMESTER IV  
GROUP A: ELECTIVE PAPER- A3  
ISSUES IN INDIAN AGRICULTURE**

**Course Outcome:**

- CO1:** To understand the main features, trends and problems of Indian agriculture.
- CO2:** To understand the agriculture finance, marketing, capital formation in India.
- CO3:** To understand the policies of government and other institutions in Indian agriculture.
- CO4:** To understand the changes and new innovations in Indian Agriculture.

## **UNIT – I**

### **Agricultural Development in India**

Recent Agricultural Growth in India. Land Utilisation and Cropping Pattern Changes in India. Causes of Low Productivity in India, Suggestions to increase and Measures employed to develop agriculture in India. Diversification of Indian Agriculture, White Revolution in India – Fishery, Poultry, Forestry, Horticulture and Floriculture. Rural Industrialization: Problems and Prospects, Agro-based industries in India, Need for Second Green Revolution in India

## **UNIT II**

### **Input Supply in Indian Agriculture**

Supply of Inputs-Irrigation, Power, Seed and Fertilizer. Irrigation: Sources and Sources wise Development, Problems. Land Reforms: Objective and achievement. Farm Size and Productivity controversy. Farm Mechanisation: Types and Progress. Mechanisation Vs. Employment. Growth of Agricultural Labourers: Causes and problems.

## **UNIT – II**

### **Capital Formation and Finance in Indian Agriculture**

Role of Public Investment and Capital Formation in Indian Agriculture, Sources of Agricultural Finance in India - Institutional and Non- Institutional Sources, NABARD and Rural Credit, Micro Finance. Problems of Agricultural Finance in India. Suggestions of V.L. Mehta Committee.

## **UNIT – III**

### **Indian Agricultural Markets and Pricing System**

System of Agricultural Marketing in India, Measures to Improve Marketing Efficiency in India, , Agricultural Marketing – Issues and Suggestions.



Agricultural Prices In India: Objectives and Performance Trends in Agricultural Prices, Terms of Trade between Agriculture and Non-Agriculture Prices, Need and Methods of Price Stabilization, Warehousing of Agricultural Produce in India.

#### UNIT – IV

##### **State Intervention in Indian Agriculture**

Need for State Intervention, State Policy with Respect to Agricultural Marketing; Prices (Agricultural Price policy of India); Taxation and Crop Insurance in India. Food Security in India and Public Distribution System in India. Pricing of Inputs and Role of Subsidies

#### UNIT – V

##### **Changes in Indian Agriculture**

Technological Change in Agriculture-Indigenous Practices, Information and Communication Technologies and Agriculture - Agricultural Information Systems, Role of Remote Sensing, GPS Technology, Biotechnology, Nano Technology in Agriculture, Kisan Credit Cards, Kisan Call Centers, Bhoomi Project, Agricultural Technology Information Centers, Agricultural Knowledge System, Sustainable, Agricultural Extension in India, FAO. Impacts of WTO agreements on Indian Agriculture, Globalisation and priority issues for Indian Agriculture.

##### **Reading List:**

- Raj, K. N. *et al.* (1988) – Essays in the Commercialisation of Indian Agriculture, Oxford University Press, New Delhi.
- Subbarao, K. and De Janvry (1986) – Agriculture Price Policy and Income Distribution in India, Oxford University Press, New Delhi.
- Bhalla, G. S. (1994) – Economic Liberalisation and Indian Agriculture Institute for Studies in Industrial Development, New Delhi.
- Bhalla, G. S. (1994) – Economic Liberalisation and Indian Agriculture Institute for Studies in Industrial Development, New Delhi.
- Dhawan, B. D. (1988) – Irrigation in Indian Agriculture Development, Sage Publication, New Delhi.
- Rao, C. H. Hanumantha (1994) – Agriculture Growth, Rural Poverty and Environmental Degradation in India, Oxford University Press, New Delhi.
- Misra and Puri (2008) – Indian Economy, Himalaya Publishing Company, New Delhi.
- Dutta, R. and Sundaram (2008) – Indian Economy, S. Chand and Company, New Delhi.

- Hariharan, N. P. (2008) – Lights and Shades of Indian Economy, Vishal Publishing Company, Jalandhar.
- Soni, R. N. (2008) – Leading Issues of Agriculture Economics, Vishal Publishing Company, Jalandhar.
- Sadhu and Singh (1991), Agricultural Problems in India, Himalaya Publishing House, New Delhi.
- Government of India – Reports of the National Commission on Agriculture, New Delhi.
- Government of India-Statistical Abstract of India (Latest), Directorate of Economics and Statistics of India.
- Government of India- Agricultural Statistics at a Glance, Ministry of Agricultural and farmers welfare.
- Reserve Bank of India – Report of the Agricultural Credit Review Committee, Bombay.
- Government of India – Economic Survey (Annual) Ministry of Finance.

***M4ECO- A4 -ET-24***

**M A ECONOMICS**

**SEMESTER IV**

**GROUP –A ELECTIVE PAPER-A4**

**ISSUES OF LABOUR IN INDIA**

**Course Outcome:**

**CO1:** To understand the wage and bonus policies of industrial labour in India.

**CO2:** To understand the role trade union, collective bargaining and industrial peace in India

**CO3:** To understand concept of social security, welfare policies and programmes for labour.

**CO4:** To understand the specific problem of social groups and effect of changing economic scenario.

**UNIT – I**

Industrial Labour in India- Composition and Characteristics , Fair wages , Wage Boards in India, Bonus system and Profit Sharing, Wage Policy in India, The Problem of Bonus In India

**UNIT – II**

Trade Unions - Types and Functions, Growth of Trade Union Movement in India, Trade Unions Act, Evaluation of Trade Unions, Emerging Trends in Trade Union Movement, Trade Unions and Economic Development, Social Responsibilities of Trade Unions.

**UNIT – III**

Concept of Industrial Peace – Causes of Industrial Disputes and Present Mechanism of Dispute Settlement in India, Role of Tripartism, Collective Bargaining, Workers Participation in Management, ILO and India.

**UNIT – IV**

Social Security – Concept of Social Security and its evolution, Social Assistance and Social Insurance, Review and Appraisal of State Policies with respect to Social Security and Labour Welfare in India, Social Security Measures in India, Workmen's Compensation Act and ESI Act (in Brief).

**UNIT – V**

Specific Labour Problems in India – Child Labour, Labour Problems of Unorganized Sector, Gender Bias in Labour Market, Report of Second National Commission on Labour, Impact of Globalization on Indian Labour Market.

**Reading List:**

- Datta, G. (1996) – Bargaining Power, Wages and Employment: Analysis of Agricultural Labour Markets in India, Sage Publications, New Delhi.
- Papola, T.S. and Rodgers, (Eds.) (1992) – Labour Institutions and Economic Development in India, International Institute for Labour Studies, Geneva.
- Sen, A. K. (1975) – Employment, Technology and Development, Oxford University Press, New Delhi.
- Solow, R. M. (1990) – Labour Market as an Institution, Blackwell, London.
- Hicks, J. R. (1932) – The Theory of Wages, Clarendon Press, Oxford.
- Misra, L. (2000) – Child Labour in India, Oxford University Press, New Delhi.
- Lester, R. A. (1964) – Economics of Labour (2<sup>nd</sup> Edition), Macmillan, New York.
- McConnell, C. R. and S. L. Bruce (1986) – Contemporary Labour Economics, McGraw Hill, New York.
- Sinha, V.C. Audhyogik Arthshastra

***M4ECO- B1 -ET-21***

**M A ECONOMICS**

**SEMESTER IV**

## **GROUP –B ELECTIVE PAPER-B1**

### **INDIAN INDUSTRIAL ECONOMICS**

#### **Course Outcome:**

**CO1:** To understand the industrialization process in India and related issues.

**CO2:** To understand the role of public sector, effect of LPG policy, requirement to change in policies and measures taken by government for industrial development.

**CO3:** To understand the role of foreign capital and MNCs in industrial development.

**CO4:** To understand the sources of industrial finance and growth of main industries in India.

#### **UNIT – I**

Industrial Growth and Pattern of Industrialization in India, Recent trends in Indian Industrial Growth, Small-scale and Cottage Industries of India- Definition, Importance and Problems.

#### **UNIT-II**

LPG Policy and its Impact on Industrial Development, Evaluation of Role of Public Sector on Industrial Development, Balanced Regional Development- Need, Challenges and Measures taken by The Government.

#### **UNIT – III**

Role of Foreign Capital in Industrial Development of India, Multinational Corporations – Definitions, Merits and Demerits, Recent Trends, Perspective code of conduct, MNCs In India, Foreign Investment by Indian Companies, Major Indian MNCs and their Importance.

#### **UNIT – IV**

Industrial Proliferation and Environmental Protection- Challenges and Measures taken by the Government of India for Environmental Protection, Major Indian Industries-Iron and Steel Industry, Cotton Textile Industry, Cement Industry, Sugar Industry

#### **UNIT – V**

Industrial Finance – Sources, Types, Components, Institutional Finance – IDBI, IFCI, SFCs, SIDC, Commercial Banks, Indian Money and Capital Market.

**Reading List:**

- Barthwal,R R (2010): Industrial Economics, New Age International (P) Limited, New Delhi, 2010.
- Penrose, E (1959): The theory of growth of the Firm, Blackwell, Oxford.
- Ahluwalia(1985): Industrial Growth in India, Oxford University Press, New Delhi.
- Umakapila(2003) : Understanding the problems of Indian Economy, Academic Foundation
- Agarwal, A N (1995): Indian Economy Problems of development and planning Vishwas publication
- Desai, B. (1999) – Industrial Economy in India (3<sup>rd</sup> Edition), Himalaya Publishing House, Mumbai.
- Kuchhal, S. C. (1980) – Industrial Economy of India (5<sup>th</sup> Edition), Chaitanya Publishing House, Allahabad.
- Singh, A. and A. N. Sadhu (1988) – Industrial Economics, Himalaya Publishing House, Bombay
- Mamoria and Mamoria (2000) – Dynamics of Industrial Relations in India, (15<sup>th</sup> Edition), Himalaya Publishing House, Mumbai
- Gaurav Dutt and Ashwini Mahajan, 2017 , Indian Economy, S Chand and Co. New Delhi
- Government of India, Economic Survey (Annual), New Delhi

**M.A. ECONOMICS**  
**SEMESTER – IV**  
**GROUP B: ELECTIVE PAPER – B2**  
**DEMOGRAPHY**

**Course Outcome:**

**CO1:** The basic aim of this paper is to understand the demographic trends and issues in India.

**CO2:** The study theories of population and structure of population in India.

**CO3:** Basic concepts related to demography like fertility, Mortality and Migration in population will be discussed.

**CO4:** Student will also be acquainted with the various methods related to population projections and implications of changing composition population on labour force.

**UNIT-I**

Nature and Scope of Demography, Relation with other Disciplines. Population trends India; Study of Census in India – Methodology and characteristics of Census since 1951; Size, Composition and Distribution of Population. Latest Population Policy in India. Concept of Demographic Dividend.

Theories of population- Malthusian Theory, Post Malthusian Theories- Marx ideas on Population, Optimum Theory of Population, Theory of Demographic Transition. Views of Medows, Enke and Simon. Population and development.

**UNIT – II**

Fertility: Meaning and importance of study of fertility, Differential Fertility, Measurement of Fertility, Factors Influencing Fertility , Fertility levels and Trends in Developed and Developing Countries – Fertility in India. Fertility Transition in India. Nuptiality – Concept and Analysis of Marital Status, Single Mean age at Marriage. Concept of Morbidity, measures of Morbidity, incidence and prevalence rates.

**UNIT – III**

Mortality: Measurement of Mortality, Mortality levels and Trends in Developed and Developing Countries-Mortality in India, Reasons for Declining Trends in Mortality. Infant Mortality.

Techniques of Analysis: Crude Birth Rate, Death Rates, Age Specific Birth and Death Rates, Infant Mortality, Child Mortality, Maternal Mortality; Standardized Birth and Death Rates; Analysis of Total Fertility Rate; Gross Reproductive Rate, Net Reproductive Rate.

#### **UNIT –IV**

Concept and Types of Migration – Temporary, Internal and International. International Migration – Its effect on Population Growth and Pattern, Factors affecting Migration, Theories of Migration related to Internal Migration.

Life Table : Basic Concepts of Life Table, Types and Forms of Life Table, Construction of Life Tables based on Age-Specific Death Rates, Conventional Approach of Life Table Construction; Concept and Need for Model Life Tables.

#### **UNIT- V**

Concept and uses of Population Projection, Methods of Interpolation, Extrapolation using Gompertz Curves; Concepts and Measures of Population Ageing; Implications of Population Ageing on Labour Force, Retirement and Work Participation among Elderly, Implication for Government Expenditure on Pension.

#### **Reading List**

- Agarwal, S. N. (1985) – India's Population Problem, Tata McGraw Hill, Bombay.
- Agarwal, U. D. (1999) – Population Projections and Their Accuracy, B. R. Publishing Corporation, New Delhi.
- Bhende, A. A. and T. R. Kanitkar (1982) – Principles of Population Studies, Himalaya Publishing House, Bombay.
- Bogue, A. (1996) – India's Basic Demographic Statistics, B. R. Publishing Corporation, New Delhi.



- Choubey, P. K. (2000) – Population Policy in India, Kanishka Publications, New Delhi.
- Misra, B. D. (1980) – An introduction to the study of population, South Asian Publishers, New Delhi.
- Srinivasan, K. (Ed.) (1999) – Population Policy and Reproductive Health, Hindustan Publishing Corporation, New Delhi.
- Census of India, Government of India, Various Reports, New Delhi.
- Srinivasan, K. (1998) – Basic Demographic Techniques and Applications, Sage Publications, New Delhi.
- Simon, J. L. (1992) – Population and Development in Poor Countries, Princeton University Press.
- Agnihotri, S. B. (2000) – Sex ratio in Indian Population: A Fresh Exploration, Sage Publications, New Delhi.
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**Paper Code: M4ECO-B3-ET-23**

**M.A. ECONOMICS**

**SEMESTER – IV**  
**GROUP B: ELECTIVE PAPER – B3**  
**ECONOMY OF RAJASTHAN**

**Course Outcome:**

The course outcome of the paper is as follows-

- CO1:** The objective of the paper would be to make analytical study on Rajasthan Economy and its position and contribution in Indian economy.
- CO2:** The paper emphasis on major issues related to agriculture, industry and tourism sector of Rajasthan.
- CO3:** The course is expected to enable the student to appreciate the evaluation of the Rajasthan economy, its institutional frame work for analysing public policy, and to get familiar with the current issues and challenges of Rajasthan economy.

**UNIT-I**

Rajasthan Economy- Characteristics, compositional trend of GDP; Position of Rajasthan in the Indian Economy. Broad Demographic Features of Rajasthan: Population Size and Growth Rates, Sex Composition, Population and occupational Distribution of Labour Force. New Population Policy of Rajasthan.

**UNIT – II**

Major issues related to Agriculture sector- Land utilization pattern, irrigated Area, Sources of irrigation and their contribution, cropping Patterns in Rajasthan: Trends in the Production of food grains, Agricultural Development during Planning Period, Problem of Drought and Famine in Rajasthan. Animal Husbandry in Rajasthan. Government policies and programmes to promote Agriculture Development.

**UNIT-III**

Industry -Salient Features, Regional variation in Industrial Development of Rajasthan, Role and Problems of small scale Industries. Role of different corporations in Industrial Development- RIICO, Rajasthan Financial Corporation(RFC), Rajasthan small industries Corporation Limited (RAJSICO).

Tourism Development in Rajasthan - Role of Tourism in Rajasthan, Problems and Prospects of Tourism in Rajasthan. Government Policies and Programmes for Tourism Development in Rajasthan.

#### **UNIT –IV**

Resource Base Economic Infrastructure: Economic Infrastructure - Power and Roads; Issues and Policies in Infrastructural Development.

Natural Resources and Economic Development- Land Resource, Forest Resource, Water Resource, Livestock Resources, Mineral resources. Latest Mineral policy of Rajasthan.

#### **UNIT-V**

Problems of Rajasthan Economy – Poverty and Unemployment: causes and measures undertaken by Government to solve the problems. Rural Development Schemes and Special Area Programmes in Rajasthan.

Economic Planning in Rajasthan : objectives and Achievements. Latest Five Year Plan of Rajasthan – Objectives, Strategy.

Rajasthan Budget Analysis (Latest)

Finance Commission and Centre- Rajasthan State Financial Relationship (Latest).

#### **Reading List:**

- Laxminarayan Nathuram Ka, Rajasthan Economy, college book house, Jaipur.
- H.R. Bhalla, Contemporary issues in Rajasthan.
- State Finance: A study of budget.
- Economic Review, Government of Rajasthan.
- Tourism policy of Rajasthan, Department of Rajasthan.
- Agricultural statistics of Rajasthan.
- Basic statistics, Rajasthan.
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***Paper Code: M4ECO-B4-ET-24***

**M.A. ECONOMICS**

**SEMESTER – IV**  
**GROUP B–ELECTIVE PAPER – B4**  
**ENVIRONMENTAL ECONOMICS**

**Course Outcome:**

- CO1:** This course introduces students to concepts, methods and policy options in managing the environment using tools of economic analysis
- CO2:** This course intends to expose the student with practical applications of methods for valuation of environmental goods and services and quantification of environmental risk and damages.
- CO3:** Paper also discusses the various theories for managing the natural resources. It also highlights the concept and indicators for measuring sustainable development
- CO4:** Environment economics also brings insight the various issues and problems associated with the environment degradation in Indian and international context. Along with that, the policy measures adopted are also discussed.

**UNIT – I**

Environmental Economics - Meaning, Importance and Scope; The Concept of Externalities, Environment as a Public Good and Market Failure, Common Property Resources, Theories of optimal use of Exhaustible and Renewable Resources, Environmental Kuznet's Curve: Theory and Some Empirical Evidences

**UNIT – II**

Environmental valuation and Environmental risk: Valuing the Environment and Natural Resources – Concept of total Economic Value, Use Value, Option, Values and Non-use Values, Valuation Methods – Physical Linkage Methods, Abatement Cost Method, Behavioural Linkage Method, Contingent Valuation Method (CVM), Hedonic Pricing Technique. Environmental Accounting – Meaning, Need, Nature of Environmental Accounting (IEEA) and the Measurement of Environmentally corrected GDP (Green Accounting).

Environmental Risk – Concept and Assessment of Environmental Risks, Choice under Risk, Risk Management.

**UNIT – III**

Managing Natural Resources and Sustainable Development : Economics of Natural Resources, A Resource Taxonomy; Managing Exhaustible and Renewable Resources. The Theory of Collective Choices: Hardin's Thesis of the Tragedy of Commons; Prisoner's Dilemma Game, Olsen's theory of collective action. Methods of Abatement of Externalities:

Sustainable Development: Concept, Indicators, Measurement and Strategies for Sustainable Development

#### UNIT IV

Environmental Issues and Environmental Policy: Global Environmental Issues: Negative International Externalities and their Implications. Global Warming and Acid Rains: Causes, Effects and Solutions.

Major Environmental organization and Events: Green Peace movement, The World conservation union, The nature conservancy. Sierra club, WWF, UNEP, UNCED.

Environmental Policy Instruments- Internalizing Environmental externalities, Pigouvian taxes and subsidies; Coase's bargaining solution and collective action; Tradable pollution permits and international carbon tax,

#### UNIT – V

Environmental Law and Policy in India: The Vision, Goals, Objectives and Instruments of Environmental Policy; A Critique of India's Environmental Policy. Mechanism for Environmental Regulations in India, Environmental Laws and their implementation, Policy instruments for Controlling Water and Air Pollution, Forest Policy in India Resources and Energy.

#### **Reading List:**

- Charles D. Kolstad (2008) – Environmental Economics, Oxford University Press.
- H. K. Pathak (2010) – Economics of Environmental Development, G. S. Rawat for Cyber Tech Publication.

- Bhattacharya, R. N. (Ed.) (2001) – Environmental Economics: An Indian Perspective, Oxford University Press, New Delhi.
- Markandya, A. and J. Richardson (Eds.) – The Earth Scan Reader in Environmental Economics, Earth Scan, London.
- Panchmukhi, P. R. (1980) – Economics of Health: A Trend Report in ICSSR, A Survey of Research in Economics, Vol. VI, Infrastructure, Allied Publishers, Delhi.
- Peare, D. W. and R. K. Turner (1991) – Economics of Natural Resource Use and Environment, Johns Hopkins University Press, Baltimore.
- Beman, P. and M. E. Khan (1993) – Paying for India's Health Care, Sage Publications, New Delhi.
- Cooms, P. H. and J. Hallak (1988) – Cost Analysis in Education, John Hopkins University Press, Baltimore.
- M.L. Jhingan- Environmental Economics, Vrinda publication, New Delhi.
- Murty, M. N., A. J. James and S. Misra (1999) – The Economics of Water Pollution in India, Oxford University Press, New Delhi.
- Sengupta, R. P. (Ed.) (2001) – Ecology and Economics: An Approach to Sustainable Development, Oxford University Press, New Delhi.
- Woodhall, M. (1992) – Cost Benefit Analysis in Educational Planning, UNESCO, Paris.
- World Bank (1993) – The World Development Report, 1993: Investing in Health, Oxford University Press, New York.
- Arun Kumar Singh – Environmental Economics, Deep and Deep Publications Pvt. Ltd., New Delhi.
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***M4ECO01-Skill- 02***

**MA ECONOMICS  
SEMESTER IV**

**SKILL COURSE PAPER-02**  
**ADVANCE ECONOMIC ANALYSIS WITH SPSS**

**Course Outcome:**

The course outcome of the paper is as follows-

**CO1:** The paper will equipped students with practical applications of SPSS for advanced economic analysis.

**CO2:** The students will develop a strong theoretical framework of advanced statistical technique of data analysis with hands on training on SPSS.

**UNIT-I**

**Comparing Means: One or Two Samples**

Basic concept – t- tests and z tests, One sample t-test; independent samples t-test, dependent sample t- test, Dependent (paired) Samples t- test.

Using SPSS – One Sample t- test, independent Samples t-test, Dependent Samples t- test.

**UNIT-II**

**Analysis of Variance**

Basic concepts- ANOVA Procedure, Factors and Covariates, between, within and Mixed (Between – Within) Designs, Main effects and Interactions, Post-Hoc Multiple Comparisons, Contrast Analysis.

Using SPSS – One Way between Groups ANOVA, Planned comparisons, Two Way between Groups ANOVA.

**Unit III**

**Regression Analysis**

Concept of Ordinary Linear Regression, Curvilinear Regression and Multiple Regression.

Use of SPSS – Linear Regression, Curvilinear and Multiple Regression.

**Unit IV**

**Other Multivariate Techniques**

Concept of Factor Analysis, Cluster and Discriminant Analysis.

Use of SPSS- Dimension Reduction, Cluster and Discriminant Analysis.

**Basic Readings:**

- Gaur A. S. & Gaur S. S (2009). Statistical Methods for Practice and Research: A guide to data analysis using SPSS, Sage Response, Second edition.
- IBM SPSS Training Manual

- Parameswaranm R. (2010).Computer Applications in Business, S. Chand and Company, New Delhi.
- Sudalaimuthu, S. & Anthony R. S. (2008), Computer Applications in Business, Himalays Publishing House, New Delhi.



**MOHANLAL SUKHADIA UNIVERSITY: UDAIPUR**

**SYLLABUS  
OF  
ECONOMICS**

**FACULTY OF SOCIAL SCIENCE**



Third Year Degree Course Arts (Economics)

**2019-20** onwards

Paper Code: 1321

**First Year T.D.C. Arts  
Paper – I**

**MICRO ECONOMICS**

**Course Outcomes:**

CO1: This course enables students to understand the basic concepts and principles of Micro Economics and to apply them to the real world

CO2: The students will learn how consumers and producers behave in markets and how price is determined in commodity market.

CO3: This paper also enhanced the understanding of students about factor Pricing.

**UNIT – I**

**Introduction:** Definitions of Economics – Wealth, Welfare, Scarcity and Development related definitions, Nature and Scope of Economics, Methods of Study Economics: Inductive and Deductive Methods, Micro and Macro Economics, Static and Dynamic Analysis, The Concept of Equilibrium.

**UNIT – II**

**Consumer Behaviour:** Utility Analysis- Cardinal Approach – Law of Diminishing Marginal Utility and Law of Equi-Marginal Utility, Ordinal Approach- Indifference Curve Analysis – Consumer's Equilibrium, Price, Income and Substitution Effects (Hicksian Approach).

Demand- Meaning, Law of Demand and Demand Curve, Elasticity of Demand – Price, Income and Cross Elasticity, Consumer's Surplus.

**UNIT – III**

**Producer's Behaviour:** Production Function, Laws of Variable Proportions and Stages of Production. Isoquants – Factor Substitution and Returns to Scale, Equilibrium of the Firm, Expansion Path.

Different Concepts of Cost and Revenue Curves and their relationship.

**UNIT – IV**

**Market Forms and Commodity Price Determination:** Types of markets, Perfect Competition: Characteristics, Determination of Equilibrium Price and Quantity. Monopoly Market – Characteristics, Determination of Equilibrium Price and Quantity under Monopoly. Price Discrimination.

Monopolistic Competition: Characteristics and Determination of Equilibrium Price and Quantity. Oligopoly: Characteristics, Price rigidity and Kinked demand Curve, Cartel.

## UNIT – V

**Distribution Theories:** Marginal Productivity Theory of Distribution, Theories of Wage Determination- Subsistence Theory and Modern Theory. Theories of Rent – Ricardian and Modern Theory. Theories of Interest – Classical, Keynesian and Modern Theory. Theories of Profit: Innovation, Risk and Uncertainty Theory.

### Basic Reading List :-

1. Ahuja, H.L. (Latest Addition). Principles of Micro Economics, Sultan Chand and Company, New Delhi (Hindi and English Versions).
2. Barla, C.S. .(Latest Addition), Micro Economics, National Publishing House, Jaipur, New Delhi (Hindi and English Versions).
3. Jhingan, M.L. (Latest Addition), Micro Economic, Vrinda Publication, New Delhi (Hindi and English Versions).
4. Karl E. Case and Ray C. Fair, (2007), Principles of Economics, 8th Ed., Pearson Education Inc.
5. Koutsoyiannis, A. (1979), Modern Microeconomics, (2nd Edition), Macmillan Press, London.
6. Kreps, David M. (1990), A Course in Microeconomic Theory, Princeton University Press, Princeton
7. Mankiw, G. (2010), Principles of Microeconomics, 6<sup>th</sup> ed., South-Western College Publication, USA.
8. Misra, S. K. and Puri, V. K. (2001) – Advanced Micro Economic Theory, Himalaya Publishing House, Bombay (Hindi and English Versions).
9. Salvatore D. (2006), Microeconomics-Theory and Applications, Oxford University Press
10. Salvatore D, (2002) Theory and Problems of Microeconomic Theory, Schaum's Outline Series, McGraw-Hill Book Company, Singapore.
11. Samuelson, P.A. and W.D. Nardhaus – Economics, Tata McGraw Hill, New Delhi.
12. Seth, M.L. (Latest Edition) – Principles of Economics, Laxmi Narayan Agrawal, Agra. (Hindi and English Versions).
13. Varian, H. (2000), Microeconomic Analysis, W.W. Norton, New York.
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Paper Code: 1322

**First Year T.D.C. Arts**  
**Paper – II**  
**INDIAN ECONOMIC ENVIRONMENT**

**Course Outcomes:**

CO1: The objective of the course is to sharpen the analytical skills of the students by highlighting on broad overview of the Indian economy.

CO2: To get familiar with the issues related to agriculture, industry, foreign trade, Economic Planning and various problems in India.

CO3: Students will also acquaint with the broad overview of Rajasthan economy.

**UNIT – I**

Characteristics of Indian Economy, Trends and Sectoral Composition of National Income, Sectoral Distribution of workforce; Broad Demographic Features: Population Size and Growth Rates, Sex Composition, Problems of Over-population, Population Policy.

**UNIT – II**

Nature and Importance of Agriculture, Trends in Agricultural Production and Productivity; Green Revolution and Need for Second Green Revolution, Agricultural Market, Agricultural price policy and Minimum supporting price, Government measures for Agriculture development.

Trends in Industrial Development during pre and post reform Period, Growth and Problems of Small Scale Industries, Industrial Policy of 1956, 1991 and Latest.

**UNIT – III**

Economic Infrastructure – Transport , Power and communication

Major Problems of Indian Economy – Poverty, Inequality and Unemployment- Their Trends and Measures taken by Government to overcome them

Economic planning in India-Concept of Five year planning; Niti Aayog- Structure and planning.

**UNIT – IV**

The Position of Rajasthan's Economy in Indian Economy, Broad Demographic Features of Rajasthan- Trends in population growth and Human Development Index, Trends and Sectoral Composition of State Domestic Product, Sectoral Distribution of workforce, Trends in Agriculture and Industrial Production, Tourism Development in Rajasthan.

**UNIT – V**

Natural Resource Endowments- Land, Water, Livestock and Minerals

Economic Infrastructure- Power, Roads, Industrial Finance- RIICO, RFC, RAJSICO

Problem of Poverty, Unemployment, Famine and Drought- Trends and Measures taken by Government to overcome them. Tribal Development schemes of Rajasthan

### **Basic Reading List**

1. Mishra and Puri – Indian Economy, Himalaya Publishing House, New Delhi.
2. Rudra Dutt and Sundaram – Indian Economy, S. Chand and Company, New Delhi.
3. Alok Ghosh – Indian Economy Its Nature and Problems, The New Book Stall.
4. Hariharan, N. P. (2008) – Lights and Shades of Indian Economy, Vishal Publishing Co., Jalandhar.
5. Uma Kapila (20<sup>th</sup> Edition) (2009) – Indian Economy Since Independence, Academic Foundation, New Delhi.
6. Jalan, B. (1992) – The Indian Economy, Problems and Prospects, Viking, New Delhi.
7. Reserve Bank of India – Report on Currency and Finance (Annual).
8. Indian Economy (Extra issue) – Pratiyogita Darpan, Upkar Prakashan, Agra.
9. Annual Economic Survey, Government of India (Latest).
10. Brahmananda, P. R. and V. R. Panchmukhi (Eds.) (1987) – The Development Process of the Indian Economy, Himalaya Publishing House, Bombay.
11. Government of India, Planning Commission, 11<sup>th</sup> Five Year Plan, New Delhi.
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**MOHANLAL SUKHADIA UNIVERSITY: UDAIPUR**

**SYLLABUS  
OF  
ECONOMICS**

**FACULTY OF SOCIAL SCIENCE**



Bachelor of Arts Honours (Economics)

**2019-20** onwards

Paper code:1331

**B.A. HONOURS IN ECONOMICS**  
**FIRST YEAR HONOURS**  
**Paper – I**  
**MICRO ECONOMICS**

**Course Outcome:**

CO1: This course enables students to understand the basic concepts and principles of Micro Economics and to apply them to the real world

CO2: It will develop the understanding of behaviours of consumers and producers in the market, price determination in commodity and factor market and criteria of welfare in Economics.

CO3: Theories and diagrammatical representations are the most important tools that will aid students to understand and grasp the subject.

**UNIT – I**

Introduction of Economics: Definition, Nature, Scope, Methods-Inductive and Deductive. Utility Analysis – Cardinal and Ordinal Utility Approach. Law of Diminishing Marginal Utility and Law of Equi-Marginal Utility. Demand – Meaning, Law of Demand, Demand Curve, Elasticity of Demand – Price, Income and Cross Elasticity, Consumer's Surplus. Indifference Curve: Consumer's Equilibrium, Price, Income and Substitution Effects (Hicks Approach).

**UNIT – II**

Production Function – Law of Variable Proportions, Stages of Production, Iso-quants and Expansion Path, Factor Substitution, Returns to Scale, Cost and Revenue Concepts and their interpretations, Equilibrium of the Firm.

**UNIT – III**

Market Forms – Perfect and Imperfect Markets. Characteristics and Price-Output Determination under Perfect Competition, Monopolistic Competition, Monopoly and Discriminating Monopoly. Oligopoly Market: Characteristics, Price Rigidity and Kinked Demand Curve, Cartels.

**UNIT – IV**

Distribution Theories: Marginal Productivity Theory of Distribution, Theories of Wage Determination- Subsistence Theory and Modern Theory. Theories of Rent – Ricardian and

Modern Theory. Theories of Interest – Classical, Keynesian and Modern Theory. Theories of Profit: Innovation, Risk and Uncertainty Theory.

### UNIT – V

Welfare Economics – Meaning and Nature, Economic and General Welfare. Welfare Criteria – Classical View, Pareto Criterion, Compensation Criterion, Social Welfare Function.

#### Basic Reading List

1. Ahuja, H.L. (Latest Addition). Advanced Economic Theory, Sultan Chand and Company, New Delhi (Hindi and English Versions).
2. Barla, C.S. (Latest Addition), Advanced Micro Economics, National Publishing House, Jaipur, New Delhi (Hindi and English Versions).
3. Baumol, W. J. (1982) – Economic Theory and Operations Analysis (4<sup>th</sup> Edition), Prentice Hall of India, New Delhi.
4. Jhingan, M.L. (Latest Addition), Micro Economics, Vrinda Publication, New Delhi (Hindi and English Versions).
5. Karl E. Case and Ray C. Fair, (2007), Principles of Economics, 8th Ed., Pearson Education Inc.
6. Koutsoyiannis, A. (1979), Modern Microeconomics, (2nd Edition), Macmillan Press, London.
7. Kreps, David M. (1990), A Course in Microeconomic Theory, Princeton University Press, Princeton
8. Mankiw, G. (2010), Principles of Microeconomics, 6<sup>th</sup> ed., South-Western College Publication, USA.
9. Misra, S. K. and Puri, V. K. (2001) – Advanced Micro Economic Theory, Himalaya Publishing House, Bombay (Hindi and English Versions).
10. Salvatore D. (2006), Microeconomics-Theory and Applications, Oxford University Press
11. Samuelson, P.A. and W.D. Nardhaus – Economics, Tata McGraw Hill, New Delhi.
12. Seth, M.L. (Latest Edition) – Principles of Economics, Laxmi Narayan Agrawal, Agra. (Hindi and English Versions).
13. Varian, H. (2000), Microeconomic Analysis, W.W. Norton, New York.
14. ukFkwjkedk] ,y-,u- (2018-19) O;f"V vFkZ'kkL=] vkj- ch- Mh izdk'ku] t;iqj
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**B.A. HONOURS IN ECONOMICS**

**FIRST YEAR HONOURS**

**Paper –II**

**PUBLIC ECONOMICS**

**Course Outcome:**

CO1: The course will provide basic information to students on the scope of Public Economics.

CO2: The students will be able to understand the significance of government and its functions, governmental finance and its impacts on economic development.

**UNIT –I**

Nature and Scope of Public Finance, Market Failure: Market efficiency, Reasons for Market failure, Public goods and Externalities,

**UNIT-II**

Taxation-Objectives, Classification, Canons and Effects of Taxation. Tax Elasticity, Impact and Incidence of Taxation; Theories of Taxation-Benefit Theory, Ability to Pay Theory, Principle of Maximum Social Advantage. Characteristics of Good Taxation System.

**UNIT-III**

Public Debt: Sources and Effects, Public debt Vs Alternative Sources of Resource Mobilization, Public Expenditure- Classifications, Canons and Effects of Public Expenditure, Wagner Law and Wiseman-Peacock Hypothesis.

**UNIT-IV**

Functions of Fiscal Policy- Allocation, Distribution and Stabilization. Fiscal policy in India. Public Expenditure in India- need for government spending, areas of government spending in India, Pattern and Trends in Central Governments Expenditure; Capital and Revenue Expenditure, Plan and Non-plan Expenditure of central government. Capital Receipts, Revenue Receipts; Tax and Non-tax revenue; Direct and Indirect Taxes. Steps taken to increase Revenue- Tax Simplification, Improvement in Tax Administration, Expansion of Tax Net. Need to Rationalize Tax Structure. Goods and Services Tax (GST) in India.

**UNIT-V**

Deficits- Concept and Types - Fiscal, Primary, Revenue. Impact of Fiscal Deficit on Economy, Need to Control Fiscal Deficits, Trends in Fiscal and Revenue Deficit. Zero-Base

Budgeting and Gender Budgeting. Fiscal Devolution and Centre-State Financial Relations in India, Role of Finance Commission.

**Reading List:**

1. Agarwal, R.C (2007): Public Finance Theory and Practice, Leksmi Narayan Agarwal, Agra,India.
2. Andley and Sundaram (2006): Public Economics and Public Finance, Ratan Prakash, Agra.
3. Bhatia,H.L.(1994): Public Finance, Vikas Publishing House, New Delhi.
4. Hajela, T N(2010): Public Finance, 3rd ed, Ann's Books, New Delhi.
5. Lekhi, R K (2003): Public Finance, Kalyani Publications, New Delhi.
6. Mithani, D M(1998): Modern Public Finance, 1st ed, Himalaya Publishing House, New Delhi.
7. Singh, S. K (2010): Public finance-Theory and Practice, 6th ed, S Chand, New Delhi
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**B.A. HONOURS IN ECONOMICS**  
**FIRST YEAR HONOURS**  
**Paper – III**  
**QUANTITATIVE TECHNIQUES**

**Course Outcome:**

CO1: This course provides basic knowledge of mathematical technique which are frequently used in economic analysis.

CO2: This course will enable the students to use elementary statistical techniques for data analysis in social researches.

CO2: Being combination of basic mathematical and statistical techniques, this course will enable students to use these techniques to understand the economic theories.

**UNIT – I**

Simple Differential calculus – First and Higher Order derivatives, Maxima and Minima. Partial and Total Derivatives- First and Higher Order derivatives.  
Integration – Methods of Integration, Substitution and by Parts, Partial Fraction and Definite Integrals.

**UNIT – II**

Matrices and their types, Inverse of Matrices. Determinants and their properties. Application of the Matrices and Determinants in solving Simultaneous Equations. Game theory: Saddle Point Solution, Mixed Strategy, Nash Equilibrium.

**UNIT – III**

Measures of Central Tendency – Mean, Median, Mode. Measures of Dispersion – Range, Mean Deviation, Standard Deviation, Coefficient of Variation, Quartile Deviation, Skewness and Kurtosis.

**UNIT – IV**

Correlation – Simple Coefficient of Correlation, Karl Pearson and Rank Correlation, Regression Analysis – Simple Regression, Least Square Method, Time Series Analysis – Concept and Components, Determination of Regular trends: Moving Average Methods and Least Square Method.

### UNIT – V

Index numbers – Concept, Index Methods – Laspeyer's, Pasche's and Fisher, Family budget method, Problems in the construction and limitations of Index Numbers, Test for ideal Index Number.

Elementary Probability Theory: concept of permutation and combination, concept of probability, rules of probability (addition and multiplication rules), Conditional Probability and Bayes' rule. Probability Distribution – Binomial, Poisson and Normal Distribution (concept).

#### Basic Reading List

1. Agrawal, D.R. (2015). *Mathematics and Statistics in Economics*, Vrinda Publications, Delhi.
2. Chiang, A.C. (1986), *Fundamental Methods of Mathematical Economics* (3<sup>rd</sup> Edition), McGraw Hill, New Delhi
3. Croxton, Crowden and Klein (1971) – *Applied General Statistics*, Prentice Hall of India, New Delhi.
4. Gupta, S.P. (2002) – *Statistical Methods*, S. Chand and Sons, New Delhi.
5. Madnani, G.M.K.- *Arthshastra Me Ganit Ke Prayog* .(Hindi Version)
6. Nathuramka L.N. (2016), *Arthshastra Me Ganit Ke Prayog*, College Book House, Jaipur.(Hindi Version)
7. Nagar, A.L. and Das, R.K. (1993) – *Basic Statistics*, Oxford University Press, New Delhi.
8. Sydsaeter K.and P. Hammond (2002) *Mathematics for Economic Analysis*, Pearson Educational Asia, Delhi
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**B.A. HONOURS IN ECONOMICS**  
**FIRST YEAR HONOURS**  
**Paper – IV**  
**HISTORY OF ECONOMIC THOUGHT**

**Course Outcome:**

**The course outcome of the paper is as follows**

CO1: The paper will make students aware of the economic history.

CO2: It will also provide a historical perspective on the evolution and process of transformation of economic thought.

**UNIT – I**

Nature and Significance of History of Economic Thought, Economic Thought of Plato and Aristotle, Mercantalism, Physiocracy.

**UNIT – II**

Classical School – Adam Smith, Malthus, Ricardo, J.S. Mill and J.B. Say

**UNIT – III**

The Socialists – Sismondi, Robert Owen, Rodbertus and Karl Marx, The Mathematical School – Jevons, Fisher, Walras and Pareto.

**UNIT – IV**

Marshall, Keynes, Pigou, Robbins, Schumpeter and Galbraith, J.R. Hicks

**UNIT – V**

Economic Ideas of Kautilya, Mahatma Gandhi, J.K. Mehta, Jawaharlal Nehru and Amartya Sen.

**Basic Reading List**

1. Bell John Fred (1963), History of Economic Thought, the Ronald Press Company, New York
2. Bhatia, H.L (1980), History of Economic Thought, Vikas publishing house Pvt. Ltd. India.

3. Ganguli, B.N. (1977) – Indian Economic Thought: A 19<sup>th</sup> Century Perspective, Tata McGraw Hill, New Delhi.
4. J.C.Pant & M.L.seth, (2015) Aarthik Vicharon Ka Itihas,Laxmi Narain Agarwal, Agra. .(Hindi Version)
5. M.C.Vaish, (2002) Aarthik Vicharon Ka Itihas,S.Chand & Co., New Delhi.(Hindi Version)
6. Schumpeter, J.A. (1954), History of Economic Analysis, Oxford University Press, New York.
7. Seshadri, G.B. (1997), Economic Doctrines, B.R. Publishing Corporation, Delhi.
8. Roll, E. (1973) – A History of Economic Thought, Faber, London.

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## **B.A. HONOURS IN ECONOMICS**

### **SECOND YEAR HONOURS**

#### **Paper – V**

### **MACRO ECONOMICS**

#### **Course Outcome:**

CO1: This course will make the learners familiar with the economic aggregates and their role in economy.

CO2: It also covers various theories related to consumption and basic concept of investment.

CO3: Students will also get familiar with the Concept and various theories of business cycles.

#### **UNIT – I**

Nature and Scope of Macro Economics, Concepts and Measurement of National Income, Circular flow of Income (Four sector Economy), Savings and Investment – Ex ante and Ex post Equality and Equilibrium; Different forms of National Income Accounting – Social Accounting, Green Accounting.

#### **UNIT – II**

The Classical Theory of Income and Employment, Keynes Critique on classical theory, Keynesian Theory of determination of Income and Employment, Theories of Interest – Classical, Neo-Classical, Keynesian Theory and Modern Theory.

#### **UNIT – III**

Consumption Function- Meaning and Basic concepts, Theories of consumption- Absolute Income hypothesis, Relative Income hypothesis, Permanent Income Hypothesis and Life cycle theory. Factors influencing Consumption Spending. Concept of Multiplier, The Acceleration principle.

Meaning and Types of Investment; Concept of Marginal Efficiency of Capital.

#### **UNIT – IV**

Business Cycle – Nature, Characteristics, Phases, Theories of Business Cycle – Hawtrey's Monetary Theory, Hayek's over Investment Theory, Keynes view on Trade Cycle, Samuelson and Hicks Multiplier and Accelerator Interaction Model. Measures to control business cycles in India

Paper Code: 2331

## **B.A. HONOURS IN ECONOMICS**

### **SECOND YEAR HONOURS**

#### **Paper – V**

### **MACRO ECONOMICS**

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The Classical Theory of Income and Employment, Keynes Critique on classical theory, Keynesian Theory of determination of Income and Employment, Theories of Interest – Classical, Neo-Classical, Keynesian Theory and Modern Theory.

#### **UNIT – III**

Consumption Function- Meaning and Basic concepts, Theories of consumption- Absolute Income hypothesis, Relative Income hypothesis, Permanent Income Hypothesis and Life cycle theory. Factors influencing Consumption Spending. Concept of Multiplier, The Acceleration principle.

Meaning and Types of Investment; Concept of Marginal Efficiency of Capital.

#### **UNIT – IV**

Business Cycle – Nature, Characteristics, Phases, Theories of Business Cycle – Hawtrey's Monetary Theory, Hayek's over Investment Theory, Keynes view on Trade Cycle, Samuelson and Hicks Multiplier and Accelerator Interaction Model. Measures to control business cycles in India



## **UNIT – V**

Inflation – Classical, Keynesian and Monetarist approaches to inflation, Structuralist theory of inflation; Philips curve analysis - Short run and long run Philips curve; Tobin's modified Philips curve. Samuelson and Solow - the natural rate of unemployment hypothesis.

### **Reading List:**

1. Ackley, G. (1978) – Macroeconomics: Theory and Policy, McMillan, New York.
2. Branson, W.A. (1989) Macroeconomic Theory and Policy, (3<sup>rd</sup> Edition) Harper and Row, New Delhi.
3. Dornbusch, Fischer, Startz-Macroeconomics, The McGraw Hill Company Ltd., New York.
4. H.L. Ahuja –Advanced Macro Economic Theory, S Chand and Co. New Delhi
5. Shapiro, E. (1996) – Macroeconomic Analysis, Galgotia Publications, New Delhi.
6. Keynes, J. M. (1936) – The General Theory of Employment, Interest and Money, Macmillan, London.
7. M.L. Jhingan- Macro Economic Theory, Vrinda publication, New Delhi
8. Romar, D. L. (1996) – Advanced Macroeconomics, McGraw Hill Company Ltd., New York.
9. Patinkin, D. (1965) – Money, Interest and Prices. Haper and Row, New York.
10. Culbertson, J. M. (1968) – Macroeconomic Theory and Stabilization Policy, McGraw Hill, Kogenkoshi, Tokyo.
11. Friedman, M. (1957) – The Theory of Consumption Function, Princeton University Press, Princeton.
12. Duesenberry, J. S. (1949) – Income saving and the Theory of Consumer Behaviour, Harvard University Press, Harvard.
13. Hicks, J. R. (1950) – A contribution to the Theory of Trade Cycles, Clarendon Press, Oxford.
14. Hicks, J. R. (1974) – The Crisis in Keynesian Economics, Oxford University Press, New Delhi.

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## **B.A. HONOURS IN ECONOMICS**

### **SECOND YEAR HONOURS**

#### **PAPER – VI**

## **MONEY AND FINANCIAL MARKETS**

### **Course Outcome:**

CO1: The course will provide the basic information to students about the concepts, theories and scope of financial sector.

CO2: The students will understand the significance and functions of short term and long term financial markets, Exchange Rate and their impact on economic indicators.

### **UNIT – I**

Money – Meaning, Functions and Classification; Importance of Money, Gresham's Law; Main Components of Money Supply, New measurement of Money supply, Concept of Money Multiplier, Near Money. Quantity Theory of Money – Cash Transaction, Cash Balance and Keynesian Approach.

### **UNIT – II**

Commercial Banks – Meaning, Types and Functions, The Process of Credit Creation in single Bank system and Multi-banking system, Limitation to Credit Creation; Liabilities and Assets of Banks. Role and importance of Non-Banking Institutions in economy.

Role and functions of Central Bank, Quantitative and Qualitative Methods of Credit Control: Bank Rate, Open Market Operations, Variable Reserve Ratio and Selective Methods; RBI and Monetary policy in India.

### **UNIT – III**

Financial system – Financial intermediary, financial assets and financial market. Financial Assets-Share, Bond and debenture and financial innovation. Problems in financial transactions- Asymmetric information and Moral hazard. Financial Market- Money Market and Capital Market; Components, Functions and Sources of Long Term and Short Term Finance. Non-Banking Financial Institutions (NBFI's) – Mutual fund, LIC, Investment Companies, Venture Capital. Co-operative Institutions: Structure, Objectives and Limitations.

### **UNIT-IV**

Financial System in India – Components, Functions and Importance; Markets, Measures taken by Government of India to liberalize the financial system, Financial Sector Reforms and their Impact on economic growth in India. Role of SEBI in capital market,

### **UNIT – V**

Foreign Exchange – Determination of Exchange Rate under Fixed and Flexible Exchange Rate, Spot and Forward Exchange Rate, Future ,Forward and option contract to control the Exchange Rate. The role of hedging in the determination of Exchange Rate, Euro-Dollar Markets – Its rate and significance.

### **Basic Reading List**

1. Mitthani, D.M. – Money and Banking, Himalaya Publishing Company, New Delhi.
2. Sethi, T.T. – Monetary Economics, Laxmi Narayan Agarwal, Agra.
3. Seth, M. L. – Money and Banking, Lakshmi Narayan Agrawal, Agra.
4. Ojha, B.L. – Money Banking and Public Finance, Ramesh Book Depo., Jaipur.
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**B.A. HONOURS IN ECONOMICS**

**SECOND YEAR HONOURS**  
**Paper – VII**  
**MATHEMATICAL ECONOMICS**

**Course Outcome:**

CO1: This course will equip students to understand the economic concepts and theories with the use of mathematical tools and techniques to refine the verbal logic.

CO2: The Modern algebraic tools will allow convenient handling of simultaneous equations in the context of linear programming and input-output analysis.

**UNIT – I**

Utility function, Indifference Curves and their characteristics, Budget line, Constrained Optimization, Consumer's Equilibrium, Slutsky equation -Income effect, Substitution effect and Price effect. Derivation of Simple Demand Curve and Elasticity of Demand.

**UNIT – II**

Properties of Production Function – Homogeneous and Non-Homogeneous, Cobb-Douglas, CES, Returns to Scale. Choice of Optimal Combination of Factors of Production; Cost and Revenue Functions, Derivation of Cost Curves, Relation between total, Average and Marginal cost and revenue, Adding up theorem.

**UNIT – III**

Concept of Equilibrium – Equilibrium of the firm under Perfect Competition, Monopoly and Monopolistic Competition, Monopoly – Price Discrimination, Cobweb Model.

**UNIT – IV**

Pricing under Duopoly- The Cournot Model, The Bertrand Model, and the Stackelberg Model. Collusive Oligopoly. Kinked Demand Curve Model.

Trade Cycle Model of Hicks and Samuelson. Harrod-Domar Growth Model.

**UNIT – V**

Input-Output Analysis – The simple closed and open model, Linkages, Concepts and Measurement, Dynamic Input-Output Model.

Linear programming- Concept and Assumptions, Basic theorem of Linear Programming, Primal and Dual, Graphic and Simplex Method.

### **Basic Reading List**

1. Henderson, J. and R.E. Quandt (1980) – Microeconomic Theory: a Mathematical Approach, McGraw Hill, New Delhi.
2. Mehta and Madnani – Mathematics for Economists, Sultan Chand and Sons, New Delhi.
3. Madnani, G.M.K. – Mathematical Economics: Oxford and IBH Publishing Co., New Delhi.
4. Cliang, A.C. – Fundamentals of Mathematical Economics, McGraw Hill, New York.
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**B.A. HONOURS IN ECONOMICS**

**SECOND YEAR HONOURS**

**Paper – VIII**

**INTERNATIONAL ECONOMICS**

**Course Outcome:**

CO1: This paper will develop the understanding of theories of International Trade which explain the reasons, composition and impacts of international trade to students.

CO2: It will also build the understanding of trade policy and exchange rate system.

CO3: The students will have an idea about trends, composition and direction of international trade and trade policy of India.

### **UNIT – I**

Importance of International Economics, Inter-regional and international trade, Theories of International Trade, Theory of Absolute Advantage, Comparative Advantage and Opportunity Cost, Hecksher-Ohlin theory of trade and trade under Imperfect Competition.

### **UNIT – II**

Gains from Trade – Their measurement and distribution, Concepts of terms of trade and determinants of Terms of Trade.

Concept and components of Balance of Payments, Equilibrium & Dis-equilibrium in Balance of Payments, Devaluation and other measures to correct deficit in the Balance of Payments.

### **UNIT – III**

Foreign Trade Policy – Free trade v/s Protection, Types of Tariffs and Quotas and their impact on Partial Equilibrium analysis. Concept of Optimum and effective Tarrif. Concept of Foreign Trade Multiplier.

### **UNIT – IV**

Foreign exchange – Meaning, Types and Theories of Determination of Exchange Rate- The Purchasing Power Parity Theory and Modern Theory. Fixed v/s Flexible Exchange Rate Policy. Exchange Control- Meaning, Objectives and Methods of Exchange Control.

### **UNIT – V**

Foreign Trade of India- Trend, Composition and Direction. EXIM Policy of India –Pre and Post Globalisation. FDI- Trends and Impact. WTO and Its Impact on Indian Economy. Globalisation Debate: Regionalism, Multilateralism or Nationalism.

### **Basic Reading List**

1. Acharyya R.(2014). International Economics-An Introduction to Theory and Policy, Oxford University Press, New Delhi.
2. Barla C.S. and Agrawal (2012). International Economics. Laxmi Narayan Agarwal, Agra. (Hindi Version)
3. Cherunilam, F. (2008). International Economics, The Tata McGraw-Hill Companies,New Delhi. 5th Ed.
4. Jhingan M.L. (2015). International Economics, Vrinda Publications, New Delhi (English & Hindi Version)
5. Kindlberger, C. P. (1991). International Economics, R D Irwin, Homewood.8th Ed.
6. Krugman, P.R. and M. Obstfeld (2013). International Economics- Theory and Policy, Dorling Kindersely Pvt. Ltd. Licensee of Pearson Education, new Delhi India.
7. Salvatore, D. (2014). International Economics: Trade and Finance., Jhon Wiley &Sons, Singapore.
8. Mithani, D. M. – International Economics, Himalaya Publication House, Bombay
9. Rana, K.C. and K.N. Verma (2010). International Economics, Vishal Publishing House, Ludhiyana. (English & Hindi Version)
10. Sodersten, B.C. (1991). International Economics, Macmillan Press, London.
11. Swami, K. D. (2008) – International Economics, Scientific Publications, Jodhpur. (Hindi Version)
12. Vaish, M.C. and S. Singh (2000). International Economics, Oxford and I.B.H. Publishing Company Pt. Ltd., New Delhi. (Hindi Version)

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**B.A. HONOURS IN ECONOMICS**  
**THIRD YEAR HONOURS**  
**Paper – IX**  
**GROWTH AND DEVELOPMENT ECONOMICS**

### **Basic Reading List**

1. Acharyya R.(2014). International Economics-An Introduction to Theory and Policy, Oxford University Press, New Delhi.
2. Barla C.S. and Agrawal (2012). International Economics. Laxmi Narayan Agarwal, Agra. (Hindi Version)
3. Cherunilam, F. (2008). International Economics, The Tata McGraw-Hill Companies,New Delhi. 5th Ed.
4. Jhingan M.L. (2015). International Economics, Vrinda Publications, New Delhi (English & Hindi Version)
5. Kindlberger, C. P. (1991). International Economics, R D Irwin, Homewood.8th Ed.
6. Krugman, P.R. and M. Obstfeld (2013). International Economics- Theory and Policy, Dorling Kindersely Pvt. Ltd. Licensee of Pearson Education, new Delhi India.
7. Salvatore, D. (2014). International Economics: Trade and Finance., Jhon Wiley &Sons, Singapore.
8. Mithani, D. M. – International Economics, Himalaya Publication House, Bombay
9. Rana, K.C. and K.N. Verma (2010). International Economics, Vishal Publishing House, Ludhiyana. (English & Hindi Version)
10. Sodersten, B.C. (1991). International Economics, Macmillan Press, London.
11. Swami, K. D. (2008) – International Economics, Scientific Publications, Jodhpur. (Hindi Version)
12. Vaish, M.C. and S. Singh (2000). International Economics, Oxford and I.B.H. Publishing Company Pt. Ltd., New Delhi. (Hindi Version)

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**B.A. HONOURS IN ECONOMICS**  
**THIRD YEAR HONOURS**  
**Paper – IX**  
**GROWTH AND DEVELOPMENT ECONOMICS**



### **Course Outcome:**

CO1: The Student will be able to understand the models of Economic Development and their applications for underdeveloped or developing economies.

CO2: This paper will help students to understand the important issues in the context of development.

### **UNIT – I**

Growth and Development – Concept and Measurements: HDI and other indices; Factors affecting Economic Growth, Sustainable Development, Concepts of Inclusive and Exclusive Growth.

### **UNIT – II**

Theories of Growth and Development-Malthus, Karl Marx & Schumpeter, Rostow's Stages of Economic Growth, Nelson's Theory of Low Level Equilibrium Trap.

Growth Balanced and Unbalanced Growth- Rosenstein Rodan's Big Push Theory and Hirschman's Strategy.

### **UNIT – III**

Models of Economic Development- Harrod and Domar Growth Models, Solow Growth Model, Mrs. Joan Robinson's Growth Model- Golden Rule of Accumulation, Kaldor Model of Distribution. Endogenous Growth Model.

### **UNIT – IV**

Role of State in Economic Development, Role of Agriculture in Economic Development, Role of Industries in Economic Development, Role of Foreign Trade in Economic Development. Infrastructure and its importance in Economic Development.

### **UNIT – V**

Population and Economic Development - Theory of Demographic Transition, Population as Limit to Growth and as Ultimate Source. Human Capital Formation – Meaning and Need.

Issues in Economic Growth and Development: Vicious Circle of Poverty, Modern Growth and rise in International Inequalities- The inverted U-hypothesis, Economic Growth and Social Justice.

### **Basic Reading List**

1. Gupta, L. K. – Growth Theory and Strategy: New Direction, Oxford University.
2. Jhingan, M.L. – Economic of Growth and Development, Vrinda Publication, New Delhi (English and Hindi Version).
3. Meier, G.M. and James E. R. (2006). Leading Issues in Economic Development, Oxford University Press, New York.
4. Puri, V.K. and S.K. Misra (2016). Economics of Development and Planning, Himalaya Publishing House, New Delhi.
5. Ray, D. (2009). Development Economics, Oxford University Press, New Delhi.
6. Sen, A. (2000) Development as Freedom, Oxford University Press.
7. Singh, S.P.(2001). Economic Growth and Planning, Himalaya Publishing House, New Delhi (English and Hindi Version).
8. Taneja, M. L. and R. M. Myer (2008). Economics of Development and Planning, Vishal Publishing Company, Jalandhar(English and Hindi Version).
9. Thirwall, A.P.(1999). Growth and Development with special reference to Developing Economics, Macmillan and ELBS, London.
10. Todaro, M. P. (1996) (6<sup>th</sup> edition). Economic Development, Longman, London.

Paper Code :3332

**B.A. HONOURS IN ECONOMICS**

**THIRD YEAR HONOURS**  
**Paper – X**  
**INDIAN ECONOMICS**

**Course Outcome:**

CO1: The paper will help students to get familiarized with the broad overview of the Indian economy.

CO2: The students will also get familiar with the issues related to agriculture, industry, foreign trade and Economic Planning in India.

CO3: The students will have a broad idea regarding the social and economic infrastructure of India.

**Unit – I**

Basic Features of Indian Economy, Trends and Sectoral Composition of National Income, Broad Demographic Features: Population Size and Growth Rates, Sex Composition, Sectoral Distribution of workforce, Problems of Over-population, Population Policy.

**Unit – II**

Nature and Importance of Agriculture, Trends in Agricultural Production, Land Reforms, New Agricultural Strategy and Need for Second Green Revolution, Rural Credit, Agricultural Marketing, Agricultural price policy and Minimum supporting price.

Trends in Industrial Development during pre and post reform Period, Industrial Policy of 1956 and 1991 and Latest Industrial Policy, Growth, Problems and Policies for Small-Scale Industries. Sources and Problems of Industrial Finance.

**Unit – III**

Economic planning in India-Concept of Five year planning; Niti Aayog- Structure and planning.

New Economic Reforms – Liberalization, Privatization and Globalization, Rationale behind Economic Reforms, Problems of Poverty, Inequality and Unemployment in India.

**Unit – IV**

Infrastructure Development – Irrigation, Power, Transport and Communication. Social Infrastructure- Education, Health and Malnutrition. Indicators of Human Development-

Human Development Index (HDI), Gender Related Development Index (GDI). Happiness Index.

### Unit – V

The Position of Rajasthan's Economy in Indian Economy, Broad Demographic Features of Rajasthan- Trends in population growth and Human Development Index, Trends and Sectoral Composition of State Domestic Product, Sectoral Distribution of workforce, Trends in Agriculture, Industrial and Mining Production, Tourism Development in Rajasthan.

Problem of Poverty, Unemployment, Famine and Drought- Trends and Measures by Government to overcome them. Tribal Development schemes of Rajasthan

#### Reading List

1. Mishra and Puri – Indian Economy, Himalaya Publishing House, New Delhi.
2. Rudra Dutt and Sundaram – Indian Economy, S. Chand and Company, New Delhi.
3. Alok Ghosh – Indian Economy Its Nature and Problems, The New Book Stall.
4. Hariharan, N. P. (2008) – Lights and Shades of Indian Economy, Vishal Publishing Co., Jalandhar.
5. Uma Kapila (20<sup>th</sup> Edition) (2009) – Indian Economy Since Independence, Academic Foundation, New Delhi.
6. Jalan, B. (1992) – The Indian Economy, Problems and Prospects, Viking, New Delhi.
7. Reserve Bank of India – Report on Currency and Finance (Annual).
8. Annual Economic Survey, Government of India (Latest).
9. Brahmananda, P. R. and V. R. Panchmukhi (Eds.) (1987) – The Development Process of the Indian Economy, Himalaya Publishing House, Bombay.
10. Government of India, Planning Commission, 11<sup>th</sup> Five Year Plan, New Delhi.
11. :æ n`Ùk & fodkl] xjhch ,oa lerk] nhi ,oa nhi ifCyds'ku çk- fy-] ubZ fnYyhA
12. Hkkjrh; vFkZO;oLFkk vfrfjDrkad'½] çfr;ksfxrk niZ.k] midkj çdk'ku] vkxjA
13. Hkkjrh; vFkZO;oLFkk & lkfgR; Hkou ifCyds'kUI] vkxjA
14. feJk ,oa iqjh & Hkkjrh; vFkZO;oLFkk] fgeky; ifCyf'kax gkÅI] ubZ fnYyhA
15. n`Ùk ,oa lqUnje & Hkkjrh; vFkZO;oLFkk] ,l- pUn ,.M dEiuh] ubZ fnYyhA
16. ukFkqjkedk] ,y-,u- & Hkkjrh; vFkZO;oLFkk] dkWyst cqđ gkÅI] t;iqjA

17. ukFkqjkek] jktLFkku dh vFkZO;oLFkk] dkWyst cq d gkÅ] t;iqjA

Paper Code :3333

**B.A. HONOURS IN ECONOMICS**

## THIRD YEAR HONOURS

### Paper - XI

## ECONOMETRIC METHODS

### Course Outcome:

CO1: This paper will equip the students with basic theories of econometrics.

CO2: Students will learn the construction of econometric models, estimation of parameters of these models and will be able to interpret the parameters estimates.

#### UNIT - I

Definition and Scope of Econometrics, The methodology of Econometric Research, Statistical v/s. Deterministic relationships, Basic concepts of Estimation, Desirable properties of Estimators (small sample and large sample properties).

#### UNIT - II

Theoretical Frequency Distributions - Binomial, Poisson and Normal- Their Meaning, characteristics and probability Distribution Function (Only Theoretical).

Testing of Hypothesis, Type-I and Type-II errors, Tests based on Z, t and  $\chi^2$  (Chi-square) Statistics.

#### UNIT - III

Ordinary Least Squares (OLS) Method - Assumptions, Gauss - Markov Theorem (Derivation), Application of OLS Method, Testing of Regression Coefficients- T test, F test and Coefficient of Determination ( $R^2$ ).

#### UNIT - IV

Problem of Heteroscedasticity, Auto Correlation (first order) and Multicollinearity - Meaning, Consequences, tests and remedies.

#### UNIT - V

Lags in econometric Models - Meaning and Basic Concepts, Koyck model, Partial Adjustment and Adaptive Expectation Models.  
Dummy variables - Meaning and Uses of dummy variables.  
Concept of Instrumental variable.

**Basic Reading List-**

1. Gujarati, D. - Basic Econometrics, McGraw Hill, New Delhi.
2. Johnston, J. (1985) - Econometric Methods, McGraw Hill, New York.
3. Madnani, G.M.K. - Introduction to Econometrics - Principles and Applications, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
4. Maddala, G.S. (1993) - Econometrics - An Introduction, McGraw Hill, New York.
5. Koutsoyiannis, A. (1977) - Theory of Econometrics (2<sup>nd</sup> Edition), McGraw Hill, New York.

Paper Code :3334

**B.A. HONOURS IN ECONOMICS**  
**THIRD YEAR HONOURS**  
**Paper – XII**  
**COMPREHENSIVE ECONOMICS**

**Course Outcome:**

CO1: This course will give a comprehensive basic knowledge of Labour, Industrial Agricultural and Environmental Economics to students.

CO2: It will build a theoretical foundation of these broad topics and enable students to discuss the contemporary issues related to them.

**UNIT – I**

Labour Market – Forms and characteristics, Demand and Supply of Labour. Characteristics of Labour Market in India. Major issues in Organised and Unorganised Labour Markets.

Labour Migration. Labour market reforms – Exit policy, need for safety nets, measures imparting flexibility in labour market in India. Second National Commission on Labour in India.

Social Security – Concept, Objectives and Main Features, Need for Social Security in India, Social Security Measures in India – Workmen's Compensation Act, Employee's State Insurance Scheme (In brief).

## **UNIT – II**

Industrial Economics – Definition and Scope, Determinants of Industrial Growth, Theories of Industrial Location – Weber and Sargent Florence; Factors affecting location, Concept of the firm and organization of a firm-ownership. Growth of firms: Vertical integration, diversification, mergers and innovation; constraints on growth – demand, financial and managerial. Mergers and Acquisitions of firms- meaning, types and methods, various forms of mergers in India.

## **UNIT –III**

Nature and Scope of Agricultural Economics, Role of Agriculture in Economic Development, Interdependence between Agriculture and Industry, Agriculture Development and Technological Progress, Sustainable Agriculture, Indigenous Practices, Bio-technological Practices. Causes of low Productivity of Indian Agriculture and suggestions for improvement of Agricultural Productivity.

## **UNIT – IV**

Agricultural Marketing -Concepts, Need and pre-requisites for efficient agricultural marketing, Role in Economic Development, Agricultural Marketing Efficiency Criteria.

Agri-business – Meaning, nature and Scope of Agri-Business. Importance of Agri-business in Agricultural Development, Agricultural Prices and Price Policy in India, Agriculture Price and Cost Commission in India. Agricultural Insurance- Concept, Need and Effects

Trends in Agricultural Exports, WTO and Indian Agriculture.

## **UNIT – V**

Environmental Economics - Meaning, Importance and Scope; The Concept of Externalities, Environment as a Public Good and Market Failure. Environmental Kuznet's Curve.



Environmental valuation - Physical Linkage Methods, Abatement Cost Method, Behavioural Linkage Method, Contingent Valuation Method (CVM), Hedonic Pricing Technique.

Development and Environment: Environmental problems, Trans- boundary Environmental Problem- Global warming and Climate change, Carbon trading; Environmental Law and Policy in India

### **Basic Reading List**

1. Agrawal, N.L. (2003). *Bhartiya Krishi Ka Arthtantra*, Rajasthan Hindi Granth Academy.
2. Barthwal, R. R. (2010). *Industrial Economics*, New Age International (P) Limited, New Delhi, 2010.
3. Bhattacharya, R. N. (Ed.) (2001) – *Environmental Economics: An Indian Perspective*, Oxford University Press, New Delhi.
4. Bilgrami, S.A.R. (1996). *An introduction to Agriculture Economics*, Himalaya Publishing House, New Delhi.
5. Kolstad, C.D. (2008). *Environmental Economics*, Oxford University Press.
6. Cherunilam, F. (1994). *Industrial Economics: Indian Perspective (3<sup>rd</sup> Edition)* Himalaya Publishing House, Mumbai.
7. Desai, B. (1999). *Industrial economy in India (3<sup>rd</sup> Edition)* Himalaya Publishing House, Mumbai.
8. Desai, R. G. (Latest). *Agriculture Economics*, Himalaya Publishing House, New Delhi.
9. Govt. of India: *Economic Survey (Latest)*, Government of India.
10. H. K. Pathak (2010). *Economics of Environmental Development*, G. S. Rawat for Cyber Tech Publication.
11. Lester, R.A. (1964). *Economics of Labour (2nd Edition)*, Macmillan, New York.
12. M.L. Jhingan (Latest). *Environmental Economics*, Vrinda publication, New Delhi.
13. Mamoria and Mamoria (2000). *Dynamics of Industrial Relations in India*, (15<sup>th</sup> Edition), Himalaya Publishing House, Mumbai
14. Mc Connell, C.R. and Bruce, S.L. (1986). *Contemporary Labour Economics*, McGraw Hill, New York.

15. Papola, T.S. and Rodgers, (Eds.) (1992). Labour Institutions and Economic Development in India, International Institute for Labour Studies, Geneva.
16. Rudra, A. (1982). Indian Agricultural Economics: Myths and Reality. Allied Publishers, New Delhi.
17. Sadhu, A. N. and Amarjit Singh (Latest). Fundamentals of Agriculture Economics, Himalaya Publishing House, New Delhi.
18. Sengupta, R. P. (Ed.) (2001). Ecology and Economics: An Approach to Sustainable Development, Oxford University Press, New Delhi.
19. Singh, A. and A.N. Sadhu (1988). Industrial Economics, Himalaya Publishing House, Mumbai.

**ATAL BIHARI CENTRE FOR  
ENTREPRENEURSHIP &  
SMALL BUSINESS AND SKILL  
DEVELOPMENT**

**BBA ENTREPRENEURSHIP  
SYLLABUS  
(UPDATED)  
2021-24**

**Mohanlal Sukhadia University, Udaipur**  
**Bachelor of Business Administration (ED)**  
(Three years Six Semesters Degree Course Scheme)  
Effective from 2021-2024

**1. Eligibility for Admission:**

Passed/Passing Senior Secondary Examination (10+2) or equivalent in any discipline with 48% marks and for all other categories as per university rules.

**2. Course Structure:**

Subject-Code	Nomenclature of Paper	Credit	Mode of Instruction	Mode of Examination and Maximum Marks
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**BBA(ED) I SEMESTER**

BBAED-101	Environmental Science		Classroom Lectures	Internal 20 External 80
BBAED-102	Principles of Management		Classroom Lectures	Internal 20 External 80
BBAED 103	Statistics for Business Decisions		Classroom Lectures	Internal 20 External 80
BBAED 104	Micro Economics		Classroom Lectures	Internal 20 External 80
BBAED 105	Business Accounting for Small Business		Classroom Lectures	Internal 20 External 80
BBAED 106	General Hindi		Classroom Lectures	External 100

**BBA(ED) II SEMESTER**

BBAED-201	Macroeconomics		Classroom Lectures	Internal 20 External 80
BBAED-202	Management Accounting		Classroom Lectures	Internal 20 External 80
BBAED 203	Entrepreneurship Development		Classroom Lectures	Internal 20 External 80
BBAED 204	Business Communication		Classroom Lectures	Internal 20 External 80

BBAED-205	Organizational Behavior		Classroom Lectures	Internal 20 External 80
BBAED-206	Finance for Small Businesses-I		Classroom Lectures	Internal 20 External 80

### **BBA(ED) III SEMESTER**

BBAED-301	Quantitative Techniques for Management		Classroom Lectures	Internal 20 External 80
BBAED-302	Principles of Marketing		Classroom Lectures	Internal 20 External 80
BBAED-303	Human Resource Management in Small Business		Classroom Lectures	Internal 20 External 80
BBAED-304	Finance for Small Business-II		Classroom Lectures	Internal 20 External 80
BBAED-305	IT Tools In Busines		Classroom Lectures and Computer Lab Practicals	Internal 20 Practical 20 External 60
BBAED-306	Direct Tax		Classroom Lectures	Internal 20 External 80

### **BBA(ED) IV SEMESTER**

BBAED-401	Business Research		Classroom Lectures	Internal 20 External 80
BBAED-402	Indirect Tax		Classroom Lectures	Internal 20 External 80
BBAED-403	New Enterprise Management		Classroom Lectures	Internal 20 External 80
BBAED-404	Talent & Knowledge Management in Small Business		Classroom Lectures	Internal 20 External 80
BBAED-405	E-Commerce		Classroom Lectures	Internal 20 External 80
BBAED-406	General English		Classroom Lectures	External 100

### **BBA(ED) V SEMESTER**

BBAED-501	Production & Operation Management		Classroom Lectures	Internal 20 External 80
BBAED-502	Regulatory Framework for Small Businesses		Classroom Lectures	Internal 20 External 80
BBAED-503	Performance & Compensation Management		Classroom Lectures	Internal 20 External 80
BBAED-504	Business Policy & Strategy		Classroom Lectures	Internal 20 External 80

BBAED-505	Digital Marketing		Classroom Lectures	Internal 20 External 80
BBAED-506	Ethics and Corporate Governance		Classroom Lectures	Internal 20 External 80
<b><u>BBA(ED) VI SEMESTER</u></b>				
BBAED-604	Start-up Incubation /Training in Small Scale Industries (4 Months)		Training in a Company	Internal and Viva 100

#### **4. Attendance**

4.1 A candidate shall be required to attend minimum 75% of the classes held in each paper including the tutorials and practical, if any. A candidate failing to satisfy the requirement of attendance in one or more papers shall be detained from appearing at the semester end examination.

4.2 For students participating in Sports/Cultural event/NCC camps during a particular semester, the maximum number of days of absence shall not exceed 8 days. Any waiver in this context shall be on the recommendation of the Dean – Students Welfare and the student will be required to apply in advance for the leave to the Head/Course Director. No Relaxation shall be given on medical ground.

#### **5. Medium**

Medium of instruction and examination shall be English.

#### **6. Scheme of Examination**

6.1 Each Paper shall have maximum marks as 100, to be evaluated both internally and externally. Paper-wise Distribution of marks is given in Para no.2.

**External Examination Scheme-** For a question paper carrying maximum 80 marks, the structure shall be as follows:

The first section, SECTION- A, carrying maximum 20 marks will have 10 short answer type (answer not exceeding 50 words each) questions. Each question will carry 2 marks. The second section, SECTION-B, carrying maximum 40 mark will have 10 medium answer type questions (answers not to exceed 250 words), selecting two from each unit, out of which one from each unit is to be attempted. Each question will carry 8 marks. The third section, SECTION- C, carrying maximum 20 marks will have 5 questions (which requires answers not to exceed 300 words), one from each unit out of which 2 questions are to be attempted. Each question will carry 10 marks. The duration of examination shall be of three hours.

#### **Internal Examination Scheme:-**

50% of the total internal assessment marks (i.e. 10 out of 20 marks) for each theory paper will be awarded on the basis of the performance in the descriptive type written examination of one and a half hour duration conducted by BBA programme. There will be three sections in question paper: Section A will have five questions of 0.5 marks each, Section – B will have five questions out of which three has to be attempted of 1.5 marks each and Section- C will have two questions out of which one question has to be attempted of 3 marks.. If a candidate fails to appear in the written examination of the internal assessment due to valid reasons (major accident or death of first relative etc.), BBA programme may conduct defaulters examination after collecting fee of Rs. 150/- per subject.

50% of the internal assessment (i.e. 10 out of 20) for each theory paper shall be awarded on the basis of the performance in the assignments/ seminars/presentations/ oral examination/ group discussion etc.

**7. Minimum passing marks:**

A candidate shall be declared to have passed the each semester, if he obtains minimum of thirty six percent marks (36%) in each subject and a minimum of forty percent (40%) marks in the aggregate of all the subjects.

**8. Use of Calculators-:**

Candidates shall be permitted to use simple battery operated 12 digit 2 memory 6 functions noiseless and cordless calculators during examination.

## **BBA(ED) I SEMESTER**

### **101 Environmental Science**

**Objective:** To familiarize the students with the basic concepts of environmental science.

#### **UNIT-I**

Environmental Management: Definition of environment and environmental management. Fundamentals-Sustainable Development, Implications of human population growth, Limits to growth, Energy Management: Fundamentals -Fossil Fuels use, Energy production and trade, Energy Balance.

#### **UNIT-II**

Ecosystem Concepts: Basic Concepts and their application in Business, Industrial Ecology and Recycling Industry; Environmental Management System: EMS Standards, ISO 14000.

#### **UNIT-III**

Environmental Management & valuation: Environmental Auditing, Clearance/ Permission for establishing industry, Environmental Accounting, Economics - Environmental Taxes Shifts, Green Funding.

#### **UNIT-IV**

Environmental Management Trade, Importance of Environmental Management for corporates, Debt and Environment, GATT / WTO Provisions; Environmental Laws: Acts, Patents, IPRS, Role of NGO'S, PIL.

#### **UNIT-V**

Pollution & Waste Management - Air, Water, Land Pollution, Trade in Wastes; Water, Forest & Biodiversity Management: Water Resources, Dams and their role; Forest products and Trade. Role of Biodiversity in International Trade; Approaches to Corporate Ethics; Bio-ethics, Environmental Ethics.

Suggested Readings:

1. Dasgupta, N. (1997). Environmental Accounting. New Delhi: Wheeler Publishing.
2. K.Uberoi, N. (2000). Environmental Management. New Delhi: Excel Books.
3. Kolstad, C. (2000). Environmental Economics. New York: Oxford University Press.
4. Mohanty, S. (1996). Environment and Pollution Law Manual. New Delhi: Universal Law Publishing.
5. Pandey, G. (1997). Environmental Management. New Delhi: Vikas Publishing.



## **102: Principles of Management**

### **Objective:**

To gain knowledge about the four management functions of planning, organizing, leading, and controlling and introduce to the historical evolution of management theories. To learn the basics of management functions. To describe the control process including: the importance of control, tools for measuring organizational performance, and managerial actions.

### **UNIT I**

Introduction: Concept, nature, process and significance of management; Managerial Levels, Roles and Skills; Development of management thought; Classical and Neo-Classical systems; Emphasis on contributions of Taylor, Fayol, and Elton Mayo.

### **UNIT II**

Planning – Nature, Importance, Forms, Types and Steps in Planning. Objectives–Policies–Procedures and Methods, Nature and Types of Policies. Decision Making: Process, Types and Problems involved in Decision making.

### **UNIT III**

Organizing – Types of Organizational Structure: Line and Staff, Committees, Projects and Matrix. Span of Control, Formal and Informal Organizations: characteristics and advantages

### **UNIT IV**

Delegation: Importance and process. Authority, Responsibility & Accountability relationship. Difference between authority and power, Distinction between Centralization and Decentralization Directing: Nature, Purpose and Scope. Controlling – Meaning, importance, types and process.

### **UNIT V**

Co-ordination – Need, Types and Techniques. Requisites for excellent Co-ordination. Co-operation: meaning, Distinction between co-ordination and co-operation.

### **Suggested Readings:**

1. CB Gupta, S. M. (2016). Management: Principles and Applications. New Delhi: MKM Publishers .
2. PC Tripathi, P. R. (2015). Principles of Management. New Delhi: Tata McGraw-Hill Education.
3. Prasad, L. (2019). Principles and Practices in Management. New Delhi: Engineer's BookShop.

### **103. Statistics for Business Decisions**

**Objective:** To familiarize the students with various Statistical Data Analysis tools that can be used for effective decision making. Emphasis will be on the application of the concepts learnt.

#### **Unit – I**

Statistics: Meaning, Definition, Use of Statistics in Business and Management, Distort and Limitations of Statistics. Collections of Data, Classification, Frequency Distribution and Tabulation.

#### **Unit – II**

Measures of Central Tendency: Arithmetic Mean, Geometric Mean, Harmonic Mean, Weighted Mean, Median, Mode and Partition Values. Use of Weighted Arithmetic Mean, Empirical Relationship among AM, GM & HM.

#### **Unit – III**

Measures of Dispersion: Ranges, Quartile Deviation, Mean Deviation, Standard Deviation, Measures based on Standard deviation and Lorenz Curve. **Skewness:** Karl Pearson's and Bowley's Measures.

#### **Unit – IV**

**Correlation:** Meaning, Types and Correlation and Causation, Scatter Diagrams Pearson's Coefficient of Correlation and Properties (Proof not required), Rank Correlation deviation method, Probable error, Relationship between  $r$  and  $r^2$ .

**Regression:** Meaning, Function & Types, Regression lines: Graphic and Algebraic methods, Relationship between Correlation and Regression, standard error of estimate.

#### **Unit – V**

Index Number: Meaning, Use, Limitation and Types of Index Number, Problems of Constructing of Index Number, Methods of Construction of Index Number. Test of Adequacy of Index Number Formula, Base Shifting, Splicing & Deflating.

#### **Suggested Readings**

1. Bhanawat Shurveer S.(, Business Statistics, R.B.D. Publication, Jaipur – New Delhi
2. Gupta S. P. (2014). , Statistical Methods, Sultan Chand & Sons, N. Delhi.
3. Gupta S. C. and Gupta. (2012), Indira: Business Statistics, Himalaya Publishing House, Mumbai.
4. Hoel & Jessen.(1973), Basic Statistics for Business and Economics; John Wiley and Sons, New York.
5. Hooda, R.P. (2013). , Statistics for Business and Economics; Macmillan, New Delhi.
6. Lewin and Rubin. (2017). , Statistics for Management; Prentice-Hall, New Hall.

## **104. Micro Economics**

**Objective:** The purpose of this course is to apply micro economic concepts and techniques in evaluating business decisions taken by firms. The emphasis is on explaining how tools of standard price theory can be employed to formulate a decision problem, evaluate alternative courses of action and finally choose among alternatives. Simple geometry and basic concepts of mathematics will be used in the course of teaching.

### **Course content**

**Unit 1:** Micro Economics: Meaning, Nature, Scope & Significance, Fundamental Economic Concepts (Incremental Concept); Concept of Time Perspective, Opportunity Cost Concept, Equi-Marginal Concept, Discount Concept, Risk and Uncertainty), Demand Forecasting: Meaning and Significance.

**Unit 2:** Demand, supply and market equilibrium: Law of Demand, individual demand and market demand, concept of supply Exception to Law of Demand, Elasticity of Demand- Price, Income and Cross Elasticity Uses of Elasticity of Demand for Managerial Decision Making, Advertising and Promotional Elasticity of Demand. Theory of consumer behavior: cardinal utility theory, ordinal utility theory.

**Unit 3:** Production Analysis: Concept, Production Function- Total, Average, & Marginal Product – Law of Variable Proportions & ISO-Quants & ISO Costs - Least cost factor combination- Returns to Scale- Economies and Diseconomies of Scale - Technological progress and production function

**Unit 4:** Cost and Revenue Profit Functions: Cost Concepts, Fixed and variable costs- Total Cost, Average Cost, Marginal Cost, Opportunity Cost. - Short-run and Long-run Cost Curves Profits: Determinants of Short-Term & Long Term Profits, Measurement of Profit. Break Even Analysis- Meaning, Assumptions, , Limitations and Uses.

**Unit 5:** Market Structure: Perfect Competition: Features, Determination of Price under Perfect Competition - Monopoly: Features, Pricing under Monopoly, Price Discrimination - Oligopoly: Features, Kinked Demand Curve, Cartel, Price Leadership - Monopolistic Competition: Features, Pricing under Monopolistic Competition.

### **Readings:**

1. Dominick Salvatore (2009). Principles of Microeconomics (5<sup>th</sup>ed.) Oxford University Press.
2. Lipsey and Chrystal. (2008). Economics. ( 11<sup>th</sup> ed.) Oxford University Press.
3. Koutosyannis (1979). Modern Micro Economics. Palgrave Macmillan.
4. Pindyck, Rubinfeld and Mehta. (2009). Micro Economics. (7<sup>th</sup> ed.). Pearson.

## **105 Business Accounting for Small Business**

**Objective:** To familiarize students with the mechanics of preparation of financial statements, understanding corporate financial statements, their analysis and interpretation.

### **Unit – I**

**Introduction of Accounting:** Meaning, Definition, Objective, Scope, and Need of Accounting, Users of Accounting information; Branches of Accounting, Accounting Principles, Elementary knowledge of IFRS, IND-AS and AS.

### **Unit – II**

**Accounting process:** Recording transactions including subsidiary books, ledger, trail balance and Final Accounts of sole proprietors including adjustments. Consignment Accounts.

### **Unit – III**

**Joint Venture and Insurance Claim** including loss of stock and loss of profit due to fire.

### **Unit – IV**

**Branch Accounting:** Accounting for Dependent and Independent Branch including foreign branch.

### **Unit – V**

**Departmental accounts:** allocation and apportionment of expenses, inter-departmental transfers.

**Hire purchase system and Instalment payment system:** Meaning, Accounting Records, and Legal Provision.

### **Suggested Readings:**

1. Anthony, R. N. and Reece, J. S.(1989). , Accounting Principles: Richard Irwin Inc.New Delhi.
2. Compendium of Statement and Standards of Accounting: The Institute of Chartered Accountants of India.
3. Gupta, R.L.and Radhaswamy. (2008). , Financial Accounting; Sultan Chand & Sons, Delhi.
4. Seghal Deepak. (2006). , Fundamental of Financial Accounting, Taxmann.
5. Shukla, M. C., Grewal T.S., and Gupta, S.C.(2019). , Advanced Accounts; S. Chand & Co. New Delhi.
6. Tulsian, P.C.(2002). , Financial Accounting; Pearson.

इकाई - I

- 'गद्य-वीथी' पुस्तक से संक्षेपण एवं 'कथादशक' पुस्तक से पल्लवन सम्बन्धी ज्ञान ।

1

- दोनों पुस्तकों से सामान्य तथ्यात्मक प्रश्नों का ज्ञान

इकाई - II

- शब्द ज्ञान
- शब्द पर्याय और विलोम शब्दों का ज्ञान
- अनेकार्थी एवं समश्रुत शब्दों का ज्ञान

इकाई - III

- पत्र लेखन और पत्रों के प्रकार सम्बन्धी ज्ञान
- अंग्रेजी से हिन्दी अनुवाद का ज्ञान
- हिन्दी में पदनाम सम्बन्धी ज्ञान (अंग्रेजी से हिन्दी पदनाम)

इकाई - IV

- मुहावरे - लोकोक्तियाँ
- शब्द-शुद्धि और वाक्य-शुद्धि
- पारिभाषिक शब्दावली
- अनेक शब्दों के लिए एक शब्द

इकाई - V

- देवनागरी लिपि की विशेषताएँ

2

- देवनागरी लिपि एवं वर्तनी का मानक रूप

- कम्प्यूटर में हिन्दी का अनुप्रयोग : प्रारंभिक परिचय

अंक योजना : यह प्रश्न पत्र 100 अंक का होगा, जो तीन खण्ड- 'अ', 'ब', 'स' में विभक्त होगा, जिसका अंक विभाजन इस प्रकार रहेगा -

खण्ड 'अ' - 10 अंक

इस खण्ड में एक-एक अंक के विकल्प रहित दस वस्तुनिष्ठ लघु उत्तरात्मक प्रश्न होंगे । प्रत्येक इकाई से दो प्रश्न होंगे ।

खण्ड 'ब'- 50 अंक

इस खण्ड में दस-दस अंक के दस प्रश्न होंगे, जिनमें से पाँच प्रश्न करने होंगे । प्रत्येक इकाई से एक-एक प्रश्न अवश्य पूछा जाएगा । 'गद्यवीथी' और 'कथादशक' पर आधारित संक्षेपण और पल्लवन सम्बन्धी प्रश्न संख्या एक और दो करना अनिवार्य होगा । इस खण्ड के प्रश्नों के उत्तर लगभग 250 शब्दों तक दिये जा सकते हैं ।

खण्ड 'स'- 40 अंक

इस खण्ड में बीस-बीस अंक के चार प्रश्न होंगे, जिनमें से दो प्रश्न करने होंगे । इनका उत्तर लगभग 500 शब्दों में देना होगा । इन प्रश्नों में एक प्रश्न के दो भाग भी हो सकते हैं ।

3

## **BBA(ED) II SEMESTER**

### **201. Macroeconomics**

**Objective:** This course deals with the principles of Macroeconomics. The coverage includes determination of and linkages between major economic variables; level of output and prices, inflation, interest rates and exchange rates. The course is designed to study the impact of monetary and fiscal policy on the aggregate behavior of individuals.

### **Course Content**

#### **Unit I**

Indian Economic Environment: Overview of Indian Economy, changes in Indian Economy, Recent developments in Indian economy, Measurement of National Income: Basic components of GDP, measuring GDP and GNP, Difficulties in measuring National Income; Classical theory of income and employment, Aggregate demand curve.

#### **Unit II**

Keynesian theory of Income and employment: Classical theory, full employment, Keynesian theory (assumptions and criticism), Keynesian theory v/s Classical theory, components of aggregate demand, aggregate supply and related concepts, equilibrium income, changes in equilibrium, income determination and investment multiplier

#### **Unit III**

Industrial policies and Structure: A critical look at industrial policies of India, New industrial policy 1991: disinvestment in PSU's – Private sector – growth, problems and prospects, SME's- significance in Indian economy – problems and prospects. Introduction to BoP account, Inflation: meaning, demand and supply side factors.

#### **Unit IV**

Economic Policies: Fiscal policy: Definition and objectives, instruments, union budget, Monetary policy: Meaning and scope, Instruments of Monetary policy, Measures of money supply, monetary policy in India- objectives, tools for credit control, Role and functions. Limitation of Monetary policy.

#### **Unit V:**

Globalization and Indian Business Environment: meaning and implications phases, Impact of globalization on Indian economy across sectors. Business cycle - Features, phases, Economic Indicators, Primary, secondary and tertiary sectors and their contribution to the economy, SWOT analysis of Indian economy.

### **Suggested Readings:**

1. Froyen, R.P. (2011): Macroeconomics-theories and policies (8<sup>th</sup> ed.). Pearson:
2. Dornbusch and Fischer (2010). Macroeconomics (9<sup>th</sup>ed.). Tata McGraw Hill
3. N Gregory Mankiw (2010). Macroeconomics (7<sup>th</sup>ed.). Worth Publishers
4. Olivier Blanchard, Macroeconomics (2009). (5<sup>th</sup>ed.) Pearson

## 202 Management Accounting

**Objective:** To acquaint students with role of Management Accounting in planning, control and decision-making.

### Course Content

#### Unit I

Nature, Scope of Management Accounting: Meaning, definition, nature and scope of Management Accounting; Comparison of Management Accounting with Cost Accounting and Financial Accounting. Analyzing Financial Statements: Objectives of Financial Statement Analysis; Sources of Information, Techniques of Financial Statement Analysis – Comparative analysis, Common Size Analysis and trend analysis.

#### Unit – II

**Ratio Analysis:** Meaning and Usefulness of Financial Ratios; Analysis of Financial Ratios from the perspective of different Stakeholders like Investors, Lenders, and Short-term Creditors; Profitability Ratios, Solvency Ratios, Liquidity Ratios, and Turnover Ratios; Limitations of Ratio Analysis, Understanding the contents of a Corporate Annual Report. Interpretation of Financial Ratios

#### Unit – III

**Cash Flow Statement:** Preparation of cash Flow statement as per AS-3 (revised), Activity Based Costing.

#### Unit – IV

**Standard Costing:** Meaning of Standard Cost and Standard Costing, Advantages, Limitations and Applications; Material, Labor, Overhead Calculation of Material, Variances. Introduction to Target Costing, Life Cycle Costing,

#### Unit – V

**Marginal Costing:** Cost-Volume-Profit Analysis: Contribution, Profit -Volume Ratio, Margin of safety, Break-even Analysis including Cost Break-even Point, Composite Break-even Point, Cash Break-even Point, Key Factor and make or buy based decision

**Budgetary Control:** Meaning, objective, steps and preparation of sales budget, production budget, flexible budget and cash budget, Zero based Budgeting.

#### Suggested Readings:

1. Bhanawat Shurveer S., “Cost Accounting”, R.B.D. Publication, Jaipur-New Delhi
2. Gupta R.L. Radhaswarny M: Company Accounts; Sultan Chand and Sons, New Delhi.
3. Horngren, C., Gary L. Sundem, and William O. Stratton: Introduction to Management Accounting, Prentice Hall, Delhi.
4. Jain Narang: Advance Accounting, Kalyani Publishers
5. Khan, M. Y. and Jain, P. K.: Management Accounting Tata McGraw Hill, New Delhi.
6. Maheshwari S.N: Corporate Accounting; Vikas Publishing House, New Delhi.
7. Shukla M.C. &Grewal T.S. Advance Accounts: Sultan Chand & Sons, New Delhi. Anthony, Robert: Management Accounting, Tarapore -Wala, Mumbai.
8. Pandey, I. M: Essentials of Management Accounting, Vikas publishing House Pvt. Ltd.

## **203 Entrepreneurship Development**

**Objective:** This course provides students with a solid introduction to the entrepreneurial process of creating new businesses, role of Creativity and innovation in Entrepreneurial start-ups, manage family-owned companies, context of social innovation and social entrepreneurship and issues and practices of financing entrepreneurial businesses.

### **Unit-1 Entrepreneurial Management**

The evolution of the concept of entrepreneurship, The Entrepreneur; Role and personality; John Kao's Model on Entrepreneurship, Idea Generation, Identifying opportunities and Evaluation; Building the Team / Leadership; Forms of ownership – Sole proprietorship; partnership; limited liability partnership and corporation form of ownership; advantages/disadvantages, Franchising; advantages/disadvantages of franchising; types of franchise arrangements; franchise contracts; franchise evaluation checklist, Managing growth; Harvesting and Exit Strategies.

### **Unit-2 Entrepreneurship, Creativity And Innovation**

Stimulating Creativity; Organisational actions that enhance/hinder creativity, Managerial responsibilities, Creative Teams; Sources of Innovation in Business.

### **Unit-3 Social Entrepreneurship**

Corporate Entrepreneurship: Definition and Importance, Introduction to Social Entrepreneurship; Characteristics and Role of Social Entrepreneurs; Innovation and Entrepreneurship in a Social Context; Start-Up and Early Stage Venture Issues in creating and Sustaining a Non-profits Organization; Financing and Risks; Business Strategies and Scaling up.

### **Unit-4 Family Business And Entrepreneurship**

Family Business: Concept, structure and kinds of family firms; Culture and evolution of family firm; Managing Business, family and shareholder relationships; Conflict and conflict resolution in family firms; Managing Leadership, succession and continuity; women's issues in the family business; Encouraging change in the family business system.

### **Unit-5 Financing the Entrepreneurial Business**

Valuation of a new company, Financing entrepreneurial ventures; Arrangement of funds; Traditional sources of financing, Loan syndication, Consortium finance, role played by commercial banks, appraisal of loan applications by financial institutions, Venture capital.

### **Readings**

1. Burns, P. (2001). Entrepreneurship and small business. New Jersey: Palgrave.
2. Drucker, P. F. (2006). Innovation and entrepreneurship: Practice and principles. USA: Elsevier.
3. Gersick, K. E., Davis, J. A., Hampton, M. M., & Lansberg, I. (1997). Generation to generation: Life cycles of the family business. Boston: Harvard Business School Press.
4. Hisrich, R., & Peters, M. (2002). Entrepreneurship. New Delhi: Tata McGraw Hill.
5. Holt, D. H. (2004). Entrepreneurship new venture creation. New Delhi: Prentice Hall of India.



## **204 Business Communication**

**Objective:** To acquaint students with the basic communication skills and make them efficient communicators: spoken and written both.

### **Unit I**

Introduction: Basics of Communication, Types and modes of Communication, Models of communication.

### **Unit II**

Language of Communication: Verbal and Non-verbal (Spoken and Written); Body language and its components; Communication Barriers, Listening Skills, Strategies for Intra-personal, Inter-personal and Group communication.

### **Unit III**

Speaking Skills: Monologue; Dialogue; Group Discussion; Interview; Public Speech, Personal Interview skills; Presentation skills.

### **Unit IV**

Reading and Understanding; Close Reading, Comprehension, Summary, Paraphrasing Analysis and Interpretation.

### **Unit V**

Writing Skills: Documenting; Report Writing; Making notes; Letter writing, notice, email writing and application writing.

### **Suggested Readings**

- 1 Bowman, Joel P and Branchaw, Bernadine P. "Business Communication: From Process to Product". 1987. Dryden Press, Chicago.
- 2.Hatch, Richard. "Communicating in Business".1977 Science Research Associates, Chicago.
- 3.Murphy, Herta A and Peck, Charrles E. "Effective Business Communications". 2nd ed. 1976.Tata McGraw Hill, New Delhi.
- 4.Pearce, C Glenn etc. "Business Communications: Principles and Applications". 2nd ed. 1988. John Wiley, New York.
- 5.Treece, Maira. "Successful Business Communications".3rd ed. 1987.Allyn

## **205 Organizational Behavior**

This course aims to provide students with an in-depth understanding of fundamental theories of organizational behavior.

### **Unit I**

Organizational Behaviour: Concept, Importance and Determinants. Perception: Concept, Nature and Process. Personality: Nature, Importance, Determinants, Type and Trait Theory. Motivation: Concepts, Importance and Elements, Content theories, Contemporary Leadership issues: Charismatic, Transformational Leadership & Emotional Intelligence.

### **Unit II**

Groups and Teams: Definition, Difference between Groups and teams; Stages of Group Development, Group Cohesiveness, Types of teams.

### **Unit III**

Conflict: Concept, Sources, Types, conflict resolution styles, Organisational Change: Concept, Resistance to change, Managing resistance to change, Implementing Change, Kurt Lewin Theory of Change.

### **Unit IV**

Introduction to Organizational Communication: Meaning and Importance of Communication, Functions, process, types, Interpersonal Communication, Tips for Effective Communication.

### **Unit V**

Introduction to Organization Culture: Meaning and Nature of Organization Culture - Origin of Organization Culture, Functions of Organization Culture, Types of Culture, Creating and Maintaining Organization Culture, Managing Cultural Diversity.

Suggested Readings:

1. Understanding Organizational Behavior by Udai Pareek.
2. Organizational Behavior: Text and Cases by Kavita Singh.

## **206 Finance for Small Businesses-I**

**Objective:** To acquaint students with the techniques of financial management and their applications for business decision making.

### **Course Contents:**

#### **Unit I**

Nature of Financial Management: Finance and related disciplines; Scope of Financial Management; Profit Maximization, Wealth Maximization - Traditional and Modern Approach; Functions of finance – Finance Decision, Investment Decision, Dividend Decision; Objectives of Financial Management; Organization of finance function; Concept of Time Value of Money, present value, future value, and annuity.

#### **Unit II**

Risk & Return: Historical return, expected return, absolute return, holding period return, annualized return, arithmetic & geometric return; Risk - Systematic & unsystematic risk – their sources and measures. Long term sources of Finance, Leverage Analysis: Operating and Financial Leverage; EBIT -EPS analysis; Combined leverage.

#### **Unit III**

Long -term investment decisions: Capital Budgeting - Principles and Techniques; Nature and meaning of capital budgeting; Estimation of relevant cash flows and terminal value; Evaluation techniques - Accounting Rate of Return, Net Present Value, Internal Rate of Return & MIRR, Net Terminal Value, Profitably Index Method.

Concept and Measurement of Cost of Capital: Explicit and Implicit costs; Measurement of cost of capital; Cost of debt; Cost of perpetual debt; Cost of Equity Share; Cost of Preference Share; Cost of Retained Earning; Computation of over-all cost of capital based on Historical and Market weights.

#### **Unit IV**

Sources of short term Finance, Working Capital Management: Factors affecting Working Capital, Determination of Working Capital, Management of Cash - Preparation of Cash Budgets (Receipts and Payment Method only); Cash management technique.

#### **Unit V**

Receivables Management – Objectives; Credit Policy, Cash Discount, Debtors Outstanding and Ageing Analysis; Costs - Collection Cost, Capital Cost, Default Cost, Delinquency Cost  
Inventory Management (Very Briefly) - ABC Analysis; Minimum Level; Maximum Level; Reorder Level; Safety Stock; EOQ, JIT.

### **Readings**

1. M.Y. Khan & P.K. Jain: Financial Management Text Problem and Cases, Tata McGraw Hill Publshlng Co. Ltd.
2. R. P. Rustogi: Financial Management: Theory Concepts and Practices, Taxmann Publication.
3. I.M. Pandey: Financial Management: Theory and Practices, Vikas Publishing House
4. R.A. Brealey, S.C. Myers, F. Allen& P. Mohanty: Principles of Corporate Finance, McGraw Hill Higher Education
5. J.V. Horne & J.M. Wachowicz: Fundamentals of Financial Management Prentice Hall

## **BBA(ED) III SEMESTER**

### **301 Quantitative Techniques for Management**

**Objective:** To acquaint students with the construction of mathematical models for managerial decision situations and to use computer software packages to obtain a solution wherever applicable. The emphasis is on understanding the concepts, formulation and interpretation.

#### **Course contents:**

**Unit I:** Linear Programming: Formulation of L.P. Problems, Graphical Solutions (Special cases: Multiple optimal solution, infeasibility, unbounded solution. Duality (conversion of Primal to dual)

**Unit II:** Elementary Transportation: Formulation of Transport Problem, Solution by N.W. Corner Rule, Least Cost method, Vogel's Approximation Method (VAM), Modified Distribution Method. Elementary Assignment: Hungarian Assignment Method.

**Unit III:** Network Analysis: Construction of the Network diagram, Critical Path- float and slack analysis (Total float, free float, independent float), PERT, Project Time Estimation.

**Unit IV:** Decision Theory: Pay off Table, Opportunity Loss Table, Expected Monetary Value, Expected Opportunity Loss, Expected Value of Perfect Information and Sample Information, Introduction to Game Theory: Pay off Matrix- Two-person Zero-Sum game, Pure strategy, Saddle point; Dominance Rule, Mixed strategy.

#### **Unit V**

Inventory Management,

Elementary Queuing Theory: Poisson- Exponential Single Server Model with Infinite Population. (question based on M/M/1.

#### **Readings:**

1. N. D. Vohra: Quantitative Management, Tata McGraw Hill
2. P. K. Gupta, Man Mohan, Kant Swarup: Operations Research, Sultan Chand.
3. V. K. Kapoor: Operations Research, Sultan Chand & Sons.
4. J. K. Sharma: Operations Research Theory & Applications, Macmillan India Limited.

## **302 Principles of Marketing**

**Objective:** This course aims to familiarize students with the marketing function in organizations. It will equip the students with understanding of the Marketing Mix elements and sensitize them to certain emerging issues in Marketing. The course will use and focus on Indian experiences, approaches and cases

### **Course Content:**

**Unit I:** Introduction: Nature, Scope and Importance of Marketing, Evolution of Marketing; Core marketing concepts; Company orientation - Production concept, Product concept, Selling concept, Marketing concept, Holistic marketing concept. 7 P's of Marketing ; Marketing Environment: Demographic, economic, political, legal, socio cultural, technological environment (Indian context); Portfolio approach – Boston Consultative Group (BCG) matrix

**Unit II:** Segmentation, Targeting and Positioning: Levels of Market Segmentation , Basis for Segmenting Consumer Markets, Difference between Segmentation, Targeting and Positioning; Types of Targeting.

**Unit III:** Product & Pricing Decisions: Concept of Product Life Cycle (PLC), PLC marketing strategies, Product Classification, Product Line Decision, Product Mix Decision, Branding Decisions, Packaging & Labeling, New Product Development.  
Pricing Decisions: Determinants of Price, Pricing Methods (Non-mathematical treatment), Adapting Price (Geographical Pricing, Promotional Pricing and Differential Pricing).

**Unit IV:** Promotion Mix: Factors determining promotion mix, Promotional Tools –basics of Advertisement, Sales Promotion, Public Relations & Publicity and Personal Selling; Place (Marketing Channels): Channel functions, Channel Levels, Types of Intermediaries: Types of Retailers, Types of Wholesalers.

### **Unit V:**

Marketing of Services - Unique Characteristics of Services, Marketing strategies for service firms – 7Ps.

### **Readings:**

1. Kotler, P. & Keller, K. L.: Marketing Management, Pearson.
2. Kotler, P., Armstrong, G., Agnihotri, P. Y., & UIHaq, E.: Principles of Marketing: A South Asian Perspective, Pearson.
3. Ramaswamy, V.S. & Namakumari, S.: Marketing Management: Global Perspective-Indian Context, Macmillan Publishers India Limited.
4. Zikmund, W.G. & D' Amico, M.: Marketing, Ohio: South-Western College Publishing.

### **303 Human Resource Management in Small Business**

**Objective:** The objective of this course is to help the students to develop an understanding of the concept & techniques of essential functions of human resource management. The course will use and focus on Indian experiences, approaches and cases

#### **Course Contents**

##### **Unit I**

Human Resource Management: Concept, Functions, roles, skills & competencies, HRD-definition, goals and challenges. The changing environment of HRM – globalization, cultural environment, technological advances, workforce diversity, corporate downsizing, changing skill requirement, HR role in strategy formulation & gaining competitive advantage. HRM issues in Indian Organisations

##### **Unit II**

Human Resource Planning: Process, Forecasting demand & supply, Skill inventories; Human Resource Information System (HRIS) succession planning, Job analysis – Uses, methods, Job description & Job specifications. HR accounting and Human Resource Development (HRD); Recruitment, Selection & Orientation: internal & external sources, e- recruitment, selection process, orientation process.

##### **Unit III**

Training: Concept, Needs, Systematic approach to training, Methods of training. Management development: Concept & Methods. Performance management system: concept, uses of performance appraisal, performance management methods, factors that distort appraisal, appraisal interview .Career planning: career anchors, career life stages.

##### **Unit IV**

Compensation: Steps of determining compensation, job evaluation, components of pay structure, factors influencing compensation levels, wage differentials & incentives, profit sharing, employees' stock option plans. Brief introduction of social security, health, retirement & other benefits.

##### **Unit V**

Industrial Relations: Introduction to Industrial Relations, Trade unions: role, types, functions, problems, industrial dispute- concept, causes & machinery for settlement of disputes- grievance, concepts, causes & grievance redressal machinery, Strike Management; discipline-concept, aspect of discipline & disciplinary procedure, Collective bargaining- concept, types, process, problems, essentials of effective collective bargaining .

#### **Readings:**

1. De Cenzo, D.A. & Robbins: Fundamentals of Human Resource Management, New York: John Wiley & Sons.
2. Dessler, G: Human Resource Management, Pearson.
3. Monappa & Saiyaddin: Personnel Management, Tata McGraw Hill.
4. Rao, V.S.P.: Human Resource Management- Text and Cases, Excel Books.

## **304 Finance for Small Business-II**

**Objective:** To acquaint students with the techniques of financial management and their applications for business decision making.

### **Unit I**

Capital Structures: Approaches to Capital Structure Theories - Net Income approach, Net Operating Income approach, Modigliani-Miller (MM) approach, and Traditional approach, Capital Structure and Financial Distress, Trade-Off Theory.

### **Unit -II**

Dividend: Basics and types, Dividend Policy Decision - Dividend and Capital; The irrelevance of dividends: General, MM hypothesis; Relevance of dividends: Walter's model, Gordon's model.

### **Unit III**

Introduction to Financial Services; Leasing and Hire Purchase: Types and Working; Insurance: types: General and Life: Nature, types and features; Credit cards; Debit cards; E-payments: UPI, Payment wallets; Venture Capital.

### **Unit IV**

Introduction to Indian Financial System: Basics and Classification; Banking: types of Banks: Small, Commercial, Payment and Universal Banking, Long term and Short term credit facilities from Banks; NBFC's.

### **Unit V**

Stock markets: Introduction to BSE, NSE and SME Platforms; ADR, GDR, ECCB, Functions of EXIM Banks; Recent developments in Financial Services.

### **Readings**

6. M.Y. Khan & P.K. Jain: Financial Management Text Problem and Cases, Tata McGraw Hill Publshlng Co. Ltd.
7. R. P. Rustogi: Financial Management: Theory Concepts and Practices, Taxmann Publication.
8. I.M. Pandey: Financial Management: Theory and Practices, Vikas Publishing House
9. R.A. Brealey, S.C. Myers, F. Allen& P. Mohanty: Principles of Corporate Finance, McGraw Hill Higher Education
10. J.V. Horne & J.M. Wachowicz: Fundamentals of Financial Management Prentice Hall.

## **305 IT Tools In Business (40 marks practical)**

### **Unit I**

**Ms. Word:** Introduction: Creating and saving your document, displaying different views, working with styles and character formatting, working with paragraph formatting techniques using indents, tabs, alignment, spacing, bullets and numbering and creating borders.

Page setup and sections: Setting page margins, orientation, headers and footers, end notes and foot notes, creating section breaks and page borders.

Working with tables: Creating tables, modifying table layout and design, sorting, inserting graphics in a table, table math, converting text to table and vice versa.

Create newspaper columns, indexes and table of contents.

Spellcheck your document using inbuilt and custom dictionaries, checking grammar and style using thesaurus and finding and replacing text.

Mail merge: Creating and editing your main document and data source.

### **Unit II**

**Ms. Excel:** Introduction: Concept of worksheets and workbooks, creating, opening, closing and saving workbooks, moving, copying, inserting, deleting and renaming worksheets, working with multiple worksheets and multiple workbooks, controlling worksheet views, naming cells using name box, name create and name define.

Using formulae and functions: Understanding absolute, relative and mixed referencing in formulas, referencing cells in other worksheets and workbooks, correcting common formula errors, working with inbuilt function categories like mathematical, statistical, text, lookup, information, logical, database, date and time and basic financial functions. Consolidating worksheets and workbooks using formulae and data consolidate command Printing.

### **Unit III**

Protecting worksheets: Adjusting margins, creating headers and footers, setting page breaks, changing orientation, creating portable documents and printing data and formulae. Implementing file level security and protecting data within the worksheet Creating charts and graphics: Choosing a chart type, understanding data points and data series, editing and formatting chart elements.

Analyzing data using pivot tables: Creating, formatting and modifying a pivot table, sorting, filtering and grouping items, creating calculated field and calculated item, creating pivot table charts, producing a report with pivot tables.

Performing what-if analysis: Types of what if analysis (manual, data tables, scenario manager), what-if analysis in reverse (goal-seek, solver)

### **Unit IV**

**Ms. PowerPoint :**Introduction: Creating a blank presentation using a design template, basing a new presentation on an existing one, creating and managing slides, using content place holders, creating graphs, tables, diagrams, organization charts, inserting clip art and images.

Viewing and navigating a presentation: Organizing ideas in outline view, using slide sorter to rearrange a presentation, previewing presentation in slide show, understanding master views, using title master, slide master, handout master and notes master, working with headers and footers, using hyperlinks, advanced navigation with action settings, navigation short hand with action buttons

Animation and multimedia: Using and applying animation schemes, adding music, sound and video clips. Final presentation: Applying transition to slides, controlling transition speed, using hidden slides, using custom shows, using on screen pen and adding and accessing notes during a presentation.

### **Unit V**

**Databases:** Introduction to Database Development: Database Terminology, Objects, Creating Tables,



working with fields, understanding Data types , Changing table design, Assigning Field Properties, Setting Primary Keys, using field validation and record validation rules, Indexing, working with multiple tables, Relationships & Integrity Rules, Join Properties, Record manipulation, Sorting & Filtering.

Select data with queries: Creating Query by design & by wizard (Select, Make Table, Append, Delete, Cross Tab, Update, Parameterized Query, Find Duplicate and Find Unmatched), Creating multi table queries, creating & working with table joins. Using operators & expressions: Creating simple & advance criteria.

Working with forms: Creating Basic forms, working with bound, unbound and calculated controls, understanding property sheet, Working with Data on Forms: Changing Layout, creating Sub Forms, creating list box, combo box and option groups.

Working with Reports: Creating Basic Reports, Creating Header & Footer, Placing Controls on reports, sorting & grouping, Creating Sub reports.

## **306: Income Tax**

**Objective:** The objective of this course is to acquaint the students with the computation of tax liability for individuals and also aware about different provisions of income tax act, 1962 relating to individuals only.

### **Unit – I**

**Income Tax:** Basic concepts: Assessment Year, Previous Year, Person, Assessee, Income, Gross Total Income and Tax liability and Agricultural Income. Residential status and Incidence of tax

### **Unit – II**

Computation of Income Under the Head - **Salaries** (Sec. 15 to Sec. 17 and relevant Sections): Basic charge, Tax treatment of different forms of salary, allowances, perquisites, valuation of perquisites, Provident fund & Exempted Incomes (Sec.10)

### **Unit – III**

Income from House Property (Sec. 22 to Sec. 27), Income from Business and Profession (Sec. 28 to Sec. 44)

### **Unit – IV**

Capital Gains (Sec. 45 to Sec. 54) & Income from Other Sources (Sec. 55 to Sec. 57), Deductions from Gross Total Income related to Individuals only (80C to 80U)

### **Unit – V**

Assessment of Individuals, Interest payable by Assesses, Penalties. Procedure for assessment: E-filing of return

### **Suggested Readings:**

1. Agarwal, N.P., Jain, C.M. and Jain, O.P.: Income Tax (Hindi/English).
2. Ahuja, Girish and Gupta, Ravi: Systematic Approach to Income Tax, Bharat Publication
3. Mehrotra, H. C.: Income Tax Law & Accounts, Sahitay Bhawan, Agra
4. Pagare, Dinker: Income Tax Law and Practice, Sultan Chand & Sons, New Delhi
5. Patel & Chaudhary: Income Tax (Chaudhary Prakashan), (Hindi/English)
6. Singhanian, Vinod K: Student Guide to Income Tax, Taxmann Publication (P) ltd, New Delhi

## **BBA(ED) IV SEMESTER**

### **401 Business Research**

**Objective:** To provide an exposure to the students pertaining to the nature and extent of research orientation, which they are expected to possess when they enter the industry as practitioners. To give them an understanding of the basic techniques and tools of business marketing research.

#### **Course Content:**

**Unit I:** Nature and Scope of Business Research – Role of Business Research in decision making; Applications of Business Research.

#### **Unit II**

The Research process – Steps in the research process; the research proposal; Problem Formulation: Management decision problem Vs. Business Research problem.

**Unit III:** Research Design: Exploratory, Descriptive, Causal. Secondary Data Research: Advantages & Disadvantages of Secondary Data.

**Unit IV:** Sampling: Sampling techniques, determination of sample size; Data Analysis: Parametric Tests: Z test (mean, diff. of mean, diff. of proportion) t test (mean), paired t test, Chi square test, One way ANOVA; Non Parametric Tests.

**Unit V:** Primary Data Collection: Survey Vs. Observations. Comparison of self-administered, telephone, mail, emails techniques. Qualitative Research Tools: Depth Interviews focus groups. Measurement & Scaling: Primary scales of Measurement -Nominal, Ordinal, Interval & Ratio. Likert Scale; Questionnaire-form & design.

#### **Readings:**

1. Zikmund, Babin & Carr: Business Research Methods, South-Western.
2. Cooper & Schindler: Business Research Methods McGraw-Hill Education,
3. Churchill: Marketing Research: Methodological Foundations, Cengage Learning.
4. Aaker, Kumar, Day - Marketing Research. Wiley.
5. Naresh Malhotra – Marketing Research, Pearson
6. Deepak Chawla and Neena Sondhi - Research Methodology

## **402 Indirect Tax**

### **Unit I**

Introduction to the concept of Goods and Services Tax (GST) and Direct Tax Code (DTC).  
CGST/SGST - Important terms and definitions under Central Goods and Service Tax Act, 2017 and State Goods and Service Tax Act, 2017,

### **Unit II**

Meaning and scope of supply, Levy and collection of tax; CGST/ SGST - Time and Value of Supply of goods and / or services, Input Tax Credit, Transitional Provisions, Registration under CGST/SGSCT Act.

### **Unit III**

Filing of Returns and Assessment, Payment of Tax including Payment of tax on reverse charge basis, Refund under the Act; IGST – Scope of IGST, Important terms and definitions under Integrated Goods and Service Tax Act, 2017, Levy and collection of IGST, Principles for determining the place of supply and Place of supply of goods and services, Zero rated Supply.

### **Unit IV**

Customs – Role of Customs in International Trade, Important Terms & definitions under the Customs Act, 1962; Assessable Value, Baggage, Bill of entry, Dutiable Goods, Duty Exporter, Foreign going vessel, Aircraft goods, Import, Import Manifest; Importer, Prohibited Goods, Shipping Bill, Store, Bill of Lading, Export Manifest, Letter of Credit.

### **Unit V**

Kind of Duties- Basic, auxiliary, additional or counter veiling; basics of levy- advalorem specific duties, Prohibition of Export and Import of Goods and Provisions regarding notified & specified goods, Import of Goods- Free Import and Restricted import, type of Import – Import of Cargo, Import of Personal Baggage, Import of Stores.

### **Suggested Readings:**

1. Custom Act 1962 and Rules
2. Commercial's GST, Commercial law publisher (India) Pvt Ltd, New Delhi.
3. Datey V.S.: GST Ready Reckoner, Taxman Publication, New Delhi

## **403 New Enterprise Management**

**Objective:** To acquaint students with the abilities to manage new enterprise.

### **Unit I**

Entrepreneurship and its role in economic development; Problems of industrialization in developing countries with special reference to India; Industrial policy, regulation and control of industries in India.

### **Unit II**

Mechanics of setting new enterprises-size and location optimum units – its meaning and determinants; size of industrial units in India; Theory of industrial location, factors determining industrial location.

### **Unit III**

Regional distribution of industrial activity in India. Recent trends in localization of industrial activity in India. Regional planning of industrial activity in India.

Feasibility studies; technical, marketing and financial. Managerial problems of new enterprises; production & purchasing; Financing labor and marketing problems.

### **Unit –IV**

Facilities provided by different institutions and agencies in India, financing facilities for new enterprises. Various government schemes such as Start-up India, Stand up India, MUDRA etc. Marketing & other facilities.

### **Unit-V**

Problems & prospects of new enterprises.

#### **Text Books:-**

1. The Dynamics of Entrepreneurial Development & Management by Desai, Vasant , Himalaya Publishing House, Delhi
2. Managing Small Business by Longenecker, Moore, Petty and Palich, Cengage Learning, India Edition.
3. Cases in Entrepreneurship by Morse and Mitchell, Sage South Asia Edition.
4. Entrepreneurship – Indian Cases on Change Agents by K Ramchandran, TMGH.
5. Entrepreneurship – The engine of growth, edited by Mark Rice and Timothy Habbershon, Published by Praeger Perspectives.
6. Entrepreneurship: Theory, Process and Practice by Kuratko, D.F. &Hodgetts, R.M. Thomson Press.
7. Entrepreneurship Development: Small Business Enterprises by Charantimath, P. , Pearson.
8. A Guide to Entrepreneurship by David, Otes ,Jaico Books Publishing House, Delhi.
9. Indian Entrepreneurial Culture by A Gupta , New Age International.

## **404 Talent & Knowledge Management in Small Business**

**Objective** - To prepare students for talent and knowledge management efforts in organizations .It aims at enabling students to gain insights in concepts and application of talent and knowledge management in organizations. The course aims at understanding basic elements, processes, approaches and strategies of managing talent and knowledge in organizations.

### **Course Contents**

#### **Unit 1**

Meaning and importance of talent management, Talent management Grid, Creating talent management system, Strategies of talent management.

#### **Unit 2**

Competency model, Competency mapping, Role of leaders in talent management, Talent management and competitive advantage.

#### **Unit 3**

Elements of knowledge management, Advantages of knowledge management, Knowledge management in learning organizations. Types of Knowledge: Tacit and Explicit .Managing knowledge workers.

#### **Unit 4**

Knowledge management process, Approaches to knowledge management: Knowledge management solutions, Knowledge creation, Knowledge sharing, Knowledge dissemination, Knowledge management life cycle, Nonaka's model of knowledge. Knowledge capturing techniques: Brainstorming, Protocol analysis, Consensus decision making, Repertory grid, Concept mapping.

#### **Unit 5**

Knowledge management strategies: Aligning individual needs with organisation, Reward systems for knowledge management, Knowledge audit, Benchmarking, Balance score card, Gap analysis.

### **Readings**

1. Lance A. Berger, Dorothy Berger: Talent management handbook, McGraw Hill New York.
2. Cappeli Peter: Talent on Demand –Managing Talent in an age of uncertainty, Harvard Business press.
3. Awad.E.M and Ghaziri.H.M: Knowledge management, Pearson education International.
4. Stuart Barnes: Knowledge management system theory and practice, Thomson learning.
5. Donald Hislop: Knowledge management in organisations, Oxford University press.
6. Sudhir Warier: Knowledge management, Vikas publishing house.
7. T. Raman: Knowledge management –a resource book, Excel books.

## **405 E-Commerce**

### **Course contents:**

#### **Unit – I**

Introduction to ecommerce: Meaning and concept of ecommerce, ecommerce vs e-business, advantages and disadvantages of ecommerce, value chain in ecommerce, Porter's value chain model, competitive advantage and competitive strategy, different types of ecommerce like B2B, B2C, C2C, C2B,G2C

Technology in ecommerce: An overview of the internet, basic network architecture and the layered model, internet architecture, network hardware and software considerations, intranets and extranets ,The making of world wide web, web system architecture, ISP, URL's and HTTP, cookies.

#### **Unit – II**

Building and hosting your website: choosing an ISP, registering a domain name, web promotion, internet marketing techniques, e-cycle of internet marketing, personalization, mobile agents, tracking customers, customer service, CRM and e-value

Web page design using HTML and CSS: Overview of HTML, basic structure of an HTML document, basic text formatting, links, images, tables, frames, form and introduction to CSS.

Security threats: Security in cyberspace, kinds of threats and crimes: client threat, communication channel threat, server threat, other programming threats, frauds and scams

#### **Unit- III**

Basic cryptography for enabling security in ecommerce: encryption: public and private key encryption, authentication and trust using digital signature and digital certificates, internet security using VPN, firewalls, SSL

#### **Unit- IV**

Internet payment systems: Features of payment methods, 4C payment methods, electronic money, ACID and ICES test, payment gateway, SET protocol for credit card payment, electronic payment media: e-cash and e-wallet, e-check, credit card, debit card, smart card, EFT and ACH

Business to Business e-commerce: Meaning, benefits and opportunities in B2B, B2B building blocks and their relationship to supply chain management, key B2B models and their main functions, EDI as a B2B tool.

#### **Unit-V**

Consumer oriented e-commerce: traditional retailing and e-retailing, benefits and key success factors for e-retailing, models for e-retailing like specialized and generalized e-stores, e-mall, direct selling by manufacturer, supplementary distribution channel, e-broker and e-services like web-enabling services, matchmaking services, information selling on the web, entertainment services and auction services.

E-core values: ethical issues, legal issues, taxation issues and international issues.

## **406 General English**

(Common for Science, Social Sciences and Humanities & Commerce Faculties)

(1) Texts:

The Many Worlds of Literature Edited by Jasbir Jain, Macmillan; India. George Orwell : Animal Farm

Or

R.K. Narayan : A Vendor of Sweets

(2) Grammar :

(a) Tenses

(b) Modal Auxiliaries

(c) Phrasal Verbs

(d) Clause (Nominal, Adjectival, Adverbial)

(e) Use of Non-finite verbs (Gerunds, Participles, and infinitives)

(3) Comprehension and Composition:

(a) Précis writing (b) Essay on one topic out of four topics.

Books Recommended:

1. Pit Corder: An Intermediate English Grammar
2. Thompson and Martinet : A Practical English Grammar (ELBS- Oxford University Press)



## **BBA(ED) V SEMETER**

### **501 Production & Operation Management**

**Objectives:** To understand the production and operation function and familiarize students with the technique for planning and control.

#### **Course contents:**

##### **Unit I**

Introduction to Production & Operations Management: Definition, need, responsibilities, key decisions of OM, goods vs. services.

Operation Strategies-Definition, relevance, strategy formulation process, Maintenance Management: Need of maintenance management, equipment life cycle (Bathtub curve).

Introduction to Lean Management

##### **Unit II**

Forecasting-Definition, types, qualitative (grass roots, market research and delphi method) and quantitative approach (simple moving average method, weighted moving average and single exponential smoothing method), forecast error, MAD.

Scheduling: Operation scheduling, goals of short term scheduling, job sequencing (FCFS, SPT, EDD, LPT, CR) & Johnson's rule on two machines, Gantt charts.

##### **Unit III**

Process Selection: Definition, Characteristics that influence the choice of alternative processes (volume and variety), type of processes- job shop, batch, mass and continuous, product -process design Matrix and Services design matrix, technology issues in process design.

##### **Unit IV**

Layout Decision: Layout planning – Benefits of good layout, importance, different types of layouts (Process, Product and Fixed position layout). Location Decisions & Models: Facility Location – Objective, factors that influence location decision, location evaluation methods- factor rating method.

Capacity Planning: Definition, measures of capacity (input and output), types of planning over time horizon.

##### **Unit V**

Aggregate Planning: Definition, nature, strategies of aggregate planning, methods of aggregate planning (level plan, chase plan and mixed plan, keeping in mind demand, workforce and average inventory), Statistical Quality control: Variations in process (common & assignable causes).

#### **Suggested Readings**

1. Budnik, Frank S., Dennis Mcleavey, Richard Mojena Principles of Operations Research, 2nd ed., Richard Irwin, Illinois-All India Traveller Bookseller, New Delhi, 1995.
2. Narag A S. Linear Programming and Decision Making. New Delhi, Sultan Chand, 1995.
3. Sharma, J K. Operations Research: Theory and Applications. New Delhi, Macmillian India Ltd., 1997.
4. Taha, H A. Operations Research - An Introduction. New York, Mc-Millan, 1989.
5. Theirouf, R J and Klekamp, R C. Decision Making Through Operations Research. New York, John Wiley, 1989.

## **502 Regulatory Framework for Small Businesses**

**Objective:** To gain knowledge of the branches of law which relate to business transactions, certain corporate bodies and related matters. Also, to understand the applications of these laws to practical commercial situations.

### **Unit I:**

The Indian Contract Act 1872: Meaning and Essentials of contract; Kinds of contract-Based on: validity, formation & performance, law relating to offer and acceptance, consideration, competency to contract, free consent, Void agreements, performance of contracts, discharge of contracts, breach of contracts and quasi contract, Special contracts: contract of indemnity and guarantee, bailment and pledge, and agency.

### **Unit II:**

Sale of Goods Act 1930: Sale and agreement to sell, implied conditions and warranties, sale by non-owners, rights of unpaid seller.

Negotiable Instruments Act 1881:

Meaning of negotiable instruments, type of negotiable instruments, promissory note, bill of exchange, cheque.

### **Unit III:**

The Companies Act 2013:

Meaning and types, Incorporation, Memorandum & Articles of association, Prospectus, Issue of shares and bonus shares, rights issue, sweat equity, role of directors, share qualification, company meetings.

The Limited Liability Partnership Act 2008:

Meaning and nature of limited partnership, formation, partners& their relations, extent and limitation of liability.

### **Unit IV:**

Consumer Protection Act 1986:

Objectives and machinery for consumer protection, defects and deficiency removal, rights of consumers.

### **Unit V:**

The Right to Information Act 2005:

Salient features and coverage of the act, definition of terms information, right, record, public authority; obligations of public authorities, requesting information and functions of PIO.

### **Readings:**

1. M.C.Kucchal: Business Law/Mercantile Law, Vikas Publishing House (P) Ltd.
2. M.C.Kucchal,&Vivek Kucchal: Business Legislation for Management, Vikas Publishing House (P) Ltd.
3. Dr. G. K. Kapoor& Sanjay Dhamija: Company Law and Practice-A comprehensive textbook on Companies Act 2013, latest edition, Taxmann.
4. Avtar Singh: Principle of Mercantile Law, Eastern Book Company
5. Gulshan Kapoor: Business Law, New Age International Pvt Ltd Publishers.
6. Maheshwari&Maheshwari: Principle of Mercantile Law, National Publishing Trust
7. Rohini Aggarwal: Mercantile & Commercial Law, Taxmann.

## **503 Performance & Compensation Management**

**Objective:** To familiarize students about concepts of performance and compensation management and how to use them to face the challenges of attracting, retaining and motivating employees to high performance.

### **Course Contents**

#### **Unit I**

Introduction- Concept, Philosophy, History from performance appraisal to performance development. Objectives of performance management system; Performance management and performance appraisal; Performance Management process: Performance planning, Process and Documentation of Performance appraisal, Appraisal Interview, Performance Feedback and Counseling.

#### **Unit II**

Performance management and reward systems. Performance Coaching, Mentoring and Counseling, Competency development, Use of technology and e-PMS, International Aspects of PMS. Performance systems trends, Ethical Perspectives in performance appraisal.

#### **Unit III**

Introduction to Job Evaluation; Methods of Job Evaluation. Company Wage Policy: Wage Determination, Pay Grades, Wage Surveys, Wage Components. Modern trends in compensation - from wage and salary to cost to company concept, Comparable worth, broadbanding, competency based pay.

#### **Unit IV**

Incentives plans for production employees and for other professionals. Developing effective incentive plans, pay for performance,. Supplementary pay benefits, insurance benefits, retirement benefits, employee services benefits. Benefits & Incentive practices in Indian industry.

#### **Unit V**

Wages in India: Minimum wage, fair wage and living wage. Methods of state regulation of wages. Wage differentials & national wage policy Regulating payment of wages, wage boards, Pay commissions, dearness allowances, linking wages with productivity,. Special compensation situations: International compensation-managing variations. Expatriate Pay.

### **Readings:**

1. Milkovich&Newman , Compensation, McGraw Hill.
2. T.J.Bergman , Compensation Decision Making, Harcourt, Fort Worth, TX
3. Richard Henderson: Compensation management in a knowledge based world, Prentice Hall.
4. T.N.Chhabra & SavithaRastogi Compensation management, Sun India Publications.
5. Gary Dessler ,Human Resource Management, Prentice Hall.
6. Armstrong's Handbook of Performance Management: An Evidence-Based Guide to Delivering High Performance :Book by Michael Armstrong.
7. Herman Aguinis: Performance Management, Prentice Hill.
8. Armstrong, M. & Baron, A: Performance management and development, Jaico Publishing House
9. Armstrong, M., Performance management: Key strategies and practical guidelines, Kogan Page, London.
10. Bagchi, S. N.: Performance management, Cengage Learning India.
11. Bhattacharyya, D.K.: Performance management systems and strategies, Pearson Education.
12. Robert B.: Performance management, McGraw-Hill Education India.

## **504: Business Policy & Strategy**

**Objective:** To equip students with the necessary inside into designing strategies for an organization and linking the organizations strategies with the changing environment. The course will focus on Indian cases, approaches and experiences.

**Unit I:** Nature & importance of business policy & strategy: Introduction to the strategic management process and related concepts; Characteristics of corporate, business & functional level strategic management decisions.

### **Unit II**

Company's vision and mission: need for a mission statement, criteria for evaluating a mission statement- Goal, Process & Input formulation of the mission statement.

**Unit III:** Environmental Analysis & Diagnosis: Analysis of company's external environment Environmental impact on organizations policy and strategy, organizations dependence on the environment, analysis of remote environment, analysis of specific environment- Michael E. Porter's 5 Forces model; Internal analysis: Importance of organization's capabilities, competitive advantage and core competence.

**Unit IV:** Formulation of competitive strategies: Michael E. Porter's generic competitive strategies, implementing competitive strategies- offensive & defensive moves. Formulating Corporate Strategies: Introduction to strategies of growth, stability and renewal, Types of growth strategies – concentrated growth, product development, integration, diversification, international expansion (multi domestic approach, franchising, licensing and joint ventures), Types of renewal strategies – retrenchment and turnaround. Strategic fundamentals of merger & acquisitions.

**Unit V:** Strategic Framework: Strategic analysis & choice, Strategic gap analyses, portfolio analyses – BCG, GE, product market evolution matrix, Balanced Score Card; Introduction to Strategic control & evaluation, Strategic surveillance.

### **Readings:**

1. J.A. Pearce & R.B. Robinson : Strategic Management formulation implementation and control, TMH
2. Arthur A. Thompson Jr. &A.J Strickland III : Crafting and executing strategy, TMH

### **Supplementary Readings**

1. Gerry Johnson &Kevan Scholes, Exploring corporate strategies,PHI
2. UpendraKachru: Strategic Management, Excel books
3. Arthur A. Thompson Jr. and A.J.Strickland: Strategic Management –Concepts and Cases, McGraw-Hill Companies
4. Lawrence R. Jauch& William F. Glueck: Business Policy and Strategic Management (Mcgraw Hill Series in Management).

## **505 Digital Marketing**

### **Objectives**

The objective of this paper is to create awareness about Digital Marketing and educate the learner about use of electronics in marketing management.

### **Course Contents:**

#### **Unit 1**

Introduction to Digital Marketing and SEO : The Significance of Digital Marketing, Digital Media, Digital v/s Traditional Marketing, Digital Marketing Trends and Platforms, Digital Marketing and Search Engine, Search Engine Optimization (SEO) concepts, Search Engine Architecture, Internal Measures for SEO, Do and Don't for Web Content, Link Building, Introduction to Digital Marketing Tools.

#### **Unit 2**

Networks of Digital Marketing: Introduction to Ad-Word, Display Networks, Advertising on Display Networks, Image Advertising, Mobile Advertising, Video Advertising, YouTube Advertising, Keyword Research Methodology, Analysis and Tools for Digital Marketing Networks, Link Building Methodology and Strategies

#### **Unit 3**

Search Engine Marketing: Benefits of SEM, Google Ad-Words V/S Microsoft Ad-Center, Types of Campaign, Ad-Group and keywords setup, Direct Campaign V/S Branding Campaign, Campaign Setup, Understanding Ad-Words Bidding, Ad-Formats and Guidelines, Campaigns, Ad-groups and keywords Dashboard

#### **Unit 4**

Email and Mobile Marketing: Importance of Email Marketing, Popular Email Marketing Software, Email Marketing Campaign, Newsletters in Email Marketing, Effective strategies for Email Marketing, Mobile Marketing: Mobile Ad-Campaign, Mobile Ad-Formats, Mobile Website Configuration. Video Marketing using YouTube: Optimization of Videos, Tips and Tricks for promotion, YT Analytics, Monetizing YT Channel

#### **Unit 5**

Social Media Marketing: Introduction to Social Media Marketing, Benefits of SMM, Social Media Strategy, Social Media Metrics in SEO, Face-book Marketing: setup, options, elements and applications; Twitter Marketing: #hash tags and its uses, analytics and promotions; Google+ Marketing: Benefits in SEO, Groups; LinkedIn Marketing: Strategy, Connection and Recommendations

### **Suggested Readings**

- Damian Ryan and Calvin Jones, Understanding Digital Marketing: Marketing Strategies for Engaging the Digital Generation, 2nd Edition, ISBN: 9780749453893.
- Vinayak Patukale, Digital Marketing, Kindle Edition

## **506 Ethics and Corporate Governance**

**Objective:** The objective of this paper is to make the students more clear about the importance of ethics in business and practices of good corporate governance. It also talks about the corporate social responsibility.

### **Unit I**

Business ethics: Meaning of ethics, why ethical problems occur in business. Ethical principles in business: Utilitarianism: weighing social cost and benefits, Rights and duties, Justice and fairness, ethics of care, Integrating utility, rights, justice and caring, An alternative to moral principles: virtue ethics, Moral issues in business: Worker's and employee's rights and responsibilities, Profit maximization vs. social responsibility, Indian ethics and teachings from Gita and Upanishads.

### **Unit II**

Corporate governance: concept, Need to improve corporate governance standards, Features of good governance, Role played by regulators to improve corporate governance, accounting standards and corporate governance, corporate disclosure, insider trading.

### **Unit III**

The Board –Quality, Composition and role of Board, Outside Directors on the board (independent, nominee), Executive and Non-Executive directors, SEBI clause 49, directors and financial institutions in enhancing corporate governance, critical issues in governance of board directors, CEO Duality.

### **Unit IV**

Role of auditors in enhancing corporate governance, duties and responsibilities of auditors, corporate governance and internal auditors, Whistle blowing: Kinds of whistle blowing, precluding the need for whistle blowing. Discrimination, affirmative action, and reverse discrimination, Equal employment opportunity.

### **Unit V**

Corporate social responsibility: Meaning, Evolution of corporate social responsibility, common indicators for measuring business social performance, reporting social responsibility measures in annual report. Regulations for CSR.

### **Readings:**

1. Manuel G Velasquez: Business ethics- concepts and cases Pearson.
2. LuthansHodgetts and Thompson: Social issues in business, Macmillan USA
3. A.C. Fernando: Business Ethics Pearson Education.
4. A.C. Fernando: Corporate Governance Pearson Education.
5. Adrian Davies: Strategic approach to corporate governance Gower Pub Co.
6. N. Gopalswamy: Corporate governance a new paradigm A H Wheeler Publishing Co Ltd.
7. Marianne M Jennings: Cases in Business Ethics Indian South-Western College Publishing
8. Kevin Gibson: Ethics and Business, An Introduction, Cambridge Applied Ethics Cambridge University Press
9. Bhanumurthy K V: Ethics and Social Responsibility of Business, Pearson Education India.

## **BBA(ED) VI SEMESTER**

### **601 Start-up Incubation /Training in Small Scale Industries (4 Months)**

The conditions of successfully completing the programme shall not be deemed to have been satisfied unless a student takes training, under the supervision of the department, in organizations as approved by the Department/Faculty from time to time. Each student will be required to submit a project report to the Department/Faculty for the work undertaken during this period within three weeks of the completion of the training, duly approved by the supervisor for the purpose of evaluation.



**CMJ  
UNIVERSITY**

Established By the Government of Meghalaya  
as per section 2(f) of UGC act 1956

## PROVISIONAL CERTIFICATE

This is certified that **MR. Apoorva Ajmera (Reg. No. 80187410300278)** has successfully completed all the requirements as per the university ordinance for the award of degree of Doctor of Philosophy (PhD) in Civil Architecture.

His thesis titled "*Comparative study between private and Public educational infrastructure figure at Malva (with special reference in Fire safety and Fundamental needs norms in colleges)*" submitted to Faculty of Research (Civil Architecture) has been duly accepted by the university on the recommendation of VIVA- VOCE board dated 12/11/2016.

The degree will be awarded to him in the next convocation ceremony.

Dated: 8<sup>th</sup> February 2017



Deputy Registrar



# **Mohanlal Sukhadia University, Udaipur**



## **College of Architecture**

**B.Arch**

**TEACHING SCHEME & SYLLABUS**  
**Effective from Academic Year 2021-2022**

**COURSE MATRIX**

<b>YEAR I</b>	<b>SEMESTER I</b>							
	<b>THEORY</b>	<b>Hours</b>			<b>Marks</b>			<b>Cr</b>
<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>IM 20%</b>	<b>EM 80%</b>	<b>Total</b>	
B1AR01-CT01	Architectural Structures-I	2	0	0	20	80	100	2
B1AR02-CT02	Environmental Studies	2	0	0	20	80	100	2
B1AR03-CT03	Human Settlement & Vernacular Architecture	2	0	0	20	80	100	2
	<b>PRACTICAL/ STUDIO</b>							
<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>IM 60%</b>	<b>EM 40%</b>	<b>Total</b>	<b>Cr</b>
B1AR04-CP01	Architectural Drawing & Graphics	2	0	4	120	80	200	4
B1AR05-CP02	Visual Arts & Basic Design- I	1	0	4	90	60	150	3
B1AR06-CP03	Computer Applications- I	0	0	2	30	20	50	1
B1AR07-CP04	Building Material & Construction- I	1	0	4	90	60	150	3
B1AR08-CP05	Model Making & Workshop	1	0	2	60	40	100	2
B1AR09-CP06	Professional Communications	0	0	2		50	50	1
	<b>Total</b>	<b>11</b>	<b>0</b>	<b>18</b>	<b>450</b>	<b>550</b>	<b>1000</b>	<b>20</b>
	<b>Total Teaching Hours</b>	<b>29</b>						

**L- Lecture****T- Tutorial****P- Practical / Studio****IM- Internal Marks****EM- External Marks****Cr- Credits**

YEAR I	SEMESTER II							
	THEORY	Hours			Marks			Cr
Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	
B2AR01-CT04	Surveying & Leveling	2	0	0	20	80	100	2
B2AR02-CT05	Climatology	2	0	0	20	80	100	2
B2AR03-CT06	Architectural Structures II	2	0	0	20	80	100	2
	PRACTICAL/ STUDIO							
Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B2AR04-CP07	Architectural Design- I	2	0	4	120	80	200	4
B2AR05-CP08	Visual Arts & Basic Design- II	1	0	4	90	60	150	3
B2AR06-CP09	Computer Applications- II	1	0	2	60	40	100	2
B2AR07-CP10	Building Material & Construction-II	1	0	4	90	60	150	3
B2AR08-CP11	Surveying Lab	0	0	2	30	20	50	1
B2AR09-CP12	Guided Study & Field Trip	0	0	2	30	20	50	1
	Total	<b>11</b>	<b>0</b>	<b>18</b>	<b>480</b>	<b>520</b>	<b>1000</b>	<b>20</b>
	Total Teaching Hours	<b>29</b>						

**L- Lecture**

**T- Tutorial**

**P- Practical / Studio**

**IM- Internal Marks**

**EM- External Marks**

**Cr- Credits**

YEAR 1I	SEMESTER III							
	THEORY		Hours			Marks		Cr
Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	
B3AR01-CT07	Humanities	2	0	0	20	80	100	2
B3AR02-CT08	History of Architecture-I	2	0	0	20	80	100	2
B3AR03-CT09	Architectural Structures III	2	0	0	20	80	100	2
	PRACTICAL/ STUDIO							
Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B3AR04-CP13	Architectural Design- II	1	0	6	120	80	200	4
B3AR05-CP14	Building Material & Construction-III	1	0	4	90	60	150	3
B3AR06-CP15	Computer Applications- III	0	0	2	60	40	100	2
B3AR07-CP16	Structure Lab	0	0	4	60	40	100	2
B3AR08-CP17	Guided Study & Field Trip	0	0	2	30	20	50	1
	Total	<b>8</b>	<b>0</b>	<b>18</b>	<b>420</b>	<b>480</b>	<b>900</b>	<b>18</b>
	Total Teaching Hours	<b>26</b>						

**L- Lecture**

**T- Tutorial**

**P- Practical / Studio**

**IM- Internal Marks**

**EM- External Marks**

**Cr- Credit**

YEAR II	SEMESTER IV							
	THEORY		Hours			Marks		Cr
Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	
B4AR01-CT10	Specifications & Estimation	2	0	0	20	80	100	2
B4AR02-CT11	History of Architecture-II	2	0	0	20	80	100	2
B4AR03-CT12	Architectural Structures IV	2	0	0	20	80	100	2
	PRACTICAL/ STUDIO							
Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B4AR04-CP18	Architectural Design- III	1	0	6	120	80	200	4
B4AR05-CP19	Building Material & Construction-IV	1	0	4	90	60	150	3
B4AR06-CP20	Measured Drawing & Documentation	1	0	2	60	40	100	2
B4AR07-CP21	Computer Applications- IV	1	0	2	60	40	100	2
B4AR08-CP22	Guided Study & Field Trip	0	0	2	30	20	50	1
	Total	<b>10</b>	<b>0</b>	<b>16</b>	<b>420</b>	<b>480</b>	<b>900</b>	<b>18</b>
	Total Teaching Hours	<b>26</b>						

**L- Lecture**

**T- Tutorial**

**P- Practical / Studio**

**IM- Internal Marks**

**EM- External Marks**

**Cr- Credit**

YEAR III		SEMESTER V						
	THEORY	Hours			Marks			Cr
Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	
B5AR01-CT13	Building Plumbing Services	2	0	0	20	80	100	2
B5AR02-CT14	History of Architecture-III	2	0	0	20	80	100	2
B5AR03-CT15	Architectural Structures V	2	0	0	20	80	100	2
	PRACTICAL/ STUDIO							
Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B5AR04-CP23	Architectural Design- IV (Including Educational Tour)	1	0	6	120	80	200	4
B5AR05-CP24	Building Material & Construction-V	1	0	4	90	60	150	3
B5AR06-CP25	Interior Design	1	0	2	60	40	100	2
B5AR07-CP26	Elective-I 1. Furniture Design 2. Product Design 3. Digital Design	1	0	4	90	60	150	3
B5AR08-CP27	Guided Study & Field Trip	0	0	2	30	20	50	1
	Total	<b>10</b>	<b>0</b>	<b>18</b>	<b>450</b>	<b>500</b>	<b>950</b>	<b>19</b>
	Total Teaching Hours	<b>28</b>						

**L- Lecture**

**T- Tutorial**

**P- Practical / Studio**

**IM- Internal Marks**

**EM- External Marks**

**Cr- Credit**

YEAR III	SEMESTER VI							
	THEORY		Hours			Marks		Cr
Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	
B6AR01-CT16	Building Electrical Services	2	0	0	20	80	100	2
B6AR02-CT17	History of Architecture-IV	2	0	0	20	80	100	2
B6AR03-CT18	Architectural Structures VI	2	0	0	20	80	100	2
	PRACTICAL/ STUDIO							
Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B6AR04-CP28	Architectural Design- V	1	0	6	120	80	200	4
B6AR05-CP29	Building Material & Construction-VI	1	0	4	90	60	150	3
B6AR06-CP30	Landscape Design	1	0	2	60	40	100	2
B6AR07-CP31	Elective-II 1. History of Architecture of Rajasthan 2. Vernacular Architecture of Rajasthan 3. Arts & Crafts of Rajasthan	1	0	4	90	60	150	3
B6AR08-CP32	Guided Study & Field Trip	0	0	2	30	20	50	1
	Total	<b>10</b>	<b>0</b>	<b>18</b>	<b>450</b>	<b>500</b>	<b>950</b>	<b>19</b>
	Total Teaching Hours	<b>28</b>						

**L- Lecture**

**T- Tutorial**

**P- Practical / Studio**

**IM- Internal Marks**

**EM- External Marks**

**Cr- Credit**

YEAR IV	SEMESTER VII							
	THEORY	Hours			Marks			Cr
Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	
B7AR01-CT19	Building Mechanical Services	2	0	0	20	80	100	2
B7AR02-CT20	Contract Documents & Byelaws	2	0	0	20	80	100	2
B7AR03-CT21	Acoustics & Illumination	2	0	0	20	80	100	2
	PRACTICAL/ STUDIO							
Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B7AR04-CP33	Architectural Design- VI	1	0	6	120	80	200	4
B7AR05-CP34	Working Drawing	1	0	4	90	60	150	3
B7AR06-CP35	Settlement Planning	1	0	2	60	40	100	2
B7AR07-CP36	Elective-III 1. Universal Design 2. Research Methodology 3. Architectural Journalism	1	0	4	90	60	150	3
B7AR08-CP37	Guided Study & Field Trip	0	0	2	30	20	50	1
	<b>Total</b>	<b>10</b>	<b>0</b>	<b>18</b>	<b>450</b>	<b>500</b>	<b>950</b>	<b>19</b>
	<b>Total Teaching Hours</b>	<b>28</b>						

**L- Lecture**

**T- Tutorial**

**P- Practical / Studio**

**IM- Internal Marks**

**EM- External Marks**

**Cr- Credit**



YEAR IV	SEMESTER VIII	
Course Code	Course Name	Duration
	Practical Training 1. Presentation & Approval Drawings 2. Site Visits & Studies 3. Critical appraisal of built projects 4. Working Drawing & Details 5. Training Report	140 days

YEAR V	SEMESTER IX	Hours			Marks			Cr
	THEORY							
Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	
B9AR01-CT22	Professional Practice & Management	2	0	0	20	80	100	2
B9AR02-CT23	Sustainable Architecture	2	0	0	20	80	100	2
B9AR03-CT24	Disaster Resistant Architecture	2	0	0	20	80	100	2
	PRACTICAL/ STUDIO							
Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B9AR04-CP38	Architectural Design- VII	1	0	6	120	80	200	4
B9AR05-CP39	Dissertation (Including Thesis Seminar)	1	0	4	90	60	150	3
B9AR06-CP40	Training Presentation	0	0	4	90	60	150	2
B9AR07-CP41	Elective-IV 1. Housing 2. Urban Design 3. Urban Conservation	1	0	4	90	60	150	3
B9AR08-CP42	Guided Study & Field Trip	0	0	2	30	20	50	1
	<b>Total</b>	<b>9</b>	<b>0</b>	<b>20</b>	<b>480</b>	<b>520</b>	<b>1000</b>	<b>19</b>
	<b>Total Teaching Hours</b>	<b>29</b>						

**L- Lecture**

**T- Tutorial**

**P- Practical / Studio**

**IM- Internal Marks**

**EM- External Marks**

**Cr- Credit**

YEAR V	SEMESTER X	Hours			Marks			Cr
Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	
B10AR01-CP43	Thesis Project	2	0	10	210	140	350	7
B10AR02-CP44	Elective- V: Design Elective Related to Thesis 1. Interior Design 2. Landscape Design 3. Urban design	1	0	4	90	60	150	3
B10AR03-CP45	Elective VI: Technology Elective Related to Thesis 1. Plumbing Design 2. Electrical Design 3. Mechanical Design	1	0	4	90	60	150	3
B10AR04-CP46	Guided Study & Field Trip	0	0	2	30	20	50	1
	<b>Total</b>	<b>4</b>	<b>0</b>	<b>20</b>	<b>420</b>	<b>280</b>	<b>700</b>	<b>14</b>
	<b>Total Teaching Hours</b>	<b>24</b>						

**L- Lecture**

**T- Tutorial**

**P- Practical / Studio**

**IM- Internal Marks**

**EM- External Marks**

**Cr- Credit**

**ARCHITECTURAL STRUCTURES I****B.ARCH Semester: I****Code: B1AR01-CT01****Course Objectives:** Introducing simple structural concepts and behaviour of structural elements.**Anticipated Learning Outcomes:** Understanding of concepts taught in the semester through simple numerical calculations and models

UNIT	CONTENT
1	<b>Forces:</b> Concept of Force, Graphical Presentation of Force, Coplanar and non Coplanar Forces, Concurrent and Non Concurrent Forces, Composition and Resolution of Coplanar Forces by Graphical and Analytical Methods.
2	<b>Centroids And Moment Of Inertia Of Plane Areas:</b> Built up Steel Sections, Centre of Gravity And Moments of Inertia, Parallel Axes Theorem, Product of Inertia, Radius of gyration, Perpendicular axis theorem.
3	<b>Lifting Machines:</b> Mechanical Advantage, Velocity Ratio and Efficiency, Law of Machine, Pulleys and Pulley Blocks.
4	<b>Simple Stresses and Strains:</b> Concept of stress and strain in three dimensions and generalized Hooke's law; Young's modulus; Tension test of mild steel and other materials: true and apparent stress, ultimate strength, yield stress and permissible stress; Stresses in prismatic & non prismatic members and in composite members.
5	<b>Types of Loads:</b> Requirements of good structures, safety, stability, economy, Dead, Live, Wind, Impact, Earthquake, Concentrated, Uniformly Distributed and Varying Loads, loads system, critical combination of loads, earthquake forces, and wind loads on tall building.
	<b>TOTAL</b>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	B.C.Punmia, "Strength of Materials", Laxmi Publications (P) Ltd., New Delhi	2006
2	Ashok Jhunjhunwala, "Engineering Mechanics", Tata McGraw Hills	2009
3	Singer and Patel, "Strength of Material", Harper Collins Publishers	2008
4	Timoshenko & Gere, "Mechanics of Structures", CBS Publishers and Distributers.	2009
5	S.B Junnarkar, "Mechanics of Structures Vol. I & II", Charotar Publishing House, Anand	2009

**ENVIRONMENTAL STUDIES****B.ARCH Semester 1****Code: B1AR02-CT02**

**Course Objectives:** To bring about awareness of a variety of environmental concerns and to create a pro-environment attitude and behavioural pattern in society based on sustainable lifestyles.

**Anticipated Learning Outcomes:** Awareness of a wide range of environmental concerns and ability to act at their own level to protect the environment we all live in.

UNIT	CONTENT
1	<b>Fundamentals of Ecology &amp; Environment</b> - Fundamental of Ecology, Environment, Resources, Sustainable habitats and ecological footprints of cities.
2	<b>Fundamentals of Impact of human activities on Environment</b> - Impact of human activities on ecology and our environment leading to water pollution, air pollution, noise pollution etc., overall environmental degradation, reduced quality of life, climate change and natural disaster.
3	<b>Fundamentals of environmental Planning and Design</b> - Built Environment, new urbanism and sustainable architecture leading to energy efficient, environment friendly, low waste human settlements, climate friendly, energy efficient green buildings and art in our built environment.
4	<b>Fundamentals of Environmental Legislations</b> - Introduction to salient provisions of environmental legislation in India and concerned departments / agencies for basic understanding.
5	<b>Fundamentals of Environmental Impact Assessment</b> and Environmental clearance of projects pertaining to Built Environment for basic understanding.
	<b>TOTAL</b>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Engene P. Odum and Garry W Barreit "Fundamentals of Ecology" Thomson – Brooks/ Cole	2006
2	A.K.Jain "Ecology and Nature Resource Management for Sustainable Development" Management Publishing Co.	2001
3	Goudi Andren "The human impact in Natural Environment", Basic Btackwell, Oxford	1981
4	McHarg Ian "Design with Nature" – Natural History Press, New York	1969
5	James Steele, "Ecological Architecture", Thames & Hudson	2005

**HUMAN SETTLEMENT & VERNACULAR ARCHITECTURE**  
**Code: B1AR03-CT03**
**B.ARCH Semester I**

**Course Objectives:** Introduce traditions of building structures for habitation, made without the intervention of professional architects.

**Anticipated Learning Outcomes:** Familiarity with simple ways of building and settling a community that related to local customs, social systems, climate, available materials and construction methods.

UNIT	CONTENT
1	Vernacular architecture including primitive or aboriginal architecture; indigenous architecture; ancestral or traditional architecture; folk, popular, or rural architecture;
2	Ethnic architecture or ethno-architecture; informal architecture; the so-called "anonymous architecture" or "architecture without architects;" and even "non-pedigree" architecture
3	Early human settlements — Causal factors and pattern of development. Human settlements of River valleys civilisation (e.g. Indus-valley civilisation, Egyptian civilisation, etc. Early Vedic civilisation patterns, Canonical patterns as per various Indian contexts.
4	Vernacular architecture in Indian context Definition(s) of vernacular architecture and related terminologies; Difference between vernacular architecture and traditional architecture; Relevance of vernacular architecture in present context; Typologies in different climatic regions of India.
5	Settlements and dwelling patterns Regional dwelling patterns like 'dhanis' (hamlets), villages and their overall adaptation in the said context; Settlements and their vicinity to water resource(s) as places of worship and social activity; water related architecture and typical water resources like kua, kohar, baoli/bavdi, jhalora, bera/beri.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Brunskill, R. W. Illustrated Handbook of Vernacular Architecture. Castle Rock : Faber & Faber.	1987
2	Christian Schittich (Ed.) Vernacular Architecture Atlas for living throughout the world. Birkhauser	2019
3	Lindsay Asquith & Marcel Vellinga, Vernacular Architecture in the 21st Century, Theory Education & Practice, Taylor & Francis	2020
4	Kingston Wm.Heath, Vernacular Architecture & Regional Design, Routledge	2020
5	Cooper, I and Dawson, B. Traditional buildings of India. London : Thames & Hudson.	1998

**ARCHITECTURAL DRAWING & GRAPHICS****B.ARCH Semester: I****Code: B1AR04-CP01**

**Course Objectives:** Introducing basic principles of design, space articulation and architecture and the use of drawing as a communication tool for design information.

**Anticipated Learning Outcomes:** Ability to assemble simple spatial elements in articulated constructs and visually represent them through hand-made 2D drawings and models.

UNIT	CONTENT
1	<b>Free hand &amp; Scale drawing</b> – Introduction to subject. Getting acquainted with necessary instruments of drawing. Learning to draw straight & curved lines with different qualities. Terminology & abbreviations used in architectural drawing. Learning good lettering to improve and maintain quality of presentation. Different types of lettering for titles and annotation of drawings. Introduction to various types of lines such as outline, construction line, centre line etc. Use of scale in drawings and their use in practice & construction of plain & diagonal scale. Reduction and enlarging of given drawings
2	<b>Orthographic projections</b> – Learning meaning of terms 'Plan and Elevations' and using them for drawing simple objects through orthographic projections. Orthographic projection of lines for any given condition determination of true length, traces and inclinations to the planes of projection of any given line. Traces of planes, plane figure inclined to one or both the reference planes. Simple solids like prisms, pyramids, tetrahedron cone, spheres in different position to the reference plane.
3	<b>Metric &amp; Complex Projections</b> – Different ways of presentation of solids in 3D projections like Axonometric, Isometric, oblique. Learning principles of solids, applying them to workout and drawing developed surfaces of simple geometric solids and using them to make models of some of them. Section planes in different angles, drawing of true section and introduction of slicing method. Interpenetration of solids.
4	<b>Perspective Projections</b> – Understanding basic principles of perspective drawings. Introduction of basic elements such as station point, picture plane, eye level, centre of vision, cone of vision, vanishing points etc. Drawing one point and two point perspectives through plan and elevation method, plan and vanishing points method & measuring point method. Types of perspective projections such as one point, two point, three point, worm's eye view, bird's eye view, Normal view etc.
5	<b>Sciography</b> – Introduction to sciography, understanding shade & shadow, umbra & penumbra, Principles of conventional angle of light and its rays acting as a projectors to cast shadow of simple plane. Studying sciography and methods of representing it in 2D projections. Applying sciography to 3D geometrical projections especially Isometric projections.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Philip Meggs, "A History of Graphic Design", John Wiley & Sons; 3 edition	1998
2	N.D.Bhatt, "Elementary Engineering", Charotar Publishing House, Anand	1991
3	Edward J.Muller, James G. Fausett, Philip A. Grau, "Architectural Drawing and Light Construction", Prentice hall New Jersey	1991
4	Alexander W. White, "The elements of Graphic Design Space, Unity, Page, Architecture and Types", All worth press, 1 edition.	2001
5	Francis D.K.Ching with Steven P. Juroszek, "Design Drawing", John wiley & sons, NY.	1998

**VISUAL ARTS & BASIC DESIGN- I**  
**Code: B1AR05-CP02**
**B.ARCH Semester: I**

**Course Objectives:** Introducing free-hand drawing and Two-Dimensional graphic design as a way of understanding the place of art in architecture.

**Anticipated Learning Outcome:** Ability to draw in various media and materials, to develop the power of drawing as a means of coordinating eye and hand in studio and field observation, to judge proportion, scale, and spatial relationships, understand principles of visual composition and experiment with them.

UNIT	CONTENT
1	<b>Elements of Visual Arts:</b> Brief historical review of Fine arts and interdependency of Visual arts, Architecture, painting & sculpture. Exposure to the life & works of famous artists & art forms. Theories related to visual perception –Proximity, repetition, simplest and largest figure, continuity & closure, Figure & ground relationship. Study of Line, Form, Colour, Texture, Space through Observation, Perception and Expression. Study of classification of colours with different hues , values and shades. Colour wheel and colour composition, Properties of colour.
2	<b>Principles of Art and Design:</b> Exploration of the basic principles of composition such as Balance, Proportion, Harmony, Contrast, Emphasis, character with building examples. Ordering principles such as Axis,Symmetry,Hierarchy,Datum,Rhythm & Repetition etc. and its role in architectural expression.
3	<b>Two Dimensional Explorations:</b> Introduction to Principles of Organization/ Composition. Study of Visual properties of 2-Dimensional forms both Geometrical & Non-Geometrical surfaces and visual textures, optical illusions etc. Emphasizing on Elements and Principles of Art and Design by Composing Shapes and Forms in Various Mediums.
4	<b>Indoor and Outdoor Sketching:</b> Learning to Draw by Seeing and Observing. Free hand line sketching and drawing of natural & manmade, Still and Moving Objects such as Human Figures, Vegetation, Automobiles, Historic or new built up structures etc.
5	<b>Rendering:</b> Shading Techniques using Materials such as Pencils, Pencil Colours, Water Colours, Poster Colours, Pen and Ink, charcoal & crayons for development of environmental and architectural ideas. Simple geometric objects, complex geometries and objects in nature & Architecture , shade and shading techniques.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Robert Gill, “Rendering with pen and ink”, Thames & Hudson	1990
2	Gianni A. Sarcone, “Drawing & Illustration”, Arcturus Publication	2012
3	Otto G. Ocvirk, “Art Fundamentals”, Mcgraw Hill	2006
4	Gianni A. Sarcone, “Drawing optical illusions”, Arcturus Publication	2012
5	Trudy Friend, “Landscape problem and solutions”, David & Charles	2005

**COMPUTER APPLICATIONS- I****B.ARCH Semester: I****Code: B1AR06-CP03**

**Course Objectives:** Introducing basic computer skills as relevant to the architectural profession and to bring all students from different backgrounds up to a common level of computer proficiency.

**Anticipated Learning Outcomes:**

Ability to do word and image processing to make short reports and seminar presentations and make 2D orthographic projections in CAD.

UNIT	CONTENT
1	<b>Word processing:</b> Basic templates for creating text documents, editing, formatting, spelling/grammar check, dictionary and thesaurus, page layout, fonts, indentation, inserting tables and images, document review and annotation in software like MS Word.
2	<b>Numerical processing:</b> preparing and editing spreadsheets in software like MS Excel. Collating raw data into numbers for analytical use.
3	Slide Presentations in software like MS PowerPoint, insertion of drawings, audio/video clips.
4	Introduction to Computer Applications in Architecture. Introduction to drafting and modeling software relevant to architecture viz. AutoCAD, Proge CAD, ZWCAD, Draft sight, Google Sketchup, 3ds Max etc.
5	Simple exercises in to 2D CAD software (AutoCAD/Revit) specifically for proficiency of, drawing/editing objects, text, dimensioning, making and inserting blocks, etc. and an understanding of units settings, scale, limits, line type, line weight, layers, colours, and print commands.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Cadfolks, "Autocad 2014 for Beginners", Create Space Independent Publishing Platform	2014
2	Bill Fane, "AutoCAD 2014 For Dummies", John Wiley & Sons	2013
3	Randy H. Shih, "Exploring DraftSight" Schroff Development Corp	2009
4	Chris Grover, "Google Sketch Up", Shroff/O'Reilly	2009
5	Kelly L. Murdock, "Google SketchUp and SketchUp Pro 7 Bible"	2009



**BUILDING MATERIAL & CONSTRUCTION-I****B.ARCH Semester: I****Code: B1AR07-CP04****Course Objectives:** To introduce students to primary building materials and simple construction techniques as applicable to a low-rise building- three to four storied contemporary building.

UNIT	CONTENT
1	<b>Building Stones</b> –Classification of rocks, Quarrying of building stones, Properties of building stones, Common building stones and their uses, Qualities of good building stones, Defects in stones and their remedial measures, Physical tests on stones such as absorption test, hardness test, crushing test etc., Artificial stones, Dressing and various finishes on stones. B.I.S. specification for stones. Various building elements such as foundation, wall, roof/floor and openings using stones in load bearing construction. Classification of arches. Construction of staircase, ramp, retaining wall, columns and piers in stone. Use of stone in various building components such as door window frame, lintel, sill, etc.
2	<b>Earth, Soil and Laterite</b> –Types and Properties of Earth, Soil and Laterite. Construction systems such as adobe, rammed earth, wattle and daub, CSEB etc., Problems of Earth, Soil and Laterite construction and their remedial measures. Soil stabilizers, Physical tests on earth, soil & laterite, BIS specification. Various building elements such as foundation, wall, openings using earth, soil and laterite in load bearing construction. Construction of staircase, ramp, retaining wall, Column and Piers in earth, soil and Laterite. Adobe, rammed earth, wattle & daub construction in mud.
3	<b>Bricks</b> - Composition of good brick earth, Manufacturing of bricks, Properties of bricks, Qualities of good bricks, Classification of bricks, Market forms of bricks such as hollow brick, bullnose brick, perforated, etc. Uses of bricks in building, storage of bricks, Physical tests for bricks, Brick substitutes, BIS specifications. Various building elements such as foundation, wall, roof, floor and openings using bricks in load bearing construction. Special bonds in brick such as rat trap bond, herring bone bond, etc. Details at junctions and quoins. Construction of staircase, ramp and retaining wall in Brick.
4	<b>Clay Products &amp; Pozzolanas</b> – Types of Tiles, Characteristics of a good tile, Manufacture of tiles, Earthenware, Stoneware, Porcelain, Clay blocks. Natural & Artificial Pozzolanic materials, Advantages of addition of pozzolanas, Storing of pozzolanas, Chemical & physical characteristics of fly ash. BIS specifications. Various building elements such as roof and floor using clay products such as roof and floor tiles. Use of clay products in various building components.
5	<b>Protective finishes, Machines &amp; Equipments</b> – Protective finishes on building stones, earth laterite bricks and clay products. Protective finishes such as Damp proofing and water proofing in case of construction in stones, earth, laterite and bricks. Study of Machines & Equipments for manufacturing, transportation, preparation and laying of building stone, earth, brick and clay products. Drawings of machines and equipments used for manufacturing, transportation, preparation and lying of building stone, earth, brick and clay products.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	S.C.Rangwala, “Engineering Materials”, Charota Publishing Housing Pvt. Ltd. Anand (Gujrat)	1997
2	Sushil Kumar, “Building Construction”, M/s. Standard Publishers & Distributors, Delhi	2003
3	Robin Barry, “The construction of buildings (Vol. I-V)”, Blackwell publishing	2000
4	Francis D.K.Ching, “Building Construction Illustrated”, John Wiley	1975
5	Handbook on Building Construction Practices, BIS, New Delhi	1997

**MODEL MAKING AND WORKSHOP****B.ARCH Semester 1****Code: B1AR08-CP05****Course Objectives:** Introduce different techniques of model making in various materials and basic processes for fabrication and assembly of simple building components**Anticipated Learning Outcomes:** Ability to make true scale models of architectural designs, manually and mechanically and familiarity with carpentry, joinery, smithy and moulding with different materials and techniques.

UNIT	CONTENT
1	<b>Model Making:</b> (a) Surface Modelling: Basic geometry like cube, cuboid, cylinder, cone, pyramids by single surface development through cutting and pasting. (b) Form Modelling: basic geometry by using thermocol & various solid materials to understand the characteristics of materials.
2	<b>Model Making (Advance):</b> Study of complex figures to achieve complexity in model making, with addition & subtraction in basic geometry by using paper, mount sheet, mount boards etc.
3	<b>Photography:</b> About the Types of Camera, accessories, lenses, films their usages, setting of camera, aperture, & Shutter speed settings, compositions with respect to view finder, E.V. value colour, white balance, I.S.O. & Exposure.
4	<b>Carpentry &amp; Metal Workshop:</b> Types of joint in wood such as butt, dovetails, rebate, tongue and groove etc. how to cut and weld the metal, molding, bolting, usages of fabrication in architecture.
5	<b>Modeling &amp; Casting Techniques:</b> volumetric study using clay and Plaster of Paris, Clay Modeling, Types of Clay, Casting in Plaster of Paris and other materials

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Donald Stoltenberg, "The Artist & Built Environment", Davis Publication	1980
2	Keith Critchlow, "Order in Space", Thames & Hudson	2000
3	R.C.Gupta, "Basic Shop Theory carpentry", Dhanpat Rai publications	
4	Edward Luce Smith, Paul J Karlstroam, "Fletcher Benton", Harry N Abrams publications, First Edition	1990
5	Robert J. Lang, "Origami animals", Crescent Books Publishers	1992

**PROFESSIONAL COMMUNICATIONS****B.Arch Semester: I****Code:BIAR09-CP06**

**Course Objectives:** Introduce basis language skills for oral professional communication that enables effective conversation in the classroom and participation in conferences and seminars.

**Anticipated Learning Outcomes :** Students should be able to speak and understand spoken English to carry out a meaningful conversation on topics related to Architecture, particularly in the Studio.

UNIT	CONTENT
1	Importance of conversation, definition, process and feedback in communication, cultural influences as barriers to effective communication, features of effective communication
2	Types of professional communication, Letters, Email, short messages, reports, listening and responding, Live, Tele – and Video-conferencing as a media of modern communication, ethics related to various forms of communications.
3	Planning, composing, and writing, Guide to effective writing: Planning and conducting conversations, interviews, preparation and rehearsal of oral statements for presentations, body language, effective listening, telephonic communication.
4	Dimensions of communication (Formal and Informal, upward, downward etc.)
5	Writing a short Research Paper. This exercise is to be followed up continually in all courses throughout the program wherein students are assigned to write a paper on a particular topic related to the course as decided by the subject teacher concerned. This may include reportage of readings, site visits, field trips, conversations with experts and public, etc.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Raman, M. & Sharma, S., Technical Communication : Principles and Practice, 2nd Ed.	
2	Market, Mike, Technical Communication	2012
3	Rizvi, M. Ashraf, Effective Technical Communication,	
4	Anderson, Paul V., Technical Communication : A Reader- Centred Approach, 6 Ed.	

**SURVEYING & LEVELING**  
**Code: B2AR01-CT04**
**B.ARCH Semester: II**

**Course Objectives:** Introduce principles of topographical survey and their application.

**Anticipated Learning Outcomes:** Working knowledge of manual and digital surveying techniques, ability of demarcating features and setting out a simple building on site.

UNIT	CONTENT
1	<b>Introduction:</b> Principles and classification of survey, Basic measurements in surveying, Basic methods of surveying, Different types of transverse.
2	<b>Horizontal Survey:</b> Chain survey - Introduction, Instruments, Types of chains and tapes, their uses and construction details. Compass survey - Introduction, Different type of compass, Meridians, Bearings, Dip, Declination, Local attraction, Adjustment of angles, Loose needle and fast needle method, Compass transverse. Plane Table survey - Elements of plane table survey, Plane table transverse.
3	<b>Vertical survey:</b> Levelling - Basic definitions, Types of levelling, Instruments like Theodolite, Dumpy level etc., sources of errors, Computations & Permanent adjustment of levels. Theodolite survey - Introduction, Basic definitions, Construction details, Temporary adjustment, Measurement of vertical and horizontal angle, Area computations by planimeter.
4	<b>Contouring:</b> Contour – Definition, contour signature of various land forms, Contouring and Earth work calculation.
5	<b>Setting out work for buildings:</b> Introduction, Controls for setting out, horizontal control, vertical control, setting out in vertical direction, Positioning of structure, Setting out of foundation trenches.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Arora, “Surveying”, Raj Sons Publications Pvt. Ltd.	1996
2	S.C.Rangwala, “Surveying & Levelling”, Charotar Publishing House, Anand (Gujarat)	2005
3	Dr. B.C.Punmia, “Surveying”, Laxmi Publication (P) Ltd., New Delhi	2002
4	William Irvine, “Surveying for Construction”, McGraw Hill Book Co., New Delhi	1995
5	John Clancy, “Site Surveying & Levelling”, Arnold London	1991

**CLIMATOLOGY**  
**Code: B2AR02-CT05**
**B.ARCH Semester: II**

**Course Objectives:** Understanding the elements of climate and how architecture responds to them architecture in order to develop bioclimatic design in buildings. **Anticipated Learning Outcomes:** Ability to interpret climatic data for design, understanding sun path diagrams, shadow angles, daylight factors, read wind charts and assess volume of natural ventilation

UNIT	CONTENT
1	<b>Introduction to Climatology:</b> Importance of climate in Architecture, Weather & Climate, tilt of earth axis, solar radiation quantities & earth's thermal balance. Macro and Micro climate, elements of climate such as temperature, humidity, solar radiation, wind etc. Solar geometry, sun path diagram, types and design of shading devices.
2	<b>Analysis of Climate:</b> Different types of climatic zones and their characteristics. Climatological site analysis and its application in site planning and design evolution.
3	<b>Thermal Comfort:</b> Thermal comfort factors, Methods of heat transfer, Thermal comfort Indices, Application of ET, CET, Psychometric chart and Bioclimatic chart. Thermal Behaviour of Building Elements & Materials: Thermal quantities, Time lag & decrement factor, Thermal conductivity, Thermal transmittance, Thermal Resistance, Thermal bridging, Thermal behaviour of different materials, Effect of multilayered bodies.
4	<b>Day light, Ventilation &amp; Air Movement:</b> Natural light sources, daylight factors, day light contours & calculations. Air movement & ventilation, functions of ventilations, types of ventilation, Air movement standards, Effect of opening on ventilation.
5	<b>Passive means of thermal control:</b> Simple passive techniques such as orientation, form, building envelope, opening etc. Advance solar passive techniques for cooling & heating such as wind tower, solar chimney, roof ponding, Earth air tunnel, trombe wall, solarium, etc. Study of passive environmental control mechanism in traditional or modern built environment.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Milli Majumdar, "Energy Efficient Buildings in India", Teri & MNES	2001
2	Arvind Krishnan, "Climate Responsive Architecture – A design handbook for energy efficient buildings", Tata McGraw Hill, Delhi	2001
3	Koenigsberger, "Manual on tropical housing & building", Orient Longman	1975
4	Ishwarchand, P.K.Bhargava, "The Climatic Data Handbook", CBRI Roorkee & Tata McGraw Hills Delhi.	1999
5	Randall McMillan, "Environmental Science in Building", Palgrave	1983

**ARCHITECTURAL STRUCTURES-II**  
**Code: B2AR03-CT06**
**B.ARCH Semester: II**
**Course Objectives:** To understand simple structural concepts and behaviour

**Anticipated Learning Outcomes:** To demonstrate and understanding of concepts taught during the semester through simple calculations and models.

UNIT	CONTENT
1	<b>Shear Force And Bending Moment:</b> Shear Force and Bending Moment Diagrams in case of simply supported Beams, Cantilevers and beams with overhangs due to Concentrated Loads and Distributed Loads.
2	<b>Bending Stresses in Beams:</b> Theory of Simple Bending, $M/I=F/Y=E/R$ Equation and Its Derivation, Section Modulus, Distribution of Normal Stress due to Bending.
3	<b>Determinacy:</b> Definition of determinate and indeterminate structures, redundant frames, Frames and Trusses: Pre jointed Plane Frames, Determination of Forces in the members by Method of Joints and Method of Sections.
4	<b>Shearing Stresses in Beams:</b> Composite Beams, Shear Stress Distribution In Rectangular, Circular, T And I Sections
	<b>Torsion:</b> Elementary concepts of torsion, shear stress in solid and hollow circular shafts, angle of twist, power transmitted by a shaft, combined bending and torsion;

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	B.C.Punmia, "Strength of Materials", Laxmi Publications (P) Ltd., New Delhi	2006
2	R. K. Bansal, "Engineering Mechanics & Strength of Materials", Laxmi Publications (P) Ltd.	2008
3	V.S.Prasad, "Structural Mechanics & Analysis"	2005
4	Singer and Patel, "Strength of Material", Harper Collins Publishers.	2009
5	Timoshenko & Gere, "Mechanics of Structures", CBS Publishers and Distributors	2006

**ARCHITECTURAL DESIGN -I**  
**Code: B2AR04-CP07**
**B.ARCH Semester: II**

**Course Objectives:** Introducing Architectural Design as the ideation of a functional space crafted by robust elements in an aesthetic manner and exploiting 3D drawings as a medium of near-realistic representation of architectural intent.

**Anticipated Learning Outcomes:** Ability to assimilate learning from Basic Design and Visual Arts, Building Construction and Structures and apply to an Architectural Design by weighing design choices, to draw insights from personal experience of surrounding environment, extract programmatic requirements therefrom and translate into a Design Concept to be expressed through hand-made 3D drawings and models.

UNIT	CONTENT
1	<b>Space, Form &amp; Structure</b> – Interdependence of form, structure, function and space. Study of simple structural systems and behaviour under load, working model of structures like post and Lintel, Cantilever, arched, corbelled, trussed etc.
2	<b>Architectural Concept</b> – Various sources of inspiration for design. Types of concepts. Concept as a response to site and context. Design determinants.
3	<b>Circulation &amp; Space</b> – Types of circulation such as internal, external. Elements of circulation. Types of space such as public, semi public, private, served & servant spaces, etc.
4	<b>Form composition</b> – Relationship of plan, Elevation and section, organization of form, composition of built form.
5	<b>Design</b> – Application of anthropometry in design of simple living and working spaces through study of furniture placement and clearances in space.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Francis D.K.Ching, “Visual Dictionary of Architecture”, Van Nostrand Reinhold	1995
2	Ernst and Peter Neufert, “Architect Data”, Blackwell Science Ltd.	2000
3	V.S.Pramar, “Design Fundamentals in Architecture”, Somya Publication Pvt. Ltd.	1973
4	Lorraine Farrelly, “The fundamentals of Architecture”, Ava Publications	2007
5	Fil Hearn “Ideas that shaped buildings”, The MIT Press Cambridge.	2003

**VISUAL ARTS & BASIC DESIGN -II**  
**Code: B2AR06-CP08**
**B.ARCH Semester: II**

**Course Objectives:** Introducing design elements in three-dimensional forms and space leading to classical methods of architectural form development, theory and application of colours,

**Anticipated Learning Outcomes:** Ability to identify and analyse the elements, principles and vocabulary of three-dimensional design; Identify and apply colour properties and concepts

UNIT	CONTENT
1	<b>Form</b> – Form and nature, Visual and emotional effects of geometric forms and their derivatives – sphere, cube, pyramid, cylinder, cone etc. Properties of forms. Transformation of forms such as dimensional, subtractive, additive forms. Articulation of forms.
2	<b>Space</b> – Space defining elements – horizontal and vertical elements, Openings in space defining elements, spatial relationship, spatial organization.
3	<b>Anthropometry</b> –Space and human activity. Average measurements of human body in different postures, its proportion and graphic presentation. Basic human functions and their implications for space requirement. Minimum and optimum areas for various functions.
4	<b>Proportion and Scale</b> – Visual and Human scale, Theories of proportions – Modular theory, golden section, Ken, etc. Application of these theories in Nature, Art & Architecture.
5	<b>3D Explorations</b> - Study of 3D Forms using principles of Design like repetition, symmetry, rotation, rhythm etc. for making murals, sculptures, installations using different materials like clay, plaster of Paris, wood, paper, metal etc. Abstraction used as basis of development of ideas.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Francis D.K. Ching, “Architecture Form, Space & Order”, John Wiley & Sons, Incorporated	2007
2	Simon Unwin, “Analysing Architecture”, Routledge	2003
3	Debkumar Chakrabarti, “Indian Anthropometric Dimensions”, NID	1997
4	Alvin R. Tilly, “The measures of man & woman human factors in design”, Whitney library of design, NY.	1993
5	K.W.Smithies, “Principles of Design in Architecture”, Van Nostrand Reinhold company.	1981



**COMPUTER APPLICATION -II**  
**Code: B2AR07-CP09**
**B.ARCH Semester: II**

**Course Objectives:** Empowering students to use computers as 2D drafting and 3D modelling tool and to familiarise realistic rendering and architectural presentation techniques using computers

UNIT	CONTENT
1	<b>Introduction to Advanced CAD commands</b> – Creating and insertion of blocks, External reference, raster image ,Attributes etc.
2	<b>Layout and print setting</b> – Create layouts by using Layout Wizard, view ports. paper size, plot scale, style table, paper space and model space etc.
3	<b>Introduction to BIM</b> –Introduction and its advantage over CAD. User Interface, Intro to real building elements i.e. walls, door, window, floor, slab etc.
4	<b>Customization</b> – changing element properties, applying material. Insertion of components from library. Using BIM to create the simple building form.
5	<b>Site</b> – Creating site, contours, applying material, etc.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Cadfolks, “Autocad 2014 for Beginners”, Create Space Independent Publishing Platform	2014
2	Bill Fane, “AutoCAD 2014 For Dummies”, John Wiley & Sons	2013
3	George Omura , Brian C. Benton, “Mastering AutoCAD 2014 and AutoCAD LT 2014”, John Wiley & Sons	2013
4	Chuck Eastman, Paul Teicholz , Rafael Sacks, Kathleen Liston, “BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors”, John Wiley & Sons	2008
5	Scott MacKenzie, “Learning ArchiCAD 17”, Packt Publishing	2014

**BUILDING MATERIAL & CONSTRUCTION -II****B.ARCH Semester: II****Code: B2AR05-CP10**

**Course Objectives:** To introduce students to design elements, materials and methods of construction for simple buildings.

**Anticipated Learning Outcomes:** Understanding construction materials and techniques for simple building elements.

UNIT	CONTENT
1	<p><b>Lime and Sand:</b> Sources of lime, Classification of lime &amp; their characteristics, Manufacturing of lime, uses of lime in building elements and components, Building limes according to BIS. Natural sources of sand, classification of sand, properties of sand, classification of Mortars, proportion of lime mortar.</p> <p>Various building elements such as foundation, wall, openings using lime products. Construction of staircase, ramp and retaining wall in lime products.</p>
2	<p><b>Cement:</b> Introduction to Indian cement industry, Composition and properties of cement, Setting action of cement, Manufacturing of Cement, Tests and storage of cement, Varieties of cement and its application in various building elements and components. BIS Specifications.</p> <p>Various building elements such as foundation, wall, openings using cement products. Construction of staircase, ramp and retaining wall in cement products such as hollow and perforated cement blocks.</p>
3	<p><b>Timber:</b> Classification of tree, Structure of tree, Defects in timber, Qualities of good timber, Preservation of timber, Seasoning of timber, Market forms of timber, Uses of timber, Indian timber trees. BIS Specifications.</p> <p>Details of carpentry joints in timber, wall construction in timber. Study of timber fasteners. Columns &amp; Piers in timber. Roofs in timber. Terms used for sloped timber roofs, wooden roof truss and its types, covering of sloped roof in timber with various roof covering materials. Timber flooring like woodblock and parquet floor. Doors in timber such as braced and battened, paneled, glazed and sliding. Windows in timber such as paneled, battened, glazed, top hung, pivoted, gable window, dormer window, bay window, French window, etc.</p>
4	<p><b>Industrial Timber:</b> Properties of veneers, ply woods, Block board, fibre boards, Impreg timber, Compreg timber etc. Application of Industrial timber. BIS Specifications.</p> <p>Various building elements such as walls, roof, floor and openings in industrial timber. Wall paneling and flooring construction using industrial timber. Door, windows in industrial timber.</p>
5	<p><b>Protective finishes, Machines &amp; Equipments:</b> Protective finishes on lime, cement, timber and timber products. Study of machines &amp; equipments for manufacturing, transportation, preparation and lying of lime, cement and timber &amp; industrial timber.</p> <p>Drawings of machines and equipments used for manufacturing, transportation, preparation and laying of building timber and timber products. Stairs and ramps in timber.</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	S.C.Rangwala, "Engineering Materials", Charotar Publishing Housing Pvt. Ltd. Anand (Gujrat)	1997
2	Sushil Kumar, "Building Construction", M/s. Standard Publishers & Distributors, Delhi	2003
3	Robin Barry, "The construction of buildings (Vol. I-V)", Blackwell publishing	2000
4	Francis D.K.Ching, "Building Construction Illustrated", John Wiley	1975
5	Handbook on Building Construction Practices, BIS, New Delhi	1997

**SURVEYING LAB**  
**Code: B2AR08-CP11****B.ARCH Semester: II**

UNIT	CONTENT
1	Chain Surveying: a. Ranging and Fixing of Survey Station. b. Plotting Building Block by offset with the help of cross staff
2	Compass: To determine the magnetic bearing of a line a. Using surveyor's compass b. Using prismatic compass
3	Dumpy leveling : To determine the reduce levels in closed circuit using Dumpy Level. Plane Table Survey: To determine the horizontal levels
4	Theodolite: To carryout temporary adjustment of Theodolite & Measurement of horizontal angle. a. By method of repetition. b. By method of Reiteration
5	Trigonometric Leveling: To determine the Height of an object by trigonometric leveling a. Instruments in same vertical plane b. Instruments in different vertical planes c. Survey Camp (including exercise on triangulation, Theodolite and dumpy level) with minimum duration of 3 days.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Arora, "Surveying", Rajsons Publications Pvt. Ltd.	1996
2	S.C.Rangwala, "Surveying & Levelling", Charotar Publishing House, Anand (Gujarat)	2005
3	Dr. B.C.Punmia, "Surveying", Laxmi Publication (P) Ltd., New Delhi	2002
4	William Irvine, "Surveying for Construction", McGraw Hills Book Co., New Delhi	1995
5	John Clancy, "Site Surveying & Levelling", Arnold London	1991

**HUMANITIES**  
**Code: B3AR01-CT07**
**B.ARCH Semester: III**

UNIT	CONTENT
1	<b>Introduction to Sociology:</b> Relationship between Sociology and Architecture and its relevance: Society and its types, Family as the basic Unit of 'Society'. Man, Environment and Society, Sociological aspects in the history of the evolution of housing/ shelter forms. Human as resource. Maslow theory of hierarchy
2	<b>Power Structure in Society:</b> Social stratification – Concept and Theories (Davis and Moore and Marx). Institutions of Local self government in the Rural and Urban Areas – Gram Panchayat and Municipality.
3	<b>Social Problems:</b> Urbanisation, Overcrowding, Slums, Issues in Housing, Developmental programmes related to urban and rural society. Problems of interaction, Isolation, privacy, accessibility, conflict, and alienation related to the planning and design of different buildings with the references to the people of different age group/Population groups. <b>Socio-Spatial Problems:</b> Migrants, slums high density, high-rise living.
4	<b>General Economics Concepts:</b> Demand and Supply, Elasticity of Demand, , Market and its types, competition, price determination, cardinal and Ordinal utility, Factors of production <b>Elementary Idea of Economic Planning:</b> Broad features of the ongoing five year plan with special references to social and economic factors effecting location, construction and financing of the building industry and housing in particular. <b>Agencies/Institution/Organisations:</b> Directly or indirectly influencing economic aspects of architectural projects.
5	<b>Land Economics:</b> Land as limited resource, demand for land acquisition. <b>Economics of regional Development:</b> Economic development in relation to the regional planning, regional economics theories, problems and prospects of balanced regional development. <b>Building Economics:</b> sources of finance (public or private), interests, rents, taxes, insurance, recurring costs, disposable income and expenditure patterns.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Wallis, Wilson D and Willey M.M, "Text book of Sociology", 1st edition, Khel sahitya Kendra, New Delhi.	2001
2	Schaefer, Richard T. "Sociology: A brief introduction", 4th edition McGraw hill, Boston.	2002
3	Stone P.A. "Building Economy: Design production and organisation a synoptic view", 2nd edition, Pergamon Press, Oxford	1976
4	Giddens Anthony, "Sociology", Polity Press, Cambridge (UK)	2006
5	Porteous, John Douglas; "Environment Behaviour: Planning and Everyday Urban Life", Addison, Wesley	1977

**HISTORY OF ARCHITECTURE****B.ARCH Semester: III****Code: B3AR02-CT08**

UNIT	CONTENT
1	<p><b>Indus Valley Civilization, the Vedic Period &amp; Buddhist architecture</b>  <b>INDUS VALLEY CIVILIZATION:</b>            Introduction to the origins and spread of the Indus Valley Civilization. Nature of growth and salient features of the socio-economic, political, cultural and religious facets that influenced the emergence of an architectural style. Focus on the Town Planning, i.e zoning, road networks, drainage system, clusters and individual residences, the Great Bath and granaries.  <b>Examples:</b> The major cities of Harappa and Mohenjo-Daro.</p> <p><b>VEDIC PERIOD:</b>            Origins of new settlers, area where they settled, individual residences, clusters and village layouts, forms and materials. Socio-political, economic, cultural and religious aspects of the society, evolution of towns and city planning.  <b>Examples:</b> A typical Vedic village, including individual residences, clusters, fencing &amp; gate</p> <p><b>BUDDHIST ARCHITECTURE:</b>            Factors leading to the formation of the religion. Salient features of the religion, its philosophy and methods of worship. Evolution of religious structures like the stupa and the stambha covering their religious symbolism. Evolution of the Chaitya and rock-cut architecture.  <b>Examples:</b> Great Stupa at Sanchi in detail with the Ashok stambha, Chaitya at Karla, near Lonavla</p>
2	<p><b>North-Indian (Nagara) &amp; Jain temple architecture</b>  <b>NAGARA STYLE ARCHITECTURE:</b>            Factors that led to the need for a temple as a built-form. Salient features of the religion, its philosophy and methods of worship. Evolution and growth of North-Indian or Nagara style temple architecture.  <b>Examples:</b> Udaigiri, near Sanchi, Gupta temple at Tigawa, , Lingaraj temple at Bhubhaneshwar, Sun temple at Modhera, Sun temple at Konark, Kandheriya Mahadev temple at Khajuraho, Chenna Keshava temple at Belur &amp; Somnathpur, Chaumukh temple at Ranakpur, Dilwara temple at Mount Abu</p> <p><b>JAIN TEMPLE ARCHITECTURE:</b>            Evolution of Jain temple architecture and its distinct architectural language and growth with reference to socio-economic, political and religious factors.  <b>Examples:</b> Chaumukh temple at Ranakpur, Dilwara temple at Mount Abu</p>
3	<p><b>South Indian (Dravida) temple architecture</b>            Evolution and growth of the South Indian or Dravida architectural language, its religious, socio-economic, cultural, political influences. Evolution of the gopuram and growth of temple cities. Fusion of Nagara and Dravida styles and the reasons for the evolution of Star-shaped temples. Focus on construction materials and techniques, symbolic and religious association of forms in the architectural style.  <b>Examples:</b> Ladkhan temple &amp; Durga temple at Aihole, The rathas and shore temple at Mahabalipuram, Kailasa temple at Ellora, Temple cities of Srirangam &amp; Meenakshipuram, Chenna Keshava temple at Belur &amp; Somnathpur</p>
4	<p><b>Islamic Architecture in India – Pre Mughal period</b>  <b>DELHI REGION</b>            Salient features of the religion, its philosophy and methods of worship.            Evolution of Islamic architecture in India and its development, covering mosques, tombs, forts &amp; other structures. Focus on new construction techniques like arch, dome, squinch, surface decorations, etc  <b>Examples:</b> Qutb Complex, including Quwwat-ul-Islam, Qutb Minar, Extensions by the Khaljis, Alai Darwaza, Alai Minar, Tughlaqabad, Tomb of Ghiyas-ud-din Tughlaq, Khirki Masjid, Ferozshah Kotla &amp; Hauz Khas</p> <p><b>REGIONAL SULTANATES</b>            Growth and development of Indo-Islamic architecture in areas outside Delhi. Focus on Gujarat, Gulbarga &amp; Bijapur. To study the influences of local traditional architecture and fusion with Islamic architecture, both religious and non-religious.  <b>Examples:</b> Jami Masjid, Ahmedabad, Dada Hari's way, Jami Masjid, Gulbarga, Sayyad Usman's Rauza, Ahmedabad, Ibrahim Rouza &amp; Gol Gumbaz, Bijapur</p>

UNIT	CONTENT
5	<p><b>Islamic Architecture in India –Mughal period</b>            Growth and development of Indo Islamic architecture during the Mughal period. Focus on newer construction technology, material and architectural influences in tomb and palace architecture  <b>Examples:</b> Tombs of Mubarak Shah, Sikandar Lodi, Shershah Suri, Humayun, Itmad-ud-Daula, Akbar &amp; Taj Mahal. Palace complex at Fatehpur Sikri</p>

#### REFERENCE BOOKS

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Indian Architecture (Hindu and Buddhist), Percy Brown – D.B.Taraporvala Sons & Co.,	
2	Indian Architecture (Islamic Period), Percy Brown - D.B.Taraporvala Sons & Co., Mumbai	1997
3	Buddhist and Hindu Architecture, Satish Grover – Taschen London 1998	
4	Islamic Architecture in India, Satish Grover – CBS Publisers & Distributors New Delhi	2002-03

**ARCHITECTURAL STRUCTURES-III****B.ARCH Semester: III****Code: B3AR03-CT09**

UNIT	CONTENT
1	<b>Slope and Deflection:</b> Relations between load, shear force & bending moment, slopes and deflections of indeterminate beams using double integration method, moment area method and Macaulay's method
2	<b>The long and short columns or struts;</b> buckling load, Euler's theory, limitations, various end- conditions, equivalent length of a strut, Rankine's theory, Slenderness ratio, strut with eccentric load.
3	<b>Arches and Folded plates:</b> analysis of three hinged, two hinged and fixed type parabolic arches with supports at the same level and at different levels, Introduction to folded plates <b>Shells and Domes:</b> Introduction to Shells and domes
4	<b>Beams:</b> Slope-deflection method and Kani's method for analysis of continuous beams.
5	<b>Design concepts:</b> Design concept of factor of safety and limit state; failure modes of a structure, Elastic theory of R.C.C. Design, permissible stresses and permissible deflections for R.C.C. and Steel structures. Introduction and use of Design codes. IS456 and IS 800.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	B.C.Punmia, Strength of Materials of Structure, Laxmi Publications © Ltd., New Delhi	2006
2	R.K. Bansal, Strength of materials	2008
3	Timoshenko & Gere, Mechanics of Structures, CBS Publishers and Distributors	2006
4	K.R. Arora, Soil Mech. & Foundation Engineering, Standard Publishers and Distributors, Delhi.	2007
5	Terzaghi & Peck, Soil Mechanics in Engineering Practices, John Wiley & Co	2010

**ARCHITECTURAL DESIGN-II**  
**Code: B3AR04-CP13**
**B.ARCH Semester: III**

UNIT	CONTENT
1	<b>Theme:</b> Understanding the nature of built environment as a resultant of the determinants of Built Form, such as climate. Introduction of determinants of built form.
2	<b>Parameter:</b> Form & Space: Understanding user and its surroundings and devising requirements with the help of space & materials standards. Form & Function: Exposure to building elements & components and their effects on Air circulation, Day lighting, Thermal Comfort etc. Study of the human considerations like comfort, privacy, security etc.
3	<b>Expected Skills:</b> To develop the ability to translate abstract principles of design into architectural solutions for small problem. 3D visualization and presentation through models. Theoretical inputs from History & Sociology. To enhance & develop skills with respect to site analysis and application.
4	<b>Design Outlines:</b> Application of climate in design of simple function and simple program. Building scale project on a site area of approx. 100-200 sq. mt. Location of site can be in Urban or Rural setting and in any climatic zones and can be an annexure building of any existing setup. At least two major exercises and one time problem should be given.
5	<b>Projects:</b> List of suggested topics to be covered as design problem keeping in mind the following categories: the Educational institutes - Kindergarten, Balwadi, etc. Public facilities – Post office, police station, etc., Health Facilities – Dispensary, clinic, etc. Commercial facilities – General store, Boutique etc. Hospitality – Café, canteen etc. Residential – Farm house, Cottage etc.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Koenigsberger O., “Manual of Tropical housing and building”, Orient Longman, New Delhi	2003
2	Rasmussen, Steen, Eiler, “Experiencing Architecture”, MIT Press, Cambridge, Massachusetts	1977
3	Chiara Joseph de and others, “Time, Savers & Standards of building types”, McGraw Hills	1980
4	Pevsner, Nikolaus, “A History of Building Types”, Thames & Hudson, London	1976
5	V.S.Parmar, “Design Fundamentals in Architecture”, Somaiya Publications Pvt. Ltd., New Delhi	1997



**BUILDING MATERIAL & CONSTRUCTION-III**  
**Code: B3AR05-CP14****B.ARCH Semester: III**

UNIT	CONTENT
1	<p>Cement Concrete:            MATERIAL: Brief history of development of concrete, ingredients of concrete, properties of concrete like strength, durability, workability etc. BIS specification for concrete, Methods of proportioning concrete mixes, Factors effecting strength of concrete, Important operations in concreting like mixing ,transporting, placing, compacting, curing &amp; removal of form work.            Tests on fresh concrete like slump test, flow test etc &amp; on hardened concrete like compression test, tension test etc. Strength &amp; failure of concrete, Chemicals used in concrete construction ex. Admixtures, mould releasing agents, Concrete curing compounds etc. Concreting under special condition, Guniting and Shotcrete work for repair of concrete.            CONSTRUCTION: Application of cement concrete in foundation, Cement concrete flooring on ground level, cement concrete floor tiles, Paver Blocks in flooring ; Cement Concrete Blocks Such as hollow, solid and cellular in wall construction along with steel bars at the junction. Application of cement concrete products</p>
2	<p>Special Structural Concrete:            MATERIAL: Basic introduction to special concrete used for structural work ex reinforced concrete, Fiber reinforced concrete, Light weight concrete, fly ash concrete, High strength-high performance concrete, No-fines concrete, ready mix concrete. Introduction to theory of reinforcing concrete, Properties and advantage of reinforced concrete, types &amp; grades of steel bars as per BIS specification, Bending and placing of reinforcement in RCC Work.            CONSTRUCTION: Application of RCC in various building elements such as shallow foundation for isolated column, RCC wall, DPC / Plinth &amp; floor / roof beam. One way &amp; two way slab in RCC. Arches &amp; Lintels in RCC. Door, window, frames in RCC. Construction of different types of RCC stairs.</p>
3	<p>Plastics &amp; Polymer:            MATERIAL: Brief history of plastics, polymerisation of plastics, Classification &amp; Properties of plastics, fabrication of plastic articles, Application of plastics in building services &amp; building construction Geo-synthetics and its classification, Properties &amp; uses of geo-textiles. Natural &amp; synthetic rubber, Uses of rubber in building construction, Vulcanisation of rubber.            CONSTRUCTION: Application of PVC &amp; Rubber in various building elements &amp; components, Vinyl, Linoleum &amp; rubber flooring, plastic doors &amp; windows, PVC roofing, Glass fibre reinforced plastic sheets for roofing.</p>
4	<p>Asbestos, Asphalt, Bitumin &amp; Tar            MATERIAL: Introduction and history of Asbestos, Asphalt, Bitumen &amp; Tar. Asbestos &amp; its forms, properties, uses and harmful effects of asbestos. Asphalt &amp; its types such as natural asphalt &amp; residual asphalt. Bitumen &amp; its forms in the market, Modified Bitumen, tar and its types. Uses of these materials in building construction.</p>
5	<p>Protective Finishes, Machines &amp; Equipments            MATERIAL: Brief introduction of adhesives, Sealants &amp; joint fillers and protective finishes for cements concrete, RCC, Plastic, Asbestos, Asphalt, bitumen &amp; tar. Study of machines &amp; equipments for manufacturing, transportation, preparation, laying/Casting, Compaction, repairing of these materials.            CONSTRUCTION: Drawing of machines &amp; Equipments used.</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	S.P.Arora, S.P. Bindra, "Building Construction Including Engineering Material". Dhanpat Rai Publications (P) Ltd., New Delhi	2010
2	Handbook on Concrete Reinforcement and Detailing, SP 34:1987, BIS New Delhi	2002
3	CPWD specifications (Vol.1), Director General of Works, New Delhi	2009
4	P. Kumar Mehta "Concrete Technology for Sustainable Development in the twenty-first century", Cement Manufactures Association, New Delhi	1999
5	Hegger,Auch-schwelk,Fuchs,Rosenkranz:"Construction material manual";Birkhauser,Munich.	2006

**COMPUTER APPLICATION-III**  
**Code: B3AR06-CP15**
**B.ARCH Semester: III**

UNIT	CONTENT
1	<p><b>Advance BIM commands:</b> Complex modeling: Creating complex building forms by using massing i.e. blend mass, mass by extrusion, creating voids in them. Roofs: Creating various type of roofs i.e. flat roof, sloped roof designing roof in elevation views, defining slope and creating openings in roof slab, insertion of layers in roof slab.</p> <p>Staircase: Creation of various types of staircase and ramp i.e. straight, deg legged, spiral etc. Designing and customization of staircase as per requirement.</p> <p>Exercise: Designing of a complex building form using massing and insert walls, doors, windows, slab, staircase.</p>
2	<p><b>Scheduling:</b> Creating various schedule for documentation purpose. Type of schedule i.e. door, window, wall etc. Insertion of various fields in schedule i.e. type, width, cost etc. Formatting and calculating totals. Extracting information to external utilities like MS Excel.</p> <p>Exercise: Creation of door window schedule which includes total number of doors, windows, total cost and export it to excel format.</p>
3	<p><b>Light and Energy Analysis:</b> Using BIM for simple lighting and energy analysis. Insertion of various interior and exterior lights and its customization. Creating sun path and animation of solar study of a whole day.</p>
4	<p><b>Import and Export Options</b> - import and export the file into other file formats i.e. JPEG, PDF, CAD etc. for printing, rendering and documentation purpose. Advance print options for setting paper size, orientation.</p>
5	<p><b>Rendering</b>–Applying various materials, scale, render quality, setting backgrounds etc. Creating moving animations and saving it in various formats.</p> <p>Exercise: Hard copy submission of rendered views .</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Chuck Eastman, Paul Teicholz , Rafael Sacks, Kathleen Liston, “BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors”, John Wiley & Sons	2008
2	Scott MacKenzie, “Learning ArchiCAD 17”, Packt Publishing	2014
3	Ryan Duell, Tobias Hathorn, Tessa Reist Hathorn,“Autodesk revit Architecture 2014 Essentials”, John Wiley & Sons	2013
4	Tatjana Dzambazova , Eddy Krygiel , Greg Demchak; “Introducing Revit® Architecture 2010: BIM for Beginners”; John Wiley & Sons	2009
5	Ken Good’, “Discover Smart Bim : An Interactive Guide to Archicad”; Author house	2009

**STRUCTURE LAB**  
**Code: B3AR07-CP16**
**B.ARCH Semester: III**

UNIT	CONTENT
1	<b>Physical Test of Construction Materials:</b> Cement, Bricks, Aggregates
2	<b>Laboratory Tests of Cement:</b> Normal Consistency Test, Initial & Final Setting Time, Soundness Test
3	<b>Laboratory Tests of Aggregates:</b> Sieve Analysis Test, Fineness Modulus, Water Absorption Test
4	<b>Compressive Strength Tests of Concrete:</b> Cube Test, Cylindrical Test
5	<b>Workability Tests of Concrete :</b> Slump Test, Compaction Factor Test

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	M.S.Shetty, "Concrete Technology", S. Chand & Co.	2005
2	M.L.Ghambir, "Building Materials: Products, Properties and Systems", Tata Mc Graw Hill, Delhi	2011
3	S.C.Rangwala, "Engineering Materials, Material Science", Charter Publishing House, Anand	2007
4	Gurucharan Singh, "Building Construction and Material", M/s. Standard Publications & Distribution, Delhi	2007
5	S.C. & K.S.Rangwala, "Engineering Materials", Charter Publishing House, Anand	2007

**SPECIFICATION & ESTIMATION**  
**Code: B4AR01-CT10**
**B.ARCH Semester: IV**

UNIT	CONTENT
1	<b>Specification:</b> Introduction, Main items of work, Importance of specification, Types of specifications - General and detailed specifications - Method of preparation of specifications
2	<b>Estimate:</b> Introduction, Types of Estimate, Detailed Estimate - Units of Measurements, Details of measurement and calculation of quantities of various items of work, Methods of Building Estimate - separate or individual wall method, Centre line method.
3	<b>Rate Analysis:</b> Analysis of rates for main items of work in buildings, considering current market rates for building materials, labor wages, plants and tools, transportation, handling, storage and contractor's profit.
4	<b>Detailed Estimation:</b> Preparation of Detailed estimate (Details of Measurements and Calculation of quantities & Abstract of - Estimated cost) for different types of buildings including R.C.C. framed buildings.
5	<b>Cost &amp; Valuation:</b> Cost price and value. Factors controlling the cost of Urban real properties, Valuation, Depreciation, Rent and its implications

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Carol A. Sampson, "Techniques for Estimating Materials Cost", Watson Guptil Publication New York	2001
2	S.C.Rangwala, "Estimating, Costing & Valuation", Charotar Book Stall, Anand	2006
3	B.N.Dutta, "Estimating & Costing in Civil Engineering", UBS Publication, New Delhi	2005
4	M. Chakroborty, Bhakti Vedanta, "Estimating Costing Specification & Valuation in Civil Engg.", Book Trust, Delhi	2010
5	Central Public Department, "CPWD Specification, Vol.I & 2", Nirman Bhawan, Delhi.	2004

**HISTORY OF ARCHITECTURE-II**  
**Code: B4AR02-CT11**
**B.ARCH Semester: IV**

UNIT	CONTENT
1	<p><b>Egyptian &amp; West Asiatic</b> Socio-economic, political, cultural and religious character of the ancient civilizations. The evolution of architectural form and character from the these factors, available materials and construction technology.</p> <p><b>EGYPTIAN:</b> Examples: Mastaba at Beit Khallaf, Pyramid of Zoser at Sakkara, Great Pyramid of Cheops at Gizeh, Temple of Khons at Karnak</p> <p><b>WEST ASIATIC:</b> Examples: Ziggurats: White temple at Warka, Urnamu at Ur. Palaces: Palace of Sargon at Khorsabad</p>
2	<p><b>Greek:</b> To study the development and formation of the classical orders in chronological sequence, namely the Doric, Ionic &amp; Corinthian orders, The use of optical correction, illusions, proportions, scale and other designing techniques in evolution of a distinct architectural language architecture</p> <p>Examples: Temples and temple complexes: Acropolis, which includes the Parthenon &amp; Erichtheon. Urban architecture: The Agora at Athens</p>
3	<p><b>Roman:</b> To study the development in architectural style with new construction technology; such as arches, domes, vaults, etc. To study the influence of socioeconomic prosperity in architecture, with public &amp; private, religious and nonreligious examples.</p> <p>Examples: Residential: House of Pansa at Pompeii. Temple: Pantheon at Rome. Forum: Forum of Trajan with Basilica and Column. Recreational: Thermae of Caracalla. Sports: Coliseum &amp; Circus Maximus.</p>
4	<p><b>Early Christian, Byzantine &amp; Romanesque</b> <b>EARLY CHRISTIAN &amp; BYZANTINE</b> To study all aspects of the evolution of a new religion; Christianity, and its influence on the Architectural style. Evolution of church architecture through functions and construction technology</p> <p>Examples: St Peter's Basilica (old), Santa Sophia (Hagia Sophia) at Istanbul</p> <p><b>ROMANESQUE:</b> To study the influence of the growing power of religion and inter-religious conflicts on architecture. To study the influence of improvements in construction techniques like rib-and-panel vaulting, etc.</p> <p>Examples: Italy: Pisa complex including Cathedral, Campanile (Leaning tower) and Baptistry. Central Europe: Worm's Cathedral &amp; S.Michel, Pavia</p>
5	<p><b>Gothic</b> To study significant improvements in construction technology like flying buttresses and its effect on the architectural character. To compare the varied development of architectural forms in France &amp; England in religious and nonreligious structures.</p> <p>Examples: Cathedrals: Reims cathedral, Salisbury cathedral. Parish churches: St Andrews, Heckington. Manor houses: Penshurst place, Kent, Oxburgh Hall, Norfolk, Compton Wynyates, Warwickshire</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Traditions in Architecture, Dora Crouch – Oxford University Press, N. York	2001
2	History of Architecture, Bamister Fletcher – SBS Publishers & Distributors, Delhi	1997
3	History of Architecture, Spiro Kostof – Oxford University Press, N. York	1995
4	History of western architecture, David Watkin – Lawrance King Publishing London	2005
5	High Gothic, Guthor Binding – Taschen London	1999

**ARCHITECTURAL STRUCTURES-IV**  
**Code: B4AR03-CT12**
**B.ARCH Semester: IV**

UNIT	CONTENT
1	<b>Soil and soil mass constituents;</b> water content, specific gravity, voids ratio, porosity, degree of saturation, air voids and air content; unit weights, density index etc., inter-relationships of the above
2	<b>Plasticity Characteristics of Soils:</b> Determination of water content, specific gravity; particle size distribution sieve and sedimentation analysis; consistency limits; voids ratio and density index Soil Classification: classification of soil for general engineering purposes; particle size textural, H.R.B and Unified and I.S. classification systems.
3	<b>Earth Pressure:</b> Active, passive and earth pressure at rest. Rankine's theories of earth Pressure, Earth pressure on cantilever sheet piles Stability analysis of retaining walls
4	<b>Bearing capacity of soils;</b> shallow foundation; Terzaghi's and Meyerhoff's formula for bearing capacity; plate loading test, standard penetration test.
5	<b>Foundation:</b> Basic concept of Pile and Raft foundation.
	<b>TOTAL</b>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Dr. B.C. Punmia, "Strength of Materials & Mechanics of Structures": Vol. I, Laxmi Publications (P) Ltd.	2006
2	Reinforced Concrete : Limit State Design by Nemi Chand and Brothers, Roorkee	2009
3	Singer and Patel, "Strength of Material", Harper Collins Publishers	2008
4	Wang & Salmon; "Reinforced Concrete Design", Harper & Row.	2009
5	S.B Junarkar, "Mechanics of Structures Vol. I & II", Charotar Publishing House, Anand	2009

**ARCHITECTURAL DESIGN-III**  
**Code: B4AR04-CP18**
**B.ARCH Semester: IV**

UNIT	CONTENT
1	<b>Theme:</b> Understanding the Design of built spaces as a resultant of sociocultural influences of the place.
2	<b>Parameter:</b> Organization of functional activities in relation to user requirements and the site, considering materials and structure in relation to the design proposal. Influence of humanities and culture in a design project. Response to socio-economic factors such as income level, privacy, territoriality, interaction etc.
3	<b>Expected Skills:</b> To develop the ability to understand the cultural frame work of meaning and symbolism in architecture and incorporation of climate strategies and constructional systems appropriate to social and economical context.
4	<b>Design Outlines:</b> Application of vernacular style in design of simple function and simple programme. Site scale project on a site area of approx. 250-500 sq.mt. Location of site can be in Urban or Rural setting and in any climatic zones. At least two major exercises and one time problem should be given.
5	<b>Projects:</b> List of suggested topics to be covered as design problem keeping in mind the following categories: Educational Institutes – Primary Schools etc., Public facilities – Neighborhood Library, Bank Local Branch etc., Health Facilities – Primary health centre etc., Commercial facilities – Neighborhood shopping centre etc., Recreation & Hospitality – Restaurant, etc., Residential – Row house, bungalow, etc.
	TOTAL

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Kingston Wm. Heath, “Vernacular Architecture and Regional Design; Cultural Process and Environmental Design”, Elsevier UK	2009
2	Jonathan A. Hale, “Building Ideas an introduction to architectural theory”, Johnwiley and sons ltd. New York	2000
3	Yatin Pandya, “Concepts of space in traditional Indian architecture”, Mapin Publishing	2013
4	A. Peter Fawcett, “Architecture : Design Notebook”, Architectural Press, London	2003
5	Kulbhushan & Minakshi Jain, “Architecture of the Indian Desert”, Aadi Centre Ahmedabad	2000

**BUILDING MATERIALS & CONSTRUCTION-IV**  
**Code: B4AR05-CP19**
**B.ARCH Semester: IV**

UNIT	CONTENT
1	<b>Iron &amp; Steel:</b> MATERIAL: Brief history of Iron, Study of Iron ores its varieties, Manufacturing of Pig-Iron and wrought iron, Properties of iron, composition and Types of cast iron & wrought iron, Properties & uses of cast & wrought iron, types of casting techniques. Brief history of steel, manufacturing of steel, Properties of Steel, market forms of steel, Mechanical treatment of steel such as hot working & cold working of steel, Heat Treatment of steel. CONSTRUCTION: Application of iron and steel in various building elements such as steel grillage foundation, pad foundation, Steel column & beams, Trusses in steel, North light truss, Monitor Roof, Structural Floor/roof industrial flooring, Door/Window openings in iron & steel, Metal stair case, Methods of connecting steel work.
2	<b>Aluminium &amp; their alloys:</b> MATERIAL: Brief history of Aluminium, Manufacturing & properties of Aluminium, market forms of aluminium, Uses of Aluminium and Its alloys in building industries. CONSTRUCTION: Application of aluminium in various building elements such as aluminium door & window, Structural glazing, curtain wall.
3	<b>Other metals &amp; their alloys:</b> MATERIAL: Introduction to copper and its alloys such as Brass, bronze, Zinc & its alloys. Study of other Metals such as Cobalt, Lead, nickel, Titanium, magnesium, tin and their alloys. Properties and uses of these metals. CONSTRUCTION: Application of metals in various building elements & Components such as metal roofing system, wall system.
4	<b>Glass &amp; Glass products:</b> MATERIAL: Brief introduction of history of glass, composition of glass, manufacturing & classification of glass, Properties of glass, Types of glasses & their performances, Treatments of glass, Glass industry, Glass as a green building material. Uses of glass in building industry. CONSTRUCTION: Application of glass in various building elements and components. Glass Floor, wall & partitions systems, Skylight, Glass staircase.
5	<b>Protective Finishes, Machines &amp; Equipment</b> Brief introduction of adhesives, sealants, joint filler & protective finishes for ferrous, non ferrous materials & Glass. Machines & equipment for applications of these materials. CONSTRUCTION: Drawings of tools, machines & equipments for fabrication, erecting & maintenance.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	CPWD specifications (Vol.1 & 2), Director general of works New Delhi	2009
2	S.P.Arora, S.P. Bindra, "Building construction including engineering material".Dhanpat Rai publications (P) ltd. New Delhi	2010
3	Schittich, Staib, Balkow, Schuler, Sobek, Glass Construction Manual, 2nd revised and expanded addition, Birkhauser	2007
4	Robin Barry, "The construction of buildings (Vol. I-V)", Blackwell publishing	2000
5	Handbook on Building Construction Practices, SP62:1997, BIS New Delhi	1997



**MEASURED DRAWING & DOCUMENTATION**  
**Code: B4AR06-CP20**
**B.ARCH Semester: IV**

UNIT	CONTENT
1	<b>Introduction:</b> Reading and interpreting documented work to understand the constituents of Measured Drawing. To understand its importance. Difference between measured and working drawing. Application of conventional, Modern and Digital Techniques of measurement used at settlement, Building, Building Element & Component level exercise such as measuring height of building from ground, Height of Dome, etc.
2	<b>Exercises for learning:</b> Colloquial techniques of measurement such as furlong, Footsteps, open hand, etc. And application of Sketching and photography as a tool for documentation.
3	<b>Study, Measure and Document:</b> Elements of style / period such as wall, Roof, Door, window, furniture, etc. building elements and components of renaissance, Gothic, Colonial, Art Deco, Modern, style/ Period. Study, Measure and Document: Individual architect's style of designing wall, Roof, Door, Window, etc. such as works of Le-Corbusier, Louis I Khan, Lauri Baker, Charles Correa, Raj Rewal etc.
4	<b>Study, Measure and Document:</b> Historical precincts / Building of Art, Culture and heritage Value. Preparation of Graphical Documentation consisting of site plan, building plan, sections, elevations and details on Suitable architectural scale.
5	<b>Documentation techniques:</b> Graphical and Descriptive. Documenting art, architecture, social, economic, cultural, or structural data in soft as well as hard format.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Feildon B. M., "An introduction to conservation", UNESCO Press	1982
2	Anuradha V. Kumar, "Conservation of Building Stones", INTACH Publication, New Delhi	
3	ARCHIFUNDA, "Heritage Conservation & Cultural Continuity", Archifunda	2002
4	Colonel S.S.Jacob, "Jeypore Portfolio of Architecture Details", Idological Book House, Varanasi India	1977
5	P.K Mishra, "Researches in Archeology and Conservation"	1999

**COMPUTER APPLICATION-IV**  
**Code: B4AR07-CP21**
**B.ARCH Semester: IV**

UNIT	CONTENT
1	<p><b>Rendering-</b> To introduce 2D and 3D rendering and visualization softwares. Basic setup including page size, resolution, colour scheme i.e. CMYK/RGB, units etc. Introduction to basic rendering tools: Selection tools i.e. lasso tool, marquee tool, magic wand tool, brush and its customization using option bar, paint bucket tool, gradient tool, text tool. Layers: Creation of new layers, arranging/merging layers applying effects using layers i.e. colour, shadow, gradient, patterns, emboss, opacity etc. Importing/ Creating patterns for hatching.</p> <p><b>Exercise:</b> To prepare portfolio cover page by using above tools.</p>
2	<p><b>Layers:</b> Creation of new layers, arranging / merging layers applying effects using layers i.e. color, shadow, gradient, patterns, emboss, opacity etc. Importing / Creating patterns for hatching.</p> <p><b>Exercise:</b> To prepare portfolio cover page by using above tools.</p>
3	<p><b>Import and Export options:</b> Importing and exporting 2D and 3D models to and from various softwares in jpeg, eps, pdf etc. Packaging and Saving high resolution images and videos.</p> <p><b>Exercise:</b> import plan, section, elevation in supported format i.e. EPS, JPEG and render it</p>
4	<p><b>Creating rendered images</b> – Exporting files into JPEG, pdf and other format.</p>
5	<p><b>Print Options</b> – Page setup, Page Layout, image resolution, etc.</p> <p>Exercise: Hard copy submission of rendered views.</p>
	<b>TOTAL</b>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Lisa Danae Dayley, Brad Dayley, “The Essential Photoshop Book” Adobe Photoshop CS5 Bible, Wiley India Pvt. Ltd	2010
2	Eileen Mullin, “The Essential Photoshop Book”, Prima Publishing US	1998
3	Olivier Lecarme , Karine Delvare, “The Book of GIMP - A Complete Guide to Nearly Everything”, No Starch Press	2013
4	Kogent, “Photoshop CS6 in Simple Steps”, Dreamtech Press	2012
5	Davinder Singh Minhas, “Photoshop” New Dawn Press	2005

**BUILDING PLUMBING SERVICES**  
**Code: B5AR01-CT13**
**B.ARCH Semester: V**

UNIT	CONTENT
1	<p><b>Water Supply: sources, demand, treatment and distribution of water.</b>            Sources of water supply, Plumbing system types for various buildings. Quality of potable water. Calculation of water requirements for various building types based on Indian standards (BIS). Water treatment methods– Screening, Aeration, Sedimentation, Filtration, Disinfection, Softening. Storage and distribution of water. Choice of pipe materials, types of fixtures and fittings.</p>
2	<p><b>Sanitation: Sanitary pipes, fittings and fixtures- Layout and design</b>            Principles of sanitation, Study of Indian standards and plumbing by-laws (NBC). Introduction to various sanitary pipes, joints, fittings and fixtures, their function, placement and constructional details.            Study of internal &amp; external drainage system of various buildings including small residences, apartments, public buildings etc. Single stack system, one pipe and two pipe systems, testing of house drains, Gradients used in laying drains and sewers, Self-cleaning and non-scoring velocities for drain pipes,</p>
3	<p><b>Sanitation: Waste water treatment and disposal methods</b>            Study of Traps, Inspection chambers, Manholes, Septic tanks, Soak pits, and Public sewage line. Study of Disposal systems for domestic effluent from fitting to sewer line. Study of low cost sanitary systems (sulabh complexes) and other CBRI details. Waste water – Sewage disposal, primary treatment, secondary treatment and tertiary treatment. Modern types of Sewage Treatment Plants.</p>
4	<p><b>Storm water drainage &amp; Rain water harvesting</b>            Principles of storm water drainage. Types of drain pipes. Storm water gutter / Storage sumps. Study of storm water disposal at site and settlement level. Rain water harvesting system. Recycling of water.  <b>Solid waste, collections, treatments and disposal</b>            Prevalent SWM practices and deficiencies: Storage of waste at source, collection, segregation, transportation of waste. Disposal of solid wastes: Sanitary land filling, Composting, Incineration, Pyrolysis – advantages and limitations. Biogas system and Modern renewable energy system.</p>
5	<p><b>Application: Layout design and construction</b>            Layout design and details of water supply distribution system in a Campus. Layout design and details of sewage and drainage system for different building types. Storm water drainage and rain water harvesting system design for a building project. Course may be integrated with concurrent architectural design.</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	B.C. Punmia, "Waste Water Engineering", Laxmi Publications.	2009
2	S.J. Arceivala, "Waste Water Treatment for Pollution Control", Tata McGraw Hills Publication.	2008
3	K.N. Duggal, "Elements of Environmental Engineering", Chand & Co.	2010
4	"Uniform Illustrated Plumbing Code – India (UIPC-I)", Indian Plumbing Association	2014
5	Charanjeet S. Shah; Water Supply and Sanitation; Galgotia Publication	2015
6	H.S. Bhatia; Environmental Services (Plumbing); Galgotia Publication	

**HISTORY OF ARCHITECTURE-III****B.ARCH Semester: V****Code: B5AR02-CT14**

UNIT	CONTENT
1	<p><b>RENAISSANCE &amp; BAROQUE ARCHITECTURE</b>  <b>Renaissance Architecture:</b> Characteristic features of the Renaissance Architecture. Famous designers and Works of the period Brunelleschi : Florence Cathedral, S. Maria Novella, S. Andrea Alberti: Palazzo Rucellai, S. Maria Novella; Bernanate: Tempietto, Plan of St. Peter's; Michelangelo: Laurentian Library, Campidoglio, St. Peter's Palladio: Villa Barbaro, Villa Americo Capra, S. Giorgio Maggiore  <b>Baroque Architecture:</b> Characteristic features of the Baroque Architecture. Famous Designers and works of the period Bernini: St. Peter's- Plaza, S. Andrea.; Borromini: S. Carlo alle Quattro Fontane, S. Ivo Della Sapienza; Christopher Wren: St. Stephen, Walbrook ; St. Paul's Cathedral</p>
2	<p><b>NEOCLASSICAL &amp; INDUSTRIAL ARCHITECTURE</b>  <b>Neoclassical Architecture:</b> Characteristic features of Neoclassical Architecture. Famous Designers and works of the period. Robert Adam: Kedleston Hall, Syon House; William Chambers: Somerset House; Louis Boullee: Cenotaph for Sir Issac Newton, Library of the King Claude Nicolas Ledoux: Salt works of Arc and Senans  Karl Friedrich Schinkel: Royal Guard House, Altes Museum Sir John Soane: Bank of England; Thomas Jefferson: Monticello House, Virginia State Capitol.  <b>Industrial Architecture:</b> Characteristic features of Industrial Architecture. Famous Designers and works of the period. Joseph Paxton: Crystal Palace; Henri Labrouste: Bibliotheque Ste.-Genevieve, Bibliotheque Nationale; Gustave Eiffel: Eiffel Tower, Statue of Liberty Emanuele Rocco: Galleria Umberto; George Gilbert Scott: St Pancras Station Charles Garnier: Paris Opera House</p>
3	<p><b>LATE 19TH CENTURY MOVEMENTS</b>  Characteristic features of Art and Architectural movements of late 19thCentury. People and places associated with the movements. Famous Designers and works of the period.  <b>Art &amp; Crafts Movement:</b>  John Ruskin &amp; William Morris; Philip Webb: Red House; Richard Norman Shaw: New Zealand Chambers; Greene &amp; Greene: Gamble House  <b>Art Nouveau:</b> Victor Horta: Tussel House, Hotel Van Etevelde; Hector Guimard: Paris Metro Entrances; Antonio Gaudi: Casa Mila, Casa Batllo and Church of Sagrada Familia; Charles Rennie Mackintosh: Glasgow School of Art, Hill House  <b>Viennese Secession:</b> Otto Wegner: Postal Savings Bank; Josef Maria Olbrich: Secession Building; Adolf Loos: The essay "Architecture and Ornament", Steiner House, Moller House and Goldman &amp; Salatsch Store.</p>
4	<p><b>EARLY 20TH CENTURY MOVEMENTS</b>  Characteristic features of Art and Architectural movements of early 20thCentury. Famous Designers and works of the period. People and places associated with the movements.  <b>Deutscher Werkbund:</b> 1st and 3d Exhibition  Peter Behrens: AEG Turbine Factory; Bruno Taut: Glass house  <b>Futurism:</b> Filippo Marinetti: Futuristic Manifesto; Antonio Sant' Elia: La Cita Nuova  <b>Constructivism:</b> Vladimir Tatlin: Monument to the Third International; Konstantin Melnikov: Soviet Pavilion, Rusakov Workers' Club  <b>Expressionism:</b> Erich Mendelsohn: Einstein Tower; Rudolph Steiner: Goetheanum  <b>De Stijl:</b> Theo Van Doesburg&amp; Piet Mondrian; Gerrit Rietveld: Schroeder House; J.J.P. Oud: Seaside Houses, Café de Unie.  <b>Art Deco:</b> William Van Alen: Chrysler Building; Shreve, Lamb &amp; Harmon: Empire State Building; B. Marcus Priteca: Pantages Theatre</p>
5	<p><b>British Colonial India</b>  In search of appropriate style; development of hybrid styles; Indo Sarcenic, Indo Gothic and Indo Deco styles. Famous Designers and works in the major cities namely Madras, Calcutta, Bombay and Delhi.  <b>Madras</b>  Caldwell &amp; Havilland: St Andrews Church; Robert F. Chisholm: Senate House and National Art Gallery; Henry Irwin: Madras high court, Chennai Central Railway Terminus  <b>Calcutta</b>  Thomas Lyon: Writer's Building; Charles Wyatt: Government Building; William Emerson: Victoria Memorial  <b>Bombay</b>  George Gilbert Scott: Rajbai Tower-Bombay University Library; Fredrick William Stevens: Victoria Terminus, Municipal Hall; George Wittet: Gateway Of India and Prince of Wales Museum  <b>Delhi</b>  Sir Edwin Lutyens: India Gate. Viceroy's House; Herbert Baker: Parliament House, Secretariat Buildings</p>

**REFERENCE BOOKS**

<b>S.NO</b>	<b>NAME OF AUTHORS / BOOKS/ PUBLISHER</b>	<b>YEAR OF PUBLICATION</b>
1	Marian Moffett, Michael Fazio, Lawrence Wodehouse; Buildings Across Time; McGraw Hill	2004
2	Francis D. K. Ching, Mark M. Jarzombek, Vikramaditya Prakash; A Global History of Architecture, John Wiley & Sons	2007
3	William J. R. Curtis, Modern Architecture since 1900, Phaidon Press ltd.	1996
4	Vikram Bhatt & Peter Scriver; Contemporary Indian Architecture, After the Masters;Mapin Publishing Pvt. Ltd.	1990
5	Kenneth Frampton; World Architecture 1900-2000: A critical Mosaic, Volume 8 South Asia; Springer-Verlag Wien New York	2000

**ARCHITECTURAL STRUCTURES-V**  
**Code: B5AR03-CT15**
**B.ARCH Semester: V**

UNIT	CONTENT
1	<b>RCC Beams Design:</b> Introduction to different types of beams, Design of rectangular beams; design of singly reinforced beams, design of doubly reinforced beam, design of T-beam, design of L-beam
2	<b>RCC Columns Design:</b> Introduction to RCC column, Design of square column, Design of rectangular column, Design of circular column
3	<b>RCC Slabs Design:</b> Introduction to RCC slab, Difference between one way slab and two way slab, Design of one way slab, Design of two way slab, Design of cantilever slab
4	<b>RCC Footing Design:</b> Introduction, Pressure distribution beneath footing, Design of Rectangular footing, Design of square footing, Design of circular footing, Design of combined rectangular footing
5	<b>Retaining Wall Design:</b> Introduction, Types of retaining walls, Design of T-shaped retaining wall

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	S Unnikrishnapillai & Devdasmenon, Reinforced concrete design; Third Edition, "Mcgraw hill publication education"	2002
2	B C Punmia, Design of R.C.C. Structures; "Laxmi Publication"	2006
3	P.C. Varghese, Limit state design of Reinforced concrete; Second Edition, "PHI learning private limited"	2011
4	Ramanutham, Design of reinforced concrete design; "Dhanpat Rai Publication"	2011
5	Kenneth M.leet & Dionisiobernal, Reinforced concrete design; "The McGraw Hills Companies"	2000

**ARCHITECTURAL DESIGN-IV**  
**Code: B5AR04-CP23**
**B.ARCH Semester: V**

UNIT	CONTENT
1	<b>Theme:</b> Understanding the integration of structure and construction systems in design of Built Spaces.
2	<b>Parameters:</b> Structure and construction as disciplines that evolve making of a space. Structural systems as choices based on program, space and form character. Structure as a space maker and structure as order.
3	<b>Expected Skills:</b> To develop ability to study and analyze natural and man-made structural systems, co-relation between function, structure, space and form. Different structural models in building systems. Models as analytical tools of decision making. Understanding of Gravity loads transfer, structural grid and Framing systems. Co-relation between Structural Grid, Design Grid and Parking Grid.
4	<b>Design Outline:</b> Integration of structure and construction in the design of a Multi-functional simple programmatic Building Project at Neighborhood level in Urban or Rural context, ideally on a Building Site for a built-up area of 501-1000 sq. m. The Course may be integrated with Structures, Building materials & construction and Interior Design.
5	<b>Projects:</b> A minimum of two Design Projects to be given in the semester from the list of suggested topics in various categories of Building types: Residential: Apartments, Students Hostel etc.; Educational: Primary, Secondary school, etc.; Commercial: Neighborhood shopping Centre, bank etc.; Recreational: Health clubs, Gymkhana etc.; Public: Neighborhood Centre, Marriage halls, etc.; Religious: Temple, Mosque, Gurudwara, Church etc.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Richard Weston; Materials Form and Architecture; Laurence king Publishing, Singapore	2003
2	Gunter Pfeifer, Antje M. Liebers, Per Brauneck; Exposed Concrete Technology & Design; BirkHauser, Switzerland	2005
3	Catherine Croft; Concrete Architecture; McGraw Hill, New Delhi	2004
4	Donald Watson & Michael J. Crosbie; Time Saver Standards for Architectural Design, McGraw Hill	2004
5	Francis D.K. Ching, Building Construction Illustrated, John Wiley & Sons 2001	2001



**BUILDING MATERIALS & CONSTRUCTION-V**  
**Code: B5AR05-CP24**
**B.ARCH Semester: V**

UNIT	CONTENT
1	<p><b>Damp Proofing</b>            MATERIALS: Causes and effect of dampness, techniques and methods of damp prevention, materials used for damp proofing– flexible, semi-rigid and rigid materials. Damp proofing treatments in buildings.            CONSTRUCTION: General preparatory work for damp proofing. Treatment of foundations, dampness from adjacent ground, treatment of foundation on poor soil, treatment above ground level. External and internal tanking, in-situ damp proofing treatment, cavity wall construction.</p>
2	<p><b>Water Proofing</b>            MATERIALS: Difference in water proofing and damp proofing, various systems of water proofing, materials for water proofing such as bitumen felt and paints, epoxy formulations, lime concrete, slurry coats, polyethylene film, glass fiber tissue reinforced bitumen, etc.            CONSTRUCTION: Preparatory work for water proofing. Water proofing for different roof types such as concrete and masonry flat or sloping roofs, timber sloping roof, shell roofs etc. Parapet and coping details, water proofing of underground reservoirs &amp; swimming pools. Covering of expansion joints, water proofing techniques for roof gardens, etc.</p>
3	<p><b>Fire &amp; Pest Resistance</b>            MATERIALS: Important considerations in fire protection, Non-combustible and combustible materials. Properties of some common materials such as timber, stone, bricks, terracotta, steel, wrought iron, cast iron, Aluminium, glass, asbestos, cement, mortar etc. Classification of pests, effects of pests in buildings, pest control methods such as Biological, Environmental, Mechanical &amp; Chemical. Laws &amp; Regulations for pest control.            CONSTRUCTION: General measures of fire safety in buildings such as smoke detectors, alarm systems, etc. Fire extinguishing arrangements, escape routes, etc.            Pest control measures by design and constructional means for new and existing buildings. Design criteria internal &amp; external anti-termite measures at foundation level &amp; masonry level.</p>
4	<p><b>Thermal Insulation</b>            MATERIALS: Effects of heat transfer and thermal insulation behavior of the material and building components, General principles of thermal insulation, materials of heat insulation such as slab or block insulations, blanket insulations, loose fills, insulating boards, reflective sheet materials etc.            CONSTRUCTION: Methods of heat insulation of roofs, exposed walls and exposed windows, doors and ventilators.</p>
5	<p><b>Protective &amp; Decorative finishes and Machines &amp; Equipment:</b>            MATERIALS: Objectives of building finishes, characteristics and ingredients of a good paint. Paints: classification and types. Covering capacity of paints, preparation of paints. Varnishes &amp; Varnishing; Objectives and characteristics of a good varnish, ingredients of varnish, types of varnishes, process of varnishing. Polishes &amp; polishing. Distempers &amp; distempering, properties of distempers. Miscellaneous finishes such as wall filling, papering, whitening, coal tarring, wax polishing, wood oiling, glazing etc.            CONSTRUCTION: Application of paints on different surfaces such as wood, metal, plastered concrete surfaces etc. in detail. Application of varnishes, distempers in various building elements, components &amp; furniture. Tools and equipment for various protective and decorative finishes.</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Handbook on Building Construction Practices, BIS, New Delhi	1997
2	S.P. Arora, S.P. Bindra, Building Construction, Dhanpat Rai Publications.	2012
3	Hegger, Auch-Schwelt, Fuchs, Rosenkranz, Construction Materials Manual; Brkhauser Boston	2006
4	Francis D.K. Ching; Building Construction Illustrated, John Wiley & Sons 2001	2001
5	Barry R; Construction of Building, Vol.2; Affiliated East West Press Pvt. Ltd.	1999



**INTERIOR DESIGN**  
**Code: B5AR06-CP25**
**B.ARCH Semester: V**

UNIT	CONTENT
1	The profession of Interior Design; Role of an Interior designer– past & present. Interior Space: Space as raw material; quantitative and qualitative study such as types of spaces; size of a space; organization of spaces, etc. Light as an animator of space, direct & indirect lighting. Interior Elements: Floor; Floor finishes, their functional and aesthetical criteria; floor coverings, etc. Wall; Wall finishes and their functional and aesthetical criteria; wall coverings, Ceiling; types; finishes and their functional & aesthetical criteria. Openings; such as Doors and Windows; their types and treatments. Inclined elements such as stairs; ramps; their types and finishes
2	Perception of Interiors: Surface & Visual characteristics of Interior elements and their effect on the perception of space. Principal of Visual composition, Principle on where and how to perceive shapes & forms, the primary six principles such as figure-ground, closure, symmetry, proximity, similarity and continuance. Study of proxemics, behavioural settings.
3	Furniture & Accessories: An overview of historical perspective of furniture and styles. Interior styles such as Italian, English, French, Japanese, etc. Modern trends and contemporary attitudes to Interior Design i.e. Modular furniture. Utilitarian, Incidental and Decorative accessories in public and private interiors.
4	Interior Environmental System: Understanding thermal, visual, auditory and sanitary condition necessary for comfort and convenience of occupants. Coordination of heating and air conditioning system, water supply, sanitary drainage system, electrical & lighting system and acoustics with a building's structural system.
5	Design: Interior Design process, Interior design concepts, Interior space planning & human dimensions. Two interior schemes of different functional types; Residential/ Commercial/ Institutional etc. at different scales will form the major design assignments. The course may be integrated with the concurrent architecture design.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Elizabeth Wilhide, The Interior Design Directory, Quadrille London	2009
2	Francis D.K. Ching, Interior Design Illustrated, NY Van Nastrand Reinhold	1987
3	Time Saver Standards for Interior Design & Space Planning, McGraw Hill	1992
4	The Fundamentals of Interior Design, AVA Academic, Switzerland	2009
5	Karla J. Nielson, David A. Taylor, Interiors an introduction, McGraw Hill	2002

**ELECTIVE I (FURNITURE DESIGN)**  
**Code: B5AR07-CP26**
**B.ARCH Semester: V**

UNIT	CONTENT
1	Introduction: Furniture design and its types based on; function (sit, surface, storage etc.), state (movable, built-in, modular, stack etc.) and forms. Role of furniture design in interiors.
2	Historical & Cultural Context of Furniture Design: Industrial Revolution, Great Reform Movements: 1850-1914, Modernism to Pre-World War: 1900-1945, Post World War: 1945-1970s, Post Modernism: 1970-2000, Emerging design trends: 21st century.
3	Materials: types of materials, market forms, construction or assembly techniques such as bending, molding, casting etc. Joinery details, fabrication, tools and machinery involved.
4	Design & Production: Concept generation methods and design, Developing design and drawing techniques, skills (analog and digital), Technical drawings (design and details) and Model on scale.
5	Design: The subject may be integrated with the concurrent course of Interior Design. At the term of the course, the students will formulate, develop and resolve design solutions for furniture and present it in a form of a portfolio made in appropriate scale. The portfolio must present all drawings and details with respect to ergonomics, aesthetics, materials and construction, on an appropriate scale.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Juli Capella & Quim Larrea, Designed by Architects in the 1980's, Mitchell London	1988
2	Karla J. Nielson, David A. Taylor, Interiors an Introduction 3d Edition, McGraw Hill New York	2002
3	Joint & Connection: Ideas in Furniture Design and their background, Birkhauser Verlag Basel.Boston.Berlin	1992
4	Charles D. Gandy & Susan Z. Stidham, Contemporary Classics, furniture of the masters, McGraw Hill Book Company	1981
5	Francis D.K. Ching, Interior Design Illustrated, NY Van Nastrand Reinhold	1987

**ELECTIVE I (FURNITURE DESIGN)**  
**Code: B5AR07-CP26**
**B.ARCH Semester: V**

UNIT	CONTENT
1	Introduction: Furniture design and its types based on; function (sit, surface, storage etc.), state (movable, built-in, modular, stack etc.) and forms. Role of furniture design in interiors.
2	Historical & Cultural Context of Furniture Design: Industrial Revolution, Great Reform Movements: 1850-1914, Modernism to Pre-World War: 1900-1945, Post World War: 1945-1970s, Post Modernism: 1970-2000, Emerging design trends: 21st century.
3	Materials: types of materials, market forms, construction or assembly techniques such as bending, molding, casting etc. Joinery details, fabrication, tools and machinery involved.
4	Design & Production: Concept generation methods and design, Developing design and drawing techniques, skills (analog and digital), Technical drawings (design and details) and Model on scale.
5	Design: The subject may be integrated with the concurrent course of Interior Design. At the term of the course, the students will formulate, develop and resolve design solutions for furniture and present it in a form of a portfolio made in appropriate scale. The portfolio must present all drawings and details with respect to ergonomics, aesthetics, materials and construction, on an appropriate scale.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Juli Capella & Quim Larrea, Designed by Architects in the 1980's, Mitchell London	1988
2	Karla J. Nielson, David A. Taylor, Interiors an Introduction 3d Edition, McGraw Hill New York	2002
3	Joint & Connection: Ideas in Furniture Design and their background, Birkhauser Verlag Basel.Boston.Berlin	1992
4	Charles D. Gandy & Susan Z. Stidham, Contemporary Classics, furniture of the masters, McGraw Hill Book Company	1981
5	Francis D.K. Ching, Interior Design Illustrated, NY Van Nastrand Reinhold	1987

**ELECTIVE I (PRODUCT DESIGN)**  
**Code: B5AR07-CP26**
**B.ARCH Semester: V**

UNIT	CONTENT
1	Introduction: Product design and its types and need. Role of a product designer, product design process- research, development, production and marketing. Difference between Industrial and Product Design.
2	Historical & Cultural Context of Product Design: Industrial Revolution, Great Reform Movements: 1850-1914, Modernism to Pre-World War: 1900-1945, Post World War: 1945-1970s, Post Modernism: 1970-2000, Emerging design trends of 21st century.
3	Common Materials and their application. Hard Materials: Stone, Wood & Metals.
4	Design and production: Concept generation methods and design, Developing design via sketching, on scale drawing techniques, skills (analog and digital), Technical drawings (design and detail) and Model on scale. Emphasis on ergonomics, material and aesthetics and user experience.
5	Design: The subject may be integrated with the concurrent course of Interior Design. A portfolio comprising of design for a product, presented in an appropriate scale. The design must fulfil the requirements such as ergonomics, aesthetics and construction technique.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Juli Capella & Quim Larrea, Designed by Architects in the 1980's, Mitchell London	1988
2	Roland Knauer, Transformation: Basic Principles & Methodology of Design, Birkhauser Basel.Boston.Berlin	2008
3	European Masters/ 3 vol. 10 Industrial Design, EDICIONES ATRIUM S.A.	1991
4	Drawing for 3-Dimensional Design, Concept. Illustration. Presentation, Thames & Hudson.	1990
5	Robert W. Gill; Rendering with pen & ink; Thames & Hudson	2003

**ELECTIVE I (DIGITAL DESIGN)**  
**Code: B5AR07-CP26****B.ARCH Semester: V**

UNIT	CONTENT
1	Introduction: Digital design and its practices. Digital or computational Designs such as Parametric, Isomorphic, Metamorphic etc. and their techniques. Inter-relationships of geometric and architectural parameters.
2	History & Evolution of Digital Architecture: Works of Gehry Partners, Zaha Hadid, Morphosis, SOM, KPF, Foster & Partners, Greg Lynn, etc. with respect to computational designs and contemporary practices.
3	Computational Design Thinking & Fundamentals of Software: Basic concept formulation, computational thinking and lexicon, visualization. Rhino+ Grasshopper (exploring new NURB systems, using generative algorithms and 3D modeling tools and required plug-ins).
4	Digital fabrication & Scaled Models : Creation of shop drawings (drawing issued for fabrication or production) Coordination of Autodesk software with Rhino, Grasshopper and similar files formats. Introduction to 3D printing, laser cutting and fabrication techniques.
5	Design Portfolio: At the end of the term, a portfolio will be made containing process documentation (sketches, diagrams both 2D and 3D)by setting up a layout or a scheme (composition of information on paper), using Adobe Illustration & In-design.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Jane Burry+ Mark Burry; The New Mathematics of Architecture, Thames & Hudson	2010
2	Helmut Pottman, Andrea Asperl, Michael Hofer & Axel Kilian; Architectural Geometry, 1st Edition, Bentley Institute Press, Eton Pennsylvania USA	2007
3	Roland Knauer,Transformation: Basic Principles & Methodology of Design, Birkhauser Basel.Boston.Berlin	2008

**BUILDING ELECTRICAL SERVICES****B.ARCH Semester: VI****Code: B6AR01-CT16**

UNIT	CONTENT
1	<p><b>Building Energy</b> Significance, Scope, Building Energy Sources-Conventional – Hydro, Fossil Fuels, Nuclear, etc. &amp; Non-Conventional - Bio-Gas, Photo Voltaic, Wind, Wave Energy, etc. Building Energy Scenario - Trends in Consumption, Impact of user behaviour and Energy Conservation. Terminology used – Electric Charge, Current, Voltage, Power, Resistance, AC &amp; DC etc. Basics of electrical circuit- Ohm's Law &amp; Kirchoff's Law- Series and Parallel Circuits.</p>
2	<p><b>Electrical Transmission &amp; Distribution</b> Transmission of electricity - Transmission Voltages, Power Factor and Power Losses. Electrical Distribution Systems- Demand, Tariff Legislation and Code of practice. Rules- National Electrical Code. Single Phase and Three Phase Supply Electrical Sub-Station – Transformer, Metering &amp; Monitoring, HT &amp; LT Panels, Switch Gears, Power Backup &amp; Emergency Supply.</p>
3	<p><b>Electrical Wiring and Installations</b> Types of wiring systems, Methods of Wiring, Joint and Loop-In. Types of electrical Wires and their choice in planning electrical wiring in Building Switch boards, Distribution boards, Sockets, junction boxes, control equipment, and other fittings and fixtures. Protection against overload, short circuit, earth faults, lightning Conductors and other safety measures. Special systems- Bus Way, Bus Bar Trunk, Race Way, lighting Tracks</p>
4	<p><b>Building Automation and Control Systems</b> Building Automations, Significance and Scope. Electronic and Communication Systems- Telecom, Intercom, Computer Systems and Data Networking- Wired &amp; Wireless. Electronic Security System- Security and Surveillance Systems. Automatic Control Systems- Elementary Local Loop and complete control systems</p>
5	<p><b>Electrical Layout Design</b> Single Line Diagram &amp; Electrical layouts. Calculation of load for small project like Shop, Showroom, Office, Residence etc. Designing Basic Electrical layout to be integrated with concurrent Design Studio.</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	S.L. Uppal- G.C. Garg; Electrical Wiring Estimation and Costing; Khanna Publication	2010 – 6th Edition
2	Fred Hall & Rager Greeno; Building Services Handbook; Butterworth-Heinmann	2011 – 6th Edition
3	Raina K.B. & Bhattacharya S.K.; Electrical Design, Estimation and Costing; New Age International Publishers, New Delhi	2007
4	Steve Doty & Wayne C. Turner; Energy Management Handbook; The Fourmount Press, USA	2009 – 7th Edition
5	B. Mazumdaar; Textbook of Energy Technology; APH Publishing Corporation	2005

**HISTORY OF ARCHITECTURE-IV**  
**Code: B6AR02-CT17**
**B.ARCH Semester: VI**

UNIT	CONTENT
1	<p><b>MODERN ARCHITECTURE: The Great Masters</b>            Factors contributing to the development of the style. The life, Philosophy and contribution of the Great Masters to Architecture            Luis Sullivan: The Chicago School Of Architects, Auditorium Building, Wainwright and Guaranty Building, Carson Pirie Scott Store.            Frank Llyod Wright: Prarie School Houses such as Winslow, Ward Willits and Robie House. Early Public buildings such as Larkin &amp; Unity Temple. Usonian Homes such as Hanna House. The culmination of the idea of the Organic Architecture- Falling Waters.            Later Public buildings such as Johnson Wax and Guggenheim Museum.            Walter Gropius: Fagus Shoe factory &amp; Bauhaus School.            Mies Van der Rohe: Weissenhoff Housing Estate, German Pavilion at Barcelona, Farnsworth House, Illinois; Lake Shore Drive Apartments, Chicago; Crown Hall and Seagram Building, New York.            Le Corbusier: Towards a new Architecture- the Five Points. Villa Savoye, Swiss Pavilion, Unite d’Habitation, Notre Dame du Haut. City Planning and Design of buildings of Capitol Complex at Chandigarh. Sanskar Kendra, Mill Owner’s Association, Shodhan and Sarabhai houses at Ahmedabad.</p>
2	<p><b>MODERN ARCHITECTURE: After The Masters</b>            Life, Philosophy and Contribution of Modern Period Architects after the great masters.            Alvar Aalto: Paimio Sanatorium, Viipuri Library, Villa Mairea, Saynatsalo Town Hall            Louis Isadore Kahn: Salk Institute, California; Kimbell Art Museum, Texas; IIM Ahmedabad; Bangladesh National Assembly, Dhaka            Eero Saarinen: TWA Terminal J.F. Kennedy Airport, New York; Dulles International Airport ; Kresge Auditorium and Chapel at MIT            Kenzo Tange: Hiroshima Peace Memorial, Yoyogi Olympic Gymnasiums, Tokyo; Tokyo City Hall.            John Utzon: Sydney Opera House, Kuwait National Assembly, Bagsverd Church, Denmark</p>
3	<p><b>POST MODERN ARCHITECTURE: Classicism &amp; High-Tech</b>            Post Modern architecture as a counter proposal to Modern architecture. Different Trends and Meanings of Post Modern Architecture. The Life, Philosophy and Contribution of Post Modern Architects.            Robert Venturi: Vanna Venturi House and Guild House, Philadelphia and Sainsbury Wing National Gallery London.            Philip Johnson: The Glass House, Connecticut; AT&amp;T Building, Manhattan; National Centre for Performing Arts, Mumbai.            Micheal Graves: Public Service and Humana Corporation Buildings, Walt Disney World Swan &amp; Dolphin Resort            Richard Rogers: Georges Centre Pompidou, Llyods Building, Millennium Dome.            Renzo Piano: Tjibaou Cultural Centre, California Academy of Sciences.            Norman Foster: HSBC Hong Kong, Sainsbury Centre for Visual Arts, Swiss Re Tower, Santiago Calatrava: Lyon Airport Railway Station, The Turning Torso.</p>
4	<p><b>POST MODERN ARCHITECTURE: Deconstructivism &amp; Regionalism</b>            The other flavors of Post Modern Architecture in the Developed and Developing World.            Peter Eisenman: House VI, Wexner Centre for Visual Art, Bio Centrum            Frank Owen Gehry: Walt Disney Concert Hall, Nationale Nederlander, Prague; Guggenheim Museum, Bilbao.            Daniel Libeskind: Jewish Museum, Berlin; Imperial War Museum, Manchester ; Denver Art Museum Extension &amp; Residences, Colorado.            Zaha Hadid: Vitra Fire Station, Weil Am Rhein Germany; Phaeno Science Centre, Wolfsburg ; London Aquatics Centre.            Hassan Fathy: Mosque, New Gourn; Ministerli House, Cairo; Hassan Rashad House, Ibiar Tanta, Egypt.            Geoffrey Bawa: Parliamentary Complex, Sri Jayawardenapura; University of Ruhunu, Matara ; Kandalama Hotel, Dambulla; Sri Lanka.            Laurie Baker: Loyola Graduate Women’s Hostel, Centre for Development Studies, Indian Coffee House, Trivandrum.</p>

UNIT	CONTENT
5	<p><b>INDIAN ARCHITECTURE – Post Independence</b>            Post Independence Indian Architects after Le Corbusier and Louis Kahn.            Achyut P. Kanvinde: Campus Architecture, IIT Kanpur ; Dudhsagar dairy Complex, Mehsana ; National Insurance Academy, Pune; Nehru Science Centre, Mumbai.            Joseph A. Stein: India International Centre ; Triveni Kala Sangam and India Habitat Centre, Delhi            B. V. Doshi : Gandhi Labour Institute, CEPT, Institute of Indology, Ahmedabad ; Aranya Township, Indore; Vidyadhar Nagar, Jaipur; IIM Bangalore.            Anant D. Raje : Indian Statistical Institute, Delhi ; Indian Institute of Forest Management, Bhopal; Farmers Training Institute, Palampur.            Charles Correa: Gandhi Samarak Sangrahalaya, Ahmedabad; Kala Academy, Panjim; Jawahar Kala Kendra, Jaipur; British Council Headquarters, Delhi; Artist's Village, Belapur ; Chamapulimaud Centre for Unknown, Lisbon.            Raj Rewal : Asiad Games Village, National Institute of Immunology and Scope Office Building, Delhi.            Uttam C. Jain : Jodhpur University Campus Extension ; Indira Gandhi Institute of Development Research, Mumbai ; Nagar Nigam, Jaipur.</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Marian Moffett, Michael Fazio, Lawrence Wodehouse; Buildings Across Time; McGraw Hill	2004
2	Francis D. K. Ching, Mark M. Jarzombek, Vikramaditya Prakash; A Global History of Architecture, John Wiley & Sons	2007
3	William J. R. Curtis, Modern Architecture since 1900, Phaidon Press ltd.	1996
4	Vikram Bhatt & Peter Scriver; Contemporary Indian Architecture, After the Masters;Mapin Publishing Pvt. Ltd.	1990
5	Kenneth Frampton; World Architecture 1900-2000: A critical Mosaic, Volume 8 South Asia; Springer-Verlag Wien New York	2000



**ARCHITECTURAL STRUCTURE -VI**  
**Code: B6AR03-CT18**
**B.ARCH Semester: VI**

UNIT	CONTENT
1	Introduction Introduction to steel members, Uses of steel over RCC, Introduction to Rivet connections, Introduction to bolted connections, Introduction to welded connections
2	Design of Tension members Introduction to tension plates, Introduction to tie members in trusses, Designing of tension plates, Designing of tie members
3	Design of Compression members Introduction to steel columns and struts, Designing of steel columns, Designing of steel struts and uses of steel columns
4	Design of Beams Introduction to steel beams, Designing of laterally supported beams, Designing of laterally unsupported beams, Uses of built up sections and steel beams.
5	Design of Foundations Introduction of grillage foundation, Theory of column bases, Designing of grillage foundation and Designing of column bases
	<b>TOTAL</b>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Prof. R. Chandra, Design of Steel Structure (Vol.I); “Standard Publisher & Distributors”	2005
2	Negi, Design of Steel Structure; “Tata McGraw Hills Publishing Co. Ltd.”	2004
3	S. Subramaniam, Design of Steel Structure; “Oxford university press”	2008
4	B.C.Punmia& A K Jain, Design of Steel Structure; “Laxmi publication”	2006
5	S.K.Duggal, Design of Steel Structure; “Tata McGraw Hills Publishing Co. Ltd.”	2004

**ARCHITECTURAL DESIGN -V**  
**Code: B6AR04-CP28**
**B.ARCH Semester: VI**

UNIT	CONTENT
1	<b>Theme:</b> Understanding the integration of Building services in the design of built spaces. Introduction to various Building services as functional enhancer of space.
2	<b>Parameters:</b> Environmental concerns in design such as light, ventilation, water, waste and Energy. Integration of structural, constructional and spatial systems with Building Services systems.
3	<b>Expected Skills:</b> To develop ability to study and analyze natural and man-made, ancient and Modern Building services systems. Co-relation between structural, constructional, spatial and Building plumbing and Electrical systems. Requirement of services as per Building codes, Basic layout and Design of Plumbing and Electrical services in Buildings.
4	<b>Design Outline:</b> Integration of services with structure, construction and function in the design of Multifunctional Simple Programmatic Building Project at community level in Urban or Rural context ideally on a Building site for a built-up area of 1001- 2500 sq.m. Course to be integrated with Plumbing and Electrical services and landscape Design courses.
5	<b>Projects:</b> A minimum of two Design Projects to be given in the semester from the list of suggested projects in various categories of Building types: Residential: Community Hostel, Youth, Hostel, etc. Educational: Higher Secondary School, Special school, etc. Health: Community Health Centre, Hospital, etc. Hospitality: Hostels, Motels, Resorts, etc. Commercial: Community shopping centre, commercial complex, offices, etc. Industrial: Industry, Laboratories etc.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Smith Lee; Plumbing Technology- Design & Installation; Delman Publishers Inc.	2007
2	Fred Hall & Rager Greeno; Building Services Handbook; Butterworth-Heinmann	2011- Sixth Edition
3	Ralph Hammann, “ Creative Engineering, Architecture, and Technology; DOM publishers	2010
4	Pierre Loze, “Art & Build” Images Publishing	2009
5	Joseph De Chiara, Micheal J. Crosbie; Time Saver Standards for Building Types; McGraw Hill	2001-Fourth Edition

**BUILDING MATERIAL & CONSTRUCTION -VI**  
**Code: B6AR05-CP29****B.ARCH Semester: VI**

UNIT	CONTENT
1	<p><b>Pre-cast, Prefabricated &amp; Pre-stressed Construction:</b>  <b>MATERIALS:</b> Pre-stressing, prefabrication and precast and their present scenario in country. Standardization &amp; modular coordination, jointing, tolerances, mass production storage and handling of materials. Types of pre-stressing techniques such as pre-tensioning &amp; post tensioning. Advantage &amp; disadvantages of Pre-stressing, Post-tensioning systems such as Freyssinet system, Gifford-Udall-cct system etc.  <b>CONSTRUCTION:</b> Prefabrication technology – column &amp; beam system, panel system, box system, Prefabrication techniques and various building components, Comparison between RCC and Pre-stressed concrete.</p>
2	<p><b>Long span structures:</b>  <b>MATERIALS:</b> Structural, Design &amp; constructional issues of long span structures, long span structure system such as one way systems: Beams in timber, steel &amp; concrete; Trusses in timber &amp; Steel; Arches in timber, steel and concrete; Cable Structures in Steel. Plate structures in timber &amp; concrete; shell structures in wood &amp; concrete. Two way systems: Plate structures in steel &amp; concrete; shell structures in steel &amp; concrete. Principles of pneumatic structures. Machines and equipments for long span structures.  <b>CONSTRUCTION:</b> Constructional details of various structures in steel, concrete – portal frames, folded plate, domes, space frame, tensile structure etc.. Foundations for long span structures.</p>
3	<p><b>High Rise Structures:</b>  <b>MATERIALS:</b> Different types of forces on high rise structures, Types of High Rise structures – Exterior structures such as Braced Frames, tube structures, tube in tube structure, Diagrid structures, trussed tubes, bundled tubes, space truss etc. Interior structures such as Rigid frame structures, Braced frame cores, shear wall cores etc. Machines &amp; equipments for high rise construction.  <b>CONSTRUCTION:</b> Deep foundations such as piles, caissons, diaphragm walls. Foundations under special conditions etc.</p>
4	<p><b>Appropriate Construction Technology:</b>  <b>MATERIALS:</b> Appropriate construction technologies used as an alternative for conventional practices. Selection Criteria and objectives for using such technologies.  Application of Building Materials processed from Agricultural and Industrial waste. Introduction about agencies involved in promotion of such materials and technologies like BMTPC, CBRI, etc.  Appropriate construction techniques, spanning systems, building components and Building Materials. Ferrocement its constituents &amp; characteristics, comparison with RCC, various applications of Ferrocement.  <b>CONSTRUCTION:</b> Appropriate construction techniques such as precast channel unit, RCC plant &amp; joist, waffle unit, concrete L panel, Doubly curved shell, Ferrocement roofing channels, spanning systems such as corbelling, arch etc.</p>
5	<p><b>Advance Materials &amp; Construction Technologies:</b>  <b>MATERIALS:</b> Introduction and brief history of smart materials, classification such as smart, Intelligent, Repurposed, Transformational, nano etc. Innovation in materials such as Translucent concrete, LED tiles, ECO glass, Electroluminescent fabric, Reaction glass etc. Processing and conversion of materials. New technologies of construction.  <b>CONSTRUCTION:</b> Lift slab construction, slip form construction.</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Francis D.k. Ching, Barry S. Onoye, Douglas Zuberbuhler; Building Structures Illustrated; John Wiley & Sons	2009
2	Michael Barnes, Michae Dickson, Thomas Telford; Widespan Roof Structures	2000
3	Johann Eisele, Ellen Kloft, High Rise Manual; Birkhauser Boston	2003
4	M.J. Tomlison; Foundation, Design & Construction; Longman Group Ltd.	1995
5	Barry R.; Construction of Buildings, Volume 1, Foundation and on-site Concrete Walls, Floors and Roofs; Affiliated East West Press	1996

**LANDSCAPE DESIGN -V**  
**Code: B6AR06-CP30**
**B.ARCH Semester: VI**

UNIT	CONTENTS
1	<b>Introduction to Landscape Architecture</b> Definitions, Hierarchy and Scope in Architecture. Landscape Design in History – Persian, Spanish, Italian, French, Mughal, English and Japanese Gardens. Contemporary concepts and concerns in Landscape such as living green roof, terrace, wall, etc. and Modifying micro climate w.r.t. Temperature, humidity, precipitation and percolation.
2	<b>Elements of Landscape Architectural Design</b> Landform: Significance, Expression, types and uses of Landform. Plant material: Significance, Types Characteristics and uses of plant material. Planting Design process and Principles. Plant Material in local context. Botanical & Common names, Characteristics and uses. Selection of Plants. Water: Characteristics and uses of water in Landscape, Materials & Design of water features such as fountains and pools. Pavement: Types, Characteristics &. Uses of pavements in Landscape. Basic Pavement, Materials and Design. Site Structures: Steps, Ramps, walls, fences, seating, etc., their materials & design.
3	<b>Site Studies, Planning &amp; Development</b> Site survey to study site characteristics such as Access, Topography, Vegetation, Hydrology, Views and Context. Site planning issues. Such as siting individual buildings and relating Buildings to a site. Building clusters and Types of spaces, Site circulation and zoning of Activities & spaces on site.
4	<b>Landscape Architectural Design Process &amp; Services:</b> Basic Design Process: Research, Analysis, Design & Construction Drawings such as Master Plan, Grading Plan, Section and Planting Plan. Drainage & Irrigation System Layout plan, Outdoor Lighting System layout plan.
5	<b>Landscape Architectural Design Project</b> Design and Presentation of landscape scheme for Building Projects from the previous or concurrent, Architectural Design Studio, Small exercise to test application through design of parks, play grounds, road layouts, parking etc.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Michael Laurie; An Introduction to Landscape Architecture; Elevation Publications	1986
2	Sylvia Crowe; Garden Design	1994
3	Geoffrey & Susan Jellicoe, Landscape of Man	1975
4	Kevin Lynch, Site Planning	1984
5	PradeepKrishan, Trees Of Delhi, Penguin India	2006

**ELECTIVE-II - HISTORY OF ARCHITECTURE OF RAJASTHAN****B.ARCH Semester: VI****Code: B6AR07-CP31**

UNIT	CONTENT
1	<b>Background &amp; Historical context</b> Context and Physical Characteristics; Forces responsible for architectural development of Rajasthan like social, political and economic factors, culture and building resources, building techniques & processes characteristic to Rajasthan.
2	<b>Development and Evolution of architecture</b> Earliest archeological evidences – Mauryan & Post Mauryan period, Gupta & Post Gupta period, Pratihara period, Rajput period, Rajput-Mughal period, Rajput-British period; Buildings for the expression of power like Hill Forts & Citadels - Amber, Mehrangarh, Kumbhalgarh, Jaisalmer and Chittorgarh and palaces like City Palace Jaipur and City Palace Udaipur.
3	<b>The organic and the planned cities</b> Settlement patterns- Common planning principles & articulation of built form and the factors influencing their spatial organization; cultural values that shaped the overall architectural language; Brief understanding of planning of early cities with an organic character like Jaisalmer, Shekhawati towns and of planned cities like Jaipur.
4	<b>History of building craft</b> Traditional treatise - Rajvallabh, Devtamurtiprakaran, Prasadmandana, Rupavatra, Rupamandana, Vastushastra; Visual records - Manuscripts, miniature paintings, Mughal paintings; Local traditions of artisanship – artisans, temple builders, sculptors, stone carvers, inlayers, etc.
5	<b>Building types and their uses</b> Havelis and houses, temples and other religious buildings, bazaars and public buildings, buildings for water and gardens - examples from cities like Jaipur, Jodhpur, Udaipur, Jaisalmer, etc.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Bannister Fletcher, History of Architecture, Twentieth Edition, CBS Publishers, Delhi	1999
2	Shikha Jain, Havelis: a living tradition of Rajasthan, Shubhi Publications	2004
3	The Stone Crafts of Rajasthan, CDOS, Jaipur	2011
4	G.H.R. Tillotson, The Rajput Palaces: the development of architectural style, Oxford University Press, New York	1999
5	G.H.R.Tillotson, Paradigms of Indian Architecture, Routledge	1997
6	Rima Hooja, History of Rajasthan, Rupa Co., New Delhi	2006

**ELECTIVE-II -VERNACULAR ARCHITECTURE OF RAJASTHAN****B.ARCH Semester: VI****Code: B6AR07-CP31**

UNIT	CONTENT
1	<b>Vernacular architecture in Indian context</b> Definition(s) of vernacular architecture and related terminologies; Difference between vernacular architecture and traditional architecture; Relevance of vernacular architecture in present context; Typologies in different climatic regions of India.
2	<b>Regional context and corresponding built form in Rajasthan:</b> Factors influencing the development of vernacular architecture like climate, topography, availability of building materials, resources, building skills and techniques. Conception of space and evolution of a generic form.
3	<b>Settlements and dwelling patterns</b> Regional dwelling patterns like 'dhanis' (hamlets), villages and their overall adaptation in the said context; Settlements and their vicinity to water resource(s) as places of worship and social activity; water related architecture and typical water resources like kua, kohar, baoli/bavdi, jhalora, bera/beri.
4	<b>Typical built typologies</b> Study of relative built typologies for residential, religious and public use of cities like Jaisalmer, Jaipur, Jodhpur, Bikaner and Udaipur in terms of context, physical characteristics and culture.
5	<b>Characteristic spaces and thematic elements</b> Spaces like courtyards, platforms, jharokhas (balconies) etc.; Embellishments & Architectural expressions– Symbolism and Ornamentation, compound walls, patterns on doors and windows, mirror work and motifs, flooring patterns, etc.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Amos Rapoport; House Form & Culture; Prentice Hall	
2	Dora P. Crouch & June G. Johnson, Traditions in Architecture – Africa, America, Asia and Oceania, Oxford University Press, Inc., USA, 1st edition	2001
3	J. Tod, Annals and Antiquities of Rajasthan; Volume-II, KMN Publishers, New Delhi	1983
4	Minakshi Jain & Kulbhushan Jain; Architecture of the Indian Desert; AADI Centre, Ahmedabad, India	2000
5	Minakshi Jain & Kulbhushan Jain; Indian City in the Arid West; AADI Centre, Paldi, Ahmedabad, India	

**ELECTIVE-II - ARTS & CRAFTS OF RAJASTHAN****B.ARCH Semester: VI****Code: B6AR07-CP31**

UNIT	CONTENT
1	<b>Background &amp; Regional formation of Rajasthan.</b> Traditional geographical, political and cultural divisions; Pre-and proto history of Rajasthan focusing on various prehistoric cultures; Inter-religious interactions- Aspects of arts and crafts, literature and cultural relations with neighboring states during respective historical eras.
2	<b>Classification of Arts &amp; Crafts based on nature and material used</b> The Chhatiskarkhana of Jaipur; Crafts - Jewelry, metal, wood, lac-based crafts, textiles, paper crafts, miscellaneous arts – Miniature painting, frescoes, etc.; Tribal crafts; Influence of arts and crafts on built form.
3	<b>Building stone craft tradition in Rajasthan</b> Rock formations in Rajasthan and stone types; Shaping the stone – quarrying, selection, dressing, finishing, carving and patterning; Stone craft clusters in Rajasthan; Stone Masonry (walls; dry and with lime mortar / cladding and finishes).
4	<b>Building elements in stone</b> Structural elements in stone (foundations, columns, beams, brackets and roofs – flat and domed); Architectural elements in stone (jharokhas, copings, railings, jaalis); Landscape elements in stone (fountains, water bodies, benches, signage, lamps); Interior elements/ sculptures/artifacts of various sorts; Maintenance of Stone Buildings.
5	<b>Reinterpretation of stone craftsmanship</b> The new generation artisan; Innovations and adaptations to new tools and applications in stone; contemporary use of stone while studying works of Raj Rewal, Charles Correa, Ashok B Lall and Nimish Patel,

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Rima Hooja, History of Rajasthan, Rupa Co., New Delhi	2006
2	The Stone Crafts of Rajasthan- A Manual, CDOS, Jaipur	2011
3	V.S. Bhatnagar, Life and times of Sawai Jai Singh, Impex India, New Delhi	1979
4	Rajasthan Sate Gazeteers, Volume – 2, History and culture, Directorate District Gazeteers, GoR& Volume-3, Economic Structure and Activities	
5	Jadunath Sarkar, History of Rajasthan	



**BUILDING MECHANICAL SERVICES****B.ARCH Semester: VII****Code: B7AR01-CT19**

UNIT	CONTENT
1	<p><b>Principles of Refrigeration and HVAC</b>  Basics of Thermodynamics: Heat, Transfer of heat, Change of state, Temperature, Specific Heat, Latent Heat, Saturation Temperature, Evaporation, Condensation, Enthalpy, Entropy, Pressure-Temperature Relationship for liquids, Refrigerants, Refrigeration Cycle.  Human Comfort: Humidity, Absolute Humidity, Relative Humidity, Specific Humidity, Temperature Range, Air Quality Parameters, Air Movement, Need of HVAC.  Principles of Air-Conditioning: Psychometric Process, Air Cycle, Summer and Winter air conditioning, evaporative cooling, Constituents of Heat Load Estimation- Material, Orientation, Heat, Light, Occupancy, Building Use (Mathematical calculations are excluded).  Air Conditioning Zoning: Purpose &amp; advantages, Air distribution systems- Non Duct &amp; Duct Systems, Air outlets, Compressors, Evaporators, Condensers, etc.</p>
2	<p><b>HVAC System Components and Equipment</b>  Window &amp; Split units; Variable air-volume, water volume, vapor absorption system (Variable refrigerant Flow).  Central Air conditioning systems: AC Plant Room, Direct Expansion and chilled water system, Types of compressors (air cooled and water cooled), Cooling Towers, Air handling units, Fan Coil Unit, Fresh air-sick building syndrome.</p>
3	<p><b>Fire Prevention, Protection &amp; Life Safety</b>  Causes of building fire: Triangle of fire  Prevention: Materials for different building components and their fire rating,  Considerations for: Building Heights, F.A.R. &amp; Open Space, service ducts and shafts, refuse chutes, electrical installations &amp; emergency power supply, lightening protection, escape lighting and escape signage, fire and smoke dampers, opening and glazing (façade fire prevention)  Life Safety: Fire exits- numbers and arrangement, fire escape staircase and its pressurization, ramps, Compartmentation, Fire detection and alarm systems, safety drills.  Fire Protection: Fire extinguishing and fire fighting installations- types of extinguishers, dry and wet riser system, automatic sprinkler system, fire tank and pump house.</p>
4	<p><b>Elevators and Escalators</b>  Types of Elevator and escalator mechanism, Design considerations: location in a building, serving floor, grouping, lift size, lift car dimensions, door arrangements, waiting time analysis, sky lobby.  Types &amp; installation provisions of elevators &amp; escalators: passenger lift, hospital (stretcher lift), goods lift, car lifts, dumbwaiters, travelators, step type escalator, belt type escalators, cleat type escalator, levytator etc.</p>
5	<p><b>Mechanical Layout Design</b>  Application of air conditioning system in hotels hospital and commercial building.  Ventilation System design for basement, car park, toilet and kitchen ventilation (air washer and scrubbers), air cooling systems.  Schematic layout for fire protection in building showing exits, escape routes, fire extinguishers (sprinkler systems), tanks and pump room.  All designs to be integrated with concurrent Design Studio.</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	John W. Mitchell, James E. Braun; Heating, Ventilation, and Air Conditioning in Buildings ; John Wiley & Sons Inc.	2012
2	William K.Y. Tao , Richards R. Janis; Mechanical and electrical Systems in Buildings; Pearson Education Inc.	2014
3	M.Y.H. Bangash, T. Bangash; Lifts, Elevators, Escalators and Moving Walkways; Travelators/Taylor & Francis/Balkema	2007
4	Bureau of Indian Standards; National building code of India-2016; Bureau of Indian Standards	2016
5	William H. Severns and Julian R Fellows; Air conditioning and Refrigeration; John Wiley & sons, London	1987



**CONTRACT DOCUMENTS & BYELAWS****B.ARCH Semester: VII****Code: B7AR02-CT20**

UNIT	CONTENT
1	<p><b>Building Contracts</b> Type of contracts and contract documents, detailed knowledge about various conditions of contract as published by the Indian Institute of Architects, interim certificates defect, liability period, retention amount and virtual completion.</p> <p>Articles of agreement, execution of work payment and Arbitration, arbitrators, umpire and nature of arbitration, Appointment, conduct, powers and duties of arbitrators and umpires, Procedure for arbitration, preparation and publication of awards and impeachment.</p>
2	<p><b>Tenders</b> Types of tender documents, tender draft notices and invitation of tenders. Procedure for opening and selection of tenders &amp; award of contract. Analysis and report to owner. Work order.</p>
3	<p><b>Building Byelaws:</b> Brief history of Town planning Act 1954 with reference to Building Projects. Various factors for formalization of Bye Laws &amp; its implications. Comprehensive study of Jaipur Building Bye-laws relating to Ground coverage, FSI Calculation, Building Height &amp; Building use regulation. Study of special provisions in bye-laws in respect of Special category of Buildings Role of Approving authorities, special rules governing hill area development &amp; coastal area management.</p>
4	<p><b>Approval &amp; Clearance:</b> Preparation and procedure of approval drawings. Methods of enforcement &amp; monitoring. Fire clearance, Structure safety approval, Environment clearance, consent to establishment, Occupancy &amp; completion certificate, Indemnity Bond, other special clearances.</p>
5	<p><b>Other Laws:</b> An overview of laws related to the profession of Architecture and Physical Development. Introduction to Labour Act, Building construction worker act &amp; Real estate Bill 2017.</p>
	<b>TOTAL</b>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	V.S.Apte; Architectural Practice & Procedure	2008
2	Roshal Namavati; Professional Practice	2008
3	Dr. K.G.Krishnamurthy; Construction Management	2005
4	Ministry of Urban Development; Model Building Byelaws	2016
5	Bureau of Indian Standards; National Building Code (NBC)	2016

**ACOUSTICS & ILLUMINATION**  
**Code: B7AR03-CT21**
**B.ARCH Semester: VII**

UNIT	CONTENT
1	<b>Fundamentals &amp; Behavior of sound:</b> Acoustics-need & scope, pioneers and their works, Acoustics examples from past .Basic Theory: Generation, Propagation, Transmission, Reception of sound, Human ear and hearing, loudness perception, subjective effects. Basic terminology - Frequency, pitch, tone, timbre, sound pressure, sound intensity, loudness, threshold of audibility & pain, wavelength and velocity of sound. Properties & Characteristics of Sound. Reflection and absorption of sound. Inverse Square law, Decibel scale & decibel addition. Behavior of sound in an enclosed space. Ray Diagrams, Sound paths, Effect of geometry and shapes. Sound Absorption coefficient, Reverberation, Calculation of reverberation time-Sabine formula. Acoustical defects in an enclosed space and their remedial measures.
2	<b>Noise Control:</b> Physiological and psychological effects of noise. Types of noises- Structure borne & Air borne noise, flanking of sound. Noise classification Outdoor and indoor noises. Transmission of noise & Transmission loss, Noise control and sound insulation & absorption. Sound leaks through openings. Acceptable noise levels for building types and indoor noise levels. Noise criteria curve & noise reduction coefficient. Noise reduction through landscaping and design techniques. Land use planning for Noise control. Noise reduction from mechanical equipment their mounting details and insulation.
3	<b>Design &amp; construction for sound:</b> Introduction to sound amplification and Distribution system. Selection of Acoustic materials like porous materials, membrane absorbers, cavity resonators, space absorbers, variable absorbers and their construction details and fixing. Environmental aspects of acoustical materials. Construction details of walls, partitions, floors, ceiling doors & windows for Noise reduction. Acoustic design process in different types of buildings like Auditoriums, concert halls, lecture halls. Site selection, noise survey, room zoning and shape. Acoustical privacy in open plan offices. Halls for speech & music .Raking of seats, stage forms etc.
4	<b>Illumination:</b> Introduction to illumination and Terms- lux, candle power , lumen, luminance, illuminance, luminous flux, luminous intensity ,glare etc. Evolution of lighting technologies. Light and vision . Photometry and measurement .Laws of Illumination such as inverse square law, cosine law, lamberts cosine law. Methods of lighting-ambient, task and accent. Classification of lighting systems-direct, diffused, indirect. Key technical terms such as CRI, CCT etc. Artificial light sources, types-incandescent, fluorescent, HID & LID, LED and their application, advantages & limitations.
5	<b>Lighting Design:</b> Functional & aesthetic uses of lighting. Characteristics of good lighting. Architectural lighting methods. Use of Artificial lighting as an element in Architectural scheme for Exhibitions, Museum, office, Residences, Outdoor Lighting road, façade & landscape . Lighting techniques -Spot, Flood, Light beams etc. Lighting Design: Lumen method, Point by Point Method, Graphical representation of general Lighting scheme. Energy efficient lighting Design strategies.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Egan David; Architectural Acoustics; Mcgraw-Hills Book Co. New York	1988
2	Leslie I. Doelle; Environmental Acoustics; MC graw-Hill book company, New York	
3	Norbert Lachner; Heating, Cooling, Lighting - Design methods for Architects; Johnwiley & Sons New York	2001
4	BIS; Handbook on Functional requirement of Buildings, (Part 1-4) ; BIS	
5	Christina Augustesen; Lighting Design Principles, implementation case studies; Birkhauser, Boston	2006

**ARCHITECTURE DESIGN -VI**  
**B7AR04-CP33**
**B.ARCH Semester: VII**

UNIT	CONTENT
1	<b>Theme:</b> Understanding the co-relation between the sight and the building / buildings through the integration of various site and landscape elements.
2	<b>Expected Sills:</b> To develop ability to locate a building / buildings on site as per local building regulations, climate and site conditions in order to achieve mutually beneficial relation between built and open spaces using various available natural & man made elements such as land form, plant material, water bodies, pavements, buildings and site structures. To develop ability to plan and design access, circulation and parking at site level
3	<b>Building Byelaws:</b> Brief history of Town planning Act 1954 with reference to Building Projects. Various factors for formalization of Bye Laws & its implications. Comprehensive study of Jaipur Building Bye-laws relating to Ground coverage, FSI Calculation, Building Height & Building use regulation. Study of special provisions in bye-laws in respect of Special category of Buildings Role of Approving authorities, special rules governing hill area development & coastal area management.
4	<b>Design Outline:</b> Integration of built & open spaces in the design of multi-functional complex programmatic building project at District level in Urban or Rural context ideally on a building site required for a built up area of 2500 – 5000 Sqm. Course to be integrated with building mechanical services, acoustics & illumination, settlement planning & universal design.
5	<b>Projects:</b> A minimum of two design projects to be given in the semester from the list of suggested projects in various categories of building types : Residential: Group, Spatial Housing, etc. Educational: Diploma, Degree, Professional colleges, Science centre, etc. Public: Law courts, Art & Cultural Centre, etc. Health: Naturopathy & Yoga Centre, Hospice, Drug De-addiction centre, etc. Hospitality: Holiday, Beach, Hill, Dessert Resort, etc. Entertainment: Sports / Social Club, Water Park, etc.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	John Ormsbee Simonds,; “Landscape Architecture”; McGraw Hill	2008
2	Charles W. Harris, Nicholas T. Dines; “Time-Saver Standards for Landscape Architecture”; McGraw Hill	2008
3	Joseph De Chiara, Micheal J. Crosbie; Time-Saver Standards for Building Types; McGraw Hill	2005
4	Ernest & Peter Neufert; “Architect’s Data Part-I & II”; Black Well Science	2016
5	Achyut P. Kanvinde & H. James Miller; “Campus Design in India”; United States Agency for International Development	2016

**WORKING DRAWING**  
**Code: B7AR05-CP34**
**B.ARCH Semester: VII**

UNIT	CONTENT
1	<p><b>Introduction:</b>            Understating of working drawing, their co-relation in various technical projections like plans, elevations, sections, detailing etc. Estimation &amp; Specifications, Standards, guidelines for execution of works, Units of measurements, various graphic, numeric, text components and their precise function in a set of working drawing. Method of representing various contents &amp; specific information in working drawings.            Study of a set of working Drawings and its understanding</p>
2	<p><b>Building Plans:</b>            Demarcation of building envelop using diagonal and coordinate method; Locating vertical structural member; Detailing of sub Structure-Excavations and layouts; External and partition wall and scheduling of fenestration.            Building Location Plan, Centre line Plan, Column location plan, Excavation drawing, Foundation Layout, Plinth Beam Layout, Site Plan, Brick work of all floor plan, Roof plan with parapet and Mumty brick work, Stair room plan, Door Window Detail with schedule, Suspended floor and roof framing.</p>
3	<p><b>Building Sections and Elevations</b>            Sectional representation of different material in different building components; Wall Sections; Detailing of building façade; vertical circulation-planning and detailing.            Building Sections: Whole and part, Building elevations, External Finishing schedule, Staircase and ramp Details.</p>
4	<p><b>Building Services</b>            Building plumbing network – Water supply lines &amp; sewer lines, their gradation, drains &amp; traps, Details for rain water harvesting &amp; septic tanks. Building electrical network – Space allocation for various components (panels, vertical stacks, etc.) and provisions for their connections.            Plumbing Drawings: Site Level - Water supply, Sewer, Storm water Layouts and Invert Level schedules. Building Level - Kitchen and toilet Detail-Water supply, Sewer, Rain water; Roof Drain plan.            Electrical Drawings: Site Level – Electrical layout, Building Level - Reflected ceiling Plan, Power layout, Low voltage layout, lighting and circuit layout.</p>
5	<p><b>Building Component Detail</b>            Building internal finishing schedule – color schemes, flooring patterns, wall elevations, dado, fixtures &amp; fittings. Sectional details for various building components as per standard specification &amp; site conditions.            Toilet and kitchen wall elevations, Flooring detail, under floor treatment, Terracing detail, water proofing detail, Lintel Detail, Coping &amp; Parapet Detail etc.</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Ralph W. Liebing, Mimi Ford, Raul; Architectural Working Drawings; Wiley	1990
2	Director General of Works; CPWD Specifications; CPWD Nirman Bhawan, Delhi	2014
3	M.G.Shah, CM Kale, S.Y. Paoul; Building Drawing; Tata McGraw Hills	2011
4	Director General of works; Delhi Schedule of Rates; CPWD, Delhi	2016
5	Barry R; Construction of Building; Affiliated East West Press Pvt. Ltd.	1999

**SETTLEMENT PLANNING****B.ARCH Semester: VII****Code:B7AR06-CP35**

UNIT	CONTENT
1	<p><b>Introduction and History of Human Settlement</b>            Definition and vocabulary of urban and regional planning. Definitions of town planning. Early human settlements — Causal factors and pattern of development.            Human settlements of River valleys civilization (e.g. Indus-valley civilization, Egyptian civilization, etc. Early Vedic civilization patterns, Canonical patterns as per various Indian contexts.            Human settlements during ancient Greek period, ancient Roman period, Medieval period (Western and Indian), Renaissance period, India during Islamic period, India during colonial period.            Effects of Industrial Revolution on planning of cities (history and present scenario). Ancient System of Town Planning In India -Extracts from Chanakya's Arthashastra, Manasara's Vastushastra, planning thought behind Fatehpur Sikri, Shahjahanabad, Jaipur and Delhi. Basic Skill Development exercise: Introduction to graphic representation reading of drawing.</p>
2	<p><b>Forms of Human Settlements</b>            Structure and form of Human settlements: Linear, non-linear and circular, Combinations. Reasons for development, advantages and disadvantages, case studies, factors influencing the growth and decay of human settlements. Documentation of case study/ Literature reference study of suitable scale for understanding of the urban context.</p>
3	<p><b>Planning Theories and Techniques:</b>            Planning concepts related to garden city, geddesian triad, neighbourhood planning, radburn layout, ekistics, satellite towns and ribbon development. Various theories of planning like landuse theory, exploratory theories, speculative theories etc. Principles of Planning, Zoning, zoning regulations, Site planning. Types of plans-development plans, action plans, structure plans. Planning process of Master plan/Development plan preparation and its components, Approaches to physical and social planning, stake holders in planning process. Planning laws, legislation and amendments i.e. ULCAR, LAA, 73rd and 74th constitutional amendments, etc. Special Economic Zones (SEZs), UDRPFI recommendations.            Levels of planning and steps for preparation of a town plan, survey techniques in planning, concepts, functions, components and preparation of a development plan. Defining characteristics of identified area. Planning project implementation techniques i.e. BOOT, BOT, BOLT, etc</p>
4	<p><b>Urban Planning and Urban Renewal</b>            Post-independence Planned cities in India i.e. Chandigarh, Gandhinagar, Vidhyadhar Nagar, etc. Globalization and its impact on cities, Urbanisation, emergence of new forms of developments, self-sustained communities, SEZ, transit oriented development, integrated townships, case studies. Urban Renewal: Meaning, Redevelopment, Rehabilitation and Conservation. Urban renewal schemes i.e. JNNURM, etc. Case study and literature review of planning concepts and norms for selected area.</p>
5	<p><b>Transport Planning</b>            Introduction to transport planning: Network characteristics, Analysis and interpretations Intersections, Hierarchy and their design of roads, survey methods i.e. Trip generation, trip distribution, Modal Split Origin Destination survey, etc. Traffic signs. Level of services. Transport modes, technology and selection Planning Studio: Selection of site, data collection, data analysis and presentation.</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	C.A.Doxiadis, Ekistics; "An Introduction to the Science of Human Settlements"; Hutchinson, London.	1968
2	Arthur B. Gallion & Simon Eisner; "Urban Pattern"; D. Van Nostrand Co., New York	1963
3	Ministry of Urban Development; "Urban Development Plans: Formulation & Implementation Guidelines"	1996
4	A.K.Jain; "Urban Transport Planning and Management"; APH New Delhi	2009
5	Sandhu. R. S.; "Sustainable Human Settlements"; Asian Experience, Rawat publications.	2001

**ELECTIVE-III UNIVERSAL DESIGN**  
**Code: B7AR07-CP36**
**B.ARCH Semester: VII**

UNIT	CONTENT
1	<p><b>Introduction:</b> Universal design and its significance, need and role in various design fields in current context for people with different abilities. Universal Design awareness and education at national and international level.</p> <p>Seven International principles: Equitable Use, Flexibility in Use, Simple &amp; Intuitive Use, Perceptible Information, Tolerance for Error, Low Physical Effort, and Size &amp; Space for Approach &amp; Use.</p> <p>Five Indian Principles of Universal Design: Equitable, Usable, Cultural, Economic and Aesthetic.</p>
2	<p><b>Understanding Disability:</b> Types of disabilities based on mental, physical, function, age and extreme physical proportions. Study of groups comprising of people with disabilities and the necessary design requirements with respect to aspects of anthropometrics i.e. visibility, access and usage.</p>
3	<p><b>Universal Design: Guidelines &amp; Legal Provisions:</b> United Nations Convention on the Rights of Persons with Disabilities; UNCPRD, 2008. Acts, Bills, Policies, and Building guidelines in India: Disability Act 1995, Rights of Persons with Disabilities Bill 2012, CPWD Guidelines for Barrier Free Built Environment for Disabled and Elderly and Standard Emergency Evacuation Guidelines for Disabled by National Building Code.</p>
4	<p><b>Universal Design:</b> Building Level: Design Standards for accessibility and usage in various building typologies both constructed as well as existing buildings: Residential, Institutional, Commercial, Hospitals &amp; Health facilities, Public Transit Buildings, Recreational Buildings and Hospitality Buildings. Design and Construction Strategies with respect to all kinds of disability at Building Interior: floor, walls, doors, windows, counters, railings, sanitary fixtures and signage. Building Exterior: pathways, parking, signage, levels and grooves, main entrance/exit and approach to plinth. Building Circulation: vertical and horizontal elements such as corridors, staircases, lifts, elevators, ramps.</p> <p>Materials and surface finishes available, their types and construction techniques.</p>
5	<p><b>Universal Design:</b> Urban Level; For Streets, Pathways, Pedestrian Crossings, Foot over Bridges, Curb Ramps, Parking, Public Toilets, Parks, Bus Stops, Street Furniture, Signage. Materials available and their types and construction techniques.</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Preiser Wolfgang, Universal Design Handbook	2001
2	Adrian B. Robbins, Margaret A. Wylde, Building for a life time, The design for fully accessible homes	1994
3	Steven Winner, Accessible Home Design,	
4	Accessibility for the Disabled: A Design Manual for a Barrier Free Environment, UNCPRD	2008
5	CPWD, Guidelines and space standards for barrier free built environment for Disabled and Elderly Persons	1998



**ELECTIVE-III RESEARCH METHODOLOGY**  
**Code: B7AR07-CP36**
**B.ARCH Semester: VII**

UNIT	CONTENT
1	<b>Research – Introduction &amp; Design:</b> Research meaning and its significance in Architecture, Relationship between Design & Research, Areas of Research in Architecture, Qualitative and Quantitative Paradigms, Characteristics of Scientific research, Levels of Research, Components of research design, Identification of area of research, Defining the problem, formulation of hypothesis, collection of data through different primary and secondary sources. Analyzing the data and inferring from the data, concepts of dependent and independent variables. Defining the scope and limitations of a Research plan, Significance of the research outcome.
2	<b>Research – Types &amp; Techniques:</b> Historical research, comparative Research, Qualitative Research, Co-relational research, Experimental Research, Normative Research, Case study Research, Simulation & Modeling Research Pilot studies, Educational Research. Descriptive technique, pictorial technique, analytical technique, statistical technique semantic technique etc.
3	<b>Research Tools:</b> Interview techniques – Questionnaires, face to face interviews, internet survey, Designing a questionnaire, interview schedule. Visual Techniques – Observation (Participant / non-participant), Activity mapping, accretion & erosion trace observation, cognitive maps etc. Sampling techniques such as systematic, stratified, random etc.
4	<b>Research Analysis</b> Understanding the relative advantage, disadvantages and application of various methods and choosing a method appropriate for a research to achieve its objectives, understanding the nature of data collected and methods of analysis suitable for that data i.e. graphical, numerical, descriptive. Introduction to the simple statistical methods of analyzing numerical data – frequencies / percentages, mean, median, mode, correlation, chi square test etc.
5	<b>Research writing</b> Different sections of a Research report, Technical writing and language. Abstract, synopsis, Executive summary. Writing Bibliography & References.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Groat L, Wang D.; Architectural Research Methods; John Wiley & Sons, Inc.	2002
2	Kaplan A.; The Conduct of Inquiry; Chandler, San Francisco	1964
3	Zumthor P.; Thinking Architecture; Birkhauser, Basel, Switzerland	2010
4	Shinde S.P. (Dr.); Methodology of Research and issues in Education; Surabhi Educational Society, Hyderabad	2008
5	Creswell J.W.; “Research Design : Qualitative & Quantitative Approaches”; Thousand Oaks : Sage	1994

**ELECTIVE-III ARCHITECTURAL JOURNALISM****B.ARCH Semester: VII****Code: B7AR07-CP36**

UNIT	CONTENT
1	Introduction: Architectural Journalism as a career and as an occupation of documenting, reporting, validating, writing, editing, photographing and forming opinion and criticism of a project or an architect's work. Role of Architectural Journalism in promoting architectural design theory and developing critical thinking.
2	Architectural Journalism: Emergence & Evolution Global as well as Indian scenario. Emergence of Printed material such as Architectural Magazines and Journals such as Domus, Mimar, Indian Architect & Builder and Research Papers, Monographs, Biographies, Conference Proceedings, Articles and Coverage in national newspapers, as well as online Media.
3	Tools of Architectural Journalism: Resource finding, Writing content and verifying it through various sources like books, articles, papers, surveys, videos. Use of graphics like sketches, drawings, graphs, pie charts and photographs etc.
4	Critical Discourse: appreciating or criticizing through project Documentations, Essays and Critical Writings with respect to architecture by Ada Louise Huxtable, Paul Goldberger, Robert Campbell, Reyner Banham, Peter Blundell Jones, Robert A. M. Stern, Lewis Mumford, Kenneth Frampton, Gautam Bhatia, Kaiwan Mehta, Rahul Mehrotra etc.
5	Design & Writing: The student will use tools specific to architecture and construction to access, manage, integrate, and create information. The student is expected to create info-graphics, articles which document a project and critically analyze the pros and cons of one's work.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Kenneth Frampton; World Architecture 1900-2000: A Critical Mosaic; Vol.8 South Asia, China Architecture & Building Press	2000
2	Rahul Mehrotra; Architecture in India since 1990; Pictor	2011
3	Stern Robert A.M.; Architecture on the edge of Postmodernism, Collected Essays 1964-1988; Yale University Press, New Haven & London	2009
4	Mohammad Al-Asad with Majid Musa; "Architectural Criticism & Journalism : Global Perspectives"; Umberto Allemandi & Co.	2005
5	Groat L, Wang D.; Architectural Research Methods; John Wiley & Sons, Inc.	2002



**PROFESSIONAL PRACTICE & MGMT.**  
**Code: B9AR01-CT22**
**B.ARCH Semester: IX**

UNIT	CONTENT
1	<b>Architect's Office &amp; Its administration:</b> Nature of profession, difference between trade, business and profession, Office setup and administration. Office organization, proprietorship, partnership, company etc.; Registration as Firm / Company etc.
2	<b>Architectural Professional Association &amp; Architect Act 1972:</b> Practice Procedure and conduct, Introduction to the importance of professional organisations like IIA, COA & their Membership & their role in future developments. Architectural Competition – Types, procedures, as per guidelines of the Council of Architecture
3	<b>Architectural Services:</b> Conditions of agreement – scope of work, comprehensive architectural services and conditions of engagement, remuneration, professional fees and charges as per norms. Responsibilities and Liabilities of an architect towards the client. Professional charges of various jobs. Stages of Architectural design and the specific task in each of such stage
4	<b>Project Management:</b> Role of an architect in construction management, Scientific methods of construction management, Objectives and functions of project management, stages of project management (planning, scheduling and organizing). Introduction of PERT (Project Evaluation & Review Technique), Fundamentals of CPM (Critical Path Method) activity, event, float, network construction, time computation, project completion period, resource allocation. Relationship of work, Time & Cost, Cost Analysis in network planning, construction site practices, Inspection and Quality Control.
5	<b>Business Management &amp; Ethics:</b> Architect's role in society & Human Values. Use of Ethical theories – Kohlberg's theory, Gilligan theory Consensus and controversy, Environment ethics. Business management, sales promotion, human relations and personnel management. Efficiency studies and performance appraisal, billing, accounting, correspondence, information storage and retrieval. Manpower management, safety and labor laws.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	V.S.Apte ; Architectural Practice & Procedure	2008
2	Roshan Namavati; Professional Practice	2008
3	Council of Architecture; Handbook of Professional Documents	
4	Dr. P.N.Modi, Sanjeev Modi; PERT and CPM	2009
5	Dr. B.C.Punmia; Project planning and control with PERT and CPM; Laxmi Publications, New Delhi	

**SUSTAINABLE ARCHITECTURE**  
**Code: B9AR02-CT23**
**B.ARCH Semester: IX**

UNIT	CONTENT
1	<b>Introduction:</b> Introduction to Sustainability and its various dimensions (economic, social and ecological); Sustainable development of built environment; Global Warming and Climate Change; Concepts in sustainable architecture; sustainable buildings, green buildings, climate responsive buildings, ecological responsive buildings, Energy efficient buildings; Energy policy of India and world.
2	<b>Strategies and Technologies:</b> Solar Passive Design; Recycling/Reuse strategies, optimization techniques, advances in HVAC, Electrical, Lighting and Plumbing technologies; integration of Active energy efficient systems with buildings – PV cells, wind towers, geothermal heat pump, bio-mass energy etc. Study of non conventional energy sources.
3	<b>Rating systems:</b> Benchmark: Study of rating systems across globe in general introduction – BREEAM, CASBEE, LEED, detail study of IGBC, GRIHA. Study of energy conservation building codes. Study of LEED/GRIHA rated buildings
4	<b>Materials and Technology:</b> Emphasis on traditional building systems, methodologies and on the use of alternate/substitute and environment friendly materials, to make the students aware of local and / or low cost building materials which are cost effective, environment friendly and appropriate to the context of the site, climate and culture.
5	<b>Energy Assessment:</b> Energy calculations through whole building performance method. General introduction about Building information modeling, Introduction to concept and basic software. REVIT at advance level, ArchiCAD, energy plus, green building studio, IEs.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Sustainable Building Design Manual; Tata Energy Research Institute	2012
2	Green Building Materials; Ross Spiengle & Dru Meadows	2004
3	Understanding Green Building Guidelines; Traci Rose Rider	2009
4	Milli Majumdar; Energy Efficient Buildings in India; TERI	2001
5	Francis D.K.Ching; Green Building Illustrated; John Wille & Sons.	2014

**DISASTER RESISTANT ARCHITECTURE****B.ARCH Semester: IX****Code: B9AR03-CT24**

UNIT	CONTENT
1	<b>Introduction to Disasters</b> Hazard, Risk, Disaster, Vulnerability, Classification of disaster, Man Made & Natural Disasters, High, Medium & Low Impact. Disasters and Factor Causing Disasters, Earthquakes, Tsunami, Landslides, Cyclone, Floods, Fire etc.
2	<b>Impact of Disasters</b> Effects of natural and Man-made Disaster, Behaviour of structural and nonstructural members during and after disaster, Standards and Norms for risk reduction for various disasters i.e. Earthquakes, Tsunami, Landslides, Cyclone, Floods & Fire.
3	<b>Pre-Disaster and Mitigation Measures in Disasters</b> Disaster Management Plan, Natural Crisis Management Committee, NDMA (national disaster management authority) Management Guideline, Emergency Support Function, Role of Building information systems in Disaster Management.
4	<b>Design &amp; Planning Solution</b> Design Guideline and Construction Techniques for disaster resistant structure in RCC, Steel, Stone, Brick & wood; Engineering, Architectural, Landscape and site planning solutions for various disasters, Details for foundation, soil stabilization, retaining wall, plinth, plinth fill, flooring, walls, opening, fenestration and other building components. Study of non engineered Building practices.
5	<b>Case Studies- Disasters in India</b> Damaged Caused, Disaster management, Mitigation, post disaster structural up gradation in Earthquakes, cyclones, landslides, floods, droughts and tsunami in India.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Sharma V.K.; Disaster Management; Indian Institute of Public Administration, United Press, New Delhi	1995
2	Dutta Shekhar Chandra, Mukhopadhyay Parthasarathi ; Improving Earthquake And Cyclone Resistant Structures ; The Energy Resource Institute, New Delhi	2012
3	Tarnath B.S. ; Wind and Earthquake Resistant Buildings Structural Analysis and Design; Marcel Dekkar	2005
4	National Disaster Management Authority; National Disaster Management Guidelines; National Disaster Management Authority Government of India	2009
5	IAEE; Guidelines for Earthquake Resistant non-engineered construction; NPEEE 2004.	2005

**ARCHITECTURAL DESIGN-VII**  
**Code: B9AR04-CP38**
**B.ARCH Semester: IX**

UNIT	CONTENT
1	Theme: Understanding design to integrate complexities of urban dimensions, Architectural language & expression.
2	Parameters: Urban Networks such as Urban greens, Pedestrian connections, Traffic & Transportation, Local and regional architectural language & expression. Socio- Economic, Cultural and Physical context. Congregation of large number of diverse and unknown people.
3	Expected Skills: To develop ability and skill to design building as a urban insert by understanding the influence of the building on and of the immediate & distant surrounding. Handle circulation of large member of people and various modes of Transport.
4	Design Outline: Design of a multi-functional complex programmatic building as an insert at a settlement level ideally on a building site required for a built up area of 5000 – 7500 sqm., Course to be integrated with concurrent courses such as Housing, Urban Design, Conservation, Sustainable Architecture & Disaster Resistance Architecture.
5	Projects: At least one sufficiently large project to be given in a semester from the list of suggested projects in various categories of building types. Housing: Mix Group Housing, Townships, etc. Educational: Large scale educational campus, University, etc. Commercial: District Centre, Technology Parks, etc. Transportation: Bus Terminal, Railway Station, Metro Rail Station, Airport Terminal. Recreation: Multipurpose Indoor / Outdoor Sports complex. Hospitality: Hotel with convention / Exposition facilities, etc.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	T.S.S. for Urban Design; Mc Graw Hill	2003
2	Darek Thomas; Architecture and the Urban Environment; Architectural Press	2002
3	The Phaidon Atlas of 21st Century; World Architecture; Phaidon Publication	2008
4	The 20th Century World Architecture; Phaidon	2012
5	Kevin Lynch; Site planning 3rd Edition	2012

**DISSERTATION & THESIS SEMINAR**  
**Code: B9AR05-CP39**
**B.ARCH Semester: IX**

UNIT	CONTENT
1	<p>Research Formulation: The students of the final year are required to undertake research on a topic related to the field of spatial planning on issues emerging out of the present trends and future prospects of the Thesis Project selected.</p> <p>The Thesis Project should be sufficiently large and complex so that student can demonstrate the Skills and Knowledge acquired during the course.</p> <p>The site selected for the Thesis project should be large enough for a built up area more than 7500 Sqm. The project program can be hypothetical however the site selected should be real. Students may select live projects that have real program and objective.</p>
2	<p>Research Design: Once the problem is formulated the student has to undertake extensive literature survey and state in clear terms the working hypothesis.</p> <p>Students are required to state the conceptual structure within which research would be conducted by defining the aim, objectives, scope &amp; limitations of work.</p>
3	<p>Research Data: Data shall be collected keeping in mind the cost, time and other resources. Primary data can be collected either through experiment, through survey or by observation such as personal interviews, telephonic interview, mailing of questionnaire or through schedules. Secondary data such as census data, literature studies, unpublished or published thesis or dissertation can be collected.</p>
4	<p>Research Analysis &amp; Report: The analysis of data requires a number of closely related operations such as establishment of categories. The application of these categories to see data through coding, tabulation and then drawing statistical inference. Draw conclusions and identify architectural issues involved in the project design and construction. Define strategy to address these issues in the design proposal.</p> <p>Prepare a report of what has been done. The layout of the report should be as follows: the preliminary pages, the main text and end matter. The preliminary pages carry title, declaration, certificate, acknowledgement, list of illustration &amp; tables. The main text of the report should have introduction, review of literature &amp; methodology. The end matter will include glossary and annexure.</p>
5	<p>Thesis Seminar: Criteria of selection of the site for the thesis project and justification for how the proposed site will support the conceptual idea for the project. Bylaws, zoning regulators &amp; standards applicable to the project.</p> <p>Analytical studies of building prototypes as a whole or in part comparable to the selected project. Formulation of programme of requirements. Conceptual Site analysis and zoning of activities on site.</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Groat L, Wang D.; Architectural Research Methods; John Wiley & Sons, Inc.	2002
2	Kaplan A.; The Conduct of Inquiry; Chandler, San Francisco	1964
3	Zumthor P.; Thinking Architecture; Birkhauser, Basel, Switzerland	2010
4	Shinde S.P. (Dr.); Methodology of Research and issues in Education; Surabhi Educational Society, Hyderabad	2008
5	Creswell J.W.; "Research Design : Qualitative & Quantitative Approaches"; Thousand Oaks : Sage	1994

**TRAINING PRESENTATION**
**B.ARCH Semester: IX**

**Code: B9AR06-CP40**

UNIT	CONTENT
1	Office Administration: Understanding the basic working system of an Architect's office. Duties & Responsibilities of an Architect. Hierarchy of office staff in various types of Architectural practices. Log-Book with recordings of daily activities of the trainee involved in the office. Preparation of project / presentation reports, Bill of quantities and minutes of meetings with clients / consultants / contractors for the ongoing projects undertaken by the office.
2	Presentation & Submission Drawings: At least one set of presentation drawings of a project prepared for the approval of the client and one set of sanction drawings of a project prepared for approval of the Local authority by the student in Architect's office.
3	Site Visits and Studies: Visits to construction sites of the on-going projects in the Architect's office for the purpose of checking the accuracy of work or to record progress of work on site and related studies undertaken as per the directions of the supervising architect.
4	Critical Appraisal: Critical appraisal of a completed building project designed by the Architect / Firm or on-going project on which the student has worked in the office. The appraisal may be done on the design issues such as functional efficiency, visual appeal, climatic response, Green rating, etc. either one of the parameter or combination there off.
5	Working drawings & details: Preparation of good for construction building drawings such as plans, sections, elevation etc., space details such as stair case, toilets, lifts, etc., fixing details such as wall cladding, balcony railing, structural glazing, etc., construction details such as plinth, sill, lintel, parapet, etc., and Fabrication details such as door, windows, grills, etc. under the guidance of supervising architect.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Osamu A. Wakita, Nagy R. Bakhoun, Richard Mlinde; The Professional Practice of Architectural Working Drawings 4th Edition; John Wiley & Sons	2012
2	Dr. Roshan H. Namavati; Professional Practice 9th Edition; Lakhani Book Depot 2009	2009
3	CPWD; CPWD Specifications Vol. 1 & 2; CPWD	

**ELECTIVE-IV- HOUSING**  
**Code: B9AR07-CP41**
**B.ARCH Semester: IX**

UNIT	CONTENT
1	<b>Introduction:</b> Introduction to House, Home, Household, Apartments, Condominium, Multistoried Buildings, Special Buildings. Neighborhoods- Plotted land development programs, Open Development Plots, Apartments, Gated communities, Townships, Rental Housing, Co-operative Housing.
2	<b>Housing Policies &amp; Programs:</b> National Housing Policies including Housing for all, housing for Urban poor, Housing institutions at National, State and Local levels. Sites and Services. Slum Housing Program – Slum improvement – Slum redevelopment and Relocation.
3	<b>Housing Planning and Design:</b> Criteria for site selection : Design principles, norms and standards for infrastructure, land subdivision, housing layout and buildings: Built form, socio-economic and physical implications of various types of housing Building Byelaws, Rules and Development Control Regulations – Site Analysis, Layout Design, Design of Housing Units (Design Problems) – Housing Project Formulation; Concept , criteria and determinants of affordable, low income and informal housing; Design, planning and strategy issues for affordable housing; characteristics and type of low income and informal housing.
4	<b>Construction Materials &amp; Technologies:</b> Energy efficient, Cost effective Materials and construction technology; innovative and emerging new materials; Prefabricated housing; Materials and techniques for rural housing.
5	<b>Housing Finance:</b> Housing Finance at various levels, NHB, HDFC, Subsidy and Cross Subsidy- Various models of Public Private Partnership Projects – Viability Gap Funding – Pricing of Housing Units (Problems).

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Charles Corea / Housing and Urbanization / Urban Research Insitute	1999
2	Appropriate Roofing Material for Low Cost Housing / NBO	1985
3	A.K.Jain / Building System for Low Cost Housing / Management Publishing Co.	1992
4	Sorgi Costa / High Density Housing in Architecture / Duran Loft Publication	2009
5	John F.C. Turner / Housing by people / Marison Boyars, London	1976

**ELECTIVE-IV- URBAN DESIGN****B.ARCH Semester: IX****Code: B9AR07-CP41**

UNIT	CONTENT
1	<b>Introduction</b> Introduction to Urban Design, its principles and techniques; History of Urban Design; Inter-relationship between Architecture, Urban Design and Urban Planning in terms of scale, time and scope; Introduction to urban legislation and policies.
2	<b>Terminologies and Theories</b> Urban Design Vocabulary; Elements of Urban Design; Theories introduced by various urbanists - Kevin Lynch, Jane Jacobs, Gordon Cullen, Aldo Rossi; Concept of Urban Redevelopment, Renewal and Regeneration
3	<b>Methods and Techniques</b> Importance of context in Urban Design-Context analysis, Regional study and Project understanding; Impact of factors such as economy, politics, religion and region on urban design; Mapping and analytical tool- Figure-ground mapping, Activity mapping and Cognitive mapping.
4	<b>Urban Issues and Theories of New Urbanism</b> Urban sprawl , Gentrification, Social exclusion in terms of age, gender, class caste etc.; Concepts of New Urbanism – Sustainable Urbanism, Inclusive City, Neighbourhood Planning, Futuristic City, Walkable Neighbourhood, Smart city etc.
5	<b>Urban Design Responses</b> Study of urban projects by eminent urban designers; Urban design exercise.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Lynch K. /Image of the city/ The MIT Press	1960
2	Jacob J./Death and Life of Great American Cities/ Random House, New York	1961
3	Rossi A./Architecture of the city/ The MIT Press	1966
4	Cullen G./The Concise Townscape/Architectural Press	1961
5	Moughtin C./ Urban Design- Method and Techniques/ Architectural Press	1999



**ELECTIVE-IV- URBAN CONSERVATION**  
**Code: B9AR07-CP41**
**B.ARCH Semester: IX**

UNIT	CONTENT
1	<b>Urban Conservation understanding</b> Definition, types, need; principles, ethics & value; tangible & intangible components, Degree of Intervention; Concepts & prevailing practices in conservation, restoration, retrofitting, rehabilitation, consolidation, protection, adaptive reuse.
2	<b>Philosophies of Urban Conservation</b> Preservation & conservation philosophies; Pioneers & societies in field of conservation; International Charters; International approaches from UNESCO, ICCROM, GETTY foundation, etc.; National approaches: A.S.I., State Archeology, INTACH, Urban Art Commission, Heritage Commissions, local bodies, etc.; Techno legal provisions, codes & byelaws for interventions.
3	<b>Assessment &amp; analysing</b> Understanding of original building conditions; Documentation and assessment of current conditions-Physical, contextual, political, social, cultural, economic, ecological; non-destructive survey methods, environmental monitoring, simple & sophisticated analytical methods; Types & causes of damages; Damage-building components & structural systems - superstructure & substructure
4	<b>Preservation &amp; Prevention</b> Preservation strategies in Urban Conservation: Analysis of problem; types, degree & limitations for intervention; Levels of intervention- Structure, building complex, precinct; Heritage zones; Conservation strategies- documentation, analysis, techniques, interventions & outcomes; models of preservation, reconstruction & adaptive reuse; Influences & benefits of urban conservation; Sequence & phasing; Materials & methods; Detailing & finishing; Preventive maintenance of historical buildings
5	<b>Adaptation and Application</b> <b>Case Studies in Urban Conservation:</b> Examples of iconic urban conservation projects like Jaipur walled city bazaars, Sambhar Conservation initiative, Gambhiri riverfront etc; <b>Conservation strategies</b> for heritage areas along with revitalisation techniques – projects undertaken as group work will have to ultimately contribute ideas for the improvement of the quality of the urban environment.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Philip Jodido; The Aga Khan Historic Cities Programme – Strategies for Urban Regeneration; Prestel	2011
2	Dr. Alok Tripathi; The Ancient Monuments and Archaeological sites and Remains Act, 1958; Sundeep Prakashan Delhi	2007
3	Rama P. B. Singh; Heritagescapes & cultural landscapes; Shubhi Publication Gurgaon	2010
4	Sachindra Sekhar Biswas; Protecting the Cultural Heritage – National Legislations and International Conventions; Aryan Book International	1999
5	Gautam Sen Gupta, Kaushik G.; Archaeology in India Individuals, ideas & institutions; M M Publishers Pvt. Ltd.	2007

**THESIS PROJECT**  
**Code: B10AR01-CP43**
**B.ARCH Semester: X**

UNIT	CONTENT
1	<p><b>Analysis and Concept:</b> In this stage students shall analyze their site to arrive at a zoning of Activities on site.</p> <p>Student is required to Analyze the characteristic features and context of the site including Climatic analysis at both micro and macro level. Drawings, sketches, and physical models necessary to explain circulation, Organization of spaces and form composition shown in Preliminary drawings and study models.</p>
2	<p><b>Philosophies of Urban Conservation</b></p> <p>Preservation &amp; conservation philosophies; Pioneers &amp; societies in field of conservation; International Charters; International approaches from UNESCO, ICCROM, GETTY foundation, etc.; National approaches: A.S.I., State Archeology, INTACH, Urban Art Commission, Heritage Commissions, local bodies, etc.; Techno legal provisions, codes &amp; bye-laws for interventions.</p>
3	<p><b>Assessment &amp; analyzing</b></p> <p>Understanding of original building conditions; Documentation and assessment of current conditions-Physical, contextual, political, social, cultural, economic, ecological; non-destructive survey methods, environmental monitoring, simple &amp; sophisticated analytical methods; Types&amp; causes of damages; Damagebuilding components &amp; structural systems - superstructure &amp; substructure</p>
4	<p><b>Preservation &amp; Prevention</b></p> <p>Preservation strategies in Urban Conservation: Analysis of problem; types, degree &amp; limitations for intervention; Levels of intervention- Structure, building complex, precinct; Heritage zones; Conservation strategies- documentation, analysis, techniques, interventions &amp; outcomes; models of preservation, reconstruction &amp; adaptive reuse; Influences &amp; benefits of urban conservation; Sequence &amp; phasing; Materials &amp; methods; Detailing &amp; finishing; Preventive maintenance of historical buildings</p>
5	<p><b>Adaptation and Application</b></p> <p><b>Case Studies in Urban Conservation:</b> Examples of iconic urban conservation projects like Jaipur walled city bazaars, Sambhar Conservation initiative, Gambhiri riverfront etc;</p> <p><b>Conservation strategies</b> for heritage areas along with revitalization techniques – projects undertaken as group work will have to ultimately contribute ideas for the improvement of the quality of the urban environment.</p>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	BIS; National Building Code of India, SP7:2016; BIS	2016
2	NIASA; Archiving Architectural Thesis; Council of Architecture	
3	Naresh Shah with Pramod Anaokar; An Introduction to Predesign; Council of Architecture	2015
4	The Phaidon Atlas of 21st Century World Architecture; Phaidon	2008
5	T.S.S. for Building Types; Mc Graw Hill	2001

**ELECTIVE-V : Design Elective Related to Thesis\_ INTERIOR DESIGN****B.ARCH Semester: X****Code: B10AR02-CP44**

UNIT	CONTENT
1	<b>Identification:</b> Identify most important interior space / group of spaces from Thesis Project having carpet area greater than 1000 Sqm. Find type, size, organization and activity in space. Define scope of work and methodology
2	<b>Data Collection:</b> Find out various theories and concept for designing space / area selected. Find out role of interior elements, their function and aesthetically criteria. Study of similar cases, conduct physical surveys, stakeholders' interviews, study standards and bye laws applicable.
3	<b>Concept &amp; Analysis:</b> Analysis of thermal, visual, auditory and sanitary conditions necessary for comfort and convenience of occupants through case studies. Drawings showing conceptual layout of the interior space with all elements of interior design and their effect on the perception of the space.
4	<b>Design Synthesis:</b> Coordination of proposed interior space layout with heating and air conditioning system, water supply, sanitary drainage, electrical layout, lighting system, acoustics and structural system.
5	<b>Design Presentation:</b> Final set of drawings showing significance of space selected and Interior design concept. Sectional elevations showing walls, wall elevations and other elements of interior design in section. Furniture details in plan and section to an appropriate scale. Recommended material color and finishes for furniture and all surfaces. Flooring and inverted ceiling plan showing coordination with other systems.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	T.S.S. for Interior Design and Space Planning; McGraw Hill	2001
2	Elizabeth Wilhide; The Interior Design Directory; Quadrille	2009
3	Drew Plunkett; Drawing for Interior Design; Laurence King Publishing	2009
4	Maureen Mitton; Interior Design Visual Presentation; John Willey & Sons	1999
5	Henry Wilson; India-Contemporary; Thames & Hudson	2007

**ELECTIVE-V : Design Elective Related to Thesis\_LANDSCAPE DESIGN****B.ARCH Semester: X****Code: B10AR03-CP44**

UNIT	CONTENT
1	<b>Identification:</b> Identify outdoor activity spaces for design requiring landscape and site planning intervention in area not less than 1 hectare or the entire site area whichever is lesser. Find out type, size, organization and activity in space. Define scope of work & methodology.
2	<b>Data Collection:</b> Study theories and concepts of the space, area selected. Study topography, geology & soil, hydrology at site level. Study climate, existing vegetation, views & context of site. Study of similar cases for the issues selected for landscape intervention. Effect of standards and bye laws.
3	<b>Concept &amp; Analysis:</b> Analysis of identified issues and challenges by comparing various cases. Drawing showing conceptual layout with landscape elements such as land form, plant material, water, pavement, site structures & buildings with their significance & characteristics.
4	<b>Design Synthesis:</b> Coordination of various services such as water supply, water collection, sewage, electrical, lighting with the landscape proposal.
5	<b>Design Presentation:</b> Final set of drawings showing Research & Analysis. Design & Construction drawings such as comprehensive landscape development plan, Grading plan, planting plan, material plan, Drawing & irrigation system layout plan & outdoor lighting system layout plan

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	T.S.S. for Landscape Architecture; McGraw Hills	1998
2	Sabrina Wilk; Construction and Design Manual Drawing for Landscape Architects; DOM Publishers	2014
3	Mohd. Shaheen et.al.; Landscape Architecture in India; LA, Journal of Landscape Architecture	2013
4	Leonard J. Hopper; Landscape Architectural Graphic Standards; John Wiley & Sons	2007
5	Grant W. Reid; Landscape Graphics; Whitney Library of Design	1987

**ELECTIVE-V : Design Elective Related to Thesis\_URBAN DESIGN****B.ARCH Semester: X****Code: B10AR03-CP44**

UNIT	CONTENT
1	<b>Identification:</b> Identify the area for urban design intervention either a linear stretch approx. 1 Km. in length or area approx. 10 Hectare or a campus whichever is applicable to the thesis project. Find out scope of work and methodology
2	<b>Data Collection:</b> Study of context of the site location, accessibility, networks, surrounding land use, surrounding activities, views & vistas to and from site. Study of human responses by conducting interviews, survey, cognitive mapping etc. standards & byelaws.
3	<b>Concept &amp; Analysis:</b> Find out various theories & concepts, study of similar cases of urban design intervention. Analysis of contextual issues.
4	<b>Design Synthesis:</b> Study of Green & Communication networks, built fabric and architectural language. Determine issues thereof and suggest strategies or remedial measures.
5	<b>Design Responses:</b> Drawing showing site context, urban form, urban character, urban networks, urban activities, built fabric, architectural language and its constituents and propose urban design measures & interventions.
	<b>TOTAL</b>

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	T.S.S. for Urban Design; McGraw Hill	2003
2	Cliff Moughtin; Urban Design Green Dimensions; Architectural Press	1996
3	Francesca Z. Mola; The Sourcebook of Contemporary Urban Design; Harper Design	2012
4	Cliff Moughtin; Urban Design Streets & Squares; Routledge	2016
5	Gordon Cullen; The Concise Townscape; Architectural Press	1977

**ELECTIVE-V : Design Elective Related to Thesis\_PLUMBING DESIGN****B.ARCH Semester: X****Code: B10AR03-CP45**

UNIT	CONTENT
1	<b>Identification:</b> Identify plumbing services for different spaces and activities. Identify sources of supply & quality of water in an area selected for project. Find out existing physical infrastructure.
2	<b>Design Calculation:</b> Identify water demand & quality for various spaces & uses. Find out water required for Fire-fighting system for type of building by studying standards & codes.
3	<b>Concept &amp; Analysis:</b> Conceptual layout showing water supply system to and from OHT / UGT to individual spaces. Conceptual layout of drainage and disposal system conceptual layout of fire fighting system.
4	<b>Design Synthesis:</b> Plumbing services design in coordination of various services such as water supply, sewage, electrical, lighting, heating & cooling along with landscape planting plan.
5	<b>Design Presentation:</b> Final drawing showing distribution of water from OHT / UGT to individual spaces along with specifications. Drawing showing storage of water, water tanks then type, numbers location & capacity. Drawings showing water harvesting / recycling system as per need of individual project. Drawing showing water supply systems, pressure system. Drawings showing drainage system from single toilet, vertical and horizontal drainage line system with their number, location, size, slopes, interval etc. Drawings showing disposal system to municipal drain, or septic tank or soak pit, their details

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	Fred Hall & Rager Greeno; Building Services Handbook; Butterworth-Heinmann	2011
2	S.J. Arceivala, "Waste Water Treatment for Pollution Control", Tata McGraw Hills Publication.	2008
3	K.N. Duggal,"Elements of Environmental Engineering", Chand & Co.	2010
4	"Uniform Illustrated Plumbing Code – India (UIPC-I)", Indian Plumbing Association	2014
5	Charanjeet S. Shah; Water Supply and Sanitation; Galgotia Publication	2015

**ELECTIVE-V : Design Elective Related to Thesis \_ELECTRICAL DESIGN****B.ARCH Semester: X****Code: B10AR03-CP45**

UNIT	CONTENT
1	<b>Identification:</b> Identify electrical services for outdoor and indoor spaces. Identify the type of building & electrical supply sources & components and mandatory provisions.
2	<b>Design Calculation:</b> Evaluate power requirements for all services like lighting, HVAC, Fire, Lifts, Escalators and other building equipments.
3	<b>Concept &amp; Analysis:</b> Identify Electrical system requirement on the basis of load calculations by studying similar cases. Study of National Electrical Code and ECBC. Identification and provision of alternative energy sources for specific requirement. Determine requirement of lighting as per National lighting code for various activities. Drawings showing light zoning diagrams, single line diagram showing distribution system and its components at site and building level.
4	<b>Design Synthesis:</b> Electrical services design in coordination with various services such as water supply, sewage, lighting, heating & cooling along with landscape planting plan.
5	<b>Design Presentation:</b> Drawing showing electrical layout – Power and LV layouts, Wall electrical layouts, Electrical reflected ceiling layout, IBMS provisions. Drawing showing light fixtures, layout & connections in plan and section with specifications such as Type and Number of lamp / luminaries, their lux level and lighting system.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	S.L. Uppal- G.C. Garg; Electrical Wiring Estimation and Costing; Khanna Publication	2010
2	Fred Hall & Rager Greeno; Building Services Handbook; Butterworth-Heinmann	2011
3	Raina K.B. & Bhattacharya S.K.; Electrical Design, Estimation and Costing; New Age International Publishers, New Delhi	2007
4	Steve Doty & Wayne C. Turner; Energy Management Handbook; The Fourmount Press, USA	2009
5	B. Mazumdaar; Textbook of Energy Technology; APH Publishing Corporation	2005

**ELECTIVE-V : Design Elective Related to Thesis\_MECHANICAL DESIGN****B.ARCH Semester: X****Code: B10AR03-CP45**

UNIT	CONTENT
1	<b>Identification:</b> Identify Mechanical Services for different spaces and activities. Find out area of conditioned spaces and non conditioned spaces.
2	<b>Design Calculation:</b> Identify system requirements for various mechanical services (HVAC, Fire, Vertical Circulation) and evaluate the requirement through heat load calculation, waiting time calculation etc.
3	<b>Concept &amp; Analysis:</b> Identify mechanical system through analysis of similar cases and manuals such as ECBC, NBC and ASHRAE.
4	<b>Design Synthesis:</b> Preparing Mechanical System Design in Coordination with interior furniture, water supply, sewage, electrical, lighting & sound reinforcement system.
5	<b>Design Presentation:</b> Drawing showing concept of minimizing various loads. Design showing HVAC, Fire, Vertical Circulation showing all its components, their capacity, number, location, size, etc in plans & sections with specifications at site & building level.

**REFERENCE BOOKS**

S.NO	NAME OF AUTHORS / BOOKS/ PUBLISHER	YEAR OF PUBLICATION
1	John W. Mitchell, James E. Braun; Heating, Ventilation, and Air Conditioning in Buildings ; John Wiley & Sons Inc.	2012
2	Norbert Lencher; Heating Cooling Lighting; John Wiley & sons, London	2014
3	M.Y.H. Bangash, T. Bangash; Lifts, Elevators, Escalators and Moving Walkways; Travelators/Taylor & Francis/Balkema	2007
4	Fred Hall & Rager Greeno; Building Services Handbook; Butterworth-Heinmann	2011
5	William H. Severns and Julian R. Fellows; Air conditioning and Refrigeration; John Wiley & sons, London	1987



## **M.Sc. BIOTECHNOLOGY: Programme Outcome**

*Upon completion of the M. Sc Biotechnology programme, the candidate should be able to:*

- Demonstrate knowledge for in-depth analytical and critical thinking to identify, formulate and solve the issues related to Biotechnology Industry, Pharma industry, Medical or hospital related organizations, Regulatory Agencies, & Academia.
- Apply written and oral communication skills to communicate effectively in healthcare, industry, academia and research.
- Demonstrate skills to use modern analytical tools/ software/ equipments and analyze and solve problems in various courses of biotechnology.
- Develop an ability to solve, analyze and interpret data generated from experiments done in project work or practical courses.
- Appreciate and execute their professional roles in society as biotechnology professionals, employers and employees in various industries, regulators, researchers, educators and managers.
- Apply responsibilities to promote societal health and safety, upholding the trust given to the profession by the society.
- Develop skills, attitude and values required for self-directed, lifelong learning and professional development.
- Adopt code of ethics in professional and social context and demonstrate exemplary professional, ethical and legal behaviors in decision making.

## **M.Sc. BIOTECHNOLOGY I SEM: Course Outcome**

### **Paper I: Instrumentation and Analytical Techniques (M1BIT01-CT01)**

- This course will teach the various instrumentations that are used in the analytical laboratories.
- The students has the basic knowledge on the theory, operation and function of analytical instruments

### **Paper II:-Cell Biology and Genetics (M1BIT02-CT02)**

- Gives a strong foundation on the basic unit of life and functions of cell
- The course outcome is to train the students in understanding genetics and relate modern DNA technology for disease diagnostics and therapy

### **Paper III:-Fundamentals of Microbiology (M1BIT03-CT03)**

- Throws light on types of microorganisms in and around humans
- Understanding on the concept of culturing microbes, sterilization techniques and estimating number of microbes in given sample

### **Paper IV:-Biomolecules and Metabolism (B1BIT04-CT04)**

- Trains students about the salient features of biomolecules in the organization of life
- Helps the students in appreciating the integrated approach of interrelated pathways of catabolism and anabolism.

## **M.Sc. BIOTECHNOLOGY II SEM: Course Outcome**

### **Paper I: (M2BT01-CT05) Molecular Biology (Theory)**

*Upon completion of this course, the students will able to:*

- Learn fundamental molecular principles of genetics.
- Understand relationship between phenotype and genotype in human genetic traits.
- Describe the basics of genetic mapping and understand how gene expression is regulated.

### **Paper II: (M2BT02-CT06) Immunology and Enzymology (Theory)**

*Upon completion of this course, the students will able to:*

- Understand the role of the immune system, its organization and function.

- Develop immunological concepts and methods to diagnose immune disorders.
- Learn the mechanism of action and kinetics of enzyme.

**Paper III: (M2BT03-CT07) Bioinformatics and Biostatistics (Theory)**

*Upon completion of this course, the students will able to:*

- Understand the basic concepts of biostatistics.
- Learn the formula and principles used in biology.
- Explore methods and software tools for understanding biological data.

**Paper IV: (M2BT04-CT08) Genetic Engineering (Theory)**

*Upon completion of this course, the students will able to:*

- Know about implementation of genetic engineering for different purposes.
- Understand the principles of genetic engineering and the vectors used in cloning, methods of introduction of gene and expression.
- Investigate the different strategies of recombinant DNA technology and resolve the problems encountered.

**MSc .BIOTECHNOLOGY SEMESTER - III**

**Paper I: CC9 (M3BTO1CT09)**

***ENVIRONMENTAL BIOTECHNOLOGY (THEORY)***

*Upon completion of this course, the students will able to:*

- Evaluate the potential for biodegradation of organic pollutants, taking microbial and physical/chemical environments, as well as the chemical structure of the compound itself, into consideration.
- Describe the most commonly applied disinfection methods, and the steps typically involved in drinking water treatment process.

**Paper II:CC10 (M3BT02CT10)**

***ANIMAL BIOTECHNOLOGY (THEORY)***

*Upon completion of this course, the students will be able to:*

- Illustrate the techniques, procedure and growth patterns of animal cell culture and understand the structure of animal genes and genomes.
- Understand basic principles and techniques in genetic manipulation and genetic engineering. Understand gene transfer technologies for animals and animal cell lines.
- Understand the techniques and problems both technical and ethical in animal cloning.

**Paper III:CC11 (M3BT03CT11)PLANT BIOTECHNOLOGY (THEORY)**

*Upon completion of this course, the students will be able to:*

- Learn the principals and technical advances behind the in vitro culture of plant cells and rDNA techniques.
- Students will learn the applications of plant transformation for improving the productivity and performance of plants under biotic and abiotic stresses.
- Students will understand the use of antisense technologies for improvement of crop plants.

**Paper IV:CC12 (M3BT04CT12)**

***FERMENTATION TECHNOLOGY (THEORY)***

*Upon completion of this course, students will able to:*

- Apply biological and engineering principles for cultivating microorganisms in Fermenters.
- Comprehend the principles of fermentor design, sterile engineering, process development, and production economics.
- Assess parameters critical to fermentation such as aeration, agitation, and  $K_L$  estimation.

## **MSc BIOTECHNOLOGY SEMESTER - IV**

**Industrial Training:***Major research Project at research laboratory or institute of repute (5 months)*

*Upon completion of this course, students will able to:*

- Carry out a substantial research-based project
- Demonstrate capacity to improve student achievement, engagement and retention
- Demonstrate capacity to lead and manage change through collaboration with others
- Demonstrate an understanding of the ethical issues associated with practitioner research
- Analyse data and synthesize research findings
- Report research findings in written and verbal forms
- Use research findings to advance education theory and practice.

## **B.Sc. BIOTECHNOLOGY: Programme Outcome**

*After completion of Biotechnology program students will able*

- To get exposed to strong theoretical and practical background in fundamental concepts.
- To get insights of multiple important technical areas of Biotechnology.
- To apply contextual knowledge and modern tools of biotechnological research for solving problems.
- To make them able to express ideas persuasively in written and oral form to develop their leadership qualities.
- To demonstrate professional and ethical attitude with enormous responsibility to serve the society.

## **B.Sc. BIOTECHNOLOGY: SEMESTER I**

**Botany I:- CCI Biodiversity (Microbes, Algae, Fungi and Archegoniate) (B1BIOT01-CT01)**

To acquaint the students with morphology, anatomy, reproduction and developmental changes therein through typological study should create a knowledge base in understanding plant diversity, economic values, taxonomy of lower group of plants. Through field study they will be able to see these plants grow in nature and become familiar with the biodiversity.

**Biotechnology I: -CC2 Introduction to Microbiology (B1BIOT02-CT02)**

Deals with the study of microorganisms and their interactions with biotic and abiotic components of the environment. Apply the knowledge to understand the microbial physiology and to identify the microorganisms. To acquaint the students with mutagenesis, Mutation and mutants and their significance in microbial evolution. Application of bacterial and eukaryotic plasmids in research.

### **Chemistry I:- CC3 Atomic Structure, Bonding, General Organic Chemistry and Aliphatic Hydrocarbons (B1BIOT03-CT03)**

Students will solve the conceptual questions using the knowledge gained by studying the quantum mechanical model of the atom, quantum numbers, electronic configuration, radial and angular distribution curves, shapes of s, p, and d orbitals etc. Students will understand the importance and application of chemical bonds and the different nature and behaviour of organic compounds based on fundamental concepts learnt.

### **AECC I- English Communication (B1AECCOIEC)**

Students will heighten their awareness of correct usage of English grammar in writing and speaking. Students will improve their speaking ability in English both in terms of fluency and comprehensibility. Students will increase their reading speed and comprehension of academic articles. Students will improve their reading fluency skills through extensive reading. Students will enlarge their vocabulary by keeping a vocabulary journal

## **B.Sc. BIOTECHNOLOGY: SEMESTER II**

### **Botany II:-CC4 Plant Ecology and Taxonomy (B2CT04-BOT02)**

After successful completion of the course the student shall have adequate knowledge about the basic principals of environment and taxonomy. After successful completion of this course, students will be able to identify genus and species of locally available wild plants and will gain knowledge of secondary metabolites and its use in taxonomy. The link between theory and practical syllabus is established, and the employability of youth would be enhanced.

### **Biotechnology II:- CC5 Animal Biotechnology (B2CT05-BT02)**

This course presents the application of animal Biotechnology Goals: To make the student to understand usage of Animal products and exploitation of them in Biotechnology. On successful completion of the subject, students will learn the principles, practices and application of animal biotechnology in tissue culture, Tissue Engineering, Vaccines and biopharmaceuticals, Animal products, production & improvement of them.

### **Chemistry II:-CC6 Chemical Energetics, Equilibria and Functional Group Organic Chemistry-I (B2CT06-CHE02)**

Knowledge regarding the laws of thermodynamics, thermochemistry and equilibria. It will also equip the students with the concept of pH and its effect on the various physical and chemical properties of the compounds. Use the concepts learnt to predict feasibility of chemical reactions and to study the behaviour of reactions in equilibrium and understand the fundamentals of functional group chemistry through the study of methods of preparation, properties and chemical reactions with underlying mechanism. Use concepts learnt to understand stereochemistry of a reaction and predict the reaction outcome.

### **AECC II:-Environmental Science (B2AECC-02ES)**

After successful completion of the course the student shall have adequate knowledge about the ecosystem diversity, its values and also about the importance of the endemic species and different techniques involved in its conservation. Deals with the different types of pollutions and their control technologies. Get the information about ecosystem and also about its functions, different types of resources and also about the effects of environment by the usage of these resources. Students will get complete information about EIA- Environmental Impact Assessment, Sustainable developmental activities, environmental policies and regulations, awareness among people about protection of wild life, forest and other natural resources.

## **B.Sc. BIOTECHNOLOGY: SEMESTER III**

### **Botany III:-CC7 Plant Anatomy and Embryology (B3BIT01-CT07)**

Knowledge regarding anatomy equipped the students to identify different types of tissues and make them able to correlate their physiology in a better way. This will also help them to understand how different plant tissue evolve and modify their structure and functions with respect to their environment. Knowledge regarding embryology make them understand how reproduction play significant role in defining population structure, natural diversity and sustainability of ecosystem in a better way

### **Biotechnology III:-CC8 Plant Biotechnology (B3BIT02-CT08)**

This course presents the application of Plants in Biotechnology Goals. To make the student to understood usage of Plant products and exploitation of them in Biotechnology. On successful completion of the subject, the student should have understood: Crop development, Callus culture, Biotechnological applications of plants, the principles, practices and applications of plant biotechnology, plant tissue culture, plant genomics, genetic transformation and molecular breeding of plants.

### **Chemistry III:-CC9 Conductance, Electrochemistry and Functional Group Organic Chemistry-II (B3BIT03-CT09)**

Students will heighten their awareness of the chemistry of conductance and its variation with dilution, migration of ions in solutions. Learn the applications of conductance measurements, will understand different types of galvanic cells, their Nernst equations, measurement of emf, calculations of thermodynamic properties and other parameters from the emf measurements.

### **SEC I:- Techniques in Biotechnology (B3SEC01)**

This course presents the genetics at molecular level Goals: On successful completion of the subject the student should have understood the molecular aspects of basic techniques in Biotechnology. Commemorating the molecular techniques involved in characterization of genomes and proteomes



## **BSc. BIOTECHNOLOGY IV SEM**

### **Botany IV-CC10 (B4CT10-BOT04) Plant Physiology and Metabolism (Theory)**

*Upon completion of this course, the students will able to:*

- Understand the basic physiological processes in plants like transpiration and importance of various minerals in plant growth.
- Learn about the pigments and various pathways involved in photosynthesis and the mechanism of energy production.
- Learn about the role of plant hormones, light and temperature on the growth of plants.

### **Biotechnology IV-CC11 (B4CT11-BT04) Recombinant DNA Technology (Theory)**

*Upon completion of this course, the students will able to:*

- Outline the concept and techniques used in genetic engineering and gene cloning.
- Understand about the different enzymes and vectors used in recombinant DNA technology.
- Learn the techniques used to isolate bio molecules and the principles behind various hybridisation and screening techniques.

### **Chemistry IV:-CC12 (B4CT12-CHE04) Chemistry of s- and p-block elements, States of matter and Chemical Kinetics (Theory)**

*Upon completion of this course, the students will able to:*

- Learn the chemistry and applications of s- and p-block elements.
- Derive ideal gas law from kinetic theory of gases and explain why the real gases deviate from ideal behaviour.
- Explain the properties of liquids especially surface tension and viscosity.
- Understand the concept of rate laws e.g., order, molecularity, half-life and their determination
- Learn about various theories of reaction rates and how these account for experimental observations

### **SECII: Biofertilizers (B4SEC01)**

*Upon completion of this course, the students will able to:*

- Differentiate the types of biofertilizers and methods of application in farmers field.
- Understand the screening, isolation, scaling up and the application of biofertilizers.
- Evaluate the integrated management for best results using nitrogenous and phosphate biofertilizers.
- Learn the low cost media preparation and ecofriendly agricultural inputs in biofertilizer production.

## **BSc. BIOTECHNOLOGY V SEM**

### **Botany V: COs of the course DSE1 Cell and Molecular Biology (B5BOT01-ET01)**

- CO1 Describe fundamental structural units define the function of all living things and general structure of cell
- CO2 Describe internal organelles of the cells and their functioning
- CO3 Illustrate the growth, development, and behavior of organisms through the expression of genetic information
- CO4 Describe the process of central dogma
- CO5 Explain major biological processes such as transcription, translation, replication etc
- CO6 Identify the relationship between cell and molecular biology

### **Biotech V COs of the course DSE2 Immunology and Enzymology (B5BOT01-ET02)**

- CO1 Describe fundamental definition of immunity, immune system and immune responses
- CO2 Explain different types of immunity and the cellular

- components involved in the process of immune response
- CO3 Describe the process of cell-mediated, humeral immunity and other immunity types
- CO4 Illustrate major principles of antigen-antibody interactions and their role in diagnostic and therapeutic applications
- CO5 Describe enzymes, enzyme actions and mode of enzyme actions
- CO6 Illustrate about different types enzymes' classification
- CO7 Describe principles of major enzymatic reaction occurring in the cells
- CO8 Identify the relationship between enzyme actions and different cellular processes of metabolism and others

**Chemistry V: COs of the course DSE3 Molecules of Life (B5BOT01-ET03)**

- CO1 Describe major macromolecules and other molecules that perform or trigger important biochemical reactions in living systems.
- CO2 Describe fundamental process of anabolism and catabolism of molecules
- CO3 Describe chemical structures of biomolecules and their functioning
- CO4 Explain the physiological and biochemical function that governs the proper growth and development of a human body
- CO5 Explain major metabolic processes such as glycolysis, Kreb's cycle etc
- CO6 Identify the relationship between molecules of life and their impact on cell physiology and behaviour
- CO7 Illustrate importance of chemical foundation in living

organisms or systems

**SEC III: Sample COs of the course Probiotic Technology (B5SEC03)**

- CO1 Explain about to the taxonomy and physiology of probiotic microorganisms
- CO2 Describe about probiotic technology, in general
- CO3 Explain basic mechanistic through which probiotic microorganisms interact with the physiology of the host cells and systems
- CO4 Illustrate various production technologies in relation to probiotics
- CO5 Provide knowledge in relation to various government rules and regulation in force
- CO6 Explain the importance of probiotics in human health

**B.Sc. BIOTECHNOLOGY VI SEM**

**Botany VI: COs of the course DSE4 Economic Botany and Biotechnology (B6ET04-BOT02)**

- CO7 Describe diversity of economically important plants, their classification, structure and growth.
- CO8 Explain origin, diversification, utility and conservation strategies of natural plant resources.
- CO9 Identify members of the major plant families by identifying their diagnostic features and economic importance.
- CO10 Introduce the concepts and principles of ecology,

biological diversity, conservation, sustainable development in relation to economic botany

**Biotech VI COs of the course “DSE5 Environmental Biotechnology (B6ET05-BT02)”**

CO9 Describe factors leading to Environmental degradation

CO10 Describe different types of biotechnological applications or means through which environmental problems can be solved

CO11 Explain principles and major processes of bioremediation and phytoremediation

CO12 Identify and formulate strategies for the conservation of environment through biotechnological means to achieve goals of sustainable management under the given legislative measures

**Chemistry VI COs of the course Industrial Chemicals and Environment (B6ET06-CHE02)**

CO8 Explain construction & working of various equipments used in distillation, extraction, leaching, drying, absorption and filtration.

CO9 Describe principles of diffusion & mass transfer to basic engineering systems

CO10 Introduce various commercial manufacturing technology for production of chemicals and solvents

CO11 Outline the relationship industrial chemicals and their impact on environment and human health

**SEC IV Sample COs of the course SECIV Pharmaceutical Chemistry (B6SEC04)**

- CO1 Explain working and principle of various equipments used in pharma industries such as bioreactors, extraction and filtration units.
- CO2 Illustrate various qualitative and quantitative methods for estimation of the pharmaceuticals.
- CO3 Explain pharmaceutical dosage forms viz. solid, semi-solid, liquid and advanced drug delivery systems
- CO4 Introduce concepts and importance of various regulations viz. GMP, GLP
- CO5 Explain the importance of metabolism of pharmaceutical drugs in human systems

## **PROGRAMME OUTCOME OF M.Sc. MICROBIOLOGY (CBCS)**

Upon completion of this programme, students will be able to:

- ✚ Acquired knowledge and understanding of the microbiology concepts as applicable to diverse areas such as medical, industrial, environment, genetics, agriculture, food and others
- ✚ State of art knowledge about various methodological and analytic approaches that are used within the specialization
- ✚ Understand the regulation of biochemical pathway and possible process modifications for improved control over microorganisms for microbial product synthesis.
- ✚ Can compete in national level competitive exams such as NET-JRF or GATE or International exams such as GRE-TOEFEL and can pursue career in higher studies
- ✚ Demonstrate practical skills in the use of tools, technologies and methods common to microbiology, and apply the scientific method and hypothesis testing in the design and execution of experiments.
- ✚ Develop ability to independently carry out a complete scientific work process, including the understanding of theoretical background, hypothesis generation, collection and analysis of data, and interpretation and presentation of results.
- ✚ Has high competence and multidisciplinary project experience within selected topics related to microbiology and ability to contribute in a multidisciplinary team.
- ✚ Can communicate scientific results to the general public and experts by writing well structured reports and contributions for scientific publications and posters, and by oral presentations

## M.Sc. MICROBIOLOGY I SEM: Course Outcome

### **Paper I: (M1MCB01-CT01) Instrumentation and Analytical Techniques (Theory)**

*Upon completion of this course, the students will able to:*

- ✚ This skill based course will teach the various instrumentations that are used in the analytical laboratories
- ✚ The students has the basic knowledge on the theory, operation and function of analytical instruments

### **Paper II: (M1MCB02-CT02) Cell Biology and Molecular Genetics (Theory)**

*Upon completion of this course, the students will able to:*

- ✚ Gives a strong foundation on the basic unit of life and functions of cell
- ✚ The course outcome is to train the students in understanding genetics and relate modern DNA technology for disease diagnostics and therapy

### **Paper III: (M1MCB03-CT03) Fundamentals of Microbiology (Theory)**

*Upon completion of this course, the students will able to:*

- ✚ Throws light on types of microorganisms in and around humans
- ✚ Understanding on the concept of culturing microbes, sterilization techniques and estimating number of microbes in given sample

### **Paper IV: (M1MCB04-CT04) Biomolecules and Metabolism (Theory)**

*Upon completion of this course, the students will able to:*

- ✚ Trains students about the salient features of biomolecules in the organization of life
- ✚ Helps the students in appreciating the integrated approach of interrelated pathways of catabolism and anabolism.



## M.Sc. MICROBIOLOGY II SEM: Course Outcome

### **Paper I: (M2BT01-CT05) Molecular Biology (Theory)**

*Upon completion of this course, the students will able to:*

- ✚ Learn fundamental molecular principles of genetics
- ✚ Understand relationship between phenotype and genotype in human genetic traits.
- ✚ Describe the basics of genetic mapping and understand how gene expression is regulated.

### **Paper II: (M2BT02-CT06) Immunology and Enzymology (Theory)**

*Upon completion of this course, the students will able to:*

- ✚ Understand the role of the immune system, its organization and function.
- ✚ Develop immunological concepts and methods to diagnose immune disorders.
- ✚ Learn the mechanism of action and kinetics of enzyme.

### **Paper III: (M2BT03-CT07) Bioinformatics and Biostatistics (Theory)**

*Upon completion of this course, the students will able to:*

- ✚ Understand the basic concepts of biostatistics.
- ✚ Learn the formula and principles used in biology.
- ✚ Explore methods and software tools for understanding biological data.

### **Paper IV: (M2BT04-CT08) Genetic Engineering (Theory)**

*Upon completion of this course, the students will able to:*

- ✚ Know about implementation of genetic engineering for different purposes.
- ✚ Understand the principles of genetic engineering and the vectors used in cloning, methods of introduction of gene and expression.
- ✚ Investigate the different strategies of recombinant DNA technology and resolve the problems encountered.

## M.Sc. BIOTECHNOLOGY/ MICROBIOLOGY III SEM: Course Outcome

### **Paper 1: (M3MB01CT09) Microbial Genetics (Theory)**

*Upon completion of this course, the students will able to:*

- ✚ To become familiar with the foundation concepts of microbial genetics
- ✚ To identify and distinguish genetic regulatory mechanism at different levels

### **Paper 2: (M3MB02CT10) Industrial Microbiology (Theory)**

*Upon completion of this course, the students will able to:*

- ✚ To learn about fermentation techniques, fermentation processes, fermentors
- ✚ To learn to isolate industrially important organisms

### **Paper 3: (M3MB03CT11) Microbial Ecology (Theory)**

*Upon completion of this course, the students will able to:*

- ✚ To gain the knowledge of how important the microbes are for a sustainable environment
- ✚ To familiarize the various methods of detecting and solving environmental issues caused by microorganisms

### **Paper 4: (M3MB04CT12) Microbial Physiology and Metabolism (Theory)**

*Upon completion of this course, the students will able to:*

- ✚ It features the regulatory aspects of metabolism for better understanding of physiology and therapeutic applications
- ✚ Know the various physical and chemical growth requirements of bacteria and get equipped with various methods of bacterial growth measurements

## M.Sc. MICROBIOLOGY IV SEM: Course Outcome

**Industrial Training: Major research Project at research laboratory or institute of repute (6 months)**

*Upon completion of this course, students will able to:*

- ✦ Carry out a substantial research-based project
- ✦ Demonstrate capacity to improve student achievement, engagement and retention
- ✦ Demonstrate capacity to lead and manage change through collaboration with others
- ✦ Demonstrate an understanding of the ethical issues associated with practitioner research
- ✦ Analyse data and synthesize research findings
- ✦ Report research findings in written and verbal forms
- ✦ Use research findings to advance education theory and practice.

## DIPLOMA IN RETAIL MARKETING MANAGEMENT

Objective of the programme:

With an emphasis on retail management and marketing topics, the diploma explores key developments and trends in this area. The course is job oriented targeting the growing retail industry. The students will be able to deliver the expected skill set required by the industry after completion of the programme. This course aims at providing a comprehensive view of retailing, and an analysis of the retail environment and exposure to issues and developments in the industry. The students, who are pursuing the course of retail management are taught about the introduction and concept of retail management, retailing trends, pricing and merchandising, segmentation, relationship marketing and information technology in retailing.

Subject specific outcomes are as follows:

<b>Subject Code</b>	<b>Subject Name</b>	<b>Course Outcome</b>
Paper 1: (FMS/DRMM101)	Basics of Marketing and Retailing	This subject provides a comprehensive view of retailing, and an analysis of the retail environment and exposure to issues and developments in the industry
Paper 2: (FMS/DRMM102)	Marketing and Communication in Retailing	This subject gives introduction and concept of retail management, retailing trends, pricing and merchandising, segmentation, relationship marketing and information technology in retailing
Paper 3: (FMS/DRMM103)	Retention in Retail Marketing	This subject provides a comprehensive view of customer relationship management in retail industry, an overview of the Indian rural market & opportunities and benefits of going global
Paper 4: ( FMS/DRMM104)	Training with Dissertation	A project dissertation/report based on the internship/training will have to be submitted in the

		fifth month from the commencement. The written part for project study FMS/DRMM104 shall account for 50% of marks and the viva-voce to be conducted by a duly constituted examination board for the remaining 50% of marks.
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## CERTIFICATE DIGITAL MARKETING

S.No.	Subject Name	Course Outcome
1	Functional Management:	Functional Management: The idea is to enhance the managerial skills of students so that they can lead in the best possible way.
2	Computer Skills and Internet Proficiency:	Computer Skills and Internet Proficiency: Looking at the digitalization in the routine life, the outcome of this course is to make students able to handle the internet and other web components.
3	Social media and search marketing	Social media and search marketing: Knowledge of digital marketing platforms, SEOs etc. has been indulged among the students.
4	Email Marketing & Affiliate Marketing:	Email Marketing & Affiliate Marketing: The present scenario calls for content writers and this course is contributing towards the same by engaging topics like related Tools and techniques and strategies.
5	Practical Project:	Practical Project: The students got an aid in applying the knowledge in the practical world and students engaged in hands-on of the applications and their implementation.

## **THE PROGRAMME MBA EXECUTIVE**

The Master of Business Administration- Executive (MBA-Executive) is a two-year full-time programme. The program shall run in hybrid mode or as per the UGC guidelines. The course structure and programme administration are as follows:

### **COURSE STRUCTURE**

The programme has been organized in two years-First Year and Second Year, each year comprising two semesters. The list of papers offered during First Year and Second Year of the programme shall be as follows:

#### **FIRST YEAR-**

##### **MBAEX-101 Management Process and Organizational Behavior –**

The Study of organizational behavior includes areas of research dedicated to Improving job performance, increasing job satisfaction, promoting innovation and encouraging leadership , promoting team building and states various ways of stress management.

##### **MBAEX102- STATISTICS AND RESEARCH METHODOLOGY**

The aim of statistics is to draw a conclusion from data...performing descriptive data analysis.

Using appropriate statistical methods to solve the research problem and application of various tests such as - Z-Test, T-Test, F- Annova Test, Chi-Square Test.

##### **MBAEX103: MANAGERIAL ECONOMICS**

The Objectives of this

##### **MBAEX-104 ENVIRONMENT MANAGEMENT**

The objectives of this course is to consider the relationship between human beings and the world, from air pollution to the depletion of natural resources. It covers the importance of sustainability and started studying the moral and ethical relationship between humans and the environment.

It covers pollution and waste management and various standards such as ISO 14000,9000,20000.

### **MBAEX-105: MANAGERIAL SKILL DEVELOPMENT**

The course is aimed at equipping the students with the necessary & techniques and skills of communication to inform others, inspire them and enlist their activity and willing cooperation in the performance of their jobs.

### **MBAEX-106: INDIAN ETHOS AND VALUES**

Indian Ethos in Management refers to the values and practices that the culture of India (Bharatheeya Sanskriti) can contribute to service, leadership and management. These values and practices are rooted in Sanathana Dharma (the eternal essence), and have been influenced by various strands of Indian philosophy

### **MBAEX- 107: ACCOUNTING FOR MANAGERS**

#### **Objectives**

The basic purpose of this course is to develop an insight of postulates, principles and techniques of accounting and utilisation of financial and accounting information for planning, decision-making and control.

### **MBAEX-108: COMPUTER APPLICATIONS IN MANAGEMENT**

#### **Objectives:**

The objectives of this course include developing an appreciation of different software and hardware systems available in the industry among the participants and build up the experience of computer usage in business organizations with specific reference to commercial data processing systems

### **MBAEX-201: ORGANIZATION EFFECTIVENESS AND CHANGE**

#### **Objectives**

To familiarize the students with basic organizational processes to bring about organizational effectiveness and change.

### **MBAEX – 202: MANAGEMENT SCIENCE**

#### **Course Objectives:**

The real world problems are complex problems; they require finding of an optimum solution subject to a large number of constraints and decision variables. Handling them so as to achieve OPTIMUM SOLUTIONS is one of the biggest challenges among the players of the real world. Keeping this in mind, the whole Course is targeted to equip the students with necessary quantitative techniques (especially mathematical optimization methods) so

that they become capable of solving managerial and financial decision problems in an objective and a scientific manner.

### **MBAEX-203: HUMAN RESOURCE MANAGEMENT**

#### **Objectives**

In a complex world of industry and business, organisational efficiency is largely dependent on the contribution made by the members of the Organisation. The Objectives of this course is to sensitize students to the various facets of managing people and to create an understanding of the various policies and practices of human resource management.

### **MBAEX-204: FINANCIAL MANAGEMENT**

#### **Objectives:**

The purpose of this course is to acquaint the students with the broad framework of financial decision making in a business unit.

### **MBAEX-205: MARKETING MANAGEMENT**

#### **Objectives**

The purpose of this course is to develop and understanding of the underlying concepts, strategies and issues involved in the marketing of products and services

### **MBAEX- 206: PRODUCTION AND OPERATIONS MANAGEMENT**

#### **Objectives**

The Course is designed to acquaint the students with decision making in: Planning, scheduling and control of Production and Operation functions in both manufacturing and services; Productivity improvement in operations through layout engineering and quality management e tc.; Effective and efficient flow, replenishment and control of materials with reference to both manufacturing and services organizations.

### **MBAEX-207 E- COMMERCE**

This course provides an introduction to information systems for business and management. It is designed to familiarize students with organizational and managerial foundations of systems, the technical foundation for understanding information systems  
After Completion of the subject student should able to

- Understand the basic concepts and technologies used in the field of management information systems



- Have the knowledge of the different types of management information systems
- Understand the processes of developing and implementing information systems
- Be aware of the ethical, social, and security issues of information systems.

### **MBAEX-208: INTERNATIONAL BUSINESS ENVIRONMENT AND MANAGEMENT**

#### **Objectives**

The primary Objectives of this course is to acquaint the students to emerging global trends in business environment

### **MBAEX-301: BUSINESS POLICY & STRATEGIC MANAGEMENT**

#### **Objectives**

The Objectives of this course is to develop understanding about strategic processes and their impact on a firm.

### **MBAEX-302: DECISION SUPPORT SYSTEMS AND MANAGEMENT INFORMATION SYSTEM**

#### **Objective**

The objective of the course is to develop the basic understanding of the decision support system of the Artificial Intelligence for Business Organization

### **MBAEX-303: BUSINESS LEGISLATION**

#### **Objectives**

The course is designed to assist the students in understanding basic laws affecting the operations of a business enterprise.

### **MBAEX-304: SUMMER TRAINING PROJECT**

At the end of second semester, all students will have to undergo summer and training of 8-10 weeks with industrial, business or service organization by taking up a project study.

This helps the students in developing practical understanding about the industries and about their world culture.

### **MBAEX 401- BUSINESS ANALYTICS**

#### **Objective-**

This course aims to develop overall analytical skills of the students and to help them to apply analytical techniques to business decision making.

## **FM-3102: SECURITY ANALYSIS AND INVESTMENT MANAGEMENT**

### **Objectives**

The objective of this course is to impart knowledge to students regarding the theory and practice of Security Analysis and Investment Decision Making Process

## **FM-3103: PORTFOLIO MANAGEMENT**

### **Objectives**

The objective of this course is to give the students an in-depth knowledge of the theory and practice of Portfolio Management.

## **FM-3105: MANAGEMENT OF FINANCIAL SERVICES**

### **Objectives**

The main objective of this course is to help students to learn the various financial services and their role in the overall financial system.

## **FM-3109: FINANCIAL DERIVATIVES**

### **Objectives**

The objective of this course is to give an in depth knowledge of the functioning of derivative securities market.

## **FM-3110: PROJECTS PLANNING, ANALYSIS AND MANAGEMENT**

### **Objectives**

The basic purpose of this course is to understand the framework for evaluating capital expenditure proposals, their planning and management in the review of the projects undertaken.

## **FM-3114: FOREIGN EXCHANGE MANAGEMENT**

### **Objectives**

To acquaint the participants with the mechanism of the foreign exchange markets, measurement of the foreign exchange exposure, and hedging against exposure risk.

## **MBA EX-3201: CONSUMER BEHAVIOUR**

### **OBJECTIVES:**

To understand the conceptual foundations of consumer buying behavior. To equip the learner to apply the principles and prepare for a career in Product and Brand Management in the FMCG and consumer durables industry

## **MBA EX-3202: ADVERTISING AND SALES PROMOTION MANAGEMENT**

**OBJECTIVES:** To equip students for a career in Product and Brand Management, Advertising – with special reference to Client servicing, Media planning and research.

## **MBA EX-3203: STRATEGIC MARKETING**

### **Objectives**

The basic objective of this course is to develop skills for analysing market competition and design appropriate competitive marketing strategies for higher market share.

## **MBA EX-3205: SALES AND DISTRIBUTION MANAGEMENT**

### **Objectives**

The purpose of this paper is to acquaint the student with the concepts which are helpful in developing a sound sales and distribution policy and in organising and managing sales force and marketing channels.

## **MBA EX-3208: MARKETING OF SERVICES**

**Objective:** To differentiate between product and service businesses and equip for a career in marketing in the service industry.

## **MBA EX-3211: BRAND MANAGEMENT**

### **Objective:**

The objective of this course is to impart in-depth knowledge to the students regarding the theory and practice of Brand Management

## **MBA EX - 3213 PLANNING AND MANAGING RETAIL BUSINESS**

### **Objectives :**

The Course will focus manufacturers' perspective on retailers and understanding of the retail business

## **MBA EX 3215: LOGISTICS AND SUPPLY CHAIN MANAGEMENT**

### **Objectives:**

To introduce process and functions of physical distribution system. To introduce the major building blocks, functions, business process, performance metrics and decision making in supply chain network. To provide an insight

into the role of Internet Technologies and electronics commerce in supply chain management

**MBA EX3216- Digital Marketing**

**Objectives**

The objective of this paper is to create awareness about Digital Marketing and educate the learner about use of electronics in marketing management.

**MBAEX-3301: MANAGEMENT OF INDUSTRIAL RELATIONS**

**Objectives**

Organisational efficiency and performance are intricately interlinked with industrial relations. This course is an attempt to appreciate the conceptual and practical aspects of industrial relations at the macro and micro levels.

**MBAEX- 3305: LEGAL FRAMEWORK GOVERNING HUMAN RELATIONS**

**Objectives**

Understanding of the legal framework is important for the efficient decision making relating to man management and industrial relations. The course aims to provide an understanding, application and interpretation of the various labour laws and their implications for industrial relations and labour issues.

**MBAEX-3306: MANAGEMENT TRAINING AND DEVELOPMENT**

**Objectives**

The purpose of this paper is to provide an in-depth understanding of the role of Training in the HRD, and to enable the course participants to manage the Training systems and processes.

**MBAEX-3308: ORGANIZATIONAL CHANGE AND INTERVENTION STRATEGIES**

**Objectives**

The objective of this paper is to prepare students as organizational change facilitators using the knowledge and techniques of behavioural science.

**MBAEX-3310: HUMAN RESOURCE DEVELOPMENT: STRATEGIES AND SYSTEMS**

## **Objectives**

The purpose of this course is to facilitate an understanding of the concepts, methods and strategies for HRD.

### **MBAEX-3311: HUMAN RESOURCE PLANNING AND DEVELOPMENT**

## **Objectives**

The objective of this paper is to develop a conceptual as well as a practical understanding of Human Resource Planning, Deployment and Development in organizations

### **MBAEX-3311: Hospital Planning**

#### **Course Objectives:**

The objectives of the course are to enable the participants to - develop a basic understanding of the hospital planning and designing process; enable them to understand functional requirements; layout parameters in planning of the departments of the hospital; to learn new concepts in designing of healthcare facilities; and, to understand safety issues in hospital buildings and legal.

Describe the functional requirements and layout of various departments of the hospital.

- Have adequate knowledge of space and equipment planning for the departments of the hospital.
- Evaluate the legal compliances for hospital buildings
- Develop understanding of safety issues in hospital buildings
- Understand the modern and emerging trends in hospital architecture.
- To develop an understanding for efficient and economic hospital designs.

### **MBAEX-3412: Analytics for Health Care Management**

#### **Course Objectives:**

In an environment where complexity is growing, decision makers in healthcare systems need to use data to make pertinent and accurate decisions. Their practices and policies should be supported and strengthened by data. Tools of analytics provide the capability to identify patterns in data and to implement this knowledge in developing strategies and improving performance. The objectives of this course are to enable the participants to develop an understanding of basic principles of data analysis and familiarize them with key tools and techniques that would enable them to take data-driven decisions in a hospital/healthcare delivery setting.

#### **Course Learning Outcomes:**

After the course, participants should be able to:

- Identify sources of data, suggest methods for collecting, sharing and analyzing data
- Understanding the issues involved in data quality and their management
- Discuss the difference between descriptive, predictive and prescriptive analytics
- Able to use basic data presentation and visualization tools and manipulate simple data-sets
- Discuss the basics of big-data, machine learning and artificial intelligence
- Able to identify decision problems amenable for analytics-based solutions. Understand how data analytics can provide potential solutions to improve quality and lower cost
- Able to lead team comprising of data scientists

### **MBAEX-3413: Health Care Ethics, Governance and Society**

#### **Course Objective:**

The aim of the course is to help students gain understanding of how healthcare needs and delivery systems depend on the socio- cultural context of recipients of the society. The course contents focus on developing a People Centered Approach in health care professionals and creating health care delivery systems aligned with its principles. Finally, the course will sensitize participants towards ethics and regulation involved in private or public health care practice and engages in critical thinking to solve ethical dilemmas.

#### **Course Learning Outcomes:**

- To understand changing global trends with respect to disease and planning for the health care of the future in a progressively global, aging and urbanized context.
- Understanding what is culture and examining the elements of landmark and successful culture centered health interventions

To become familiar with elements of People Centered health care systems so that effective and equitable preventive, secondary and tertiary health care is available to all sections of the society.

- Special needs of marginalized sections of society like women, street children, those from war and disaster ravaged environments and others.
- Ethics involved in issues like surrogacy, organ donation, clinical trials, euthanasia and others.
- Governance, regulation and ethical protocols during practice for doctors and health practitioners and learning how to solve ethical dilemmas.

### **MBAEX-3414: Total Quality Management and Accreditation for Health Care**

#### **Course Objectives:**

The key objective of this course is to acquaint the students with the conceptualization of Total Quality (TQ) from design assurance to processes' assurance to service assurance. TQM is to be linked with business excellence through management frameworks and award criteria. Additional objective is to give focus on Quality Management Systems (QMS) like ISO-9001. The course would also aim to closely link management of quality with that of reliability and maintainability for total product assurance. Integration of operations systems like ISO 14001 (EMS) and occupational safety and health (OSH) and total productive maintenance (TPM) is also to be analyzed. The dimensions of quality in services in the contemporary environment are also to be focused. Course Learning Outcomes:

- Appreciate the nature, need and scope of total quality management and its relationship with operational and then business excellence.
- Appreciate the quality of design, off-line control, losses and costs of quality.
- Develop and analyses tools for hazard analysis
- Understand conceptual framework of TPM and study concept of OEE.
- Build knowledge about statistical process control through process capability studies.
- Deploy total quality principles in supply and vendor management
- Develop knowledge and skills about quality improvement tools.
- Develop total quality relationship with environment and safety systems.

## **MBAEX-3416: Innovations in Health Care and Health Care Entrepreneurship**

### **Course Objectives:**

The objectives of this are to introduce the participants to a wide range of advances and innovations that are happening in healthcare services. The innovations relate to use of technology, information technology, business and service delivery models. The objective of this course is to help the executives develop an entrepreneurial mind set and gain an understanding of the entire entrepreneurial process through analysis of various situations in health care organizations. Additionally, the purpose of the course is also to gain insights about the critical role of creativity and innovation to the development of new products and services in entrepreneurial start-ups in the health care sector.

### **Course Learning Outcomes:**

- Familiarization with innovations in healthcare technology – diagnostics, medical devices, etc., their impact on future of healthcare and their relevance to the Indian healthcare industry
- Introduction to the concepts of advances in Healthcare Information Technology like mHealth, Big Data, Artificial Intelligence, Genomics, etc.
- Introduction to newer models of service delivery like – telemedicine, remote health monitoring, home healthcare, etc., understanding opportunities and challenges posed by these models
- Introduction to newer business models in healthcare – mobile health apps, doctor discovery and networking platforms, understanding opportunities and challenges posed by these models
- Critically analyze issues involved in utilizing these advances in current and anticipated healthcare delivery models.

## **MBAEX-3417: Regulation and Laws in Health Sector and International Health Systems**

### **Course Objectives:**

The objective of this course is to make the participants familiar with the laws that govern health care services in the country. The course is aimed at enabling the participant in understanding the rationale behind existing legal framework and its tenets in India to safeguard the interests of the health care service providers (organizations and individuals) and consumers.

The objectives of this course is to enable the participants to - develop an understanding of basic healthcare delivery models of various developed and developing countries; to understand in detail about different approaches to the organization, financing and delivery of health services in these countries; to understand the health care reform programs and perform a strengths, weaknesses, opportunities, and threats (SWOT analysis) of healthcare delivery system of a country; and, to develop and understanding of healthcare reform strategies in different countries.

### **Course Learning Outcomes:**

- Understand the existing legal framework in India that governs health care delivery
- Understand expected standards of ethical behavior and promote standards of ethical

behavior

- Analyze role of legal system in health policy and health care delivery
  - Contribute to legal reasoning in running of a healthcare organization
  - Understand the rationale of legal system in the country
  - Interpret legal provisions under various laws related to health care system
  - Have adequate knowledge of all the laws that are currently in force in matters related to health care delivery
  - Critically evaluate the legal provisions and interpret the laws and byelaws
  - Develop skills to judiciously exercise powers, responsibilities and protect one's own rights as health care provider
  - Understanding of the concept of various healthcare delivery models of countries both in developed and developing economies.
  - Understanding demographic and macroeconomic indicators of various countries.
  - Ability to evaluate health system performance of different countries in terms of efficiency and equity.
  - Ability to identify specific health system strengths, weaknesses, opportunities, and threats
- (SWOT analysis) employing comparative analysis as a research tool.
- To compare the health system performance of the one country with other economically similar and different country.
  - Understanding health care reform programs of several countries and to apply these reforms for betterment of healthcare delivery in India.
  - Discussion on newer initiatives and strategies of Govt. of India in healthcare delivery.

### **MBAEX-3418: Management of Hospital Support Services**

#### **Course Objectives:**

The objective of this course is to familiarize the participants with support services in the hospitals. It is aimed at enabling the participants to understand the framework of support services in hospital and their role in assisting clinical departments in the hospital to achieve clinical and service excellence. Support services under the purview of this course include Biomedical engineering department, Engineering department, clinical nutrition and dietetics, administration, human resource department, Front Office (OPD+IPD), laundry & housekeeping department, security department, food and beverages department, commercial department, medical records and Information technology department, etc.

#### **Course Learning Outcomes:**

At the end of the course, the learner should be able to know and understand:

- Major support services in the hospitals.
- Their contribution in achieving service excellence in hospital along with clinical excellence.
- Impact of support services on patient care.
- Impact of support services on the business of a hospital.
- Rationale of the support services- policies and procedures



- Roles and responsibilities of the managers and other functionaries in support services.
- Coordination among all the support services departments.

## **BACHELOR OF COMPUTER APPLICATION (CBCS based BCA semester)**

### **PROGRAMME SPECIFIC OUTCOMES:**

BCA programme has been designed to prepare graduates for attaining the following specific outcomes:

PSO1: An ability to apply knowledge of mathematics, computer science and management in practice.

PSO2: An ability to enhance not only comprehensive understanding of the theory but its application too in diverse field.

PSO3: The program prepares the students for a range of computer applications, computer organization, computer networking, software engineering, Web Designing etc

PSO4: An ability to design a computing system to meet desired needs within realistic constraints with positive attitude.

PSO5: Effective communication and presentation skill.

PSO6: To engage in professional development and to pursue post graduate education in the fields of Information Technology and Computer Applications.

PSO7: Analyze and synthesis computing systems through quantitative and qualitative techniques.

PSO8: Accept cross cultural, social, professional, legal and ethical issues prevailing in local and global industry.

PSO9: Prepare the learners to get placed in reputed organizations.

### **BCA Semester – I**

#### **Paper-I (BCA-S101)**

#### **Introduction to Information Technology & PC Packages**

#### **COURSE OUTCOMES**

1. Operating Computer using GUI Based Operating System
2. Basic understanding of computer hardware, software and computer languages
3. Understanding of Memory hierarchy

4. Understanding Word Processing, Spread Sheet, Data base package
5. Introduction to latest technologies and terms related to Internet, WWW and web browsers
6. Making small presentation for business needs
7. Financial Literacy for banking Applications

## **Paper-II (BCA-S102)**

### **Business Communication**

#### **COURSE OUTCOMES**

1. To provide an overview of Prerequisites to Business Communication.
2. Imparting the correct practices of the strategies of Effective Business writing.
3. To understand and demonstrate writing and speaking processes through invention, organization, drafting, revision, editing, and presentation.
4. To understand the importance of specifying audience and purpose and to select appropriate communication choices.
5. To understand and appropriately apply modes of expression.
6. To participate effectively in groups with emphasis on listening, critical and reflective thinking, and responding.

## **Paper-III (BCA-S103)**

### **Problem solving through C**

#### **COURSE OUTCOMES**

1. Learn a logic which helps in solving common types of computing problems.
2. Learn data types and control structures of C
3. Learn to write good portable C programs.
4. Analyze a given problem and develop an algorithm to solve the problem
5. Learn different types of programming approach like top down and bottom up.

## **Paper-IV (BCA-S104)**

### **Computer Organization**

#### COURSE OUTCOMES

1. Ability to understand theory of Digital Design and Computer Organization to provide an insight of how basic computer components are specified.
2. Understanding the functions of various hardware components and their building blocks
3. An ability to understand and appreciate Boolean algebraic expressions to digital design
4. In depth understanding of sequential! Combinational circuits, sequential circuits etc.
5. Ability to understand memory hierarchy and design of primary memory

## **Paper-V (BCA-S105)**

### **Practical-I: C Programming Lab**

#### COURSE OUTCOMES

1. Read, understand and trace the execution of programs written in C language.
2. Declaration of variables and constants.
3. Understand operators, expressions and preprocessors.
4. Understand array and it's declaration and uses.
5. Implement Programs with pointers and arrays, perform pointer arithmetic, and use the pre-processor.
6. Write programs that perform operations using derived data types.

## **Paper-VI (BCA-S106)**

### **Practical-II ICT & PC Software Lab**

### **Paper-VI (BCA-S107) Language Lab**

## **BCA Semester – II**

### **Paper-I (BCA-S201)**

#### **Computer Architecture**

##### **COURSE OUTCOMES**

1. Explain the organization of basic computer, its design and the design of control unit.
2. Demonstrate the working of central processing unit and RISC and CISC Architecture.
3. Describe the operations and language of the register transfer, micro operations and input-output organization.
4. Understand the organization of memory and memory management hardware.
5. Elaborate advanced concepts of computer architecture, Parallel Processing, interprocessor communication and synchronization

### **Paper-II (BCA-S202)**

#### **Basic Physics**

1. Importance of Mathematics and Physics in ICT.
2. Brief understanding of telescope, microscope and eye pieces.
3. Concept of Potential and field due to a charge, Gauss's law; energy stored in condenser, series and parallel combination of capacitances, types of capacitances used in electronic circuits,
4. Learn the concept of Electric current, Ohm's law, and types of resistances
5. Able to understand thermoelectric effect and thermocouples
6. Learn about AC Circuits, semiconductor, transistors
7. Brief idea of working and uses of Cathode ray Oscilloscope, Working principle of LCD

### **Paper-III (BCA-S203)**

#### **Basic Mathematics-II**

1. Understand the basic principles of sets and operations in sets.
2. Prove basic set equalities.
3. Apply counting principles to determine probabilities.

4. Demonstrate an understanding of relations and functions and be able to determine their properties.
5. Use of truth tables for expressions involving the following logical connectives: negation, conjunction, disjunction, conditional
6. Define and use the terms: proposition (statement), converse, inverse, contra positive, tautology, and contradiction.

#### **Paper-IV (BCA-S204)**

##### **Object oriented programming using C++**

###### COURSE OUTCOMES

1. Understand the concept of objects and classes in real world.
2. Able to create program to demonstrate the implementation of constructors, destructors and operator overloading.
3. Apply fundamental algorithmic problems including type casting, inheritance, and polymorphism.
4. Understand templates, file handling etc

#### **Paper-V (BCA-S205)**

##### **Object oriented Programming Lab**

###### COURSE OUTCOMES

1. Apply object oriented programming concepts in designing programs
2. Analyze different dimensions of a problem and provide solutions
3. Apply the advance features of OOps language such as exception handling, file handling etc to build small window based projects

## **Paper-VI (BCA-S206)**

### **Microprocessor Lab**

#### COURSE OUTCOMES

1. Understand the taxonomy of microprocessors and knowledge of contemporary microprocessors.
2. Describe the architecture, bus structure and memory organization of 8085 as well as higher order microprocessors.
3. Explore techniques for interfacing I/O devices to the microprocessor 8085 including several specific standard I/O devices such as 8251 and 8255.
4. Demonstrate programming using the various addressing modes and instruction set of 8085 microprocessor
5. Design structured, well commented, understandable assembly language programs to provide solutions to real world control problems

## **Paper-VII (BCA-S207)**

### **Communication Skill Lab**

1. Understand the role of communication
2. Awareness of appropriate communication strategies
3. Prepare and present messages with a specific intent.
4. Able to enhance communication skills

## **BCA Semester – III**

### **Paper-I (BCAS301)**

#### **Database Management**

##### **COURSE OUTCOMES**

1. Describe DBMS architecture, physical and logical database designs, database modeling, relational, hierarchical and network models.
2. Identify basic database storage structures and access techniques such as file organizations, indexing methods including B-tree, and hashing.
3. Learn and apply structured query language (SQL) for database definition and database manipulation.
4. Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database.
5. Understand various transaction processing, concurrency control mechanisms and database protection mechanisms.

### **Paper-II (BCA-S302)**

#### **Data Structure**

##### **COURSE OUTCOMES**

1. Know what is data structure and basic algorithmic notations.
2. Analyze the time and space requirement of any algorithm.
3. Understand different linear data structures for conversion of mathematical expressions and polynomial representations.
4. Know the file structures



## **Paper-III (BCA-S303)**

### **Computer Communication and Networks**

#### **COURSE OUTCOMES**

1. Understand computer network basics, network architecture, TCP/IP and OSI reference models.
2. Identify and understand various techniques and modes of transmission
3. Describe data link protocols, multi-channel access protocols and IEEE 802 standards for LAN
4. Describe routing and congestion in network layer with routing algorithms and classify IPV4 addressing scheme
5. Discuss the elements and protocols of transport layer
6. Understand network security and define various protocols such as FTP, HTTP, Telnet, DNS

## **Paper-IV (BCA-S304A or BCA -S304B)**

### **A. Business organization and Management**

#### **COURSE OUTCOMES**

1. Understand the concepts related to Business.
2. Demonstrate the roles, skills and functions of management.
3. Analyze effective application of PPM knowledge to diagnose and solve organizational problems and develop optimal managerial decisions.
4. Understand the complexities associated with management of human resources in the organizations and integrate the learning in handling these complexities.

### **B. Numerical & Statistical Computing**

#### **COURSE OUTCOMES**

1. Describe and discuss the key terminology, concepts tools and techniques used in business statistical analysis
2. Critically evaluate the underlying assumptions of analysis tools
3. Understand and critically discuss the issues surrounding sampling and significance
4. Discuss critically the uses and limitations of statistical analysis

5. Solve a range of problems using the techniques covered
6. Conduct basic statistical analysis of data.

### **Paper-V (BCA-S305)**

#### **Data Structure Lab**

##### COURSE OUTCOMES

1. Demonstrate familiarity with major algorithms and data structures.
2. Analyze performance of algorithms and choose the appropriate data structure and algorithm design method for a specified application.
3. Determine which algorithm or data structure to use in different scenarios and be familiar with writing recursive methods.
4. Demonstrate understanding of the abstract properties of various data structures such as stacks, queues, lists, trees and graphs and Use various data structures effectively in application programs.
5. Demonstrate understanding of various sorting algorithms, including bubble sort, insertion sort, selection sort, heap sort and quick sort.

### **Paper-VI (BCA-S306)**

#### **DBMS Lab**

##### COURSE OUTCOMES

1. Implement Basic DDL, DML and DCL commands
2. Understand Data selection and operators used in queries and restrict data retrieval and control the display order
3. Write sub queries and understand their purpose
4. Use Aggregate and group functions to summarize data
5. Join multiple tables using different types of joins
6. Understand the PL/SQL architecture and write PL/SQL code for procedures, triggers, cursors, exception handling etc.

## **Paper-VII (BCA -S307A or BCA -S307B)**

### **A. Web Design**

#### COURSE OUTCOMES

1. Discuss the insights of internet programming and implement complete application over the web.
2. Demonstrate the important HTML tags for designing static pages and separate design from content using Cascading Style sheet.
3. Utilize the concepts of JavaScript and Java
4. Use web application development software tools i.e. Ajax, PHP and XML etc. and identify the environments currently available on the market to design web sites.

### **B. Desk Top Publishing**

#### COURSE OUTCOMES

1. Use Adobe in Design to create personal and/or business publications following current professional and/or industry standards.
2. Use critical thinking skills to independently design and create publications.
3. Create supporting pages for multi-page documents, such as index or table of contents.
4. Use color appropriately and effectively.
5. Create and use template documents.
6. Prepare & package documents for professional printing or exporting.

## **BCA Semester – IV**

### **Paper-I (BCA-S401)**

#### **System Analysis & Design**

#### COURSE OUTCOMES

1. Describe principles, concepts and practice of System Analysis and Design process
2. Explain the processes of constructing the different types of information systems
3. Apply object oriented concepts to capture a business requirements
4. Design and Develop of Information Systems in real world business environment

## **Paper-II (BCA-S402)**

### **Fundamentals of operating System**

#### COURSE OUTCOMES

1. Know about functions and services of operating system.
2. Aware about different CPU scheduling algorithms
3. Get familiar with different memory management techniques.
4. Understand different disk and drum scheduling algorithms as well as deadlock concepts.
5. Get introductory knowledge about android operating system.

## **Paper-III (BCA-S403)**

### **Java Programming**

#### COURSE OUTCOMES

1. Explore polymorphism using Function and Operator Overloading, overriding.
2. Understand the different aspects of hierarchy of classes and their extensibility.
3. Understand the concepts of streams and files.
4. Write programs for handling runtime errors using exception.
5. Program using graphical user interface with Swing classes.
6. Handle different kinds of events generated while handling windows.
7. Create programs using menus, applets and dialog boxes.

## **Paper-IV (BCA- S404A / S404B)**

### **A. Information Systems**

#### COURSE OUTCOMES

1. Skills and competencies in information systems and operations management to contribute to an organization upon entry.
2. Command of the conceptual frameworks of information systems and operations management.
3. Knowledge of the processes of organizations and the key role that information systems play.

4. Capability and initiative to lead organizations through technological changes, Discernment of, and responsible approaches to, ethical issues in technology use by society, organizations and individuals.

## **B. Business Accounting**

### COURSE OUTCOMES

1. Enabling the students to understand the features of Shares and Debentures
2. Develop an understanding about redemption of Shares and Debenture and its types
3. To give an exposure to the company final accounts
4. To provide knowledge on Goodwill
5. Students can get an idea about internal reconstruction

### **Paper-V (BCA-S405)**

#### **Java programming Lab**

### COURSE OUTCOMES

1. Write, compile, and execute Java programs that may include basic data types and control flow constructs using J2SE or other Integrated Development Environments (IDEs) such as Eclipse, Net Beans, and JDeveloper.
2. Write, compile and execute Java programs using object oriented class structures with parameters, constructors, and utility and calculations methods, including inheritance, test classes and exception handling.
3. Write, compile, and execute Java programs using arrays and recursion.
4. Write, compile, and execute Java programs manipulating Strings and text documents.
5. Write, compile, and execute Java programs that include GUIs and event driven programming.

### **Paper-VI (BCA-S406)**

#### **Operating system Lab**

### COURSE OUTCOMES

1. Familiarize students with the architecture of Unix OS.
2. To provide necessary skills for developing and debugging programs in UNIX environment.

3. Appreciate the advantages of Unix OS.
4. Develop and debug, C programs created on UNIX platforms.
5. Use and if necessary install standard libraries.

### **Paper-VII (BCA-S407A / S407B) Practical Elective**

#### **A. Accounting Software Lab**

1. Understand the basics of accounts and use of Tally software
2. Maintaining accounts in Tally
3. Calculation of Tax Deduction
4. Able to create Payroll Entry
5. Able to make Voucher entry

#### **B. Networking Lab**

##### **COURSE OUTCOMES**

1. Awareness about various types of cables used in guided media like coaxial cable, optical fiber cable, twisted pair cables and its categories.
2. To understand the working difference between straight cable and cross over cable.
3. To use the packet tracer to simulate various networks.
4. Understanding of IP address and sub netting
5. Understanding the working of different types of server like mail server, web server etc.

### **BCA Semester – V**

#### **Paper-I (BCA-S501)**

#### **Software Engineering**

##### **COURSE OUTCOMES**

1. Select and implement different software development process models
2. Extract and analyze software requirements specifications for different projects
3. Develop some basic level of software architecture/design
4. Apply standard coding practices

5. Define the basic concepts and importance of Software project management concepts like cost estimation, scheduling and reviewing the progress.
6. Identify and implement of the software metrics
7. Apply different testing and debugging techniques and analyzing their effectiveness.

## **Paper-II (BCA-S502)**

### **Data mining**

#### COURSE OUTCOMES

1. Understand the data extraction and transformation techniques.
2. List the association rule mining techniques and understand association mining to correlation analysis, constraint based association mining.
3. Understand operational database, warehousing and multidimensional need of data base to meet industrial needs.
4. Understand the components of warehousing, classification methods and clustering analysis.
5. Identify and understand the Business analysis, query tools and application, OLAP etc.

## **Paper-III BCA-S503**

### **Web Technology**

#### COURSE OUTCOMES

1. Understand, analyze and apply the role of languages like HTML, DHTML, CSS, XML, JavaScript, VBScript, ASP, PHP and protocols in the workings of the web and web applications
2. Analyze a web project and identify its elements and attributes in comparison to traditional projects.
3. Understand, analyze and create web pages using HTML, DHTML and Cascading Styles sheets.
4. Understand, analyze and build dynamic web pages using JavaScript and VBScript (client side programming).
5. Understand, analyze and build web applications using PHP.
6. Understand, analyze and create XML documents and XML Schema.

## **Paper-IV BCA- S504A/ S504B**

### **A. Network management & Security**

#### **COURSE OUTCOMES**

1. Understand applications of network, network structures and protocol hierarchy
2. Aware about details of physical, data link, network and transport layer of TCP/IP network model.
3. Understand about different aspects of network security like firewalls, IP security and VPNS
4. Aware about attacks and confidentiality used in cryptography.
5. Understand concepts and terminology associated with SNMP and FTP
6. Appreciate network management as a typical distributed application

### **B. Client Server Computing**

#### **COURSE OUTCOMES**

1. Understand virtualization of real environment
2. Understand and discuss the use of data base management system and data hierarchy in an organization
3. Understand, and identify software and hardware development environment as client and server respectively.
4. Understand, and determine database communication in client-server environment
5. Find, learn and use client-server based software development tools
6. Understand, and determine distributed file system architecture

## **Paper-V (BCA-S505)**

### **Practical-I: Data mining Lab**

#### **COURSE OUTCOMES**

1. Synthesize the data mining fundamental concepts and techniques from multiple perspectives.
2. Develop skills and apply data mining tools for solving practical problems
3. Advance relevant programming skills.
4. Gain experience and develop research skills by reading the data mining literature.



5. Study of WEKA tool and applying data mining techniques on following data sets in ARFF file Format i.e customer's data, weather forecasting data, agricultural data etc.
6. Implementation / Usage of WEKA for classification of above mentioned data set.
7. Implementation of various classification algorithms like decision tree, neural networks.
8. Comparison of various databases such as Oracle, Sybase.
9. Comparison of various data mining tools.

### **Paper-VI (BCA-S506)**

#### **Practical-II Minor Project Based on Web technology**

1. Identify the requirements for the real world problems.
2. Conduct a survey of several available literatures and prepare software requirement specification.
3. Study and enhance software/ hardware skills.
4. Demonstrate and build the project using appropriate process model, hardware requirements, coding, emulating and testing.
5. To report and present the findings of the study conducted in the preferred domain
6. Demonstrate an ability to work in teams and manage the conduct of the research study.

### **Paper-VII (BCA- S507A/ S507B)**

#### **A. Web Development Lab**

##### **COURSE OUTCOMES**

1. Understand, analyze and apply the role of languages like HTML, DHTML, CSS, XML, JavaScript, VBScript, ASP, PHP and protocols in the workings of the web and web applications
2. Analyze a web page and identify its elements and attributes.
3. Create web pages using HTML, DHTML and Cascading Styles sheets.
4. Create dynamic web pages using JavaScript and VBScript.
5. Create interactive web applications using ASP.NET.
6. Build web applications using PHP.
7. Create XML documents and XML Schema.
8. Build and consume web services.

## **B. Advanced Web Tools**

1. Able to develop a dynamic webpage by the use of java script and DHTML. ·
2. Able to write a well formed / valid XML document. ·
3. Able to connect a java program to a DBMS and perform insert, update and delete operations on DBMS table.
4. Able to write Servlet to catch form data sent from client, process it and stores it on database.
5. Able to JSP to catch form data sent from client and store it on database.

## **BCA Semester – VI**

### **Paper-I (BCA-S601)**

#### **Project**

#### **COURSE OUTCOMES**

1. Demonstrate a sound technical knowledge of their selected project topic.
2. Undertake problem identification, formulation and solution.
3. Design solutions to complex problems utilizing a systems approach.
4. Communicate with team members and the community at large in written and oral forms.
5. Demonstrate the knowledge, skills and attitudes of as a professional developer.

### Programme Specific Outcomes for B.Sc. (Computer Science)

<b>PSO1</b>	Apply problem-solving skills and the knowledge of computer science to solve real world problems.
<b>PSO2</b>	Impart an understanding of the basics of our discipline.
<b>PSO3</b>	Prepare for continued professional development.
<b>PSO4</b>	Develop proficiency in the practice of computing
<b>PSO5</b>	Apply to use appropriate techniques, resources, and modern computing and IT tools

### FIRST YEAR B.SC. COMPUTER SCIENCE

#### Paper-I : Introduction to Information Technology

##### Course Outcomes

CO1	Understand different Computer Peripherals, languages and applications.
CO2	Understand and apply different Software components and memory hierarchy
CO3	Learn about DOS and Unix Operating system and their commands
CO4	Learn working with windows and its components
CO5	Learn WWW & Browsers
CO6	Learn E-Commerce architectures and applications

#### Paper-II : Problem Solving Through C Programming

##### Course Outcomes

CO1	Learn steps of program development
CO2	Create and initialize variables, constant, arrays, pointers, structures and unions.

CO3	Manipulate values of variables, arrays, pointers, structures, unions and files.
CO4	Create the function that can receive variables, arrays, pointers and structures
CO5	Define functions that can receive variables, arrays, pointers and structures.
CO6	Create open, read, manipulate, write and close files.

### **Paper-III : Digital Electronics**

#### **Course Outcomes**

CO1	Learn and understand about number system and different types of codes like gray code, BCD code, Excess 3 code etc
CO2	Understand Boolean logic, algebra and expressions
CO3	Able to Simplify of Boolean expression
CO4	Learn about logic gates and combinational circuits
CO5	Learn and understand different types of synchronous circuits
CO6	Learn and understand different types of counter and shift registers

### **PAPER - IV: PRACTICALS**

CO1: Programs based on C operators, selective structure, repetitive structure, and break and continue statements, Arrays

CO2: Programs based on structures, union, functions, pointers, processor directives and files

CO3: Logic circuit and the function of basic logic gates and verify their truth tables.

CO4: To study the different logical expressions and their simplification

CO5: Karnaugh map simplifications related Boolean functions and Finding the Maxterm of Boolean and Minterm of Boolean function.

CO6: Logic circuit and working of Decoder circuits BCD to Decimal, Decimal to BCD

CO7: Power point presentation

## SECOND YEAR B.SC. COMPUTER SCIENCE

### Paper-I : Introduction to Database Management System

#### Course Outcomes

CO1	Describe the fundamental elements of relational database management systems
CO2	Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL
CO3	Design ER-models to represent simple database application scenarios
CO4	Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.
CO5	Familiar with basic database storage structures and access techniques
CO6	Familiar with database recovery and security mechanism

### Paper- II: Object Oriented Programming using C++

#### Course Outcomes

CO1	Learn basic programming principles of object oriented programming language
CO2	Understand the memory management, functions and scope of classes
CO3	Understand the nesting of classes, Static data members, Static member functions
CO4	Understand the constructors, destructors, default arguments
CO5	Understand the need of different types of inheritance, virtual functions etc

### Paper-III: Computer Organization

#### Course Outcomes

CO1	Learn the concept of registers, RTL, instruction codes etc.
CO2	Understand the stages of Instruction Cycle : Fetch and Decode, Type of instructions

	, Input-Output Instructions
CO3	Understand the instruction formats and different types of addressing modes and their importance
CO4	Learn about modes of data Transfer
CO5	Understand Main memory : RAM and ROM chips, Auxiliary Memory : Magnetic Disk , Associative Memory , Cache memory , Direct mapping Scheme
CO6	Familiar with 8085 architecture and its instruction sets

### **PAPER - IV: PRACTICALS**

CO1: SQL Queries Practical based on DDL Commands. Create, alter, drop and DML Commands. Select, update, and delete, Insert.

CO2: SQL Queries based on Boolean and comparisons operator related Commands, Arithmetic and Aggregate Functions.

CO3: SQL Queries Practical based on selective data from multiple databases

CO4: SQL Queries Practical based on Character Function, Date Function

CO5: Write C++ Program using class and objects, Scope resolution operator, different types of operators, Function Prototype, Function Overloading, Default arguments.

CO6: Write C++ Program using Friend function, Inline Function, Array of objects, Array within class, Function returning objects.

CO7: Write C++ Program using types of Constructor, virtual functions, abstract classes, inheritance

CO8: Power point presentation

### **THIRD YEAR B.SC. COMPUTER SCIENCE**

#### **Paper - I: MULTIMEDIA AND WEB DESIGN**

#### **Course Outcomes**

CO1	Learn about Fundamental concepts in Multimedia Text and Multimedia Image
CO2	Able to understand basics of Multimedia Networks, Communications and Application, Multimedia over ATM Networks.

CO3	Able to design HTML web pages using table, image, list, hyperlink, text formatting and block tags
CO4	Able to understand different types of scripting languages and their importance in web page design
CO5	Basic knowledge of ASP and JSP

## **Paper- II: Computer Networks**

### **Course Outcomes**

CO1	Have a good understanding of the OSI Reference model
CO2	Have a knowledge of Physical Layer and services provided by physical layer
CO3	Have a knowledge of Data link Layer and its functions
CO4	Have a knowledge of Network Layer and services provided by it, networking protocols
CO5	Understand Transport Service and Services Provided by it to the Upper Layers
CO6	Knowledge of different types of protocols like UDP, TCP

## **Paper-III: Operating System**

### **Course Outcomes**

CO1	Describe the basic components of an operating system and their role in implementations for general purpose, real-time and embedded applications.
CO2	Define the concepts of processes, threads, asynchronous signals and competitive system resource allocation.
CO3	Understand what multi-tasking is and outline standard scheduling algorithms for Multi-tasking.
CO4	Discuss mutual exclusion principles and their use in concurrent programming including semaphore construction and resource allocation.
CO5	Expose the details of major operating system concepts, overview of system memory management and the implementation of file systems.

## **PAPER - IV: PRACTICALS**

**CO1:** HTML page design using basic text formatting tags

**CO2:** HTML page Design using table tags, hyper links, list tags, image tags etc

**CO3:** Able to design static web sites

**CO4:** Able to work with java script and VB script for validations and layout designing in websites

**CO5:** Able to develop dynamic web pages using ASP and JSP

**CO8:** Power point presentation



***MASTER OF  
BUSINESS  
ADMINISTRATION  
(MBA)- CMAT***

**SYLLABUS**



**2021-23**

**Faculty of Management  
Studies**

**M.L. Sukhadia University  
UDAIPUR (RAJ.)**

## **THE PROGRAMME**

The Master of Business Administration (MBA) is a two year full-time programme. The course structure and programme administration are as follows:

## **COURSE STRUCTURE**

The programme has been organized in two years-First Year and Second Year, each year comprising two semesters. The list of papers offered during First Year and Second Year of the programme shall be as follows:

### **FIRST YEAR**

#### **Semester-I**

CP-101	Management Process and Organizational Behavior
CP-102	Statistics And Research Methodology
CP-103	Managerial Economics
CP-104	Environment Management
CP-105	Managerial Skill Development
CP-106	Indian Ethos and Values
CP-107	Accounting For Managers
CP-108	Computers Application in Management

#### **Semester-II**

CP-201	Organization Effectiveness and Changes
CP-202	Management Sciences
CP-203	Human Resource Management
CP-204	Financial Management
CP-205	Marketing Management
CP-206	Production and Operation Management
CP-207	E Commerce
CP-208	International Business Environment and Management

### **SECOND YEAR (Third & Fourth Semester)**

#### **Compulsory papers:**

CP-301	Business Policy & Strategic Management
CP-302	Decision Support System & Management Information System
CP-303	Business Legislation
CP-401	Business Analytics
CP-304	Summer Training Project
CP-402	Project Study

#### **Elective 1: Finance**

FM-3102	Security Analysis & Investment Management
FM- 3133	Portfolio Management
FM-3105	Management of Financial Services
FM-3109	Financial Derivatives

FM-3110	Project planning, Analysis & Management
FM-3114	Foreign Exchange Management

### **Elective 2: Marketing**

MM-3201	Consumer Behavior
MM-3202	Advertising & Sales Promotion Management
MM-3203	Strategic Marketing
MM-3205	Sales & Distribution Management
MM-3208	Marketing of Services
MM-3211	Brand Management
MM-3213	Planning & Managing Retail Business
MM-3215	Logistics & Supply Chain Management
MM-3216	Digital Marketing

### **Elective 3: Human Resource**

OBH-3301	Management of Industrial Relations
OBH-3305	Legal Framework Governing Human Relations
OBH-3306	Management Training & Development
OBH-3308	Organizational Change & Intervention Strategies
OBH-3310	Human Resource Development: Strategies & Systems
OBH-3311	Human Resource Planning & Development

### **Selection of Optional Papers:**

Six optional papers to be opted by the candidate will have to be opted from one optional area which will be called as major elective and three optional papers to be opted by the candidate will have to be opted from another optional area which will be called as minor elective.

Out of 6 optional papers of major electives (CP-304), the candidate will opt 4 optional papers in III semester and 2 optional papers in IV semester.

From the minor elective area (CP-402) out of three optional papers two papers will be opted in III semester and one papers in IV semester.

The optional area to be introduced in a session will be notified by the Director in the beginning of the session. It is not necessary to introduce all the optional area in every session.

For every major elective group the minimum number of students must be not less than 10 and number of major elective group to be introduced in a session should be two only.

### **Summer Training**

At the end of second semester, all students will have to undergo summer training of 6-8 weeks with a Industrial organization by taking up a project study. The conditions of successfully completing the programme shall not be deemed to have been satisfied unless a student undergoes summer training under the supervision of the department in organizations as approved by the Department / Faculty from time to time. Each student will be required to submit a project report to the Department / Faculty for the work undertaken during this period within three weeks of the commencement of the third semester for the purpose of evaluation in the third semester.

### **Project Study:**

The final project will be evaluated at the end of the fourth semester by the internal & external examiners. This would be equivalent to the marks of the two papers.

### **PROGRAMME ADMINISTRATION (*SUGGESTED GUIDELINES*)**

#### **Evaluation**

- (i) Each paper will carry 100 marks (Except Papers CP-404) of which minimum of 20% of marks should be for internal assessment and remaining percentage of marks be for written examination. The duration of written examination for each paper shall be three hours.
- (ii) The internal assessment marks shall be based on factors such as:
  - Participation in seminars, case discussions and group work activities
  - \* Class tests, quizzes, individual and group oral presentations
  - \* Submission of written assignments, term papers and viva-voce
  - \* Class-room participation and attendance

There will be one mid term class test which will carry 10 marks. If any candidate does not appear in any of the mid term tests on medical or other valid grounds, he may appear in the defaulter test by depositing a fee of Rs. 150/- per course.

The course for the mid term test will be first three units but the defaulter test coverage will be entire course.

Home Assignment, individual and group presentation will carry 05 marks while and attendance will carry 05 marks each.

- (iii) The scheme of evaluation of project studies shall be as follows:

- (a) For Paper CP-304, a project report based on the summer training will have to be submitted within three weeks from the commencement of third semester.
- (b) Paper CP-402, final project study shall commence from third semester and the report should be submitted towards the end of fourth semester.

The written part for each of the project studies shall account for 80% of marks and the viva- voce to be conducted by a duly constituted examination board for the remaining 20% of marks.

### **Promotion and Span Period**

- (i) The span period of the programme is four years from the date of registration in the programme.
- (ii) The minimum marks for passing the examination for each semester shall be 40% in each paper and 50% in aggregate for all the courses of the semester.
- (iii) To be eligible for promotion to the second year of the programme, a student must clear successfully at least 12 papers out of the 16 papers offered during first year of the programme.
- (iv) The degree shall be awarded to successful students on the basis of the combined results of first year and second year examinations as follows:
 

- Securing 60% and above	:	Ist Division
- All other	:	IInd Division
- (v) A student to be eligible for award of degree has to clear all the papers offered during two-year programme within the span period.
- (vi) The candidates will be required to pass in the external examination of 80 marks.

*The Institute/University may evolve their own Grading System for evaluation.*

### **Re-examination**

A candidate who has secured minimum marks to pass in each paper but has not secured the minimum marks required to pass in aggregate for the semester concerned may take re- examination in not more than two papers to obtain the aggregate percentage required to pass the semester.

A regular student will be allowed to re-appear in any paper in any semester. However, the total number of attempts for a paper shall not exceed four during the span period of the programme. As regards the ex-students, they will be allowed to re-appear in papers only in the semester examination when held, subject to total number of attempts for a paper not exceeding four during the span period of the programme.

**Attendance**

No candidate shall be considered to have pursued a regular course of study unless he/she is certified by the Head/Dean of the Department/Faculty to have attended the three-fourth of the total number of classroom sessions conducted in each semester during his/her course of study. Any student not complying with this requirement will not be allowed to appear in the semester examination. However, the Head/Dean may condone the required percentage of attendance by not more than 10 per cent during a semester.

A student not allowed to appear in the preceding semester examination due to shortage of attendance, may appear in the papers of the proceeding semester along with the papers of current semester after making up the attendance shortfall. Remedial classes, however, will not be arranged by the Department/ Faculty for the purpose.

## **CP-101: MANAGEMENT PROCESS AND ORGANIZATIONAL BEHAVIOUR**

### **Objectives**

The objectives of this paper are to familiarize the student with basic management concepts and behavioural processes in the organization.

### **Course Contents**

#### **Unit -I**

Evolution of management thought, Systems and contingency approach for understanding organizations, managerial processes, functions, skills and roles in an organization; Social Responsibility of Business ;Leadership: Concept, Nature, Importance, Attributes of a leader, developing leaders across the organization, Leadership Grid. Decision making: Concept, Nature, Importance, and Process. Types of decisions. Problems in decision making

#### **Unit-II**

Introduction to Organizational Behavior: Definition, Importance, Scope, Fundamental Concepts of OB, Different models of OB - autocratic, custodial, supportive, collegial and SOBC.. Personality & Attitudes: Meaning of personality, attitude - Development of personality – Attributes of personality- Transactional Analysis – Ego states – Johari window - Nature and dimensions of attitude – Developing the right attitude

#### **Unit-III**

Motivation: Definition, Importance, Motives – Characteristics, Classification of motives - Primary & Secondary motives. Theories of Motivation - Maslow's Theory of need hierarchy - Herzberg' s theory. Morale - Definition and relationship with productivity - Morale Indicators.

#### **Unit-IV**

Group Dynamics and Team building: Concept of Group & Team. Theories of Group Formation - Formal and Informal Groups. Importance of Team building. . Conflict Management: Definition. Traditional vis - à- vis Modern view of conflict – Types of conflict – Intrapersonal, Interpersonal, and Organizational. Constructive and Destructive conflict. Conflict management.

#### **Unit-V**

Stress management: Definition, Causes, Managing stress, Stress as a motivator. Work life balance. Applications of emotional intelligence in organizations, communication, group decision making, Understanding and Managing organizational system - Organizational design and

structure, Change management: Concept of change, change as a natural process, Importance & Causes of change – social, economic, technological, organizational. Learning – unlearning, Concept of learning organizations.

### **Suggested Readings**

- 1 . Koontz, H and Wehrich, H. *Management*. 10th ed., New York, McGraw Hill, 1995.
2. Luthans, F. *Organizational Behaviour*. 7th ed., New York, McGraw Hill, 1995.
3. Robbins, S P. *Management*. 5th ed., New Jersey, Englewood Cliffs, Prentice Hall Inc., 1996.
4. Robbins, S P. *Organizational Behaviour*. 7th ed., New Delhi, Prentice Hall of India, 1996.
5. Singh, Dalip Emotional *Intelligence at Work, Response Books*, Sage Publications, Delhi, 2001
6. Staw, B M. *Psychological Dimensions of Organizational Behaviour*. 2nd Ed., Englewood Cliffs, New Jersey, Prentice Hall Inc., 1995.
7. Stoner, J. etc. *Management*. 6th ed., New Delhi, Prentice Hall of India, 1996.

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.



## **CP102- STATISTICS AND RESEARCH METHODOLOGY**

### **UNIT-I**

**INTRODUCTION:** Definition of Research, Qualities of Researcher, Components of Research, Research Process, Types of Research;- Survey Research - Case Study Research etc. Research Design; Hypothesis- Types and Formulation.

### **UNIT-II**

**DATA COLLECTION:** - Sources of Data: Primary Data, Secondary Data; Procedure Questionnaire –Design and Instrument Development; Sampling Methods, Sample Size Determinations, Sampling error.

### **UNIT-III**

**STATISTICAL ANALYSIS:** Introduction to Descriptive Analysis; Standard deviation - Co-efficient of variations - Index Number, Time Series Analysis, Correlation- Simple, Multiple and Partial, Regression.

### **UNIT-IV**

**STATISTICAL ANALYSIS:** Introduction to Inferential Statistics; Probability- Fundamental and Rules, Probability distribution, Continuous Probability distribution, Normal Distributions, Discrete Probability distribution- Binomial Distribution & Poisson Distribution; Central Limit Theorem; Estimation- Point and Interval estimation;

### **UNIT-V**

**Hypothesis Testing-** Z-Test, T-Test, F- Anova Test, Chi-Square Test, Non-parametric test: Run test, KW test, Mann Whitney U test,; Multivariate analysis- Factor Analysis, Discriminate Analysis, Cluster Analysis, Conjoint Analysis, Introduction to SPSS.

### **REFERENCES:**

1. Cooper & schindler: business research method, mcgraw-hill irwin, 2006
2. Levin & rubin: statistics for management, prentice hall, 1998
3. Sc gupta: fundamentals of statistics, himalaya publishing house, 2018
4. Wilkinson & bhandarkar: methodology and techniques of social research.
5. Pauline vyoung: scientific social surveys and research.
6. Panneerselvam, r., research methodology, prentice hall of india, new delhi, 2004.
7. Kothari: research methodology.
8. Festinger. L & d. Katz: research methods in beha vioural science.
9. Sellitz, et al: research methods in social relations

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## CP-103: MANAGERIAL ECONOMICS

### Objectives

The Objectives of this course is to acquaint the participants with concepts and techniques used in Micro-Economic Theory and to enable them to apply this knowledge in business decision-making. Emphasis is given to changes in the nature of business firms in the context of globalization.

### Course Contents

1. Scope, Concepts and Techniques of Managerial Economics; Nature of business decision- making; Marginal analysis, optimization; Demand functions; Law of Demand - Utility Concept, Cardinal and Ordinal Approach, Income and substitution effects.
2. Elasticity of Demand- Price Elasticity, Income Elasticity, Cross Elasticity, Advertising Elasticity; Demand forecasting; concept of consumer surplus.
3. Production Function- Concept, Isoquants, Equilibrium, Law of Variable Proportions; Law of Returns to Scale; Economies of scale; Cost Function- Types of Costs, Theory of Firm - Profit Maximization, Sales Maximization; Revenue curves- TR, AR, MR, Long run and Short run
4. Market Structure: Concept of Equilibrium, Perfect Competition, Monopoly, Monopolistic, Oligopoly: Kinked Demand curve, Game theory, Price leadership model, Full cost Pricing Theory, Baumol's theory of sales revenue maximization, Williamson's Managerial Discretionary, Theory of Firm, Cyert & March Behavioral Theory of Firm. ; Theoretical Concept of Pricing, Pricing Policies in Practices; Non- Price Competition.
5. Macro Economics : Aggregates and Concepts, Aggregate Consumption- Aggregate Demand; Concept and Measurement of National Income; Determination of National Income, Multiplier Effect & Accelerator; GNP and GDP; Balance of Payments; Monetary Policy; Fiscal Policy; Business cycle.

### Suggested Readings

1. *Adhikary, M. Business Economics., New Delhi, Excel Books, 2000.*
2. *Baumol, W J. Economic Theory and Operations Analysis. 3rd ed., New Delhi, Prentice Hall Inc., 1996.*
3. *Chopra, O.P. Managerial Economics. New Delhi Tata McGraw Hill 1985.*
4. *Keat, Paul G & Philips K. Y. Young, Managerial Economics, Prentice Hall, New Jersey, 1996.*
5. *Koutsoyiannis, A. Modern Micro Economics. New York, Macmillan, 1991.*

6. *Milgrom, P and Roberts J. Economics, Organization and Management. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1992.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## CP-104 ENVIRONMENT MANAGEMENT

1. Environmental Management: Fundamentals-Sustainable Development, Implications of human population growth, Limits to growth; Environment and Business Schools; Energy Management: Fundamentals -Fossil Fuels use, Energy production and trade, Energy Balance.
2. Ecosystem Concepts - Basic Concepts and their application in Business; Industrial Ecology and Recycling Industry; Environmental Management System - EMS Standards, ISO 14000,9000,20000.
3. Environmental Management & valuation - Environmental Auditing, Clearance/ Permission for establishing industry, Environmental Accounting, Economics - Environmental Taxes Shifts, Green Funding, Corporate Mergers.
4. Environmental Management Trade and Environmental Management, Debt and Environment; GATT / WTO Provisions; Environmental Laws - Acts, Patents, IPRS, Role of NGO'S, PIL.
5. Pollution & Waste Management - Air, Water, Land Pollution; Trade in Wastes; Water, Forest & Biodiversity Management - Water Resources, Dams and their role, Forest products and Trade ; Role of Biodiversity in International Trade; Approaches to Corporate Ethics, Bio-ethics, Environmental Ethics, Emerging trends in environment management.

### Suggested Readings

1. *Uberoi, N.K.; Environmental Management, Excel Books, A-45, Naraina Phase-1, New Delhi, 2000*
2. *Pandey,G.N.: Environmental Management, Vikas Publishing House New Delhi,1997*
3. *Gupta, N. Dass: Environmental Accounting, Wheeler Publishing, 19, K.G. Marg, New Delhi, 1997*
4. *Mohanty, S.K.: Environment & Pollution Law Manual, Universal Law Publishing, G.T. Karnal Road, New Delhi,1996*
5. *Harley, Nick : Environmental Economics, MacMillan India Ltd., Ansari Road, New Delhi,1997*
6. *Kolstad, Charles D.: Environmental Economics, Oxford University Press, 2000*

## CP-105: MANAGERIAL SKILL DEVELOPMENT

### Objectives

The course is aimed at equipping the students with the necessary & techniques and skills of communication to inform others, inspire them and enlist their activity and willing cooperation in the performance of their jobs.

### Course Contents

- I. Importance and nature of business communication; Effective Communication skill; Process of communication; Barriers and gateways in communication; Intra personal communication and body language; Inter personal communication and relationship; Leadership skills; Team building and public speaking; Presentation skills; Case study and situational analysis
- II. Dos and Don'ts of Business writing; Commercial letters; Writing Business reports; Written communication - 7c of written business communication, Approaches to written communication - deductive and inductive; Writing for enquiries , Claims, invitation, reservations and orders, refusal and collection letters, sales letters, resume writing and recommendation letters; Report writing- long and short business reports and business proposal.
- III. Feelings- types and steps to deal with complex feelings; Assertiveness and confidence building; Body language- role of different parts of the body in communication; Non verbal behavior; Conflict- types and resolutions; Emotions- emotional empathy and emotional intelligence
- IV. Techniques for personality development (a) self confidence (b) mnemonics (c) goal settings (d) time management (e) effective planning (f) stress management
- V. Developing an understanding of social etiquettes; Dressing for interview- do's and don'ts for men and women; Dressing for office- do's and don'ts for men and women; Dining etiquettes; Telephone and email etiquettes; Ethical dilemmas- code of conduct

### Suggested Readings

1. Bowman, Joel P and Branchaw, Bernadine P. "Business Communication: From Process to Product". 1987. Dryden Press, Chicago.
2. Hatch, Richard. "Communicating in Business". 1977 Science Research

*Associates, Chicago.*

3. *Murphy, Herta A and Peck, Charrles E. "Effective Business Communications". 2nd ed. 1976. Tata McGraw Hill, New Delhi.*
4. *Pearce, C Glenn etc. "Business Communications: Principles and Applications". 2nd ed. 1988. John Wiley, New York.*

## CP-106 : INDIAN ETHOS AND VALUES

- I. Model of Management in the Indian Socio-Political Environment; Work Ethos; Indian Heritage; Ethics & values.
- II. Indian Insight into TQM; Problems Relating to Stress in Corporate Management - Indian Perspective; Teaching Ethics; Asian spiritual philosophies of Islam, Vedanta, Taoism & Buddhism.
- III. Concept of Ethics in Indian literature with special reference to Bhagwat Geeta.
- IV. Values for Managers; Holistic Approach for Managers in Decision Making; Spiritual Values in Management.
- V. Personal Growth and Lessons from Ancient Indian Educational System; Science and Human Values.

### Suggested Readings

1. Chakraborty, S.K.: *Foundations of Managerial Work - Contributions from Indian Thought*, Himalaya Publishing House Delhi 1998
2. ----- : *Management Effectiveness and Quality of Work-life - Indian Insights*, Tata McGraw Hill Publishing Company, New Delhi. 1987
3. *Management by Values*, Oxford University Press, 1991
4. Drucker, P : *Managing in Turbulent Times*, Pan Books London 1983
5. Kumar, S and N.K. Uberoi : *Managing Secularism in the New Millennium*, Excel Books 2000
6. Griffiths, B. *The Marriage of East and West*, Coiling, London 1985
7. Gandhi, M.K.: *The Story of My Experiment with Truth*, Navjivan Publishing House, Ahmedabad, 1972 The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## CP- 107 : ACCOUNTING FOR MANAGERS

### Objectives

The basic purpose of this course is to develop an insight of postulates, principles and techniques of accounting and utilisation of financial and accounting information for planning, decision-making and control.

### Course Contents

- I. Financial Accounting - Concept, Importance and Scope, Generally Accepted Accounting Principles,
- II. Preparation of Financial Statements with special reference to analysis of a Balance Sheet and Measurement of Business Income ; Management Accounting - Concept, Need, Importance and Scope
- III. Financial Statement Analysis, Ratio analysis, Funds Flow Analysis, Cash Flows analysis.
- IV. Cost Accounting - Cost, Cost Classifications, Cost Sheet, Cost Accounting, Records and Processes, Cost Ledger and Control Accounts, Reconciliation and Integration between Financial and Cost Accounts; Overhead Cost and Control ; Costing for Decision-Making, Marginal Costing and Breakeven analysis,
- V. Budget and Budgetary Control, Performance Budgeting, Zero-Base Budgeting; Standard Costing and Variance Analysis - Material Labour and Overheads,

### Suggested Readings

1. *Anthony R N and Reece J S. Accounting Principles, 6th ed., Homewood, Illinois, Richard D. Irwin, 1995.*
2. *Bhattacharya S K and Dearden J. Accounting for Management Text and Cases. New Delhi, Vikas, 1996.*
3. *Heitger, L E and Matulich, Serge. Financial Accounting. New York, McGraw Hill, 1990.*
4. *Hingorani, N L. and Ramanathan, A R. Management Accounting. 5th ed., New Delhi, Sultan Chand, 1992.*
5. *Horngren, Charles etc. Principles of Financial and Management Accounting. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1994.*
6. *Needles, Belverd, etc. Financial and Managerial Accounting. Boston, Houghton Mifflin Company, 1994.*
7. *Vij, Madhu. Financial and Management Accounting. New Delhi, Anmol Publications, 1997.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.



## **CP-108: COMPUTER APPLICATIONS IN MANAGEMENT**

### **Objectives**

The objectives of this course include developing an appreciation of different software and hardware systems available in the industry among the participants and build up the experience of computer usage in business organizations with specific reference to commercial data processing systems.

### **Course Contents**

- I. Introduction to Computers: Evolution of Computers, Basic Architecture and components, Embedded Software - Introduction, Advantages & Disadvantages. Computers in Business. Operating System – Introduction, Functions, Examples of Operating system: Windows, Unix/Linux, Android, Programming Language, Emerging trends bin reformation & communication technology
- II. Data Files Types/Organizations, Master & Transaction File, Relevance of Data Base Management Systems and Integration of Applications, Basics of Data Processing- Data Hierarchy & Data File Structures. Application Portfolio Development. Management of Data Processing Systems in Business Organization. Models of Data Processing, Software Development Process, Database Storage, data base models, Software Development process & approaches
- III. Flow Charting; Input-Process-Output Analysis; Report Generation & Label Generation; Programming Concepts; Use of Files in Programming. Data Communications and networking – Basic Concepts, Network Topologies, Network Types, Communication Protocols and The OSI Model, TCP/IP Model, Office Automation System Application.
- IV. Word Processing Software- Editing, Printing and Formatting of Document, Mail Merge. Introduction to a spreadsheet software; Creation of spreadsheet applications; Range, Formulas, Functions, Data Base Functions in spreadsheet; Graphics on Spreadsheet. Presentation Graphics, Creating a Presentation on a PC, Introduction to RDBMS & query (via MS-Access)
- V. Artificial Intelligence (AI), AI Tools -An Overview. Indian Computing Environment - Its Strength and Weaknesses. Introduction to Word Wide Web- Internet Operations. Emerging Communication Technologies- Introduction to Social Networking, Cloud Computing, E-commerce, E-Banking and e- Governance, Robotics, AR/VR Technologies, Data Science.

**Suggested Readings :**

1. *Burch, John and Grudnitski Gary. Information Systems: Theory and Practice. 5th ed., New York, John Wiley, 1989.*
2. *David, Van Over. Foundations of Business Systems. Fort Worth, Dryden, 1992.*
3. *Eliason, A L. On-line Business Computer Applications. 2nd ed., Chicago, Science Research Associates, 1987.*
4. *Estrada, Susan. Connecting to the Internet. Sebastopol, C A, O'Reilly, 1993.*
5. *John, Moss Jones. Automating Managers: the Implications of Information Technology for Managers. London, Pinter, 1990.*
6. *Long, L. Computers, Englewood Cliffs, New Jersey, Prentice Hall Inc., 1986.*
7. *Summer, M. Computers Concepts and Uses. 2nd ed., Englewood Cliffs, New Jersey, Prentice Hall Inc., 1988.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

**CP-201: ORGANIZATION EFFECTIVENESS AND CHANGES****Objectives**

To familiarize the students with basic organizational processes to bring about organizational effectiveness and change.

**Course Contents**

- I. An Overview of Concepts of Organizational Change Effectiveness and Development;
- II. Skills of Change Agent, Organizational Climate and Culture; Power and Politics;
- III. The Process of Empowerment., Organizational Learning; Creativity and Innovation;
- IV. Conflict and Negotiation;. Intergroup Behaviour and Collaboration;
- V. Business Ethics and Corporate Governance; Management of Gender Issues; Cross- Cultural Dynamics.

**Suggested Readings**

1. *Anderson, A H and Barker D. Effective Enterprise and Change Management. Oxford, Blackwell Publishers Ltd. 1996.*
2. *French, W E and Bell, C H. Organization Development. New Delhi, Prentice - Hall of India, 1995.*
3. *Kao, S R. etc. Effective Organization and Social Values. New Delhi, Sage, 1994.*
4. *Khandwalla, P N. Organisation Design for Excellence. New Delhi, Tata McGraw Hill, 1992.*
5. *Luthans, F. Organizational Behaviour. 7th ed., New York, McGraw Hill, 1995.*
6. *Mendonca, M and Kanungo R N. Work Motivation. New Delhi, Sage, 1994.*
7. *Robbins, S P. Organizational Behaviour. 7th ed., New Delhi, Prentice Hall of India, 1996.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## CP – 202: MANAGEMENT SCIENCE

### Course Objectives:

The real world problems are complex problems; they require finding of an optimum solution subject to a large number of constraints and decision variables.

### Unit I

Linear Programming: Meaning, Assumptions and Problem Formulation/ Model Construction, Graphical Solution, Concepts of Feasible Solution, Basic Feasible Solutions, Degenerate Solution, Simplex Method, Special cases in Linear Programming, Duality, Post optimal/Sensitivity Analysis and Economic Interpretation of duality or shadow prices.

### Unit – II

Special Cases of Linear Programming & Other Mathematical Programming Models: Transportation Models and Assignment Models – as a special case of Linear Programming; their meaning, assumptions, and formulation of the model, their solution methodology; sensitivity analysis and their applications, Integer Programming, Zero - One Programming, Mixed Integer Programming, Goal Programming, Dynamics Programming – their applications and solution methodology.

### Unit – III

Project Management: Challenges in Project Management, appreciating the issues involved in project planning and control. Application of Network techniques – PERT and CPM in Project Management, preparation of network, minimum time schedule and slack/ float analysis; time - cost trade- off, project scheduling and Uncertainty, resource allocation Problem in Project.

### Unit – IV

Optimization Models for Business Related Problems: Application of optimization techniques to Inventory related problems: Simple EOQ Model, Production run model, back- orders with infinite replacement model, production run model with back orders, EOQ model with price - breaks, determination of various inventory levels – reorder level, safety stock, maximum level etc. under certain, probabilistic and uncertainty situations. Inventory classification – ABC, VED, FNSD and other classification; periodic review model and continuous review methods; contemporary tools of managing inventories of a firm – like JIT, material requirements planning etc. Sequencing Problems – n Jobs and 2/3 machines Replacement of Fixed Assets – Individual replacement policy with and without time value and group replacement policy, preventive replacement policy. Markov processes – Applications and Computation; Waiting line or queuing models – characteristics, theory and applications.

**Unit – V**

Decision Analysis; Decision making under certainty, risk and uncertainty conditions – pay – off matrix, expected monetary value criteria, expected value of perfect information. Decision tree, game theory – Nash equilibrium; two persons- zero sum game, pure and mixed strategies, game theory and linear programming, simulation – deterministic and probabilistic (Monte Carlo Simulation)

**Suggested Readings**

1. *Budnik, Frank S., Dennis Mcleavey, Richard Mojena Principles of Operations Research, 2nd ed., Richard Irwin, Illinois-All India Traveller Bookseller, New Delhi, 1995*
2. *Gould, F J. etc. Introduction to Management Science. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1993*
3. *Mathur, K and Solow, D. Management Science. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1994.*
4. *Narag A S. Linear Programming and Decision Making. New Delhi, Sultan Chand, 1995.*
5. *Sharma, J K. Operations Research: Theory and Applications. New Delhi, Macmillian India Ltd., 1997.*
6. *Taha, H A. Operations Research - An Introduction. New York, Mc-Millan, 1989.*
7. *Theirouf, R J and Klekamp, R C. Decision Making Through Operations Research. New York, John Wiley, 1989.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course

## CP-203: HUMAN RESOURCE MANAGEMENT

### Objectives

In a complex world of industry and business, organisational efficiency is largely dependent on the contribution made by the members of the Organisation. The Objectives of this course is to sensitize students to the various facets of managing people and to create an understanding of the various policies and practices of human resource management.

### Course Contents

- I. Concepts and Perspectives on Human Resource Management; Human Resource Management in a Changing Environment. Corporate Objectives and Human Resource Planning; HR Structure and strategy.
- II. Recruitment and selection; Manpower planning; Job Analysis and Role Description; Methods of Manpower Search; Attracting and Selecting Human Resources, Induction and Socialization; Career Planning, Succession Planning.
- III. Manpower Training and Development - design and evaluation of T & D Programs; Performance Appraisal and Potential Evaluation; Retirement and other separation processes
- IV. FINANCIAL COMPENSATION, PRODUCTIVITY AND MORALE: -  
Principal Compensation Issues & Management – Job Evaluation –Productivity, Employee Morale And Motivation; Stress Management and Quality of Work Life
- V. Industrial Relations & Trade Unions; Dispute Resolution & Grievance Management; Employee Empowerment; workers and managerial decision making; collective bargaining.

### Suggested Readings

1. *Aswathappa, K. Human Resource and Personnel Management Tata Mc Graw Hill, New Delhi, 1 997*
2. *De Cenzo, D A & Robbins S P. Human Resource Management. 5th ed., New York, John Wiley, 1994.*
3. *Guy, V & Mattock J. The New International Manager. London, Kogan Page, 1993.*
4. *Holloway, J. ed. Performance Measurement and Evaluation. New Delhi, Page, 1995.*
5. *Monappa, A. & Saiyadain M. Personnel Management. 2nd ed., New Delhi,*

*Tata Mc- Graw-Hill, 1966.*

6. *Stone, Lloyed and Leslie W.Rue, Human Resource and Personnel Management Richard D. Irwin, Illinois, 1984.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## CP-204: FINANCIAL MANAGEMENT

### Objectives:

The purpose of this course is to acquaint the students with the broad framework of financial decision making in a business unit.

### Course Contents

1. Aims and Objectives of Financial Management; Time value of Money: Instruments of Long Term Finance- Equity, ECB, ADR, and GDR. Cost of Different Sources of Raising Capital, Weighted Average Cost of Capital. Marginal cost of capital
2. Operating and Financial Leverage. Valuation and Capital Structure Decisions: Capital Structure Theories, Optimum Capital Structure, Economics Value Added.
3. Capital Budgeting, Methods of Capital Budgeting, Analysis of Risk in Capital Budgeting,
4. Internal Financing and Dividend Policy. Financial Modelling, Use of Excel for Financial Decision Making.
5. Working Capital Concept Nature and scope. Determinants of Working Capital instruments of Short -term Financing - Management of Working Capital Cash. Receivable and Inventory Management.

### Suggested Readings

1. Archer, Stephen H. etc. *Financial Management*. New York, John Wiley, 1990.
2. Bhalla, V K. *Financial Management and Policy*. 2<sup>nd</sup> ed., New Delhi, Anmol, 1998.
3. Brealey, Richard A. and Myers Stewart C. *Principles of Corporate Finance*. 5<sup>th</sup> ed., New Delhi, McGraw Hill, 1996.
4. Hampton, John. *Financial Decision Making*. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1997.
5. Van Horne, James C. *Financial Management and Policy*. 1<sup>st</sup> ed., New Delhi, Prentice Hall of India, 1997.
6. Winger, Bernard and Mohan, Nancy. *Principles of Financial Management*. New York, Macmillan Publishing Company, 1991.

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.



## CP-205: MARKETING MANAGEMENT

### Objectives

The purpose of this course is to develop and understanding of the underlying concepts, strategies and issues involved in the marketing of products and services.

### Course Contents

1. Nature and scope of marketing, Marketing concept and Market philosophy, Corporate orientations towards the market place, The Marketing environment and Environment scanning, Marketing information system and Marketing research
2. Understanding consumer and Industrial markets. Market segmentation, Targeting and positioning; Product decisions - product mix, product life cycle, new product development,
3. Branding and packaging decisions, Pricing methods and strategies. Promotion decisions promotion mix, advertising, sales promotion, publicity and personal selling;
4. Channel management - selection, co-operation and conflict management, vertical marketing *Implementation and* systems, Organising and implementing marketing in the Organisation.
5. Evaluation and control of marketing efforts; New issues in marketing, Services marketing and 7P's of services marketing, Rural marketing, Global marketing, Green marketing.

### Suggested Readings

1. *Enis, B M. Marketing Classics: A Selection of Influential Articles. New York, McGraw Hill, 1991.*
2. *Kotler, Philip and Armstrong, G. Principles of Marketing. New Delhi, Prentice Hall of India, 1997.*
3. *Kotler, Philip. Marketing Management: Analysis, Planning, Implementation and Control. New Delhi, Prentice Hall of India, 1994.*
4. *Ramaswamy, V S and Namakumari, S. Marketing Management: Planning, Control. New Delhi, MacMillan, 1990.*
5. *Stanton, William, J. Fundamentals of Marketing. New York, McGraw Hill, 1994.*
6. *Neelamegham, S. Marketing In India: Cases and Readings. New Delhi, Vikas, 1988.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## CP- 206: PRODUCTION AND OPERATIONS MANAGEMENT

### Objectives

The Course is designed to acquaint the students with decision making in: Planning, scheduling and control of Production and Operation functions in both manufacturing and services; Productivity improvement in operations through layout engineering and quality management e tc.; Effective and efficient flow, replenishment and control of materials with reference to both manufacturing and services organizations.

### Course Contents

1. Nature and Scope of Production and Operations Management Decisions, Types of Manufacturing Systems, Productivity, Challenges in Operations Management, Operations Strategy.
2. Production Planning and Control: An Overview Facilities Location, Location Planning, Facilities Layout.(a) Capacity Planning, Aggregate Planning ( b) Master Production Scheduling ( c) MRP, MRP II ( d) Enterprise Resource Planning( ERP), ( e) Business Process Reengineering (BPR).
3. ( a) Work Study, Methods Study, Work Measurement, Performance Rating and computation of Standard Time, Maintenance Management, Industrial Safety, Supply Chain Management, Enablers of supply chain performance, Supply Chain Strategy and performance measures.
4. Material Management: An Overview; Material Handling Equipment, Assembly Line Balancing, Line Balancing Problems, Line Balancing Approaches, Operation Decision, MRP, Purchasing and Store Management, Inventory Control and Budgeting.
5. Concept of Quality and Quality Assurance, Statistical Process Control ( Acceptance Samplings), ISO- 9000, ISO- 14000, OHSAS-18000, SA- 8000, Total Quality Management ( TQM), Six Sigma, DMAIC, Lean Management .

### Suggested Readings

1. Adam, E E & Ebert, R J. *Production and Operations Management. 6th ed., New Delhi, Prentice Hall of India, 1995.*
2. Amrine Harold T. etc. *Manufacturing Organisation and Management. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1993.*
3. B. Mahadevan, *Operations Management Theory and Practice, PEARSON, 2010*
4. Buffa, E S. *Modern Production Management. New York, John Wiley,*

1987.

5. Chary, S N. *Production and Operations Management*. New Delhi, Tata McGraw Hill, 1989.

6. Dobler, Donald W and Lee, Lamar. *Purchasing and Materials Management*. New York, McGraw Hill, 1984.

7. Dilworth, James B. *Operations Management: Design, Planning and Control for Manufacturing & Services*. Singapore, McGraw Hill, 1992.

8. James R. Evans, David A. Collier *Operations Management Concept, Techniques and Applications*, CENGAGE Learning, New Delhi, 2010.

9. Kanishka Bedi, *Production and Operations Management*, Oxford Unive

10. Moore, FG and Hendrick, TE. *Productionl Operations Management*. Homewood, Illinois, Richard D. Irwin, 1992.

11. Janat Shah, *Supply Chain Management Text and Cases* PEARSON, 2009

12. William J Stenvenson, *Operations Management*, Tata McGraw Hill, New Delhi 9e, 2009.

13. *Introduction to Work Study 3rd Edition (English, Paperback, and ILO)*, Publisher: Oxford & Ibh, ISBN: 9788120406025, 8120406028.

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## CP-207 E- COMMERCE

### Course contents:

#### UNIT I:

Introduction to ecommerce: Meaning and concept of ecommerce, ecommerce vs e- business, advantages and disadvantages of ecommerce, value chain in ecommerce, Porter's value chain model, competitive advantage and competitive strategy, different types of ecommerce like B2 B, B2C, C2C, C2B, G2C

Technology in ecommerce: An overview of the internet, basic network architecture and the layered model, internet architecture, network hardware and software considerations, intranets and extranets, The making of world wide web, web system architecture, ISP, URL's and HTTP, cookies.

#### UNIT II

Building and hosting your website: choosing an ISP, registering a domain name, web promotion, internet marketing techniques, e- cycle of internet marketing, personalization, mobile agents, tracking customers, customer service, CRM and e- value

Web page design using HTML: Overview of HTML, basic structure of an HTML document, basic text formatting, links, images, tables, frames, form.

#### UNIT III

Security threats: Security in cyberspace, kinds of threats and crimes: client threat, communication channel threat, server threat, other programming threats, frauds and scams

Basic cryptography for enabling security in ecommerce: encryption: public and private key encryption, authentication and trust using digital signature and digital certificates, internet security using VPN, firewalls, SSL

#### UNIT IV

Internet payment systems: Features of payment methods, 4C payment methods, electronic money, ACID and ICES test, payment gateway, SET protocol for credit card payment, electronic payment media: e- cash and e- wallet, e- check, credit card, debit card, smart card, EFT and ACH.

#### UNIT V

Business to Business e- commerce: Meaning, benefits and opportunities in B2B, B2 B building blocks and their relationship to supply chain management, key B2 B models and their main functions, EDI as a B2B tool.

Consumer oriented e- commerce: traditional retailing and e- retailing, benefits and key success factors for e- retailing, models for e- retailing like specialized and generalized e- stores, e- mall, direct selling by manufacturer, supplementary distribution channel, e- broker and e-

services like web-enabling services, matchmaking services, information selling on the web, entertainment services and auction services.

E-core values: ethical issues, legal issues, taxation issues and international issues.

## **CP-208: INTERNATIONAL BUSINESS ENVIRONMENT AND MANAGEMENT**

### **Objectives**

The primary Objectives of this course is to acquaint the students to emerging global trends in business environment.

### **Course Contents**

1. International Business: An overview - Types of International Business; The External Environment; The Economic and Political Environment, The Human Cultural Environment; Influence on Trade and Investment Patterns; Recent World Trade and Foreign Investment Trends; Theories and Institutions.
2. Trade and Investment - Government Influence on Trade Investment; Determination of Trading Partner's Independence, Interdependence and Dependence; World Financial Environment; Cross-national Cooperation and Agreements; Tariff and Non-Tariff Barriers, WTO, Regional Blocks; International production; Internationalisation of Service Firms
3. World Financial Environment: Foreign Exchange Market Mechanism; Determinants of Exchange Rates; Euro-currency Market; Global Strategic Management : International Marketing, Operation Management in International Firms.
4. An Overview of Licensing; Joint Ventures Technology and Global Competition; Globalisation and Human Resource Development; Globalisation with Social Responsibility; Balance of Payments Accounts and Macro economic Management
5. World Economic Growth and the Environment; *Country Evaluation and Selection; Intemational Business Diplomacy*: Negotiating an International Business, Issues in Asset Protection; Multilateral Settlements; Consortium Approaches; External Relations Approach (Elementary Idea Only).

### **Suggested Readings**

1. *Alworth, Julian S. The Finance, Investment and Taxation Decisions of Multinationals. London, Basil Blackwell, 1988.*
2. *Bhalla, V K and S. Shivaramu. International Business Environment and Business. New Delhi, Anmol, 1995.*
3. *Bhalla, V K. International Economy: Liberalisation Process. New Delhi, Anmol, 1993.*
4. *Daniel, John D and Radebangh, Lee H International Business. 5th ed., New York, Addison Wesley, 1989.*
5. *Eiteman, D K and Stopnehill, Al. Multinational Business Finance. New York, Addison Wesley, 1986.*
6. *Johnston, R B. The Economics of the Euromarket: History, Theory and Practice. New York, Macmillan, 1983.*
7. *Parks, Yoon and Zwick, Jack. International Banking in Theory and Practice. New York, Addison-Wesley, 1985.*

The list of cases and specific references including recent articles and reports will be announced in the class at the time of launching of the course.

**SEMESTER 3**  
**&**  
**SEMESTER 4**



## **CP-301: BUSINESS POLICY & STRATEGIC MANAGEMENT**

### **Objectives**

The Objectives of this course is to develop understanding about strategic processes and their impact on a firm.

### **Course Contents:**

#### **Unit-I**

Business and types of business, Defining strategy, Strategy and the Quest for Competitive Advantage: Military origins of strategy – Evolution - Concept and Characteristics of strategic management – Mintzerbg’ s 5Ps of strategy – Corporate, Business and Functional Levels of strategy - Strategic Management Process. . Strategic Intent & Strategy Formulation: Vision, mission and purpose – Business definition, objectives and goals – Stakeholders in business and their roles in strategic management - Corporate Social Responsibility, Ethical and Social Considerations in Strategy Development, Strategic management in Indian Scenario.

#### **Unit-II**

Strategic analysis: Analyzing Company’ s Resources and Competitive Position - Organizational Capability Profile – Strategic Advantage Profile – Core Competence - Distinctive competitiveness. Analyzing Company’ s External Environment: Environmental appraisal – Scenario planning – Preparing an Environmental Threat and Opportunity Profile ( ETOP) – Industry Analysis - Porter’s Five Forces Model of competition.

#### **Unit-III**

Corporate Portfolio Analysis: Business Portfolio Analysis - Synergy and Dysergy - BCG Matrix – GE 9 Cell Model - Concept of Stretch, Leverage and fit 6. Generic Competitive Strategies: Low cost, Differentiation, Focus. . Grand Strategies: Stability, Growth ( Diversification Strategies, Vertical Integration Strategies, Mergers, Acquisition & Takeover Strategies, Strategic Alliances & Collaborative Partnerships), Retrenchment, Outsourcing Strategies. Tailoring strategy to fit specific industry – Life Cycle Analysis - Emerging, Growing, Mature& Declining Industries.

#### **Unit-IV**

Strategy implementation - Project implementation – Procedural implementation – Resource Allocation – Organization Structure – Matching structure and strategy, Behavioural issues in implementation – Corporate culture – Mc Kinsey’ s 7s Framework - Concepts of Learning Organization . Functional issues – Functional plans and

policies – Financial, Marketing, Operations, Personnel, IT. Strategy Evaluation – Operations Control and Strategic Control - Symptoms of malfunctioning of strategy — Balanced Scorecard.

#### **UNIT- V**

New Business Models and strategies for Internet Economy: Shaping characteristics of E- Commerce environment – E- Commerce Business Model and Strategies – Internet Strategies for Traditional Business – Key success factors in E- Commerce – Virtual Value Chain.

Cases in strategic management: A minimum of 5 cases encompassing the above topics to be analyzed and discussed in the class.

Books Recommended:-

1. A Thompson Jr., A J Strickland III, J E Gamble, Crafting & Executing Strategy – The Quest for Competitive Advantage, Tata McGraw Hill, 4th ed., 2005.
2. Ranjan Das, Crafting the Strategy: Concepts and Cases in Strategic Management, Tata McGraw Hill, 2004.
3. Henry, Mintzberg, Bruce, Ahlstrand and Joseph, Lampel ( 1998). Strategy Safari. 31 Free Press, New York.
4. Gary, Hamel and Prahalad, C. K. ( 1999) . Competing for the Future. HBS Press.
5. Ed. C. A. Montgomery, M. E. Porter, Strategy – Seeking and Securing Competitive Advantage, Harvard Business Review Publications, 1991.
6. Peter F. Drucker, Managing in a Time of Great Change, Truman Talley Books / Plume Penguin Group, 1998.

The list of cases and specific references including recent articles will be announced in the class at the time of launching of course.

## CP-302: DECISION SUPPORT SYSTEMS AND MANAGEMENT INFORMATION SYSTEM

### Objective

The objective of the course is to develop the basic understanding of the decision support system of the Artificial Intelligence for Business Organization.

### Course Contents

- I. Management Information System: Definitions - Basic Concepts, Frameworks, System Development initiative, Different Methodologies - Life Cycle and Prototype approach.
- II. Features of various CBIS, Types of Information Systems. - TPS, MIS, DSS, KWS, OAS, experts system: evaluation and control of information systems.
- III. Data Base Management system : Sources of data - data file environment, problem solving , decision making, data models, data mining, elementary idea about RDBMS. Simon's model in information system design, Simulation technique
- IV. Decision Support System - An Overview : Relevance, scope, characteristics and capabilities, Components, Classification of DSS User Interface graphics menus - Forms, DSS tools - DSS generators, Specific DSS, Constructing a DSS : Steps in designing DSS, GDSS: Introduction & Applications.
- V. Application of Information System in Marketing, Production, Finance, Inventory and HR, Enterprise Resource Planning, Business Process re-engineering, Gaming.

### Suggested Readings

1. *Keen, Peter G.W.: Decision Support System an Organisational Perspective Addison- Wesley Pub.*
2. *Theierauff, Robert J. Decision Support System for-effective planning - - Prentice Hall - 1982.*
3. *Krober,Donald W., and Hugh.J. Watson Computer Based Information System Newyork, 1984*
4. *DavisL, Michael W. A management approach - Macmillan Publishing Company, Prentice Hali, New Jersey, 1988.*
5. *Andrew P. Decision Support System Engineering,Sage, John Wiley & Sons, New York, 1991.*

6. *Leod, Raymond Me JR Management information systems - Macmillan Publishing Company, New York - 5th Edition - 1993.*
7. *Turban, Efrain Decision Support & Expert Systems - Management Perspective - Macmillan Publishing Company, New York, 1988*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **CP-303: BUSINESS LEGISLATION**

### **Objectives**

The course is designed to assist the students in understanding basic laws affecting the operations of a business enterprise.

### **Course Contents**

- I The Indian Contract Act, 1872: Essentials of a Valid Contract. Void Agreements. Performance of Contracts. Breach of Contract and its Remedies. Quasi-Contracts.
- II The Sale of Goods Act, 1930 : Formation of a Contract. Rights of an Unpaid Seller. Consumer Protection Act.
- III The Negotiable Instruments Act, 1881: Nature and Types. Negotiation and Assignment. Holder-in-Due Course, Dishonour and Discharge of a Negotiable Instrument. Arbitration
- IV. The Companies Act, 2013; Nature and Types of Companies. Formation. Memorandum and Articles of Association. Prospectus Allotment of Shares. Shares and Share Capital. Membership. Borrowing Powers.
- V. Management and Meetings. Accounts and Audit. Compromise Arrangements and Reconstruction. Prevention of Oppression and Mismanagement. Winding Up. Cyber Laws.

### **Suggested Readings**

1. *Avtar Singh. Company Law. 11 th ed. Lucknow, Eastern, 1996.*
2. *Khergamwala, J S. The Negotiable Instrument Acts. Bombay, N.M. Tripathi, 1980.*
3. *Ramaiya, A. Guide to the Companies Act. Nagpur, Wadhwa, 1992.*
4. *Shah, S M. Lectures on Company Law. Bombay, N.M. Tripathi, 1990.*
5. *Tuteja, S K. Business Law For Managers. New Delhi, Sultan Chand, 1998.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## CP 401- BUSINESS ANALYTICS

### Objective-

This course aims to develop overall analytical skills of the students and to help them to apply analytical techniques to business decision making.

### Contents:

**Unit I- Introduction to Business Analytics:** Application, Objectives, Business Analytics and Competitive Advantage, Different types of Data, Big data, data Mining Process, Data Mining and tools ( Hadoop), Introduction to programming Language ( R, Python)

**Unit II- Descriptive Analytics:** Introduction, Visualising and exploring data, Descriptive statistics, Sampling and Estimation, Introduction to Probability Distribution, Tools Application, Correlation and other statistical Tools.

**Unit III- Predictive Analytics:** Principles of Forecasting, Predictive Modelling: Logic driven and Data driven Models, Time series, Types of Forecasting, Forecasting Methods and their Characteristics, Trend, Seasonality, Cyclical, Hold winner Forecasting method.

**Unit IV- Prescriptive Analytics:** Business rule algorithms, nonlinear optimization, Machine learning and Artificial Intelligence, Computational Modelling.

**Unit V- Ethics and Analytics:** Data collection and Protection laws, Ethical Use of Analytics, Analytics and Privacy Principles.

### Reading list

James, E. R (2017) Business Analytics (2 edition). Pearson Education Limited, UK

Unit- I, II, III, IV

Albright, S. C. & Wayne L. Winston, W. L. (2015) Business Analytics: Data Analysis and Decision Making (5 edition), Cengage Learning Limited

Unit- I, II, III, IV

Collmann, J.& Matei, S. A (2016) Ethical Reasoning in Big Data: An Exploratory Analysis (Computational Social Sciences) 1st ed. International Publishing Switzerland

Unit V-

Mitchell, T. M. (2017) Machine Learning. First edition. Mc Graw Hill Education

**CP-304: SUMMER TRAINING PROJECT**

At the end of second semester, all students will have to undergo summer and training of 8-10 weeks with industrial, business or service organization by taking up a project study.

**CP-402: PROJECT STUDY**

The final project will be evaluated at the end of the fourth semester by the internal and external examiners. This would be equivalent to the marks of the two papers

## **FM-3102: SECURITY ANALYSIS AND INVESTMENT MANAGEMENT**

### **Objectives**

The objective of this course is to impart knowledge to students regarding the theory and practice of Security Analysis and Investment Decision Making Process.

### **Course Contents**

**Unit I- Introduction:** Investment environment, various asset classes and financial instruments, investment process, return- risk analysis, impact of taxes & inflation, types and sources of risk, risk aversion, diversification and hedging, contemporary issues in investment management - Socially responsible investing (SRI), ethical investing etc.

### **Unit – II**

Operations of Indian stock market primary & secondary market listing of securities, NSE Emerge & BSE MSME, mechanics of investing; markets and brokers; market indices and return.

**Unit III- Analysis of Fixed Income Securities:** Bond fundamentals; Types of bonds; valuation of bonds; bond yields; bond price - yield relationship; analysis of risks in bonds- duration and convexity, bond portfolio management- passive bond management and active bond management including bond, immunization strategies.

**Unit IV- Equity Analysis:** Measurement of return and risk of equity shares approaches to equity analysis, fundamental analysis- Economy, Industry, Company Analysis; Equity Valuation Models ( DDM, P/E Ratio model and Free Cash Flow Valuation approach). Forecasting P/E ratio. Technical Analysis – Market indicators and specific stock indicators including Bollinger bands. Efficient market hypothesis, tests of market efficiency and empirical evidence, assumption of Investor's rationality and its critique, behavioural, Finance- behavioural biases (Framing, Mental accounting, Regret avoidance and Prospect theory).

**Unit V- Portfolio Analysis, Selection and Management:** Risk aversion and capital allocation to risky assets and risk free asset; Risk tolerance and asset allocation; optimal risky portfolio - Markowitz portfolio selection model, Sharpe's single Index Model and optimal portfolio construction. Capital Asset Pricing, Model ( CAPM) and Market Anomalies ( Size effect, Value effect, Seasonality effect,



Overreaction effect etc.). Extensions of CAPM ( Zero beta CAPM and Merton' s Inter temporal CAPM). Arbitrage Pricing theory and Multifactor Asset Pricing Models, active and passive portfolio management investment strategies- value investing, momentum and contrarian strategies etc., Portfolio performance evaluation( Sharpe index, Treynor Index, Jensen' s alpha, information ratio, Fama' s decomposition measure), portfolio revision.

### **Suggested Readings**

1. *Amling, Frederic. Investment. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1983.*
2. *Bhalia, V K. Investment Management: Security Analysis and Portfolio Management., 8th ed., New Delhi, S. Chand,2001.*
3. *Fischer, Donald E. and Jordan, Ronald J. Security Analysis and Portfolio Management. 6th ed., New Delhi, Prentice Hall of India, 1995.*
4. *Fuller, Russell J. and Farrell, James L. Modern Investment and Security Analysis. New York, McGraw Hill, 1993.*
5. *Haugen, Robert H. Modern Investment Theory. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1987.*
6. *Huang, Stanley S C and Randall, Maury R. Investment Analysis and Management. London, Allyn and Bacon, London,1987.*
7. *Sharpe, William F. etc. Investment. New Delhi, Prentice Hall of India, 1997.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course

## FM-3103: PORTFOLIO MANAGEMENT

### Objectives

The objective of this course is to give the students an in-depth knowledge of the theory and practice of Portfolio Management.

### Course Contents

- I. Introduction to Portfolio Management - An Optimum Portfolio Selection Problem, Markowitz Portfolio Theory, The Mean-variance Criterion (MVC) - The Nature of Investment Risk, MVC and Portfolio Selection
- II. The Investment in Liquid Assets, Portfolios of Two Risky Securities; A Three Security Portfolio, The Efficient Frontier, Tracing the Efficient Frontier
- III. The relationship between the Unleveraged and Leveraged Portfolio, Sharpe: Single Index Model; Application of Market Model in Portfolio Construction.
- IV. Capital Asset Pricing Model, Characteristic Lines, Factor Models and Arbitrage Pricing Theory, Constructing Efficient Frontier, Optimum Portfolios - Constructing the Optimum Portfolio, Portfolio Investment Process.
- V. Bond Portfolio Management Strategies; Investment Timing and Portfolio Performance Evaluation; Corporate Portfolio Management in India, International Diversification.

### Suggested Readings

1. *Alexander, Gordon J. and Sharpe, William F. Fundamentals of Investments. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1989.*
2. *Bhalia, V K. Investment Management:: Security Analysis and Portfolio Management., 8<sup>th</sup> ed., Delhi, S. Chand, 2001.*
3. *Portfolio Analysis and Management, Delhi, S.Chand, 2002*
4. *Elton, Edwin J and Gruber, Martin J. Modern Portfolio Theory and Investment Analysis. New York, John Wiley, 1984.*
5. *Lee, Cheng F. etc. Security Analysis and Portfolio Management. Scott, Foresman, 1990.*
6. *Markowitz, Harry M. Mean. Variance Analysis in Porifolio Choice and Capital Markets. London, Basic Blackwell, 1987.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **FM-3105: MANAGEMENT OF FINANCIAL SERVICES**

### **Objectives**

The main objective of this course is to help students to learn the various financial services and their role in the overall financial system.

### **Course Contents**

#### **Unit – I**

Financial Services: An Overview, Indian and Global Perspective – Managing new challenges, regulatory perspectives’, Financial sector reforms in India, Future challenges for Indian banks, Improving risk management systems, Banking and the Management of Financial Services.

#### **Unit – II**

Credit Rating Agencies – Importance, Issues, Difference in credit ratings, Rating methodology and benchmarks International credit rating agencies, Stock Exchange Operations.

#### **Unit – III**

Merchant Banking Services, Loan Syndication, Personal Finance, Housing & Mortgage Finance, Bill discounting, the tax environment & financial services, pricing financial services

#### **Unit – IV**

Financial Services – Mutual Funds and Pension Funds (NPS), Insurance Services, Banc assurance, Reinsurances, Venture Capital – Private Equity – Strategic secrets of private equity, Investment strategies, Hedge Funds, E banking, Securitization, Asset Reconstruction Companies (ARC), Credit Cards, Micro/ Macro Finance.

#### **Unit – V**

Leasing and Hire purchase, Factoring and Forfeiting, IFRS – Issues and Challenges, Financial Inclusion, Behavioural Finance.

### **Suggested Readings**

1. *Bhalla, V K. Management of Financial Services. Anmol, New Delhi, 2001.*
2. *Bhalla, V K And Dilbag, Singh. International Financial Centres. New Delhi, Anmol, 1997.*
3. *Ennew,C, Trevor Watkins & Mike Wright:Marketing of Financial Services,Heinemann Professional Pub.,1990*
4. *Gordan,E and K.Natrajan Emerging Scenario of Financial Services,Himalaya Publishing House,1997*
5. *Meidan, Arlhur Brennet, M. Option Pricing: Theory & Applications. Toronto, Lexing*
6. *Kim, Suk and Kim, Seung. Global Corporate Finance: Text and Cases. 2nd ed., Miami Florida, Kolb, 1993.*

## **FM-3109: FINANCIAL DERIVATIVES**

### **Objectives**

The objective of this course is to give an in depth knowledge of the functioning of derivative securities market.

### **Course Contents**

- I. Forward Contracts; Future Contracts; Other Derivative Securities; Types of Traders; Futures Markets and the use of Futures for Hedging.
- II. Forward and Futures Prices; Interest Rate Futures; Swaps;
- III. Options Markets; Properties of Stock Option Prices. Trading Strategies Involving Options
- IV. Black-Scholes Option Model; Binomial Model; Options on Stock Indices; Currencies and Futures Contracts;
- V. General Approach to Pricing Derivatives Securities; Interest Rate Derivative Securities; Derivatives Market in India.

### **Suggested Readings**

1. *Bhalla, V K. Investment Management ; Security analysis and Portfolio Management, New Delhi, S. Chand, 2001.*
2. *Financial Derivatives, Delhi, S. Chand, 2001*
3. *Brennet, M. Option Pricing: Theory & Applications. Toronto, Lexington Books, 1993.*
4. *Cox, John C and Rubinstein, Mark Options Markets. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1985.*
5. *Huang, Stanley S C and Randall, Maury R. Investment Analysis and Management. London, Allyn and Bacon, 1987.*
6. *Hull, John C. Options, Futures and Other Derivative Securities. 2nd ed. New Delhi, Prentice Hall of India, 1996.*
7. *Sharpe, William F. etc. Investment. New Delhi, Prentice Hall of India, 1997.*

The list of cases and specific references including recent articles and reports will be announced in the class at the time of launching of the course.

## **FM-3110: PROJECTS PLANNING, ANALYSIS AND MANAGEMENT**

### **Objectives**

The basic purpose of this course is to understand the framework for evaluating capital expenditure proposals, their planning and management in the review of the projects undertaken.

### **Course Contents**

**Unit I :** History of project management, Project Preparation: Meaning and importance of Project;; Project management approaches: Traditional and Modern Approach ; Types of project; Project life cycle; Project planning & implementation; Management action; Investment returns; corporate strategy; Objectives of Project Planning, monitoring and control of investment projects.

**Unit II:** identification of investment opportunities; Pre - feasibility Studies; Project Preparation: Technical feasibility, estimation of costs, demand analysis and commercial viability, risk analysis. Project Appraisal for financial institution, Preparation of project report.

**Unit III ;** Project Appraisal: Business criterion of growth, liquidity and profitability, social cost benefit analysis in public and private sectors, investment criterion and choice of techniques: Estimation of shadow prices and social discount rate. Financial evaluation: Project rating index; Project Cash Flows; Cost of Capital; Project Risk Analysis; Project Rate of Return; Special Decisions Situations. Mathematically modelling for multiple projects.

**Unit IV :** Project Financing and Implementation: Judgmental, Behavioural, Strategic and Organizational Considerations; Financing of Project: Raising finance in domestic Market and international market; Infrastructure financing; Tax planning while Financing for projects.

**Unit V :** Project Review and Administrative aspects. Contemporary issues in project appraisal: Project evaluation in nonprofit sector; Project management principles by project management institute USA; Project management software.

### **Suggested Readings**

1. Ahuja, G K & Gupta, Ravi. *Systematic Approach to Income Tax*. Allahabad, Bharat Law House, 1997.
2. Bhalla, V K. *Modern Working Capital Management*. New Delhi, Anmol, 1997.
3. Bhalla, V K. *Financial Management and Policy- 2nd ed*. New Delhi, Anmol,

1998.

4. Chandra, Prasanna. *Projects: Preparation, Appraisal, Budgeting and Implementation. 3rd ed., New Delhi, Tata McGraw Hill, 1987.*

*Delhi, Westville, 1995.*

The list of cases and specific references including recent articles and reports will be announced in the class at the time of launching of the course.

## FM-3114: FOREIGN EXCHANGE MANGEMENT

### Objectives

To acquaint the participants with the mechanism of the foreign exchange markets, measurement of the foreign exchange exposure, and hedging against exposure risk.

### Course Contents

- I. Types of Foreign Exchange Markets and Transactions, Quoting Foreign Exchange Rates, Spread, Official and Free Market Rates, Cross Rates, Forward Rates, Quoting Forward Rates, Currency Majors.
- II. Organisation of the Foreign Exchange Markets; Currency Futures; Currency Options; an Introduction to Financial Swaps : Major types, Basic Practical Aspects of SWAP, Motivation Underlying Swaps, Application of Swaps, Valuation of Swaps
- III. Corporate Exposure Management: Alternative Definitions of Foreign Exchange Risk. Exposure Information System, Alternative Strategies for Exposure Management, Exposure Management Techniques, Organization of the Exposure Management Function; Parameters and Constraints on Exposure Management, Hedging & Choosing basics of hedging technique i.e. hedging Scepticism.
- IV. Theory and practice of Forecasting Exchange Rates-Economic Fundamentals, Financial and Socio-Political Factors, Technical Analysis, Tax Treatment of Foreign Exchange Gains and Losses, basics of quoting forex rates & basics of understanding live currency market.
- V. Managing foreign operations-Eurocurrency markets- Eurocurrency interest rates, domestic issues v/s euro issues, International bonds market, External commercial borrowings, advantages of euro issues; Basics of FEMA.

### Suggested Readings

1. *Aliber, R.Z. Exchange Risk and Corpoarate International Finance, London, Macmillan,1978.*
2. *Bhalla,V.K. International Financial Management, 2nd ed., Delhi,Anmol,2001.*
3. *Luca Cornelius Trading in the Global Currency Markets,NJ, Prentice Hail, 1995*

4. *Shapiro, A.C. International Financial Management, Boston, Allyn and Bacon, 1979*
5. *Sutton, W.H. Trading in Currency Options, NY, New York Institute of Finance, 1987*

The list of cases and specific references including recent articles and reports will be announced in the class at the time of launching of the course.



## **MM-3201: CONSUMER BEHAVIOUR**

### **OBJECTIVES:**

To understand the conceptual foundations of consumer buying behavior. To equip the learner to apply the principles and prepare for a career in Product and Brand Management in the FMCG and consumer durables industry.

### **UNIT – I**

Consumer Behaviour and Marketing Action: An overview – Consumer involvement, decisionmaking processes and purchase behaviour and marketing implications – Consumer Behaviour Models.

### **UNIT – II**

Environmental influences on consumer behaviour – Cultural influences – Social class, reference groups and family influences – Opinion leadership and the diffusion of innovations – Marketing implications of the above influences.

### **UNIT – III**

The individual consumer and buying behaviour and marketing implications – Consumer perceptions, learning, attitudes, motivation and personality – psychographics, values and lifestyles.

### **UNIT – IV**

Strategic marketing applications – Market segmentation strategies – Positioning strategies for existing and new products, Re - positioning, perceptual mapping – Marketing communications – Source, message and media effects. Store choice and shopping behaviour – In- Store stimuli, store image and loyalty – Consumerism – Consumer rights and Marketers' responsibilities.

### **UNIT – V**

The Borderless Consumer Market and buying behaviour – Consumer buying habits and perceptions of emerging non- store choices – Research and applications of consumer responses to direct marketing approaches – Issues of privacy and ethics.

### **REFERENCES:**

1. Loudon and Della Bitta: CONSUMER BEHAVIOUR: CONCEPTS AND APPLICATIONS, Tata Mc- Graw Hill.
2. Henry Assael: CONSUMER BEHAVIOUR AND MARKETING ACTION, Kent Publishing Co.).
3. Berkman & Gilson: CONSUMER BEHAVIOUR: CONCEPTS AND STRATEGIES, ( Kent Publishing Co.).
4. Bennet and Kassarian: CONSUMER BEHAVIOUR, ( Prentice Hall of India)

## **MM-3202: ADVERTISING AND SALES PROMOTION MANAGEMENT**

**OBJECTIVES:** To equip students for a career in Product and Brand Management, Advertising – with special reference to Client servicing, Media planning and research.

### **UNIT-I:**

Advertising - An Introduction - Origin and Development - Definition and Classification - Planning Framework - Organising Framework - the Advertiser and the Advertising Agency interface STRATEGIC ADVERTISING DECISIONS - Setting Advertising Objectives – The Budget Decision – Preparing the Product and Media Brief.

### **UNIT-II:**

Copy Decisions – Visualization of Ad Layout – Elements of Ad Copy and Creation – Principles of verbal versus visual thinkers, Styles and Stages in advertising copy creation - Copy ( Pre-) Testing methods and measurements.

### **UNIT-III:**

Media Decisions - Media Planning and Selection – Concepts of Reach, Frequency, Continuity, and Selectivity – Measures of Media Cost Efficiency – Media ( Readership/ Viewership) Research. The Internet as an Advertising Medium: Tracking Website visits, pageviews, hits, and click - stream analysis, permission marketing and privacy, ethical concerns, Social Media Advertising.

### **UNIT-IV:**

Measuring Advertising Effectiveness - Control of Advertising by practitioners, media and the market - Advertising in the International Market - place - Advertising and Principles of Integrated Marketing Communication and Image Building.

### **UNIT-V:**

Sales Promotion – Rationale, Types - Consumer and Trade Promotions - Sales Promotion Strategies and Practices, Cross Promotions, Surrogate Selling, Bait and Switch advertising issues.

Brand Equity - Concepts and Criteria, Building, Measuring and Managing Brand Equity, Linking Advertising and sales promotion to achieve ‘ brand - standing’ – Leveraging Brand Values for business and non- business contexts.

### **REFERENCES**

1. Wells, Burnett & Moriarty: ADVERTISING PRINCIPLES AND PRACTICES, Prentice Hall
2. June Valladares: THE CRAFT OF COPYWRITING, Sage Publications.
3. J V Vilanilam & A K Varghese: ADVERTISING BASICS! A RESOURCE GUIDE FOR BEGINNERS, Response Books, Sage

Publications.

4. Wright, Winter & Zeigler: ADVERTISING; Tata McGraw Hill.
5. Sandage, Fryburger&Rotzoll: ADVERTISING; Irwin.
6. Aaker, Batra& Myers: ADVERTISING MANAGEMENT; Prentice Hall, India.
7. Subroto Sengupta: BRAND POSITIONING; Tata McGraw Hill.
8. David Ogilvy: OGILVY ON ADVERTISING.
9. J. T Russel& Ronald Lane: KLEPPNER'S ADVERTISING PROCEDURE; Prentice Hall.
10. Don E. Schultz: STRATEGIC ADVERTISING CAMPAIGNS; NTC Business Books.

The list of cases and specific references including recent articles and reports will be announced in the class at the time of launching of the course.

## MM-3203: STRATEGIC MARKETING

### Objectives

The basic objective of this course is to develop skills for analysing market competition and design appropriate competitive marketing strategies for higher market share.

### Course Contents

- I. Market Situation Analysis; Analysis of Competitor's Strategies and Estimating their Reaction Pattern and Competitive Position; Market Leader Strategies - Expanding the Total Market, Protecting Market Share, Expanding Market Share.
- II. Market Challenger Strategies - Choosing and Attack Strategy, Market Follower Strategies; Market Nicher Strategies;
- III. Competitive Market Strategy for Emerging Industries, Declining Industries and Fragmented Industries.
- IV. Balancing Customer and Competitor Orientations, Industry Segmentation and Competitive Advantage.
- V. Product Differentiation and Brand Positioning, Competitive Pricing, Competitive Advertising, Role of Sales Promotion in Competitive Marketing.

### Suggested Readings

1. *Cravens, D W. Strategic Marketing. Homewood Illinois, Richard D. Irwin, 1987.*
2. *Kaynak, E and Savitt, R. Comparative Marketing Systems. New York, Praegar, 1984.*
3. *Kotler, Philip. Marketing Management: Analysis, Planning, Implementation and Control New Delhi, Prentice Hall of India, 1997.*
4. *Porter, M E. Competitive Advantage: Creating, Sustaining Superior Performance. New York, Free Press, 1985.*
5. *Porter, M E. Competitive Strategy: Techniques for Analysing Industries Competitors. New York, Free Press, 1980.*

The list of cases and specific references including recent articles and reports will be announced in the class at the time of launching of the course.

## MM-3205: SALES AND DISTRIBUTION MANAGEMENT

### Objectives

The purpose of this paper is to acquaint the student with the concepts which are helpful in developing a sound sales and distribution policy and in organising and managing sales force and marketing channels.

### Course Contents

- I. Nature and Scope of Sales Management; Setting and Formulating Personal Selling Objectives; Recruiting and Selecting Sales Personnel;
- II. Developing and Conducting Sales Training Programmes.  
Designing and Administering Compensation Plans;  
Supervision of Salesmen;
- III. Motivating Sales Personnel; Sales Meetings and Sales Contests;  
Designing Territories and Allocating Sales Efforts; Objectives and Quotas for Sales Personnel; Developing and Managing Sales Evaluation Programme; Sales Cost and Cost Analysis.
- IV. An Overview of Marketing Channels, their Structure, Functions and Relationships; Channel Intermediaries - Wholesaling and Retailing; Logistics of Distribution; Channel Planning, Organisational Patterns in Marketing Channels;
- V. Managing Marketing Channels; Marketing Channel Policies and Legal Issues; Information System and Channel Management; Assessing Performance of Marketing Channels; International Marketing Channels.

### Suggested Readings

1. *Anderson, R. Professional Sales Management., Englewood Cliffs, New Jersey, Prentice Hall Inc., 1992.*
2. *Anderson, R. Professional Personal Selling. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1991.*
3. *Buskirk, R H and Stanton, W J. Management of Sales Force. Homewood Illinois, Richard D. Irwin, 1983.*
4. *Dalrymple, D J. Sales Management: Concepts and Cases. New York, John Wiley, 1989.*
5. *Johnson, E M etc. Sales Management: Concepts, Practices and Cases. New York, McGraw Hill, 1986.*
6. *Stanton, William J etc. Management of a Sales Force. Chicago, Irwin, 1995.*
7. *Stiil, R R. Sales Management, Englewood Cliffs, New Jersey, Prentice Hall Inc., 1988.*

The list of cases and specific references including recent articles and reports will be announced in the class at the time of launching of the course.

**MM-3208: MARKETING OF SERVICES**

Objective: To differentiate between product and service businesses and equip for a career in marketing in the service industry.

**UNIT-I:**

Marketing Of Services - Introduction - Growth of the Service Sector - The Concept of Service - Characteristics of Services- Classification of Services - Designing the Service - Blueprinting, Using Technology, Developing Human Resources, Building Service Aspirations.

**UNIT-II:**

Marketing Mix In Services Marketing - THE SEVEN Ps - Product Decisions, Pricing Strategies and Tactics, Promotion of Services and Placing or Distribution Methods for Services - Additional Dimensions in Services Marketing - People, Physical Evidence and Process.

**UNIT-III:**

Strategic Marketing Management For Services - Matching Demand and Supply through Capacity Planning and Segmentation - Internal Marketing of a Service - External versus Internal Orientation of Service Strategy.

**UNIT-IV:**

Delivering Quality Services - Causes of Service- Quality Gaps: The Customer Expectations versus Perceived Service Gap, Factors and Techniques to Resolve this Gap - Gaps in Service - Quality Standards, Factors and Solutions  
- The Service Performance Gap - Key Factors and Strategies for Closing the Gap - External Communication to the Customer: the Promise versus Delivery Gap - Developing Appropriate and Effective Communication about Service Quality.

**UNIT-V:**

Marketing Of Services With Special Reference To ( a) Financial Services ( b) Health Services ( c) Hospitality Services including Travel, Hotels and Tourism. ( d) Professional Services ( e) Public Utility Services ( f) Communication Services ( g) Educational Services.

**REFERENCES**

1. Valerie Zeithaml & Mary Jo Bitner: SERVICES MARKETING, McGraw Hill.
2. Christopher H. Lovelock: SERVICES MARKETING: PEOPLE, TECHNOLOGY, STRATEGY, Pearson Education Asia.
3. Zeithaml, Parasuraman & Berry: DELIVERING QUALITY SERVICE; The Free Press, Macmillan.
4. Audrey Gilmore: Services marketing and Management, Response Books, Sage Publications.
5. Ron Zemke & Dick Schaaf: THE SERVICE EDGE.
6. Raghu & Vasanthi Venugopal: SERVICES MARKETING

## **MM-3211: BRAND MANAGEMENT**

### **Objectives**

The objective of this course is to impart in-depth knowledge to the students regarding the theory and practice of Brand Management.

### **Course Contents**

- I. Understanding Brands - Brand Hierarchy, Brand Personality, Brand Image, Brand Identity, Brand Positioning;
- II. Brand Equity; Value addition from Branding - Brand-customer Relationships, Brand Loyalty and Customer Loyalty.
- III. Managing Brands; Brand Creation, Brand Extensions, Brand-product Relationships, Brand Portfolio.
- IV. Brand Assessment through Research - Brand Identity, Position, Image, Personality Assessment and Change; Brand Revitalisation.
- V. Financial Aspects of Brands; Branding in Different Sectors: Customer, Industrial, Retail and Service Brands.

### **Suggested Readings**

1. *Aaker, David, A. Managing Brand Equity. New York, Free Press, 1991.*
2. *Cowley, Don. Understanding Brands. London, Kogan Page, 1991.*
3. *Czerniawski, Richard D. & Michael W. Maloney Creating Brand Royalty, AMACOM, NY, 1 999*
4. *Kapferer, J N. Strategic Brand Management. New York, Free Press, 1992.*
5. *Murphy, John A. Brand Strategy. Cambridge, The Director Books, 1990.*
6. *Steward, P. Building Brands Directly. London, MacMillan, 1996.*
7. *Upshaw, Lyhh B. Building Board Identity: A Straterly for success in a hostile market place. New York, John. Wiley, 1995.*

The list of cases and specific references including recent articles and reports will be announced in the class at the time of launching of the course.

## **MM - 3213 PLANNING AND MANAGING RETAIL BUSINESS**

### **Objectives :**

The Course will focus manufacturers' perspective on retailers and understanding of the retail business.

### **Course Contents**

#### **UNIT I**

An introduction to the Retailing System. Retailing mix - Social forces - Economic forces - Technological force - Competitive forces: Retailing definition, Structure, Different formats - Marketing Concept in Retailing - Consumer purchase behaviours - Cultural and Social group influence on Consumer purchase Behaviour.

#### **UNIT II**

Retail store location - Traffic Flow and analysis - Population and its Mobility - Exteriors and layout - Customer Traffic Flows and Pattern - Creative display; Merchandise Planning - Stock turns.

#### **UNIT III**

Credit Management, Retail Pricing, Return on per Squ. Feet Space - Retail Promotions - Staying Ahead of Competition: Supply chain Management - Warehousing - Roll of IT in supply Chain Management, Franchising. Direct Marketing/Direct Selling

#### **UNIT IV**

Exclusive shops - Destination Stores - Chain Stores - Discount Stores and other current and emerging formats - Issues and options; Retail Equity, Technology in Retailing - Retailing through the internet.

#### **UNIT V**

Globalization and changing retail formats – Online retailing - International Retailing – Opportunities and Challenges - Market entry formulas - New customized formats ( customized stores, portable stores, merchandise depots, retail theater, service malls, customer - made stores, interactive kiosk 'shopping arcades')

### **References:**

1. Diamond, Jay and Gerald Pintel Retailing, Prentice - Hall, N.J. 1996.
2. Drake, Mary Francis J.H. Spooone and H Greenwald Retail Fashion. Promotion, and Advertising, Macmillan, N.Y. 1992.
3. Levy, Michael & Barton A. Weitz Retailing Management 2nd ed. Irwin, London, 1995.
4. Morgenstein, Melvin and HarriatStrongin Modern Retailing, Prentice Hall, N.J. 1992.



## **MM 3215: LOGISTICS AND SUPPLY CHAIN MANAGEMENT**

### Objective:

To introduce process and functions of physical distribution system. To introduce the major building blocks, functions, business process, performance metrics and decision making in supply chain network. To provide an insight into the role of Internet Technologies and electronics commerce in supply chain management.

### UNIT - I

Physical distribution : Participation in the physical distribution functions – The environment of physical distribution – Channel design strategies and structures – electing channel members – Setting distribution objectives and tasks – Target markets and channel design strategies.

### UNIT – II

Managing the marketing channel - Product, Pricing and Promotion issues in channel Management and Physical Distribution - Motivating channel members - Evaluating channel member performance - Vertical marketing systems - Retail co- operatives, Franchise systems and corporate marketing systems.

### UNIT – III

Supply Chain: Building Blocks of a Supply Chain Network – Performance Measures in Decisions in the Supply chain World – Models for Supply chain Decision Making.

### UNIT - IV

Supply Chain Inventory Management: Economic Order quantity Models – Recorder Point Models – Multichannel Inventory systems – Supply chain Facilities Layout – Capacity Planning – Inventory optimization – Dynamic Routing and Scheduling.

### UNIT-V

Relation to ERP: E- procurement – E- Logistics – Internet Auctions – E- markets – Electronic Business Process – Optimization Business Object in SCM.

### REFERENCES

- N. Chandrasekaran, SUPPLY CHAIN MANAGEMENT, Oxford University Press, 2010  
 D. K. Agarwal, LOGISTICS & SUPPLY CHAIN MANAGEMENT, Macmillan India Pvt. Ltd. New Delhi, 2008  
 Sunil chopra, Meindl & Kalra, SUPPLY CHAIN MANAGEMENT, Pearson Education, India, 2009  
 Bowersox & Closs, LOGISTICAL MANAGEMENT, Tata McGraw Hill. New Delhi, 2008  
 Satish K. Kapoor & Purva Kansal, basics of distribution management - a logistical approach, Prentice- Hall India, 2003.

## **MM- 3216: DIGITALMARKETING**

### **Objectives**

The objective of this paper is to create awareness about Digital Marketing and educate the learner about use of electronics in marketing management.

### **Course Contents**

#### **Unit 1 Introduction to Digital Marketing and SEO**

The Significance of Digital Marketing, Digital Media, Digital v/s Traditional Marketing, Digital Marketing Trends and Platforms, Digital Marketing and Search Engine, Search Engine Optimization (SEO) concepts, Search Engine Architecture, Internal Measures for SEO, Do and Don't for Web Content, Link Building, Introduction to Digital Marketing Tools.

#### **Unit 2 Networks of Digital Marketing**

Introduction to Ad-Word, Display Networks, Advertising on Display Networks, Image Advertising, Mobile Advertising, Video Advertising, YouTube Advertising, Keyword Research Methodology, Analysis and Tools for Digital Marketing Networks, Link Building Methodology and Strategies

#### **Unit 3 Search Engine Marketing**

Benefits of SEM, Google Ad-Words V/S Microsoft Ad-Center, Types of Campaign, Ad- Group and keywords setup, Direct Campaign V/S Branding Campaign, Campaign Setup, Understanding Ad- Words Bidding, Ad-Formats and Guidelines, Campaigns, Ad-groups and keywords Dashboard

#### **Unit 4 Email and Mobile Marketing**

Importance of Email Marketing, Popular Email Marketing Software, Email Marketing Campaign, Newsletters in Email Marketing, Effective strategies for Email Marketing, Email marketing tools, Triggered Email Campaign. **Mobile Marketing:** Mobile Ad- Campaign, Mobile Ad-Formats, Mobile Website Configuration. Video Marketing using YouTube: Optimization of Videos, Tips and Tricks for promotion, YT Analytics, Monetizing YT Channel

#### **Unit 5 Social Media Marketing**

Introduction to Social Media Marketing, Benefits of SMM, Social Media Strategy, Social Media Metrics in SEO, Face-book Marketing: setup, options, elements and applications; Twitter Marketing: #hash tags and its uses, analytics and promotions; Benefits in SEO, Groups; LinkedIn Marketing: Strategy, Connection and Recommendations

### **Suggested Readings**

1. Damian Ryan and Calvin Jones, Understanding Digital Marketing: Marketing Strategies for Engaging the Digital Generation, 2 nd Edition, ISBN: 9780749453893.
2. Vinayak Patukale, Digital Marketing, Kindle Edition

## **OBH-3301: MANAGEMENT OF INDUSTRIAL RELATIONS**

### **Objectives**

Organisational efficiency and performance are intricately interlinked with industrial relations. This course is an attempt to appreciate the conceptual and practical aspects of industrial relations at the macro and micro levels.

Course Contents:

### **Unit –I**

Introduction - Concept and Determinants of Industrial Relations - Industrial Relations in India - Managing IR Changes - IR and Productivity - Technology and IR - Effective Communication Systems and IR Management - Indian Culture & IR.

### **UNIT-II**

Trade Unions - Purpose, Functions and Structure of Trade Unions - Trade Union Legislation - Multiplicity of Trade Unions - Conflict Resolutions - Industrial Relations - Welfare and Productivity - Social Responsibility of Trade Unions - IR Management and Management of Trade Unions.

### **UNIT- III**

Employee Counseling - Types - Methods - Problems - Consultative Bodies ( Bipartite, Tripartite) - IR Strategies - Workers Development and Participation.

### **UNIT-IV**

Discipline and Grievance Redressal Machinery - Purposes and Procedures of Disciplinary Action - Grievance Redressal Procedures - Conciliation - Arbitration and Adjudication - Collective Bargaining - The Bargaining Process - Strengths and Skills.

### **UNIT-V**

Labor Administration - ILO, ILC and Indian Constitutional Provisions in Relation to Labor Administration - Central Machinery of Labor Administration - Labor Administration at the State, District and Local Levels- Contemporary Trends and Future of Industrial Relations in India.

### **Suggested Readings**

1. Kochan, T.A. & Katz Henry. *Collective Bargaining and Industrial Relations*. 2nd ed. Homewood, Illinois, Richard D Irish, 1988.
2. Mamkoottam, K *Trade Unionism. Myth and Reality*. New Delhi, Oxford University Press, 1982.
3. Niland J R. etc. *The Future of Industrial Relations*. New Delhi, Sage, 1994.4.
4. Papola, T S & Rodgers, G. *Labour Institutions and Economic Development in India*. Geneva, ILO, 1992.

5. *Ramaswamy, E A. The Rayon Spinners The Strategic Management of Industrial Relations. New Delhi, Oxford University Press, 1994.*
6. *Virmani, B R. Participative Management vs. Collective Bargaining. New Delhi, Vision Books, 1988.7. Webb, Sidney & Webb, Beatrice. Industrial Democracy. Melbourne, Longman, 1987.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## OBH- 3305: LEGAL FRAMEWORK GOVERNING HUMAN RELATIONS

### Objectives

Understanding of the legal framework is important for the efficient decision making relating to man management and industrial relations. The course aims to provide an understanding, application and interpretation of the various labour laws and their implications for industrial relations and labour issues.

### Course Contents

- I. Emergence and Objectives of Labour Laws and their Socio-economic Environment; Industrial Relations Laws –
- II. Laws Relating to Industrial Disputes, Trade Unions, and Standing Orders; Laws Relating to Discharge, Misconduct, Domestic Enquiry, Disciplinary Action.
- III. Social Security Laws - Laws Relating to Workmen's Compensation, Employees' State Insurance, Provident Fund, Gratuity and Maternity Relief.
- IV. Wages and Bonus Laws - The Law Of Minimum Wages, Payment of Wages, Payment Of Bonus; Laws Relating to Working Conditions - The Laws Relating to Factories.
- V. Establishment, and Contract Labour; Interpretations of Labour Laws, their Working, and Implications for Management, Union, Workmen; The Economy and the Industry.

### Suggested, Readings

1. Ghaiye, B R. *Law and Procedure of Departmental Enquiry in Private and Public Sector*. Lucknow, Eastern Law Company, 1994.
2. Malhotra, O P. *The Law of Industrial Disputes. Vol. I and II*. Bombay, N.M Tripathi, 1985.
3. Malik, P L. *Handbook of Industrial Law*. Lucknow, Eastern Book, 1995.
4. Saini, Debi S. *Labour Judiciary, Adjudication and Industrial Justice*. New Delhi, Oxford, 1995.
5. Saini, Debi S. *Redressal of Labour Grievances, Claims and Disputes*. New Delhi, Oxford & IBH, 1994.
6. Seth, D D. *Industrial Dispute Act, 1947. Vol. I & II*. Bombay, N.M Tripathi, 1995.
7. Srivastava S C. *Industrial Relations and Labour Law*. New Delhi, Vikas, 1994.

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## OBH-3306: MANAGEMENT TRAINING AND DEVELOPMENT

### Objectives

The purpose of this paper is to provide an in-depth understanding of the role of Training in the HRD, and to enable the course participants to manage the Training systems and processes.

### Course Contents

- I. Training Process - an Overview; Role, Responsibilities and Challenges to Training Managers;
- II. Organization and Management of Training Function; Training Needs Assessment and Action Research
- III. Instructional Objectives and Lesson Planning; Learning Process.
- IV. Training Climate and Pedagogy; Developing Training Modules; Training Methods and Techniques.
- V. Facilities Planning and Training Aids; Training Communication; Training Evaluation; Training and Development in India.

### Suggested Readings

1. *Beunet, Roger ed. Improving Training Effectiveness. Aldershot, Gower, 1988.*
2. *Buckley R & Caple, Jim. The Theory & Practice of Training. London, Kogan & Page, 1995.*
3. *Lynton, R Pareek, U. Training for Development. 2nd ed. New Delhi, Vistaar, 1990.*
4. *Pepper, Allan D. Managing the Training and Development Function Aldershot, Gower, 1984.*
5. *Rae, L. How to Measure Training Effectiveness. Aldershot, Gower, 1986.*
6. *Reid, M A. etc. Training Interventions: Managing Employee Development. 3rd ed. London, IPM, 1992.*
7. *Senge, P. The Fifth Discipline: The Art and Practice of the Learning Organization. London, Century, 1992.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **OBH-3308: ORGANIZATIONAL CHANGE AND INTERVENTION STRATEGIES**

### **Objectives**

The objective of this paper is to prepare students as organizational change facilitators using the knowledge and techniques of behavioural science.

### **Course Contents**

- I Organization Change - an Overview, models of change and effectiveness of change strategies ; Approaches to Problem Diagnosis.
- II Some Major Techniques of Planned Change; managing resistance to change; introduction of OD and steps in OD.
- III General OD Competencies, OD Skills,
- IV OD Interventions: Overview, Designing & evaluation of Interventions - Interpersonal, Team, Intergroup and System; factors affecting OD Interventions.
- V Power, Politics, ethics, Future of OD and new perspectives.

### **Suggested Readings**

- 1 *Abad, Ahmad. etc. Developing Effective Organization. New Delhi, Sri Ram Centre for Industrial Relations, 1980.*
- 2 *De Nitish. Alternative Designs of Human Organizations. London, Sage, 1988.*
- 3 *French, W H. and Bell, CH. Organisation Development. New Delhi, Prentice Hall of India, 1991.*
- 4 *French, W L., etc. Organization Development Theory, Practice and Research. 3rd ed. New Delhi, Universal Book Stall, 1990.*
- 5 *Harvey, D F. and Brown, D R. An Experiential Approach to Organization Development. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1990.*
- 6 *Huse, F E. and Cummings, T G. Organization, Development and Change. 3rd ed. New York, West, 1985.*
- 7 *Sinha, Dharani, P. etc. Consultants and Consulting Styles. New Delhi, Vision, 1982.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of course.

## **OBH-3310: HUMAN RESOURCE DEVELOPMENT: STRATEGIES AND SYSTEMS**

### **Objectives**

The purpose of this course is to facilitate an understanding of the concepts, methods and strategies for HRD.

### **Course Contents**

- I. Field of HRD - Evolution; Concepts, Theoretical framework of HRD, Goals, Challenges; HRD Climate; Elements of HRD Climate and HRD Practices and trends in Indian Organization.
- II. Staffing HRD Function; HRD Models; Developing HR Strategies; Framework of strategic HRD System: Strategic HRD practices and Strategic HRD facilitators; System Approach to HRD.
- III. Design & Administration of Selected HRD Systems; HRD System Design Principles; Evaluating HRD Programs.
- IV. Potential Appraisal, Assessment Centres, Performance Management Systems, 360 Degree Feedback. Multi rater System,
- V. HRD Intervention; HRD Approaches for coping with Organisational Changes; Case Studies of HRD in Indian Organizations, Impact of globalization on HRD.

### **Suggested Readings**

1. Dayal, Ishwar. *Successful Applications of HRD*. New Delhi, New Concepts, 1996.
2. Dayal, Ishwar. *Designing HRD Systems*. New Delhi, Concept, 1993.
3. Kohli, Uddesh & Sinha, Dharni P. *HRD - Global Challenges & Strategies in 2000 A. D.* New Delhi, ISTD, 1995.
4. Maheshwari, B L. & Sinha, Dharni P. *Management of Change Through HRD*. New Delhi, Tata McGraw Hill, 1991.
5. Pareek, U. etc. *Managing Transitions: The HRD Response*. New Delhi, Tata McGraw Hill, 1992.
6. Rao, T V. etc. *Alternative Approaches & Strategies of Human Resource Development*. Jaipur, Rawat, 1988.
7. Silvera, D N. *HRD: The Indian Experience*. Delhi, New India, 1991.



## OBH-3311: HUMAN RESOURCE PLANNING AND DEVELOPMENT

### Objectives

The objective of this paper is to develop a conceptual as well as a practical understanding of Human Resource Planning, Deployment and Development in organisations.

### Course Contents

- I. Macro Level Manpower Planning and Labour Market Analysis; Organisational Human Resource Planning; Stock Taking; Work Force Flow Mapping; Age and Grade Distribution Mapping.
- II. Models and Techniques of Manpower Demand and Supply Forecasting; Behavioural Factors in Human Resource Planning - Wastage Analysis; Retention; Redeployment and Exit Strategies.
- III. Career Management and Career Planning; Performance Planning; Potentials Appraisal and Career Development;
- IV. HRD Climate; Culture; QWL and Management of Change; TQM and HRD Strategies;
- V. HRD in Strategic Organisations; Human Resource Information System; Human Resource Valuation and Accounting; Human Resource Planning in changing context: Strategic planning & HRP.

### Suggested Readings

1. Arthur, M. *Career Theory Handbook*. Englewood cliff, Prentice Hall Inc., 1991
2. Belkaoui, A R and Belkaoui, J M. *Human Resource Valuation: A Guide to Strategies and Techniques*. Greenwood, Quorum Books, 1995.
3. Dale, B. *Total Quality and Human Resources: An Executive Guide*. Oxford, Blackwell, 1992.
4. Greenhaus, J H. *Career Management*, New York, Dryden, 1987.
5. Kavanagh, M J. etc. *Human Resource Information System: Development and Applications*. Boston, PWS-Kent, 1993.
6. Mabey, C and Salama, G. *Strategic Human Resource Management*. Oxford, Blackwell, 1994.
7. Thomson, R and Mabey, C. *Developing Human Resources*. Oxford, Butterworth- Heinemann, 1994.

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

B.Pharm 1 sem		
Subject with code	Scope	Learning outcome
BP101T. HUMAN ANATOMY AND PHYSIOLOGY-I (Theory)	This subject is designed to impart fundamental knowledge on the structure and functions of the various systems of the human body. It also helps in understanding both homeostatic mechanisms. The subject provides the basic knowledge required to understand the various disciplines of pharmacy.	Upon completion of this course the student should be able to 1. Explain the gross morphology, structure and functions of various organs of the human body. 2. Describe the various homeostatic mechanisms and their imbalances. 3. Identify the various tissues and organs of different systems of human body. 4. Perform the various experiments related to special senses and nervous system. 5. Appreciate coordinated working pattern of different organs of each system
BP102T. PHARMACEUTICAL ANALYSIS (Theory)	This course deals with the fundamentals of analytical chemistry and principles of electrochemical analysis of drugs	Upon completion of the course student shall be able to · understand the principles of volumetric and electro chemical analysis · carryout various volumetric and electrochemical titrations · develop analytical skills
BP103T. PHARMACEUTICS- I (Theory)	This course is designed to impart a fundamental knowledge on the preparatory pharmacy with arts and science of preparing the different conventional dosage forms.	Upon completion of this course the student should be able to: · Know the history of profession of pharmacy · Understand the basics of different dosage forms, pharmaceutical incompatibilities and pharmaceutical calculations · Understand the professional way of handling the prescription · Preparation of various conventional dosage forms
BP104T. PHARMACEUTICAL INORGANIC CHEMISTRY (Theory)	This subject deals with the monographs of inorganic drugs and pharmaceuticals.	Upon completion of course student shall be able to · know the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals · understand the medicinal and pharmaceutical importance of inorganic compounds

BP105T.COMMUNICATION SKILLS (Theory)	This course will prepare the young pharmacy student to interact effectively with doctors, nurses, dentists, physiotherapists and other health workers. At the end of this course the student will get the soft skills set to work cohesively with the team as a team player and will add value to the pharmaceutical business.	Upon completion of the course the student shall be able to 1. Understand the behavioral needs for a Pharmacist to function effectively in the areas of pharmaceutical operation 2. Communicate effectively (Verbal and Non Verbal) 3. Effectively manage the team as a team player 4. Develop interview skills 5. Develop Leadership qualities and essentials
BP 106RBT.REMEDIAL BIOLOGY (Theory)	To learn and understand the components of living world, structure and functional system of plant and animal kingdom.	Upon completion of the course, the student shall be able to · know the classification and salient features of five kingdoms of life · understand the basic components of anatomy & physiology of plant · know understand the basic components of anatomy & physiology animal with special reference to human
BP 106RMT.REMEDIAL MATHEMATICS (Theory)	This is an introductory course in mathematics. This subject deals with the introduction to Partial fraction, Logarithm, matrices and Determinant, Analytical geometry, Calculus, differential equation and Laplace transform.	Upon completion of the course the student shall be able to:- 1. Know the theory and their application in Pharmacy 2. Solve the different types of problems by applying theory 3. Appreciate the important application of mathematics in Pharmacy
<b>B.Pharm 2nd sem</b>		
<b>Subject with code</b>	<b>Scope</b>	<b>Learning outcome</b>

BP 201T. HUMAN ANATOMY AND PHYSIOLOGY-II (Theory)	This subject is designed to impart fundamental knowledge on the structure and functions of the various systems of the human body. It also helps in understanding both homeostatic mechanisms. The subject provides the basic knowledge required to understand the various disciplines of pharmacy.	Upon completion of this course the student should be able to: 1. Explain the gross morphology, structure and functions of various organs of the human body. 2. Describe the various homeostatic mechanisms and their imbalances. 3. Identify the various tissues and organs of different systems of human body. 4. Perform the hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume. 5. Appreciate coordinated working pattern of different organs of each system 6. Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.
BP202T. PHARMACEUTICAL ORGANIC CHEMISTRY –I (Theory)	This subject deals with classification and nomenclature of simple organic compounds, structural isomerism, intermediates forming in reactions, important physical properties, reactions and methods of preparation of these compounds. The syllabus also emphasizes on mechanisms and orientation of reactions	Upon completion of the course the student shall be able to 1. write the structure, name and the type of isomerism of the organic compound 2. write the reaction, name the reaction and orientation of reactions 3. account for reactivity/stability of compounds, 4. identify/confirm the identification of organic compound

BP203 T. BIOCHEMISTRY (Theory)	<p>Biochemistry deals with complete understanding of the molecular levels of the chemical process associated with living cells. The scope of the subject is providing biochemical facts and the principles to understand metabolism of nutrient molecules in physiological and pathological conditions. It is also emphasizing on genetic organization of mammalian genome and hetero &amp; autocatalytic functions of DNA.</p>	<p>Upon completion of course student shall able to</p> <ol style="list-style-type: none"> <li>1. Understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes.</li> <li>2. Understand the metabolism of nutrient molecules in physiological and pathological conditions.</li> <li>3. Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.</li> </ol>
BP 204T.PATHOPHYSIOLOGY (THEORY)	<p>Pathophysiology is the study of causes of diseases and reactions of the body to such disease producing causes. This course is designed to impart a thorough knowledge of the relevant aspects of pathology of various conditions with reference to its pharmacological applications, and understanding of basic pathophysiological mechanisms. Hence it will not only help to study the syllabus of pathology, but also to get baseline knowledge required to practice medicine safely, confidently, rationally and effectively.</p>	<p>Upon completion of the subject student shall be able to –</p> <ol style="list-style-type: none"> <li>1. Describe the etiology and pathogenesis of the selected disease states;</li> <li>2. Name the signs and symptoms of the diseases; and</li> <li>3. Mention the complications of the diseases.</li> </ol>

BP205 T. COMPUTER APPLICATIONS IN PHARMACY (Theory)	This subject deals with the introduction Database, Database Management system, computer application in clinical studies and use of databases.	Upon completion of the course the student shall be able to 1. know the various types of application of computers in pharmacy 2. know the various types of databases 3. know the various applications of databases in pharmacy
BP 206 T. ENVIRONMENTAL SCIENCES (Theory)	Environmental Sciences is the scientific study of the environmental system and the status of its inherent or induced changes on organisms. It includes not only the study of physical and biological characters of the environment but also the social and cultural factors and the impact of man on environment.	Upon completion of the course the student shall be able to: 1. Create the awareness about environmental problems among learners. 2. Impart basic knowledge about the environment and its allied problems. 3. Develop an attitude of concern for the environment. 4. Motivate learner to participate in environment protection and environment improvement. 5. Acquire skills to help the concerned individuals in identifying and solving environmental problems. 6. Strive to attain harmony with Nature.
<b>B.Pharm 3 rd sem</b>		
Subject with code	Scope	Learning outcome
BP301T. PHARMACEUTICAL ORGANIC CHEMISTRY –II (Theory)	This subject deals with general methods of preparation and reactions of some organic compounds. Reactivity of organic compounds are also studied here. The syllabus emphasizes on mechanisms and orientation of reactions. Chemistry of fats and oils are also included in the syllabus.	Upon completion of the course the student shall be able to 1. write the structure, name and the type of isomerism of the organic compound 2. write the reaction, name the reaction and orientation of reactions 3. account for reactivity/stability of compounds, 4. prepare organic compounds

<p>BP302T. PHYSICAL PHARMACEUTICS-I (Theory)</p>	<p>The course deals with the various physical and physicochemical properties, and principles involved in dosage forms/formulations. Theory and practical components of the subject help the student to get a better insight into various areas of formulation research and development, and stability studies of pharmaceutical dosage forms.</p>	<p>Upon the completion of the course student shall be able to</p> <ol style="list-style-type: none"> <li>1. Understand various physicochemical properties of drug molecules in the designing the dosage forms</li> <li>2. Know the principles of chemical kinetics &amp; to use them for stability testing and determination of expiry date of formulations</li> <li>3. Demonstrate use of physicochemical properties in the formulation development and evaluation of dosage forms.</li> </ol>
<p>BP 303 T. PHARMACEUTICAL MICROBIOLOGY (Theory)</p>	<p>Study of all categories of microorganisms especially for the production of alcohol antibiotics, vaccines, vitamins enzymes etc..</p>	<p>Upon completion of the subject student shall be able to;</p> <ol style="list-style-type: none"> <li>1. Understand methods of identification, cultivation and preservation of various microorganisms</li> <li>2. To understand the importance and implementation of sterilization in pharmaceutical processing and industry</li> <li>3. Learn sterility testing of pharmaceutical products.</li> <li>4. Carried out microbiological standardization of Pharmaceuticals.</li> <li>5. Understand the cell culture technology and its applications in pharmaceutical industries.</li> </ol>

BP 304 T. PHARMACEUTICAL ENGINEERING (Theory)	This course is designed to impart a fundamental knowledge on the art and science of various unit operations used in pharmaceutical industry.	Upon completion of the course student shall be able: 1. To know various unit operations used in Pharmaceutical industries. 2. To understand the material handling techniques. 3. To perform various processes involved in pharmaceutical manufacturing process. 4. To carry out various test to prevent environmental pollution. 5. To appreciate and comprehend significance of plant lay out design for optimum use of resources. 6. To appreciate the various preventive methods used for corrosion control in Pharmaceutical industries.
<b>B.Pharm 4th sem</b>		
Subject with code	Scope	Learning outcome
BP401T. PHARMACEUTICAL ORGANIC CHEMISTRY –III (Theory)	This subject imparts knowledge on stereo-chemical aspects of organic compounds and organic reactions, important named reactions, chemistry of important hetero cyclic compounds. It also emphasizes on medicinal and other uses of organic compounds.	At the end of the course, the student shall be able to 1. understand the methods of preparation and properties of organic compounds 2. explain the stereo chemical aspects of organic compounds and stereo chemical reactions 3. know the medicinal uses and other applications of organic compounds
BP402T. MEDICINAL CHEMISTRY – I (Theory)	This subject is designed to impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. The subject emphasizes on structure activity relationships of drugs, importance of physicochemical properties and metabolism of drugs. The syllabus also emphasizes on chemical synthesis of important drugs under each class.	Upon completion of the course the student shall be able to 1. understand the chemistry of drugs with respect to their pharmacological activity 2. understand the drug metabolic pathways, adverse effect and therapeutic value of drugs 3. know the Structural Activity Relationship (SAR) of different class of drugs 4. write the chemical synthesis of some drugs



BP 403 T. PHYSICAL PHARMACEUTICS-II (Theory)	The course deals with the various physical and physicochemical properties, and principles involved in dosage forms/formulations. Theory and practical components of the subject help the student to get a better insight into various areas of formulation research and development, and stability studies of pharmaceutical dosage forms.	Upon the completion of the course student shall be able to 1. Understand various physicochemical properties of drug molecules in the designing the dosage forms 2. Know the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations 3. Demonstrate use of physicochemical properties in the formulation development and evaluation of dosage forms.
BP 404 T. PHARMACOLOGY-I (Theory)	The main purpose of the subject is to understand what drugs do to the living organisms and how their effects can be applied to therapeutics. The subject covers the information about the drugs like, mechanism of action, physiological and biochemical effects (pharmacodynamics) as well as absorption, distribution, metabolism and excretion (pharmacokinetics) along with the adverse effects, clinical uses, interactions, doses, contraindications and routes of administration of different classes of drugs.	Upon completion of this course the student should be able to 1. Understand the pharmacological actions of different categories of drugs 2. Explain the mechanism of drug action at organ system/sub cellular/ macromolecular levels. 3. Apply the basic pharmacological knowledge in the prevention and treatment of various diseases. 4. Observe the effect of drugs on animals by simulated experiments 5. Appreciate correlation of pharmacology with other bio medical sciences
BP 405 T. PHARMACOGNOSY AND PHYTOCHEMISTRY I (Theory)	The subject involves the fundamentals of Pharmacognosy like scope, classification of crude drugs, their identification and evaluation, phytochemicals present in them and their medicinal properties.	Upon completion of the course, the student shall be able 1. to know the techniques in the cultivation and production of crude drugs 2. to know the crude drugs, their uses and chemical nature 3. know the evaluation techniques for the herbal drugs 4. to carry out the microscopic and morphological evaluation of crude drugs
<b>B.Pharm 5th sem</b>		
Subject with code	Scope	Learning outcome

BP501T. MEDICINAL CHEMISTRY – II (Theory)	This subject is designed to impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. The subject emphasizes on structure activity relationships of drugs, importance of physicochemical properties and metabolism of drugs. The syllabus also emphasizes on chemical synthesis of important drugs under each class	Upon completion of the course the student shall be able to 1. Understand the chemistry of drugs with respect to their pharmacological activity 2. Understand the drug metabolic pathways, adverse effect and therapeutic value of drugs 3. Know the Structural Activity Relationship of different class of drugs 4. Study the chemical synthesis of selected drugs
BP 502 T. Industrial PharmacyI (Theory)	Course enables the student to understand and appreciate the influence of pharmaceutical additives and various pharmaceutical dosage forms on the performance of the drug product.	Upon completion of the course the student shall be able to 1. Know the various pharmaceutical dosage forms and their manufacturing techniques. 2. Know various considerations in development of pharmaceutical dosage forms 3. Formulate solid, liquid and semisolid dosage forms and evaluate them for their quality
BP503.T. PHARMACOLOGY-II (Theory)	This subject is intended to impart the fundamental knowledge on various aspects (classification, mechanism of action, therapeutic effects, clinical uses, side effects and contraindications) of drugs acting on different systems of body and in addition,emphasis on the basic concepts of bioassay	Upon completion of this course the student should be able to 1. Understand the mechanism of drug action and its relevance in the treatment of different diseases 2. Demonstrate isolation of different organs/tissues from the laboratory animals by simulated experiments 3. Demonstrate the various receptor actions using isolated tissue preparation 4. Appreciate correlation of pharmacology with related medical sciences
BP504 T. PHARMACOGNOSY AND PHYTOCHEMISTRY II (Theory)	The main purpose of subject is to impart the students the knowledge of how the secondary metabolites are produced in the crude drugs, how to isolate and identify and produce them industrially. Also this subject involves the study	Upon completion of the course, the student shall be able 1. to know the modern extraction techniques, characterization and identification of the herbal drugs and phytoconstituents 2. to understand the preparation and development of herbal formulation.

	of producing the plants and phytochemicals through plant tissue culture, drug interactions and basic principles of traditional system of medicine	3. to understand the herbal drug interactions 4. to carryout isolation and identification of phytoconstituents
BP 505 T. PHARMACEUTICAL JURISPRUDENCE (Theory)	This course is designed to impart basic knowledge on important legislations related to the profession of pharmacy in India	Upon completion of the course, the student shall be able to understand: 1. The Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals. 2. Various Indian pharmaceutical Acts and Laws 3. The regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals 4. The code of ethics during the pharmaceutical practice
<b>B.Pharm 6th sem</b>		
Subject with code	Scope	Learning outcome
BP601T. MEDICINAL CHEMISTRY – III (Theory)	This subject is designed to impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. The subject emphasis on modern techniques of rational drug design like quantitative structure activity relationship (QSAR), Prodrug concept, combinatorial chemistry and Computer aided drug design (CADD). The subject also emphasizes on the chemistry, mechanism of action, metabolism, adverse effects, Structure Activity Relationships (SAR), therapeutic uses and synthesis of important drugs.	Upon completion of the course student shall be able to 1. Understand the importance of drug design and different techniques of drug design. 2. Understand the chemistry of drugs with respect to their biological activity. 3. Know the metabolism, adverse effects and therapeutic value of drugs. 4. Know the importance of SAR of drugs.

<p>BP602 T. PHARMACOLOGY-III (Theory) 45</p>	<p>This subject is intended to impart the fundamental knowledge on various aspects (classification, mechanism of action, therapeutic effects, clinical uses, side effects and contraindications) of drugs acting on respiratory and gastrointestinal system, infectious diseases, immuno-pharmacology and in addition, emphasis on the principles of toxicology and chronopharmacology</p>	<p>Upon completion of this course the student should be able to:</p> <ol style="list-style-type: none"> <li>1. understand the mechanism of drug action and its relevance in the treatment of different infectious diseases</li> <li>2. comprehend the principles of toxicology and treatment of various poisonings and</li> <li>3. appreciate correlation of pharmacology with related medical sciences.</li> </ol>
<p>BP 603 T. HERBAL DRUG TECHNOLOGY (Theory)</p>	<p>This subject gives the student the knowledge of basic understanding of herbal drug industry, the quality of raw material, guidelines for quality of herbal drugs, herbal cosmetics, natural sweeteners, nutraceutical etc. The subject also emphasizes on Good Manufacturing Practices (GMP), patenting and regulatory issues of herbal drugs</p>	<p>Upon completion of this course the student should be able to:</p> <ol style="list-style-type: none"> <li>1. understand raw material as source of herbal drugs from cultivation to herbal drug product</li> <li>2. know the WHO and ICH guidelines for evaluation of herbal drugs</li> <li>3. know the herbal cosmetics, natural sweeteners, nutraceuticals</li> <li>4. appreciate patenting of herbal drugs, GMP .</li> </ol>

<p>BP 604 T. BIOPHARMACEUTICS AND PHARMACOKINETICS (Theory)</p>	<p>This subject is designed to impart knowledge and skills of Biopharmaceutics and pharmacokinetics and their applications in pharmaceutical development, design of dose and dosage regimen and in solving the problems arised therein.</p>	<p>Upon completion of the course student shall be able to:</p> <ol style="list-style-type: none"> <li>1. Understand the basic concepts in biopharmaceutics and pharmacokinetics and their significance.</li> <li>2. Use of plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination.</li> <li>3. To understand the concepts of bioavailability and bioequivalence of drug products and their significance.</li> <li>4. Understand various pharmacokinetic parameters, their significance &amp; applications.</li> </ol>
<p>BP 605 T. PHARMACEUTICAL BIOTECHNOLOGY (Theory)</p>	<p>Biotechnology has a long promise to revolutionize the biological sciences and technology.</p> <ul style="list-style-type: none"> <li>· Scientific application of biotechnology in the field of genetic engineering, medicine and fermentation technology makes the subject interesting.</li> <li>· Biotechnology is leading to new biological revolutions in diagnosis, prevention and cure of diseases, new and cheaper pharmaceutical drugs.</li> <li>· Biotechnology has already produced transgenic crops and animals and the future promises lot more.</li> <li>· It is basically a research-based subject.</li> </ul>	<p>Upon completion of the subject student shall be able to;</p> <ol style="list-style-type: none"> <li>1. Understanding the importance of Immobilized enzymes in Pharmaceutical Industries</li> <li>2. Genetic engineering applications in relation to production of pharmaceuticals</li> <li>3. Importance of Monoclonal antibodies in Industries</li> <li>4. Appreciate the use of microorganisms in fermentation technology</li> </ol>
<b>B.Pharm 7th sem</b>		
Subject name with code	Scope	Objective/learning outcome

<p>BP701T. INSTRUMENTAL METHODS OF ANALYSIS (Theory)</p>	<p>This subject deals with the application of instrumental methods in qualitative and quantitative analysis of drugs. This subject is designed to impart a fundamental knowledge on the principles and instrumentation of spectroscopic and chromatographic technique. This also emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drug testing.</p>	<p>Upon completion of the course the student shall be able to</p> <ol style="list-style-type: none"> <li>1. Understand the interaction of matter with electromagnetic radiations and its applications in drug analysis</li> <li>2. Understand the chromatographic separation and analysis of drugs.</li> <li>3. Perform quantitative &amp; qualitative analysis of drugs using various analytical instruments.</li> </ol>
<p>BP 702 T. INDUSTRIAL PHARMACYII (Theory)</p>	<p>This course is designed to impart fundamental knowledge on pharmaceutical product development and translation from laboratory to market</p>	<p>Upon completion of the course, the student shall be able to:</p> <ol style="list-style-type: none"> <li>1. Know the process of pilot plant and scale up of pharmaceutical dosage forms</li> <li>2. Understand the process of technology transfer from lab scale to commercial batch</li> <li>3. Know different Laws and Acts that regulate pharmaceutical industry</li> <li>4. Understand the approval process and regulatory requirements for drug products</li> </ol>

BP 703T. PHARMACY PRACTICE (Theory)	In the changing scenario of pharmacy practice in India, for successful practice of Hospital Pharmacy, the students are required to learn various skills like drug distribution, drug information, and therapeutic drug monitoring for improved patient care. In community pharmacy, students will be learning various skills such as dispensing of drugs, responding to minor ailments by providing suitable safe medication, patient counselling for improved patient care in the community set up.	Upon completion of the course, the student shall be able to 1. know various drug distribution methods in a hospital 2. appreciate the pharmacy stores management and inventory control 3. monitor drug therapy of patient through medication chart review and clinical review 4. obtain medication history interview and counsel the patients 5. identify drug related problems 6. detect and assess adverse drug reactions 7. interpret selected laboratory results (as monitoring parameters in therapeutics) of specific disease states 8. know pharmaceutical care services 9. do patient counseling in community pharmacy; 10. appreciate the concept of Rational drug therapy.
BP 704T: NOVEL DRUG DELIVERY SYSTEMS (Theory)	This subject is designed to impart basic knowledge on the area of novel drug delivery systems.	Upon completion of the course student shall be able 1. To understand various approaches for development of novel drug delivery systems. 2. To understand the criteria for selection of drugs and polymers for the development of Novel drug delivery systems, their formulation and evaluation
BP705P. INSTRUMENTAL METHODS OF ANALYSIS (Practical)	Practical aspect of analysis of chemistry	Very useful in pharmaceutical industry, chemical industry for purification and synthesis of compound & testing them
<b>B.Pharm 8th sem</b>		
<b>Subject name with code</b>	<b>Scope</b>	<b>Objective/learning outcome</b>

<p>BIOSTATISTICS AND RESEARCH METHODOLOGY (Theory) (BP801T.)</p>	<p>To understand the applications of Biostatistics in Pharmacy. This subject deals with descriptive statistics, Graphics, Correlation, Regression, logistic regression Probability theory, Sampling technique, Parametric tests, Non Parametric tests, ANOVA, Introduction to Design of Experiments, Phases of Clinical trials and Observational and Experimental studies, SPSS, R and MINITAB statistical software's, analyzing the statistical data using Excel.</p>	<p>Upon completion of the course the student shall be able to • Know the operation of M.S. Excel, SPSS, R and MINITAB<sup>®</sup>, DoE (Design of Experiment) • Know the various statistical techniques to solve statistical problems • Appreciate statistical techniques in solving the problems.</p>
<p>SOCIAL AND PREVENTIVE PHARMACY (BP 802T)</p>	<p>The purpose of this course is to introduce to students a number of health issues and their challenges. This course also introduced a number of national health programmes. The roles of the pharmacist in these contexts are also discussed.</p>	<p>Objectives: After the successful completion of this course, the student shall be able to: · Acquire high consciousness/realization of current issues related to health and pharmaceutical problems within the country and worldwide. · Have a critical way of thinking based on current healthcare development. · Evaluate alternative ways of solving problems related to health and pharmaceutical issues</p>
<p>BP803ET. PHARMA MARKETING MANAGEMENT (Theory)</p>	<p>The pharmaceutical industry not only needs highly qualified researchers, chemists and, technical people, but also requires skilled managers who can take the industry forward by managing and taking the complex decisions which are imperative for the growth of the industry. The Knowledge and Know-how of marketing management groom the people for taking a challenging role</p>	<p>The course aims to provide an understanding of marketing concepts and techniques and their applications in the pharmaceutical industry.</p>



	<p>in Sales and Product management.</p>	
<p>BP804 ET: PHARMACEUTICAL REGULATORY SCIENCE (Theory)</p>	<p>This course is designed to impart the fundamental knowledge on the regulatory requirements for approval of new drugs, and drug products in regulated markets of India &amp; other countries like US, EU, Japan, Australia, UK etc. It prepares the students to learn in detail on the regulatory requirements, documentation requirements, and registration procedures for marketing the drug products.</p>	<p>Upon completion of the subject student shall be able to;</p> <ol style="list-style-type: none"> <li>1. Know about the process of drug discovery and development</li> <li>2. Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals</li> <li>3. Know the regulatory approval process and their registration in Indian and international markets</li> </ol>

<p>BP 805T: PHARMACOVIGILANCE (Theory)</p>	<p>This paper will provide an opportunity for the student to learn about development of pharmacovigilance as a science, basic terminologies used in pharmacovigilance, global scenario of Pharmacovigilance, train students on establishing pharmacovigilance programme in an organization, various methods that can be used to generate safety data and signal detection. This paper also develops the skills of classifying drugs, diseases and adverse drug reactions.</p>	<p>At completion of this paper it is expected that students will be able to (know, do, and appreciate):</p> <ol style="list-style-type: none"> <li>1. Why drug safety monitoring is important?</li> <li>2. History and development of pharmacovigilance</li> <li>3. National and international scenario of pharmacovigilance</li> <li>4. Dictionaries, coding and terminologies used in pharmacovigilance</li> <li>5. Detection of new adverse drug reactions and their assessment</li> <li>6. International standards for classification of diseases and drugs</li> <li>7. Adverse drug reaction reporting systems and communication in pharmacovigilance</li> <li>8. Methods to generate safety data during pre clinical, clinical and post approval phases of drugs' life cycle</li> <li>9. Drug safety evaluation in paediatrics, geriatrics, pregnancy and lactation</li> <li>10. Pharmacovigilance Program of India (PvPI) requirement for ADR reporting in India</li> <li>11. ICH guidelines for ICSR, PSUR, expedited reporting, pharmacovigilance planning</li> <li>12. CIOMS requirements for ADR reporting</li> <li>13. Writing case narratives of adverse events and their quality.</li> </ol>
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BP808ET: CELL AND MOLECULAR BIOLOGY (Elective subject)	Cell biology is a branch of biology that studies cells – their physiological properties, their structure, the organelles they contain, interactions with their environment, their life cycle, division, death and cell function. · This is done both on a microscopic and molecular level. · Cell biology research encompasses both the great diversity of single-celled organisms like bacteria and protozoa, as well as the many specialized cells in multi-cellular organisms such as humans, plants, and sponges.	Upon completion of the subject student shall be able to; · Summarize cell and molecular biology history. · Summarize cellular functioning and composition. · Describe the chemical foundations of cell biology. · Summarize the DNA properties of cell biology. · Describe protein structure and function. · Describe cellular membrane structure and function. · Describe basic molecular genetic mechanisms. · Summarize the Cell Cycle
BP809ET. COSMETIC SCIENCE(Theory)	Cosmetic Industry	Science of cosmetics can be learn
BP810 ET. PHARMACOLOGICAL SCREENING METHODS	This subject is designed to impart the basic knowledge of preclinical studies in experimental animals including design, conduct and interpretations of results	Upon completion of the course the student shall be able to, · Appreciate the applications of various commonly used laboratory animals. · Appreciate and demonstrate the various screening methods used in preclinical research · Appreciate and demonstrate the importance of biostatistics and research methodology · Design and execute a research hypothesis independently
BP 811 ET. ADVANCED INSTRUMENTATION TECHNIQUES	This subject deals with the application of instrumental methods in qualitative and quantitative analysis of drugs. This subject is designed to impart advanced knowledge on the principles and instrumentation of spectroscopic and chromatographic hyphenated techniques. This also emphasizes on theoretical and practical knowledge on	:Upon completion of the course the student shall be able to · understand the advanced instruments used and its applications in drug analysis · understand the chromatographic separation and analysis of drugs. · understand the calibration of various analytical instruments · know analysis of drugs using various analytical instruments.

	modern analytical instruments that are used for drug testing.	
Elective course on Pharmaceutical Product Development	Dosage form development	In Pharmaceutical industry how product is developed

2.6.1: Provide Program Outcomes (PO), Program Specific Outcomes (PSO) & Course Outcomes (CO) for all the courses.

### **B. Com. – Programme Outcomes**

PO1 - Enables learners to get theoretical and practical exposure in the commerce sector which includes Accounts, Commerce, Marketing, Management, Economics and Environment etc.

PO2 - Develops communication skills and build confidence to face the challenges of the corporate world.

PO3 - Enhances the capability of decision making at personal and professional levels.

PO4 – Makes students industry ready and develop various managerial and accounting skills for better professional opportunities.

PO5 - Develops entrepreneurial skills amongst learners.

PO6 - Strengthens their capacities in varied areas of commerce and industry aiming towards holistic development of learners.

PO7 - Thus, after completing their graduation learners develop a thorough understanding of the fundamentals in Commerce and Finance.

### **B. Com. – Programme Specific Outcomes**

PSO1 - Learners venture into Managerial positions, Accounting areas, Banking Sectors, Auditing, Company Secretaryship, Teaching, Professor, Stock Agents, Government Employment etc.

PSO2 - Enables learners to prove themselves in different Professional examinations like CA, CS, CAT, GRE, CMA, MPSC, UPSC etc.

PSO3 -Learners further move towards research in the field of Commerce.

PSO4- Enables students to demonstrate Progressive learning of various tax issues and tax forms related to individuals and businessmen and setting up their own business start up.

PSO5 – The vast syllabi covers various fields of commerce and accountancy which helps students grasp practical and theoretical knowledge.

### **B. Com. – Course Outcomes B.Com.**

#### **General English**

CO1 Students will heighten their awareness of correct usage of English grammar in writing and speaking

CO2 Students will improve their speaking ability in English both in terms of fluency and comprehensibility

### **Environmental Studies**

CO1 Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.

CO2 Understand the transnational character of environmental problems and ways of addressing them, including interactions across local to global scales.

### **Financial Accounting**

CO1 - The course helps aspirants to acquire knowledge in the field of accounting, taxation, auditing, risk management, financial accounting, managerial economics, business law and business communications. CO2 - Learners can pursue careers as financial experts and also develop a better understanding of the markets as this course gives an in-depth understanding of the essential qualities and areas of expertise required for such jobs.

### **Business Statistics**

CO1. Describe and discuss the key terminology, concepts tools and techniques used in business statistical analysis.

CO2. Critically evaluate the underlying assumptions of analysis tools.

### **Principles of Business Management**

CO1: Understand the concepts related to Business.

CO2: Demonstrate the roles, skills and functions of management.

### **Business Regulatory Framework**

CO1 Students would recall various definitions and would be able to evaluate the provisions of Law of Contract,1872.

CO2 Students would be able to examine various provisions of Sale of Goods Act, which includes formation, conditions and warranties in sale.

### **Economic Environment in India**

CO1 Analyse the principle and the different exchange rate regimes' impact on businesses.

CO2 Integrate the concept and opening economies of developing countries like India through RTB and multilateral route (WTO).

### **Business Economics**

CO1 To understand the concepts of cost, nature of production and its relationship to Business operations.

CO2 To apply marginal analysis to the “firm” under different market conditions.

CO3 To analyse the causes and consequences of different market conditions.

CO4 To integrate the concept of price and output decisions of firms under various market structure.

### **Auditing**

CO1 This course provides an intensive conceptual and applied introduction to auditing in society.

CO2 It focuses on concepts and applications related to financial-statement auditors’ professional responsibilities as well as major facets of the audit process including risk assessment and audit reporting.

### **Corporate Accounting**

CO1 Evaluate the Restructuring of capital structure of public company ltd.

CO2 Develop the procedure involved in Amalgamation of companies

CO3 Develop the procedure involved in Absorption of companies

CO4 Illustrate the implication of unethical accounting practices on the society

### **Cost Accounting**

CO1 Defines the concepts of cost, expense, loss and revenue.

CO2 Explains the relationships between cost and financial accounting.

### **Company Law and Secretarial Practice**

CO1 Explain the procedure involved in raising capital by way of issue of Shares and Debentures.

CO2 Plan for convening the company meetings as per the compliance to manage the internal and external affairs of company.

### **Marketing Management**

CO1 Students will be able to coordinate the various marketing environment variables and interpret them for designing marketing strategy for business firms

CO2. Students will be able to illustrate market research skills for designing innovative marketing strategies for business firms

### **Indian Financial System**

CO1 To have competence in Oral, Written and visual Communication.

CO2 Demonstrating critical and innovative thinking.

CO3 Communicate ethically.

### **Banking Law and Practice**

CO1 Provisions of RBI Act 1935, Banking Regulation Act 1949, Prevention of Money Laundering Act, 2002.

CO2 Government and RBI's Powers Opening of New Banks and Branch Licensing Constitution of Board of Directors and their Rights Banks Share Holders and their Rights CRR and SLR Concepts Cash Currency Management Winding up - Amalgamation and Mergers Powers to Control Advances - Selective Credit Control – Monetary and Credit Policy Audit and Inspection Supervision and Control - Board for Financial Supervision – its Scope and Role Disclosure of Accounts and Balance Sheets Submission of Returns to RBI, Corporate Governance.

### **Elementary Computer**

Upon successful completion of the program, you should have the skills to:

CO1 Work effectively with a range of current, standard, Office Productivity software applications.

CO 2 Evaluate, select and use office productivity software appropriate to a given situation.

### **General Hindi**

CO1 Analysing the development of Khariboli Hindi.

CO2 Understanding the concept of history of literature

### **Management Accounting**

CO1 Students would calculate the various ratios and interpret it.

CO2 Students would calculate the estimated working capital requirement of the entity.



## **Income Tax**

CO1 Students would compute income from salaries, house property, business/profession, capital gains and income from other sources.

CO2 Students would discuss the various benefits/ deductions under Chapter VI-A of the Income tax act, 1961.

## **Goods and Service Tax**

CO1 Students would discuss the time, place and value of supply.

CO2 Students would discuss the contents and format for various documents like tax invoice, bill of supply, debit note, credit note etc.

## **Human Resource Management**

CO1 To analyse the strategic issues and strategies required to select and develop manpower resources.

CO2 To integrate the knowledge of HR concepts to take correct business decisions.

## **Business Communication & Soft Skills**

CO1. To be familiar with the complete course outline/Course Objectives/Learning Outcomes/ Evaluation Pattern & Assignments

CO2. To participate in an online learning environment successfully by developing the implication-based understanding of Paraphrasing, deciphering instructions, interpreting guidelines, discussion boards & Referencing Styles.

## **Fundamentals of Entrepreneurship**

CO1 To explain concepts of Entrepreneurship and build an understanding about business situations in which entrepreneurs act

CO2 Learners will pick up about Foundation of Entrepreneurship Development and its theories.

## **Financial Management**

CO3 Analyze the main ways of raising capital and their respective advantages and disadvantages in different circumstances

CO4 Integrate the concept and apply the financial concepts to calculate ratios and do the capital budgeting

## **International Trade & Finance**

CO1 Explain the fundamental theories and concepts of international trade and finance and apply for the management decisions.

CO2 Apply functions, provisions of international trade system and functions to facilitate the global trade. Students will be able analyse impact of WTO on current global trade in detail.

## **B. Com. Honours – Programme Outcomes**

PO1 Deep Understanding of Accounting Issues Related to Business

PO2 Understanding of General Business Functions Impacting Organization

PO3 Interpersonal and Communication Skills

PO4 Understanding Ethical, Social Sustainable Business Issues

PO5 Developing Entrepreneurship Acumen

## **B. Com. Honours – Programme Specific Outcomes**

PSO1 Demonstrate Ability to Interpret and Analyze Financial Statements

PSO2 Understanding the Rules and Regulation Laid Down by Accounting Body

PSO3 Demonstrate Ability to Understand Compliance as per Various Enactment

PSO4 Acquiring Conceptual Clarity of Various Functions and Ability to Analyze

PSO5 Various functional issues demonstrating ability to evolve strategies for business•  
demonstrate effectively oral and written communication

PSO6 Demonstrate Ability to work in Groups. Exhibit skills like Empathy, EQ

PSO7 Managerial and Inter-Personnel Skills

PSO8 Demonstrate understanding of social cues and contexts in social interaction

PSO9 Develop ethical practices and imbibe values for better corporate governance, understand ethical challenges and choices in a business setting

PSO10 Demonstrate Understanding of Sustainability Related Concerns in Varied Areas

## **B. Com. Honours – Course Outcomes**

### **Environmental Studies**

CO1 Articulate the interconnected and interdisciplinary nature of environmental studies;

CO2 Demonstrate an integrative approach to environmental issues with a focus on sustainability;

CO3 Use critical thinking, problem-solving, and the methodological approaches of the social sciences, natural sciences, and humanities in environmental problem solving;

### **Financial Accounting**

CO1 Understanding of Financial Accounting, its need, advantages and limitations

CO2 Knowledge of GAAP and accounting systems. Maintenance of subsidiary books, accounts and preparation of statements.

CO3 Identification and rectification of errors at various stages of the accounting process

CO4 Assessing the real value of business assets applying different methods of Depreciation

CO5 Practice of preparing Sole trader final accounts considering adjustment entries presenting accounts and statements in user understandable form. How to represent business transactions to accounts of valuable information to the users of such information.

### **Business Law**

CO1- To impart basic knowledge of the important business legislation along with relevant case law.

CO2 - The ability to understand the essentials of contract including offer, acceptance and agreements leading to valid business propositions. Recognize and distinguish modes of discharge of contract with proper application in different forms of business.

### **Micro Economics**

CO1 -To acquaint the students with the concepts of micro economics dealing with consumer behavior.

CO2 The course also makes them acquaint with fundamentals of economic theories and impact on demand, supply, production and cost concepts.

### **Business Communication**

CO1- To acquire skills in reading, writing, comprehension and communication, as also to use electronic media for business communication.

### **Corporate Accounting**

CO1 To acquire the conceptual knowledge of the corporate accounting and to learn the techniques of preparing the financial statements.

CO2 Practiced accounting treatment in preparation of final statements with internal reconstruction, debtors and creditors taking over along with maintenance of books of accounts.

### **Corporate Laws**

CO1 To impart basic knowledge of the provisions of the Companies Act 2013 and the Depositories Act, 1996.

CO2 Case studies involving issues in corporate laws are required to be discussed.

### **Macro Economics**

CO1 The course aims at providing the student with knowledge of basic concepts of the macro economics.

CO2 The modern tools of macro-economic analysis are discussed and the policy framework is elaborated, including the open economy.

### **Human Resource Management**

CO1 To acquaint students with the techniques and principles to manage human resource of an organisation.

CO2 The complete evaluation of training and development process in the organization is put into practice organization for being productive resources to the organization.

### **Income Tax Law and Practice**

CO1 To provide basic knowledge and equip students with application of principles and provisions of Income-tax Act, 1961 and the relevant Rules.

CO2 Ability of computing taxable income under the heads Income from House property, Business or Profession, capital gains and Income from other sources.

### **Management Principles and Applications**

CO1 To provide basic knowledge and equip students with application of principles of management

CO2 Students will get familiar with the basic concepts applied in contemporary management practice and many of the concepts learnt will form the foundation for subsequent courses in strategy, operations and HRM in subsequent semesters.

### **Business Statistics**

CO1 To familiarise students with the basic statistical tools used for managerial decision-making

CO2 Ability to interpret the correlation and regression technique between two or more than two variables

CO3 Understand the concept of probability and application of permutation and combination in probability

### **E-Commerce**

CO1 To become familiar with the mechanism for conducting business transactions through electronic means.

CO2 Analyze real business cases regarding their e-business strategies and transformation processes and choices.

### **Cost Accounting**

CO1 To acquaint the students with basic concepts used in cost accounting, various methods involved in cost ascertainment and cost accounting bookkeeping systems.

CO2 Proficiency in divergent costing methods adopted in versatile industries is accrued.

### **Business Mathematics**

CO1 To familiarize the students with the basic mathematical tools, with an emphasis on applications to business and economic situations.

CO2 Apply the knowledge in mathematics (algebra, matrices, calculus) in solving business problems

CO3 Analyse and demonstrate mathematical skills required in mathematically intensive areas in Economics and business.

### **Computer Applications in Business**

CO1 To provide computer skills and knowledge for commerce students and to enhance the student understands of usefulness of information technology tools for business operations.

CO2 Gain familiarity with the concepts and terminology used in the development, implementation and operation of business application systems.

CO3 Explore various methods that Information Technology can be used to support existing businesses and strategies.

### **Indian Economy**

CO1 To enable the student to grasp the major economic problems in India and their solution

CO2 Student gain knowledge on economy and its determinants, ability understanding of economic problems in India and their solution.

### **Entrepreneurship**

CO1 To orient the learner toward entrepreneurship as a career option and creative thinking and behavior.

CO2 Learners will explore entrepreneurial skills and management function of a company with special reference to SME sector.

### **Principles of Marketing**

CO1 To provide basic knowledge of concepts, principles, tools and techniques of marketing.

CO2 Effective marketing strategies through channelizing the products under retail and online are imparted.

### **Fundamentals of Financial Management**

CO1 To familiarize the students with the principles and practices of financial management

CO2 Calculation of Long term investments through capital Budgeting techniques.

CO3 Practiced Investment Decision, Financing Decision, Dividend policies.

### **Management Accounting**

CO1 To impart the students, knowledge about the use of financial, cost and other data for the purpose of managerial planning, control and decision making

CO2 Practiced techniques and applied ratios to determine the financial performance of the business.

### **Corporate Tax Planning**

CO1 To provide Basic knowledge of corporate tax planning and its impact on decision making.

CO2 To gain knowledge about tax implications while taking business decisions

### **Advertising**

CO1 To familiarize the students with the basic concepts, tools and techniques of advertising used in marketing.

### **Banking and Insurance**

CO1 To impart knowledge about the basic principles of the banking and insurance

CO2 Enlightened with types of insurances , Operating intermediaries and risk management.

### **Computerised Accounting System**

CO1 To enhance the skills needed for computerized accounting system and to enable the students to develop simple accounting applications.

CO2 Practical training on maintaining books of accounts, inventory management, including preparation of financial statements is given.

### **Financial Markets, Institutions and Financial Services**

CO1 To provide the student a basic knowledge of financial markets and institutions and to familiarise them with major financial services in India

CO2 The fund based and Non fund based financial services are introduced. Knowledge on Merchant banking, venture capital, Leasing, Factoring, Forfeiting is accrued.

### **Auditing and Corporate Governance**

CO1 To provide knowledge of auditing principles, procedures and techniques in accordance with current legal requirements and professional standards and to give an overview of the principles of Corporate Governance and Corporate Social Responsibility

CO2 Knowledge on procedure for appointment, process of auditing are acquired.

CO3 Significance and process of Internal check and internal control are accrued.

### **Goods and Services Tax**

CO1 To provide basic knowledge and equip students with application of principles and provisions of Goods and Service Tax.

CO2 Comprehend the concept of supply under GST law, types of invoices; distinguish between intrastate and inter-state supply, embraced with elements of supply.

CO3 Familiarized with the concepts of input tax credit, GST liability. The significance of generating E-way through accounting software.

### **Fundamentals of Investment**

CO1 To familiarize the students with different investment alternatives, introduce them to the framework of their analysis and valuation and highlight the role of investor protection

CO2 Hands on experience on concepts and techniques related to time value of money, expected risk, and returns

### **Consumer Affairs and Customer Care**

CO1 This paper seeks to familiarize the students with of their rights as a consumer, the social framework of consumer rights and legal framework of protecting consumer rights.

CO2 It also provides an understanding of the procedure of redress of consumer complaints, and the role of different agencies in establishing product and service standards. The student should be



able to comprehend the business firms' interface with consumers and the consumer related regulatory and business environment.

### **Business Tax Procedure and Management**

CO1 To provide basic knowledge of business tax procedures and management under different provisions of the Income tax.

CO2 To gain provisional and procedural knowledge about Income Tax Law in force for relevant accounting year

### **International Business**

CO1 To familiarise the students with the concepts, importance and dynamics of international business and India's involvement with global business. The course also seeks to provide theoretical foundations of international business to the extent these are relevant to the global business operations and developments.

CO2 International trade, import and export policies in the Indian economy, with required documentation are the learning result.

### **Industrial Relations and Labour Laws**

CO1 To enable the students to learn the concepts of industrial relations including trade unions, collective bargaining, discipline and various labour enactments.

CO2 To understand the negotiable rights and the way by which they can negotiate, to understand workers' participation in management.

### **Business Research Methods and Project Work**

CO1 This course aims at providing the general understanding of business research and the methods of business research. The course will impart learning about how to collect, analyze, present and interpret data

CO2 Imparted framing hypothesis and relevant statistical tools to be applied for authentication of the study.

CO3 Skills for writing project report are acquired.

## **BBA – Programme Outcomes**

PO1 Demonstrate foundational knowledge in accounting, economics, finance, management, and marketing in application of concepts and theories.

PO2 Demonstrate effective skills in written and oral communications using appropriate technologies.

PO3 Demonstrate an ability to integrate the concepts of the core areas of business.

PO4 Demonstrate awareness of the importance of the ethical requirements of business activities.

PO5 Demonstrate an ability to conduct methodological, secondary research into business issues, which may relate to general business or to a specific business function, which requires familiarity with a range of data, research sources, and appropriate methodologies.

## **BBA – Programme Specific Outcomes**

PSO1-Ability to define, analyse the solutions for different business problems and using logical reasoning patterns for evaluating information, materials, and data for practical implementation.

PSO2-Provides verbal, reasoning, Data Interpretation, Quantitative and communication skill to solve specific business problems and decision making.

PSO3-Apply ethical principles and commitment towards professional ethics and responsibility.

PSO4- Function effectively as a member, leader, individual or group in diverse environment.

PSO5- Ability to conceptualize a complex issue into a coherent written statement and oral presentation and to communicate effectively on complex activities with technical community.

PSO6-Providing an opportunity for the students to gain practical exposure towards the workplace and make them industry ready.

PSO7-Promotes entrepreneurship by providing understanding of the fundamentals of creating and managing innovation, new business development, and high-growth potential entities.

PSO8-Ability to demonstrate technical competence in domestic and global arena of business through the study of major disciplines within the fields of business.

## **BBA – Course Outcomes**

### **Economics Environment of Business**

CO1 The term economic environment refers to all the external economic factors that influence buying habits of consumers and businesses and therefore affect the performance of a company.

These factors are often beyond a company's control, and may be either large-scale (macro) or small-scale (micro).

CO2 Employment/unemployment.

CO3 Income.

CO4 Inflation.

CO5 Interest rates.

### **Principles of Management**

CO1 Upon completion of the course, students will be able to have clear understanding of managerial functions like planning, and have same basic knowledge on international aspect of management

CO2 Demonstrate the ability to directing, leadership and communicate effectively

### **Financial Accounting**

CO1 Demonstrate the applicability of the concept of Accounting to understand the managerial Decisions and financial statements

CO2. Apply the Financial Statement Analysis associate with Financial Data in the organization

### **Business Mathematics**

CO1. Explain the concepts and use equations, formulae, and mathematical expressions and relationships in a variety of contexts

CO2. Apply the knowledge in mathematics (algebra, matrices, calculus) in solving business problems

### **Business Statistics**

CO1. Understand and critically discuss the issues surrounding sampling and significance.

CO2. Discuss critically the uses and limitations of statistical analysis.

### **Environmental Studies**

CO1 Master core concepts and methods from ecological and physical sciences and their application in environmental problem solving.

CO2 Master core concepts and methods from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions.

### **Business Regulatory Framework**

CO1 Students would be able to compare and contrast different types of negotiable instruments and its applicability in the money market.

CO2 Students would be able to relate and apply various provisions related to Consumer Protection Act. They would be aware of the rights of consumer and various consumer forums

### **Organizational Behaviour**

CO1 Analyze the complexities associated with management of the group behavior in the organization. CO2 Demonstrate how the organizational behavior can integrate in understanding the motivation (why) behind behavior of people in the organization.

### **Managerial Economics**

CO1 The purpose of this course is to apply micro economic concepts and techniques in evaluating business decisions taken by firms.

CO2 The emphasis is on explaining how tools of standard price theory can be employed to formulate a decision problem, evaluate alternative courses of action and finally choose among alternatives.

### **Marketing Management**

CO1. Students will be able to identify the scope and significance of Marketing In Domain Industry

CO2. Students will be able to examine marketing concepts and phenomenon to current business events In the Industry.

### **Cost Accounting**

CO1 Explains cost accounting systems.

CO2 Explains the purposes of cost accounting.

### **General Hindi**

CO1 Understanding the origin of Hindi language and its literature.

CO2 Identifying the dialects of Hindi language family.

### **Business Communication & Soft Skills**

CO1. To demonstrate his/her ability to write error free while making an optimum use of correct Business Vocabulary & Grammar.

CO2. To distinguish among various levels of organizational communication and communication barriers while developing an understanding of Communication as a process in an organization.

### **Entrepreneurship Development**

CO1 Identify qualities of entrepreneurs

CO2 Understand various schemes supporting entrepreneurship

### **Indian Financial Development**

CO1 To provide students with basic concepts and theories of Finance, its markets and various services provided in the Finance sector.

CO2 To provide students with the knowledge of various instruments traded in the financial markets.

### **Taxation Part 1**

CO1 Students would identify the technical terms related to Income Tax.

CO2 Students would determine the residential status of an individual and scope of total income.

### **Global Business Environment**

CO1 Explain the concept of the various constituents of environment and their impact on businesses.

CO2 Apply the trade theories, investment theories, exchange rate theories and regional trading bloc theories and their impact on economic welfare.

### **Financial Management**

CO1 Explain the concept of fundamental financial concepts, especially time value of money.

CO2 Apply capital budgeting projects using traditional methods.

### **General English**

CO1 Students will heighten their awareness of correct usage of English grammar in writing and speaking

CO2 Students will improve their speaking ability in English both in terms of fluency and comprehensibility

### **Media & Event Management**

CO1 Analyze the role of events in image building

CO2 Explain all the steps of planning and organizing an event

### **Taxation Part 2**

CO1 Students would explain the various terms related to Goods and Service tax (GST).

CO2 Students would distinguish the difference between forward charge and reverse charge mechanism and also to understand the difference between composite and mixed supply.

### **Corporate Accounting**

CO1 Construct the financial statements of company within the frame work of Ind AS.

CO2 Devise a plan for Redemption of Preference shares

CO3 Reconstruct the capital structure in the financial statement of Joint stock company ltd.

### **International Business**

CO1 Explain business expansion abroad and key issues related to their operations in other countries.

CO2 Compare and contrast cultures and societies globally using socioeconomic and cultural frameworks.

### **Strategic Management**

CO1 To expose students to various perspectives and concepts in the field of Strategic Management

CO2 The course would enable the students to understand the principles of strategy

CO3 Formulation, implementation and control in organizations.

### **Macro Economics**

CO1 Explain what economics is and explain why it is important

CO2 Explain how economists use economic models

### **Research Methodology**

CO1 Understand some basic concepts of research and its methodologies

CO2 Identify appropriate research topics

### **Human Resource Management**

CO1 To develop the understanding of the concept of human resource management and to understand its relevance in organizations.

CO2 To develop necessary skill set for application of various HR issues.

### **Spreadsheet Applications**

CO1 Use spreadsheet software to manage financial data.

CO2 Work with formulas and functions.

CO3 Develop professional-looking worksheets

### **Supply Chain Logistics**

CO1 Understand the fundamentals of elements and functions of supply chain, role of drivers and demand forecasting.

CO2 To apply various techniques of inventory management and their practical situations.

### **Management Accounting**

CO1 To enhance the abilities of learners to develop the concept of management accounting and its significance in the business.

CO2 To enhance the abilities of learners to analyze the financial statements.

### **Public Finance**

CO1 To have conceptual clarity of public expenditure and revenue theories.

CO2 To apply the principle of optimal taxation in analysing various governments tax policies

### **Company Law & Secretarial Practice**

CO1 Describe the role of Company secretary as per secretarial standard 1 and 2 under the companies' act of 2013.

CO2 Explain the various stages involved in the formation of company right from promotion to commencement of business stage.

### **Operation Research**

CO1 Methodology of Operations Research. Linear programming

CO2 solving methods, duality, and sensitivity analysis.

### **Business Analytics**

CO1 Enable all participants to recognise, understand and apply the language, theory and models of the field of business analytics

CO2 Foster an ability to critically analyse, synthesise and solve complex unstructured business problems

## **Business Ethics & CSR**

CO1 To understand the Business Ethics and to provide best practices of business ethics.

CO2 To learn the values and implement in their careers to become a good managers.

CO3 To develop various corporate social Responsibilities and practice in their professional life



## **Bachelor of Vocation (Accounting, Taxation and Auditing)**

CO1 To seeks to expand upon students' existing knowledge of accounting through a combination of practical and theoretical study.

CO2 Critically analyse and interpret case information and be able to develop a convincing argument to present their views on relevant accounting issues.

CO3 Understand security issues related with information technology and the ways of dealing with it

CO4 Have hands on experience on various application software's used for office automation like MS-Word, MS-Excel and MS-PowerPoint, day-to-day problem solving, in particular for creating business documents, data analysis and graphical representations

CO5 Analyze and interpret the financial data in order to help management to take decisions, make policies, strategies and control the organization effectively.

CO6 Have a firm understanding of the basics of statistics and its application to analyze and create an edge for the business. Apply the analytical techniques in business transactions that would help in making effective business decisions.

CO7 Understand the working with well-known multi-lingual business, accounting and inventory management software i.e. Tally ERP.9

CO8 Utilise this fully integrated, and highly reliable software exclusively to meet the needs of small and medium businesses. Create company, enter accounting voucher entries including advance voucher entries, do reconcile bank statement, accrual adjustments, and also print financial statements, etc. in Tally ERP.9 software. Automate and integrate all the business operations, such as sales, finance, purchasing, inventory, and manufacturing

CO9 Describe the effects of decision making of finance manager and to Interpret and illustrate the investment, financing and dividend policy decision making in an organization.

CO10 Familiarize with basic to intermediate skills for using Excel for business application

CO11 File returns, payment of taxes and understand due dates for payments and filing

CO12 Understand the basic concept of income tax, functions of taxation and their rules and regulations

CO13 Understand all fundamentals and implementation of GST

CO14 Realize the importance and influence of environment on the economy including the quality of manpower

CO15 Conceptually and theoretically understand the foundations of business communication

CO16 TO learn relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business

CO17 Students will demonstrate the development of information technology skills, including but not limited to the use of: the Internet, Online Learning Management Platforms, Spreadsheet software, accounting and Income Tax software, and/or online Accounting homework systems

CO18 Understand the basic concepts of cost accounting, its relevance, use of the concepts of cost in costing and pricing of products and activities and analysis of costs for decision making

CO19 Describe the audit and other assurance engagements, corporate governance, internal and statutory audit, types of audit and objectives of audit

CO20 Summarize practical audit report and latest trends in Auditing Information System

CO21 Make use of relevant schedules (New Format) to prepare final statement of accounts of scheduled companies.

CO22 To enhance the skills needed for computerized accounting system and to enable the students to develop simple accounting applications

CO23 For corporate practical exposure students need to complete industrial internship of 270 hours (15 Hours x 18 credit). This internship can be performed either at CA/CS practicing firm or manufacturing company or Banking Company or Insurance Company or Mutual fund or Dealers and distributors who are covered under tax audit.

**MASTER OF BUSINESS ADMINISTRATION**

**(E-COMMERCE)**

**SYLLABUS**



**2022-2024**

**Faculty of Management Studies**

**Mohanlal Sukhadia University**

**UDAIPUR (RAJ.)**

## THE PROGRAMME

The Master of Business Administration (E Commerce) is a two-year full-time program. The course structure and program administration are as follows:

### COURSE STRUCTURE

The programme has been organized in two years-First Year and Second Year, each year comprising two semesters. The list of papers offered during First Year and Second Year of the programme shall be as follows:

<b>FIRST YEAR (I- SEMESTER)</b>	<b>SECOND YEAR (III – SEMESTER)</b>
MEC -101 Management Process and Organizational Behavior	MEC-301 E-Commerce Progression
MEC -102 Quantitative Methods	MEC-302 Digital Marketing
MEC-103 Managerial Economics	MEC-303 E-advertising
	MEC-304 Managing E Channels
	MEC-305 Logistics and Supply Chain Management
	MEC -306 Marketing Research
	MEC -311 Entrepreneurship Development
	MEC- 312 Summer Training Project Report
MEC-104 Environment and Management	<b>Summer Training:</b> At the end of second semester, all students will have to undergo summer training of probably 6 to 8 weeks with an organization by taking up a project study.
MEC -105 Business Communication	
MEC- 106 Business Legislation and Ethics	
MEC- 107 Accounting for Managers	
MEC-108 Computers and MIS	
<b>(II- SEMESTER)</b>	<b>(IV SEMESTER)</b>
MEC -201 Fundamentals of E-Commerce	MEC – 401 E- Business Philosophy MEC – 402 Business Technologies & Trends MEC – 403 Warehouse Management & Data Mining MEC – 404 Business Analytics
MEC -202 Business Policy and Strategic Analysis	
MEC -203 Human Resource Management	
MEC-204 Financial Management	
MEC -205 Marketing Management	<b>Major Research Project:</b> Major Research Project study shall commence in the <b>beginning of fourth semester</b> and will have two papers weight. It may be Industry oriented internship cum project or departmentally allocated research project.
MEC-206 Production and Operations Management	
MEC-207 Research Methodology	
MEC-208 International Environment and Management	

\* A choice of 18 specialization papers is available but 10 specialization papers to be offered in final year will be announced by Course Director looking at concurrent

**demand of industry. No further choice of papers will be offered in addition to specialization papers announced.**

## **PROGRAMME ADMINISTRATION (*SUGGESTED GUIDELINES*)**

### **Evaluation**

- (i) Each paper will carry 100 marks (except MEC- 411) of which minimum of 20% of marks should be for internal assessment and remaining percentage of marks is for written examination. The duration of written examination for each paper shall be three hours.
- (ii) The internal assessment marks shall be based on factors such as: Participation in seminars, case discussions and group work activities
  - \* Class tests, quizzes, individual and group oral presentations
  - \* Submission of written assignments, term papers and viva-voce
  - \* Class-room participation and attendance

There will be one midterm class test which will carry 10 marks. If any candidate does not appear in any of the midterm tests on medical or other valid grounds, he may appear in the defaulter test by depositing a fee of Rs. 150/- per course.

The course for the midterm test will be first three units but the defaulter test coverage will be entire course.

Home Assignment will carry 05 marks while individual and group presentation and attendance will carry 05 marks.
- (iii) The scheme of evaluation of project studies shall be as follows:
  - (a) For Paper MEC-312, a project report based on the summer training will have to be submitted within five weeks from the commencement of third semester. The viva-voce to be conducted by a duly constituted examination board shall account for 80% of marks and the remaining 20% of marks of internal evaluation are to be awarded by faculty members which will account for the written portion of the project report.
  - (b) Paper MEC-411, final Major Research project study shall commence in the beginning of fourth semester and the report should be submitted towards the end of fourth semester. This research project will carry 200 marks weight. The candidate has to approach specialization related industry and in joint supervision of Industry representative and Faculty members of FMS, the Project is to be completed. The project may even be in form of major research project in relevant field which can be completed either in the campus or in the relevant industry. The written part and the viva-voce to be conducted by a duly constituted examination board for the specialization-oriented project studies shall account for 80% of marks and the remaining 20% of marks of internal evaluation are to be awarded by faculty members which will account for the written portion of the project.

## **Promotion and Span Period**

- (i) The span period of the programme is four years from the date of registration in the programme.
- (ii) The minimum marks for passing the examination for each semester shall be 40% in each paper and 50% in aggregate for all the courses of the semester.
- (iii) To be eligible for promotion to the second year of the programme, a student must clear successfully at least 12 papers out of the 16 papers offered during first year of the programme.
- (iv) The degree shall be awarded to successful students on the basis of the combined results of first year and second year examinations as follows:
  - Securing 60% and above : Ist Division -
  - All other : IInd Division
- (v) A student to be eligible for award of degree has to clear all the papers offered during two-year programme within the span period.
- (vi) The candidates will be required to pass in the external examination of 80 marks.

*The Institute/University may evolve their own Grading System for evaluation.*

## **Re-examination**

A candidate who has secured minimum marks to pass in each paper but has not secured the minimum marks required to pass in aggregate for the semester concerned may take re-examination in not more than two papers to obtain the aggregate percentage required to pass the semester.

A regular student will be allowed to re-appear in any paper in any semester. However, the total number of attempts for a paper shall not exceed four during the span period of the programme. As regards the ex-students, they will be allowed to re-appear in papers only in the semester examination when held, subject to total number of attempts for a paper not exceeding four years during the span period of the programme.

## **Attendance**

No candidate shall be considered to have pursued a regular course of study unless he/she is certified by the Head/Dean of the Department/Faculty to have attended the three-fourths of the total number of classroom sessions conducted in each semester during his/her course of study. Any student not complying with this requirement will not be allowed to appear in the semester examination. However, the Head/Dean may condone the required percentage of attendance by not more than 10 per cent during a semester.

A student not allowed to appear in the preceding semester examination due to shortage of attendance, may appear in the papers of the proceeding semester along with the papers of current semester after making up the attendance shortfall. Remedial classes, however, will not be arranged by the Department/ Faculty for the purpose.

# **Semester - I**

## **MEC-101 to MEC-108**

### **MEC-101: Management Process and Organizational Behavior**

#### **Objectives**

The objective of this paper is to familiarize the student with basic management concepts and behavioral processes in the organization.

#### **Course Contents**

I. Evolution of management thought, Systems and contingency approach for understanding organizations, managerial processes, functions, skills and roles in an organization; Social Responsibility of Business; Leadership: Concept, Nature, Importance, Attributes of a leader, developing leaders across the organization, Leadership Grid. Decision making: Concept, Nature, Importance, and Process. Types of decisions. Problems in decision making.

II. Introduction to Organizational Behavior: Definition, Importance, Scope, Fundamental Concepts of OB, Different models of OB - autocratic, custodial, supportive, collegial and SOBC. Personality & Attitudes: Meaning of personality, attitude - Development of personality – Attributes of personality- Transactional Analysis – Ego states – Johari window - Nature and dimensions of attitude – Developing the right attitude

III. Motivation: Definition, Importance, Motives – Characteristics, Classification of motives - Primary & Secondary motives. Theories of Motivation – content and process theories. Morale - Definition and relationship with productivity - Morale Indicators.

IV. Group Dynamics and Team building: Concept of Group & Team. Theories of Group Formation - Formal and Informal Groups. Importance of Team building. Conflict Management: Definition. Traditional vis-à-vis Modern view of conflict – Types of conflict – Intrapersonal, Interpersonal, and Organizational. Constructive and Destructive conflict. Conflict management.

V. Stress management: Definition, Causes, Managing stress, Stress as a motivator. Work life balance. Applications of emotional intelligence in organizations, communication, group decision making, Understanding and Managing organizational system - Organizational design and structure, Change management: Concept of change, change as a natural process, Importance & Causes of change – social, economic, technological, organizational. Learning – unlearning, Concept of learning organizations.

### **Suggested Readings**

1. *Koontz, H. and Wehrich, H. Management. 10th ed., New York, McGraw Hill, 1995.*
2. *Luthans, F. Organizational Behaviour. 7th ed., New York, McGraw Hill, 1995.*
3. *Robbins, S P. Management. 5th ed., New Jersey, Englewood Cliffs, Prentice Hall Inc., 1996.*
4. *Robbins, S P. Organizational Behaviour. 7th ed., New Delhi, Prentice Hall of India, 1996.*
5. *Singh, Dalip Emotional Intelligence at Work, Response Books, Sage Publications, Delhi,2001*
6. *Staw, B M. Psychological Dimensions of Organizational Behaviour. 2nd Ed., Englowed Cliffs, New Jersey, Prentice Hall Inc., 1995.*
7. *Stoner, J. etc. Management.6th ed., New Delhi, Prentice Hall of India, 1996.*
8. *Sundar, K. Elements of Organisational Behaviour. Vijay Nicole Imprints Private Limited, Chennai.*
9. *Sundar, K. Principles of Management. Vijay Nicole Imprints Private Limited, Chennai.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.



## **MEC-102: Quantitative Methods**

### **Objectives**

The objective of the course is to make the students familiar with some basic statistical and linear programming techniques. The main focus, however, is in their applications in business decision making.

### **Course Contents**

- I. Matrices and their Application, Markov's Analysis, Functions and Progressing of Business applications.
- II. Frequency Distribution and their Analysis; Measures of Central Tendency, Standard Deviation, Variance.
- III. Correlation and Regression Analysis, Time Series Analysis and Forecasting.
- IV. Probability Theory and Probability Distributions - Binomial, Poisson, Normal and Exponential.
- V. Evolution of Management Science, Linear Programming - Basic concepts, Model Formulation, Solution Methods, Duality, Transportation and Assignment, Decision Theory and Decision Trees, Quantitative Methods Packages.

### **Suggested Readings**

1. *Chadha, N. K. Statistics for Behavioral and Social Scientists, Reliance Publishing House, Delhi, 1996*
2. *Gupta, S P and Gupta M P. Business Statistics. New Delhi, Sultan Chand, 1997.*
3. *Kazmier, L J and Pohl, N F. Basic Statistics for Business and Economics. New York, McGraw Hill, 1988.*
4. *Levin Richard I and Rubin David S. Statistics for Management. New Jersey, Prentice Hall Inc., 1995.*
5. *Narag, A S. Linear Programming and Decision Making. New Delhi, Sultan Chand, 1995.*
6. *Sharma, J.K. Fundamentals of Operations Research, Macmillan, New Delhi, 2001*
7. *Terry, Sineich. Business Statistics by Examples. London, Collier Mac Millian Publishers, 1990*
8. *N.D Vora*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **MEC-103: Managerial Economics**

### **Objectives**

The Objectives of this course is to acquaint the participants with concepts and techniques used in Micro-Economic Theory and to enable them to apply this knowledge in business decision-making. Emphasis is given to changes in the nature of business firms in the context of globalization.

### **Course Contents**

1. Nature and Scope of Managerial Economics, Application of Economics in managerial decision-making, macro vs micro economics, basic principles of managerial economics. Demand functions, Law of Demand - Utility Concept, Cardinal and Ordinal Approach, Income and substitution effects.
2. Elasticity of Demand - Price Elasticity, Income Elasticity, Cross Elasticity Advertising Elasticity, Demand forecasting, concept of consumer surplus.
3. Production Function- Concept, Isoquants, Equilibrium, Law of Variable Proportions, Law of Returns to Scale, economies of scale, Cost Function- Types of Costs, theory of firm – profit maximization, sales maximization, revenue curves- TR, AR, MR, Long run and short run.
4. Market Structure: Concept of Equilibrium, Perfect Competitions, Monopoly, Monopolistic, Oligopoly: Kinked demand curve, Game theory, Price leadership model, Full cost pricing, Baumol's theory of sales revenue maximization, Williamsons' Managerial discretionary Theory, Cyert & March behavioral Theory. Theoretical Concept of Pricing, Pricing Polices in Practices, Non-Price Competition.
5. Macro Economics: Aggregates and Concepts, Aggregate Consumption- Aggregate Demand, Concept and Measurement of National Income; Determinant of National Income, Money multiplier Effect & Accelerator, GNP and GDP, Balance of Payments, Monetary Policy Fiscal Policy; Business cycle.

### **Suggested Readings**

1. *Adhikary, M. Business Economics., New Delhi, Excel Books, 2000.*
2. *Baumol, W J. Economic Theory and Operations Analysis. 3rd ed., New Delhi, Prentice Hall Inc., 1996.*
3. *Chopra, O.P. Managerial Economics. New Delhi Tata McGraw Hill 1985.*
4. *Keat, Paul G & Philips K. Y. Young, Managerial Economics, Prentice Hail, New Jersey, 1996.*
5. *Koutsoyiannis, A. Modem Micro Economics. New York, Macmillan, 1991.*
6. *Milgrom, P and Roberts J. Economics, Organization and Management. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1992.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

# MEC-104 Environment Management

## Course Contents

1. Environmental Management: Fundamentals-Sustainable Development, Implications of human population growth, Limits to growth, Environment and Business Schools; Energy Management: Fundamentals -Fossil Fuels use, Energy production and trade, Energy Balance.
2. Ecosystem Concepts: Basic Concepts and their application in Business, Industrial Ecology and Recycling Industry; Environmental Management System: EMS Standards, ISO 14000.
3. Environmental Management & valuation: Environmental Auditing. Clearance/Permissions for establishing industry Environmental Accounting, Economics - Environmental Taxes Shifts, Green Funding, Corporate Mergers.
4. Environmental Management Trade and Environmental Management, Debt and Environment, GATT / WTO Provisions, Green funding, Environmental Laws: Acts, Patents, IPRS, Role of NGO'S, PIL.
5. Pollution & Waste Management - Air, Water, Land Pollution, Trade in Wastes; Water, Forest & Biodiversity Management: Water Resources, Dams and their role; Forest products and Trade. Role of Biodiversity in International Trade; Approaches to Corporate Ethics; Bio-ethics, Environmental ethics.

## Suggested Readings

1. Uberoi, N.K.; *Environmental Management, Excel Books, A-45, Naraina Phase-1, New Delhi, 2000*
2. Pandey, G.N.: *Environmental Management, Vikas Publishing House New Delhi, 1997*
3. Gupta, N. Dass: *Environmental Accounting, Wheeler Publishing, 19, K.G. Marg, New Delhi, 1997*
4. Mohanty, S.K.: *Environment & Pollution Law Manual, Universal Law Publishing, G.T. Karnal Road, New Delhi, 1996*
5. Harley, Nick : *Environmental Economics, MacMillan India Ltd., Ansari Road, New Delhi, 1997*
6. Kolstad, Charles D.: *Environmental Economics, Oxford University Press, 2000*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **MEC-105: Business Communication**

### **Objectives**

The course is aimed at equipping the students with the necessary & techniques and skills of communication to inform others inspire them and enlist their activity and willing cooperation in the performance of their jobs.

### **Course Contents**

- I.. Importance and nature of business communication; Effective Communication skill; Process of communication; Barriers and gateways in communication; Intra personal communication and body language; Inter personal communication and relationship; Leadership skills; Team building and public speaking; Presentation skills; Case study and situational analysis
- II. Dos and Don'ts of Business writing; Commercial letters; Writing Business reports; Written communication - 7'c of written business communication, Approaches to written communication - deductive and inductive; Writing for enquiries , Claims, invitation, reservations and orders, refusal and collection letters, sales letters, resume writing and recommendation letters; Report writing- long and short business reports and business proposal.
- III. Feelings- types and steps to deal with complex feelings; Assertiveness and confidence building; Body language- role of different parts of the body in communication; Non-verbal behavior; Emotions- emotional empathy and emotional intelligence.
- IV. Techniques for personality development (a) self confidence (b) mnemonics (c) goal settings (d) time management (e) effective planning (f) stress management.
- V. Developing an understanding of social etiquettes; Dressing for interview- do's and don'ts for men and women; Dressing for office-do's and don'ts for men and women; Dining etiquettes; Telephone and email etiquettes; Ethical dilemmas- code of conduct.

### **Suggested Readings**

- 1 . Bowman, Joel P and Branchaw, Bernadine P. "Business Communication: From Process to Product". 1987. Dryden Press, Chicago.
2. Hatch, Richard. "Communicating in Business". 1977 Science Research Associates, Chicago.

3. Murphy, Herta A and Peck, Charrles E. "Effective Business Communications". 2nd ed. 1976. Tata McGraw Hill, New Delhi.
4. Pearce, C Glenn etc. "Business Communications: Principles and Applications". 2nd ed. 1988. John Wiley, New York.
5. Treece, Maira. "Successful Business Communications". 3rd ed. 1987. Allyn and Bacon Boston.
6. Sundar, K. *Business Communication*. Vijay Nicole Imprints Private Limited, Chennai.

## **MEC-106: BUSINESS LEGISLATION**

### **Objectives**

The course is designed to assist the students in understanding basic laws affecting the operations of a business enterprise.

### **Course Contents**

- I. The Indian Contract Act, 1872: Essentials of a Valid Contract. Void Agreements. Performance of Contracts. Breach of Contract and its Remedies. Quasi-Contracts.
- II. The Sale of Goods Act, 1930 : Formation of a Contract. Rights of an Unpaid Seller. Consumer Protection Act and Cyber Laws.
- III. The Negotiable Instruments Act, 1881: Nature and Types. Negotiation and Assignment. Holder-in-Due Course, Dishonour and Discharge of a Negotiable Instrument. Arbitration.
- IV. The Companies Act, 2013; Nature and Types of Companies. Formation. Memorandum and Articles of Association. Prospectus Allotment of Shares. Shares and Share Capital. Membership. Borrowing Powers. Management and Meetings.
- V. Accounts and Audit. Compromise Arrangements and Reconstruction. Prevention of Oppression and Mismanagement. Winding Up.

### **Suggested Readings**

1. *Avtar Singh. Company Law. 11th ed. Lucknow, Eastern, 1996.*
2. *Khergamwala, J S. The Negotiable Instrument Acts. Bombay, N.M. Tripathi, 1980.*
3. *Ramaiya, A. Guide to the Companies Act. Nagpur, Wadhwa, 1992.*
4. *Shah, S M. Lectures on Company Law. Bombay, N.M. Tripathi, 1990.*
5. *Tuteja, S K. Business Law For Managers. New Delhi, Sultan Chand, 1998.*
6. *Sundar, K. Business Ethics And Values. Vijay Nicole Imprints Private Limited, Chennai.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **MEC- 107: ACCOUNTING FOR MANAGERS**

### **Objectives**

The basic purpose of this course is to develop an insight of postulates, principles and techniques of accounting and utilization of financial and accounting information for planning, decision-making and control.

### **Course Contents:**

#### **Unit -I**

Meaning and Definition of Accounting, Parties or Users interested in Accounting, Branches of Accounting, Meaning and Definition of Management Accounting, Distinction between Management Accounting and Financial Accounting. Accounting Concepts and Conventions.

#### **Unit- II**

Basic Accounting terminologies, Classification of Accounts, Meaning of Journal, Writing of Journal Entries. Secondary Books of Accounting, Preparation of Trial Balance. Elementary knowledge of preparation of financial statement,

#### **Unit -III**

Understanding Financial statements and Annual Reports, Accounting Standards, Financial Statement Analysis, Ratio analysis, Funds Flow Analysis, Cash Flows analysis.

#### **Unit - IV**

Elements of Costs; Materials, Labour and Overheads (elementary idea only), Cost Sheet. Marginal costing – Cost volume profit analysis, BEP, Marginal Costing for Decision Making.

#### **Unit -V**

Budgetary control, Operating and Financial Budgets, Performance Budgeting, Zero-Base Budgeting; Flexible Budgets. Standard Costing – Materials Cost and Labour cost variances only.

### **Suggested Readings**

1. Anthony R N and Reece J S. *Accounting Principles*, 6th ed., Homewood, Illinois, Richard D. Irwin, 1995.
2. Bhattacharya S K and Dearden J. *Accounting for Management Text and Cases*. New Delhi, Vikas, 1996.
3. Heitger, L E and Matulich, Serge. *Financial Accounting*. New York, Mc-Graw Hill, 1990.
4. Hingorani, N L. and Ramanathan, A R. *Management Accounting*. 5th ed., New Delhi, Sultan Chand, 1992.
5. Horngren, Charles etc. *Principles of Financial and Management Accounting*. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1994.
6. Vij, Madhu. *Financial and Management Accounting*. New Delhi, Anmol Publications, 1997
8. Theory & Problems in Management & Cost Accounting - Khan & Jain

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **MEC-108: Computers and Information systems**

### **Objectives**

The objective of this course is to build up the experience of computer usage in business organizations with specific reference to commercial data processing systems and understanding of MIS and its application in decision making.

### **Course Contents**

- I. I. Computers - An Introduction – Computers trends and technology in Business; Components of a Computer System; Generations of Computers and Computer Languages; Artificial Intelligence (AI), AI Tools -An Overview. Data Files Types / Organizations, Emerging technology in digital environment.
- II. System and Application Software: Operating System, DOS, Windows and Android, OS commands and functions, Application Software Category. Data Communication and Networking: Topology, LAN, MAN, WAN, Communication Media Wired and wireless. OSI and TCP Model
- III. Office Automation Tools  
Word Processor – Editing, Printing and Formatting of document, Mail merge.  
Electronic Spread sheet – Range, Formulas, Functions, Graphs, Basis statistical formulae. Presentation Tool – Creating an effective presentation.  
DBMS – Data Creation and Manipulation, Data Reports. Other tools of office automation.
- IV Management Information System: Definitions - Basic Concepts, Frameworks, System Development initiative, Different Methodologies - Life Cycle and Prototype approach. Features of various CBIS, Types of Information Systems. - TPS, MIS, DSS, KMS, OAS, experts system: evaluation and control of information systems.
- I. Decision Support System - An Overview: Relevance, scope, characteristics and capabilities, Components, Classification of DSS User Interface graphics menus - Forms, DSS tools - DSS generators, Specific DSS, Constructing a DSS: Steps in designing DSS. GDSS (Group Decision Support System): Introduction and Applications.

### **Suggested Readings :**

1. *Burch, John and Grudnitski Gary. Information Systems: Theory and Practice. 5th ed., New York, John Wiley, 1989.*
2. *David, Van Over. Foundations of Business Systems. Fort Worth, Dryden, 1992.*
3. *Eliason, A L. On-line Business Computer Applications. 2nd ed., Chicago, Science Research Associates, 1987.*
4. *Estrada, Susan. Connecting to the Internet. Sebastopol, C A, O'Reilly, 1993.*
5. *Keen, Peter G.W.: Decision Support System an Organisational Perspective Addison-Wesley Pub.*
6. *Theierauff, Robert J. Decision Support System for-effective planning - - Prentice Hall - 1982.*
7. *Krober, Donald W., and Hugh.J. Watson Computer Based Information System Newyork, 1984*



## **Semester - II**

### **MEC-201 to MEC-208**

#### **MEC -201 Fundamentals of E-Commerce**

##### **Objectives**

The objective of this paper is to educate the learner about e-Commerce concepts along with applications and its structure in India, so students can understand fundamental, security issues and measures for E-Commerce and its related applications.

##### **UNIT 1 Introduction to E-Commerce**

E-Commerce – Introduction, Definition, Scope, Internet commerce v/s E-Commerce, Electronic Commerce- Market – Trade Cycle, Electric Data Interchange, Forces fueling E-commerce, E-Commerce Functions, Challenges to traditional methods, E-commerce industry framework, , Types of E-commerce, Scope and limitations of e-commerce.

##### **UNIT 2 E-Commerce Architecture**

Internet and Its role in e-commerce, Internet Service Provider and Internet Access Provider, Procedure of registering Internet, Domain, establishing connectivity to Internet, Tools and services of Internet, Internet v/s online services, Procedure of opening e-mail accounts on Internet, on line payments. Web system architecture: Introduction to HTML, HTTP and HTTPS, Web page formatting with text, image, links, tables, frames and form.

##### **UNIT 3 E-Commerce Models and Payment System**

Classification of E-Commerce practices, Different models (B2B, B2C, C2C, G2B, and B2G etc) of Ecommerce and their functions, Ethical and Legal issues in EC models, Indian scenario for Taxation in ECommerce, Cross border obstructions in EC. Electronic Money and Online Payment Methods: Card Money, Virtual Money, Payment Transfer methods.

##### **UNIT 4 E-Commerce Applications**

Manufacturing & Marketing Applications, Retail & Wholesale Applications, Entertainment & Games Applications, Finance & Banking Applications, Auction & Bid Applications, Education & Publishing Applications.

##### **UNIT 5 Business Strategies for E-Commerce**

Value Chain, competitive Strategy and advantages, Business Strategy – B2B and B2C, B2B- Inter organizational transactions, EDI, Benefits, Technology, Standards, Security, on line business, B2C – Consumer transaction, e-shop Internet. Security strategies of EC: Authentication and Authorization in EC, Threats-Frauds and scams in EC, Secure customer services.

##### **Suggested Readings**

1. Computer Today - S. Bansundara
2. E-Commerce: The Cutting Edge of Business - Bajaj and Nag , Tata McGraw Hill
3. E-Commerce Concepts Models & Strategies – C.S.V.Murthy, Himalaya Publication.
4. E-Commerce – Mathew Rergnolds, Wrox publication Communication
5. Global Electronic Commerce- Theory and Case Studies J Christopher Westland, H K Clark- University Press
6. E-Commerce – an Indian perspective – P T Joseph – Prentice Hall, 2/e, 2005

## **MEC-202: BUSINESS POLICY AND STRATEGIC ANALYSIS**

### **Objectives**

The Objectives of this course is to develop a holistic perspective of enterprise, critical from the point of view of the top executives.

### **Course Contents**

- I. Nature and Scope of Strategic Management; Strategic and Corporate evolution in Indian Context, Strategic Management Process. General Management Point of View, Vision, Mission, Objectives and Policies, Strategic Intent and Vision.
- II. Environmental Analysis and Internal Analysis: Environmental Scanning, Industry Analysis Organizational Analysis, Competitive Advantage and competitive strategies, concept of core competencies, SWOT Analysis.
- III. Tools and Techniques for Strategic Analysis; Impact Matrix; The Experience Curve; BCG Matrix; GEC Model; Industry Analysis; Concept of Value Chain, Strategic Profile of a Firm.
- IV. Framework for Analyzing Competition; Competitive Advantage of a Firm, Strategy Alternative, level of Strategy.
- V. Turnaround Management, Mergers and Acquisition, Diversification and Intensification, Business Process Re-engineering, Strategy Implementation, Strategy and structure, organizational values and their impact on strategy, Strategic Management in International firm.

### **Suggested Readings**

1. *Ansoff, H Igor. Implanting Strategic Management. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1984.*
2. *Budhiraja, S B and Athreya, M B. Cases in Startegic Management New Delhi, Tata McGraw-Hill, 1996.*
3. *Christensen, C R. etc, Business Policy: Text and Cases. 6th ed., Homewood, Illinois, Richard D. Irwin, 1987.*
4. *Glueck, William F. Strategic Management and Business Policy. 3rd ed. New York, McGraw-Hill, 1988.*
5. *Hax, A C and Majluf, N S. Strategic Management. Englewood Cliffs, New jersey, Prentice Hall Inc., 1984.*
8. *Chakravorty, S K. Managerial Transformation Through Values, New Delhi, Sage, 1993.*
9. *David Fred. Strategic Management. 7th ed. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1997.*
10. *Drucker, Peter F. The Changing World of the Executive. New York, Time Books 1982.*

## **MEC-203: HUMAN RESOURCE MANAGEMENT**

### **Objectives**

In a complex world of industry and business, organizational efficiency is largely dependent on the contribution made by the members of the Organization. The Objectives of this course is to sensitize students to the various facets of managing people and to create an understanding of the various policies and practices of human resource management.

### **Course Contents**

- I. Concepts and Perspectives on Human Resource Management; Human Resource Management in a Changing Environment, Balance Score Card.
- II. Corporate Objectives and Human Resource Planning; Career and Succession Planning; Job Analysis and Role Description.
- III. Methods of Manpower Search; Attracting and Selecting Human Resources. Competency Mapping, Induction and Socialization.
- IV. Manpower Training and Development; Talent Management, Performance management system -KRA, KPI, Job Evaluation & Wage Determination.
- V. Employee Welfare; Industrial Relations & Trade Unions; Dispute Resolution & Grievance Management; Employee Empowerment.

### **Suggested Readings**

1. *Aswathappa, K. Human Resource and Personnel Management Tata McGraw Hill, New Delhi, 1 997*
2. *De Cenzo, D A & Robbins S P. Human Resource Management.5th ed., New York, John Wiley, 1994.*
3. *Guy, V & Mattock J. The New International Manager. London, Kogan Page, 1993.*
4. *Holloway, J. ed. Performance Measurement and Evaluation. New Delhi, Page, 1995.*
5. *Monappa, A. & Saiyadain M. Personnel Management. 2nd ed., New Delhi, Tata McGraw-Hill, 1966.*
6. *Stone, Lloyed and Leslie W.Rue, Human Resource and Personnel Management Richard D. Irwin, Illinois, 1984.*
7. *Sundar, K. & Srinivasan J. Essentials of Human Resource Management (2<sup>nd</sup> Ed.). Vijay Nicole Imprints Private Limited, Chennai.*
8. *Sundar, K. Human Resource Development. Vijay Nicole Imprints Private Limited, Chennai.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **MEC-204: FINANCIAL MANAGEMENT**

### **Objectives**

The purpose of this course is to acquaint the students with the broad framework of financial decision making in a business unit.

### **Course Contents**

#### **Unit -I**

Financial Management: meaning, objectives, finance functions, Time Value of Money; Instruments of Financing, Cost of Different Sources of Raising Capital, Weighted Average Cost of Capital.

#### **Unit -II**

Operating and Financial Leverage, Valuation and Capital Structure, Decisions, Capital structure Theories, Optimum Capital Structure, Economic Value Added.

#### **Unit –III**

Internal Financing and Dividend Policy, Dividend Models, Leasing: concept, types and financial evaluation of Leasing.

#### **Unit -IV**

Capital Budgeting, Methods of Capital Budgeting, Analysis of Risk in Capital Budgeting, Use of Excel for Financial Decision Making.

#### **Unit -V**

Working Capital Concept, Nature and scope, Determinants of Working Capital, Instruments of Short-term Financing - Management of Working Capital, Cash, Receivable and Inventory Management.

### **Suggested Readings**

1. Archer, Stephen H. etc. *Financial Management*. New York, John Wiley, 1990.
2. Bhalla, V K. *Financial Management and Policy*. 2<sup>nd</sup> ed., New Delhi, Anmol, 1998.
3. Brealey, Richard A. and Myers Stewart C. *Principles of Corporate Finance*. 5<sup>th</sup> ed., New Delhi, McGraw Hill, 1996.
4. Hampton, John. *Financial Decision Making*. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1997.
5. Van Horne, James C. *Financial Management and Policy*. 1<sup>st</sup> Oth ed., New Delhi, Prentice Hall of India, 1997.
6. Winger, Bernard and Mohan, Nancy. *Principles of Financial Management*. New York, Macmillan Publishing Company, 1991.

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **MEC-205: MARKETING MANAGEMENT**

### **Objectives**

The purpose of this course is to develop and understanding of the underlying concepts, strategies and issues involved in the marketing of products and services.

### **Course Contents**

1. Nature and scope of marketing, Corporate orientations towards the market place, The Marketing environment and Environment scanning, Marketing information system and Marketing research, Understanding consumer and Industrial markets.
2. Market segmentation, Targeting and positioning; Product decisions - product mix, product life cycle.
3. New product development, branding and packaging decisions, Pricing methods and strategies.
4. Promotion decisions promotion mix, advertising, sales promotion, publicity and personal selling; Channel management - selection, co-operation and conflict management, vertical marketing *Implementation and* systems, Organizing and implementing marketing in the Organization.
5. Evaluation and control of marketing efforts; New issues in marketing - Globalization, Consumerism, Green marketing, Legal issues.

### **Suggested Readings**

1. *Enis, B M. Marketing Classics: A Selection of Influential Articles. New York, McGraw Hill, 1991.*
2. *Kotler, Philip and Armstrong, G. Principles of Marketing. New Delhi, Prentice Hall of India, 1997.*
3. *Kotler, Philip. Marketing Management: Analysis, Planning, Implementation and Control. New Delhi, Prentice Hall of India, 1994.*
4. *Ramaswamy, V S and Namakumari, S. Marketing Management: Planning, Control. New Delhi, MacMillan, 1990.*
5. *Stanton, William, J. Fundamentals of Marketing. New York, McGraw Hill, 1994.*
6. *Neelamegham, S. Marketing In India: Cases and Readings. New Delhi, Vikas, 1988.*
7. *Sundar, K. Essentials of Marketing. Vijay Nicole Imprints Private Limited, Chennai.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

# **MEC-206: PRODUCTION AND OPERATIONS MANAGEMENT**

## **Objectives**

The Course is designed to acquaint the students with decision making in: Planning, scheduling and control of Production and Operation functions in both manufacturing and services; Productivity improvement in operations through layout engineering and quality management etc.; Effective and efficient flow, replenishment and control of materials with reference to both manufacturing and services organisations.

## **Course Contents**

1. Nature and Scope of Production and Operations Management Decisions, Types of Manufacturing Systems, Productivity, Challenges in Operations Management, Operations Strategy.
2. Production Planning and Control: An Overview Facilities Location, Location Planning, Facilities Layout (a) Capacity Planning, Aggregate Planning (b) Master Production Scheduling (c) MRP. Role of information technology in operations management.
3. Work Study, Methods Study, Work Measurement, Performance Rating and computation of Standard Time, Maintenance Management, Industrial Safety, Supply Chain Management, PERT/CPM. Importance of digitalization in continuous production system.
4. Material Management: An Overview; Material Handling Equipment, Assembly Line Balancing, Line Balancing Problems, Line Balancing Approaches, Operation Decision, MRP, Purchasing and Store Management, Inventory Control and Budgeting. Artificial Intelligence in operations management.
5. Concept of Quality and Quality Assurance, Statistical Process Control (Acceptance Samplings), ISO, 9000, Total Quality Management (TQM), Six Sigma, Lean Management.

## **Suggested Readings**

1. Adam, E E & Ebert, R.J. *Production and Operations Management*. 6th ed., New Delhi, Prentice Hall of India, 1995.
2. Amrine Harold T. etc. *Manufacturing Organisation and Management*. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1993.
3. Buffa, E S. *Modern Production Management*. New York, John Wiley, 1987.
4. Chary, S N. *Production and Operations Management*. New Delhi, Tata McGraw Hill, 1989.
5. Dobler, Donald W and Lee, Lamar. *Purchasing and Materials Management*. New York, McGraw Hill, 1984.
6. Dilworth, James B. *Operations Management: Design, Planning and Control for Manufacturing & Services*. Singapore, McGraw Hill, 1992.
7. Moore, FG and Hendrick, T E. *Productionl Operations Management*. Homewood, Illinois, Richard D. Irwin, 1992.

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **MEC-207: RESEARCH METHODOLOGY**

### **Objectives**

To equip the students with the basic understanding of the research methodology and to provide an insight into the application of modern analytical tools and techniques for the purpose of management decision making.

### **Course Contents**

- I. Nature and Scope of Research Methodology; Problem Formulation and Statement of Research Objectives, Structure of Research. Research Process; Research Designs - Exploratory, Descriptive and Experimental Research Design.
- II. Sampling Design, Sampling Methods, Methods of Data Collection – Qualitative and Quantitative Methods, Review of Literature, Instrument Designing- Questionnaire Format and Question Composition, Individual Question Content, Question Order, Form and Layout, Pilot Testing of the Questionnaire.
- III. Selecting an Appropriate Statistical Technique, Hypothesis testing, Type I, Type II error. Parametric and non-parametric tests. Parametric: t-test, f-test, Z-test. Non - parametric tests: Run test, KW test, Mann Whitney U Test.
- IV. Multivariate Analysis: Introductory Framework, Use of SPSS and other statistical Software Packages (elementary idea only) Practical Example of Case Study Method.
- V. Data Interpretation and Report Writing: Introduction, Data interpretation, Research Report, Modus Operandi of Writing a Market Research Report, Structure and Layout of the Report, Revising and Finalizing the Research Report, Responsibilities of a Market Research Report Writer, Presentation of the Report.

### **Suggested Readings**

1. *Andrews, F.M. and S.B. Withey Social Indicators of Well Being, Plenum Press, NY, 1976*
2. *Bennet, Roger: Management Research, I LO, 1 983*
3. *Fowler, Floyd J. Jr., Survey Methods, 2<sup>nd</sup> ed., Sage Pub., 1993*
4. *Fox, J.A. and P.E. Tracy: Randomized Response: A Method of Sensitive Surveys, Sage Pub., 1986*
5. *Gupta, S.P. Statistical Methods, 30<sup>th</sup> ed., Sultan Chand, New Delhi, 2001*
6. *Golden, Biddle, Koren and Karen D. Locke: Composing Qualitative Research, Sage Pub., 1997*
7. *Salkind, Neil J. Exploring Research, 3<sup>rd</sup> ed., Prentice-Hall, NJ, 1997*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

# **MEC-208: INTERNATIONAL BUSINESS ENVIRONMENT AND MANAGEMENT**

## **Objectives**

The primary Objectives of this course is to acquaint the students to emerging global trends in business environment.

## **Course Contents**

- I. International Business: An overview - Types of International Business; The External Environment; The Economic and Political Environment, The Human Cultural Environment; Influence on Trade and Investment Patterns; Recent World Trade and Foreign Investment Trends; Theories and Institutions.
- II. Trade and Investment - Government Influence on Trade Investment; Determination of Trading Partner's Independence, Interdependence and Dependence; World Financial Environment; Cross-national Cooperation and Agreements; Tariff and Non-Tariff Barriers, WTO, Regional Blocks; International production; Internationalization of Service Firms.
- III. World Financial Environment: Foreign Exchange Market Mechanism; Determinants of Exchange Rates; Euro-currency Market; Global Strategic Management: International Marketing. Operation Management in International Firms.
- IV. An Overview of Licensing; Joint Ventures Technology and Global Competition; Globalization and Human Resource Development; Globalization with Social Responsibility; Balance of Payments Accounts and Macroeconomic Management.
- V. World Economic Growth and the Environment; *Country Evaluation and Selection*; *International Business Diplomacy*: Negotiating an International Business, Multilateral Settlements; Consortium Approaches.

## **Suggested Readings**

1. *Alworth, Julian S. The Finance, Investment and Taxation Decisions of Multinationals. London, Basil Blackwell, 1988.*
2. *Bhalla, V K and S. Shivaramu. International Business Environment and Business. New Delhi, Anmol, 1995.*
3. *Bhalla, V K. International Economy: Liberalisation Process. New Delhi, Anmol, 1993.*
4. *Daniel, John D and Radebangh, Lee H International Business. 5th ed., New York, Addison Wesley, 1989.*
5. *Eiteman, D K and Stopnehill, Al. Multinational Business Finance. New York, Addison Wesley, 1986.*
6. *Johnston, R B. The Economics of the Euromarket: History, Theory and Practice. New York, Macmillan, 1983.*
7. *Parks, Yoon and Zwick, Jack. International Banking in Theory and Practice. New York, Addison-Wesley, 1985.*

The list of cases and specific references including recent articles and reports will be announced in the class at the time of launching of the course.



## **SECOND YEAR**

### **Semester-III**

MEC-301	E-Commerce Progressions
MEC-302	Digital Marketing
MEC-303	E-advertising
MEC-304	Managing E Channels
MEC-305	Logistics and Supply Chain Management
MEC -306	Marketing Research
MEC-311	Entrepreneurship Development
MEC-312	Summer Training Project Report

### **Semester-IV**

MEC-401	E-Business Philosophy
MEC-402	E-Business Technologies and Trends
MEC-403	Warehouse Management and Data Mining (WMDN)
MEC -404	Business Analytics
MEC-411	Major Research Project

## **Specialization: Electronic Business**

MEC-301	E-Commerce Progression
MEC-302	Digital Marketing
MEC-303	E-Advertising
MEC-304	Managing E Channels
MEC-305	Logistics and Supply Chain Management
MEC-306	Marketing Research
MEC 307	Principles of E-Commerce
MEC-308	Information and Network Security
MEC-309	Internet Programming for e-Business/ e- Commerce
MEC-310	Programming Lab
MEC-311	Entrepreneurship Development
MEC-312	Summer Training Project Report
MEC-401	E-Business Philosophy
MEC-402	E- Business Technologies and trends
MEC-403	Warehouse Management and Data Mining (WMDN)
MEC- 404	Business Analytics
MEC-405	Database Management System
MEC-406	Knowledge Management System
<b>MEC-411</b>	<b>Major Research Project</b>

## **MEC-301 E-Commerce Progression**

### **Objectives**

The objective of this paper is to educate the learner about e-Commerce technology and tools with some security aspects in their uses.

### **Course Contents:**

#### **UNIT 1 Transaction Security**

Functionality of Network Models, Protocols for OSI and TCP Models, Firewalls & N/W security, Type of firewall, security policies, Emerging firewall management issue, Transaction security, Types of online transactions, Requirement for online transactions.

#### **UNIT 2 Encryption and Transaction Security**

Secret –key Encryption, Public key Encryption, Secret key Cryptography, Encryption and Decryption, Authorization and Authentication, Encryption algorithms, Decryption Implementation & management issues, secure socket layers (SSL), Security & online web based banking.

#### **UNIT 3 Security of e-commerce**

Internet security, Setting up Internet security, Maintaining secure information, Encryption Issues, Digital signature and other security measures, Firewall. Security Breaches and Cyber Law.

#### **UNIT 4 Payment Systems**

Electronic Data Interchange, Digital cash, properties, Electronic check & benefits, Online credit card system, Types of credit card payments, Secure electronic transactions (SET), Other emerging financial instruments, Debit card & Point of sale (POS), Debit card & E-benefit transfer, Smart cards, UPI

#### **UNIT 5 - E-Payment**

Overview of E-payment system, transactions through Internet, electronic fund transfer, intelligent agents, Requirements of e-payment systems, functioning of debit and credit cards, Pre and Post payment services. Different e-Transactions: E-com & Banking, E-com & Retailing, E-com & Online Publishing, e-com and gaming.

### **Suggested Readings**

- E-Commerce – S. Jaiswal
- E-Commerce Strategy, Technology & Applications – David Whitely, TMGH
- Electronic Payment Systems for E-Commerce - Michael A. Peirce, Hitesh Tewari, O'Mahony Donal.

## **MEC-302 Digital Marketing**

### **Objectives**

The objective of this paper is to create awareness about Digital Marketing and educate the learner about use of electronics in marketing management.

### **Course Contents:**

#### **Unit 1 Introduction to Digital Marketing and SEO**

The Significance of Digital Marketing, Digital Media, Digital v/s Traditional Marketing, Digital Marketing Trends and Platforms, Digital Marketing and Search Engine, Search Engine Optimization (SEO) concepts, Search Engine Architecture, Internal Measures for SEO, Do and Don't for Web Content, Link Building, Introduction to Digital Marketing Tools.

#### **Unit 2 Networks of Digital Marketing**

Introduction to Ad-Word, Display Networks, Advertising on Display Networks, Image Advertising, Mobile Advertising, Video Advertising, YouTube Advertising, Keyword Research Methodology, Analysis and Tools for Digital Marketing Networks, Link Building Methodology and Strategies, Online Offline Integration

#### **Unit 3 Search Engine Marketing**

Benefits of SEM, Google Ad-Words V/S Microsoft Ad-Center, Types of Campaign, Ad-Group and keywords setup, Direct Campaign V/S Branding Campaign, Campaign Setup, Understanding Ad-Words Bidding, Ad-Formats and Guidelines, Campaigns, Ad-groups and keywords Dashboard

#### **Unit 4 Email and Mobile Marketing**

Importance of Email Marketing, Popular Email Marketing Software, Email Marketing Campaign, Newsletters in Email Marketing, Effective strategies for Email Marketing, Email Marketing Tools, Triggered Email Campaign, Mobile Marketing: Mobile Ad-Campaign, Mobile Ad-Formats, Mobile Website Configuration. Video Marketing using YouTube: Optimization of Videos, Tips and Tricks for promotion, YT Analytics, Monetizing YT Channel

#### **Unit 5 Social Media Marketing**

Introduction to Social Media Marketing, Benefits of SMM, Social Media Strategy, Social Media Metrics in SEO, Face-book Marketing: setup, options, elements and applications; Twitter Marketing: #hash tags and its uses, analytics and promotions; Google+ Marketing: Benefits in SEO, Groups; LinkedIn Marketing: Strategy, Connection and Recommendations

### **Suggested Readings**

- *Damian Ryan and Calvin Jones, Understanding Digital Marketing: Marketing Strategies for Engaging the Digital Generation, 2nd Edition, and ISBN: 9780749453893.*
- *Vinayak Patukale, Digital Marketing, Kindle Edition*

## **MEC-303 E-advertising**

### **Objectives**

The objective of this paper is to create awareness about E-advertising and educate the learner about use of internet in advertising.

### **Course Content:**

#### Unit 1.

Advertising & Electronic Media: Introduction, functions, concepts & Evolution of Advertising. Types of advertising, advertising appeals, Copywriting. Comparison between Traditional & Modern Advertising media, National & Global Advertising scene.

#### Unit 2.

E-Advertising channels: Radio channels: Community Satellite Radio, Misc. radio networks. Audio-Visual Interface System for Advertising. Television Channels: Evolution of TV channels. Doordarshan to satellite, Cable & STB channels, National & Regional channels, Internet & Area networks.

#### Unit 3.

Social Media advertising: Role of Social Media in business, Social networking sites advertising, pinterest advertising, YouTube advertising, Mobile App advertising, Socio-economic effects of social media advertising.

#### Unit 4.

Advertising planning & scheduling. Media planning, Factors influencing the choice of media, Cost Planning, Cost & Impact Analysis, Media Scheduling, Advertising Agencies & their role.

#### Unit 5.

Measuring advertising efficiency, Evaluation of advertising effectiveness, Methods of measuring advertising effectiveness, Pre-testing & Post-testing.

### **Suggested Readings:**

*Shamci A.N., Electronic Media, Anmol Publication*

*Arvind Singhal and Everett M. Rogers, India's Communication Revolution- Sage Pub. 2007*

*Further books can be referred at time of study.*

## **MEC-304 Managing E Channels**

### **Course Contents:**

**Unit I- Nature & Scope E Channels,** Various models of E Channels, Understanding Local channel options, Partnering Marketplace Sales, Partnering Search Engines, Partnering With New Startups, integrating Web-stores.

**Unit-II E-business Website/ E-store Design:** Choose A Domain Name, Designing Low Cost Website, The Best Web Hosting Service, Search Engine Friendly Contents , Publishing Your Web-store Online, Affiliate Networks & Sales Improvement, Selling Informations, Payment Gateway Safe & Best, Joining The Wheels With The "Shopping" Cart, Web-store's Inventory Management, Logistics & Order Fulfillment.

**Unit-III E-Behavior and Managing Web Traffic:** Understanding The Customers Mindset, Search Engine Optimization & Ranking, Get Your Retail Shop Online, Officially Launching Your Ebusiness , Online Vs Offline Customers: Difference & Similarities, Converting Traffic Into Sales ,Online Branding & Reputation Management, Digital Marketing Strategy.

**Unit IV- Managing Experience of E shopping:** Giving The Perfect Shopping Experience, Making Your Customers A Celebrity, Stay Local Market Global, Delivery Model & Backend Automation, Online Business Web Security, Types Of Web Security & Threats, Information Security Planning, Hacked! How To Defend & Backup, Site & Business Safety, Internet Data Security, Digital Marketing & Boosting Sales.

**Unit V- Advanced E-Commerce Business Strategies:** Getting Into Global Markets, Acquiring New Customers Fastly, Adding New Products Expanding Globally, Retaining An Old Customer, Transform A Small Site Into A Million Dollar Business, Hiring Ecommerce Experts & Mentors, Listing Your Company In Stock Markets

### **Suggested Readings:**

- *Managing Business in Multi-Channel World: Success Factor of E-Business*, Timo Sarrien, Makku Tinnila, Anne Tseng- Idea Group Publishing.
- *Management of Electronic and Digital Media*, Alan B. Albarran, Cengage Learning. ISBN-13: 9781111344375.

# **MEC-305 Logistics and Supply Chain Management**

## **Objectives**

The objective of this paper is to create awareness about Supply Chain and Logistics Management and educate the learner about use of electronic devices in SCM.

## **Course Contents**

### **Unit 1 Concept of Supply Chain Management**

Basic concepts & philosophy of Supply Chain Management (SCM), Essential features, Functions and Contribution of Supply Chain Management, Infrastructure flows (Cash, Value and information), key issues in SCM, Creating value, Supply Chain Effectiveness and Indian Infrastructure, Framework for Supply Chain Solution, Supply Chain Relationships (SRM).

### **Unit 2 Concept of Logistic Management**

Concept of Logistics, Objectives of logistics, Types of logistics, Concept of Logistics Management, Evolution of Logistics, Role of Logistics in an Economy, Difference between Logistics and Supply Chain Management, Logistics and Competitive Advantage, Logistics Mix, Logistics in Organized Retail in India

### **Unit 3 Integrated Logistics**

Concept of Integrated Logistics, Inventory flow, Information flow, Operational Objectives of Integrated Logistics, Barriers to Integration, Organization structure, Measurement system, Inventory ownership, Information technology, Knowledge transfer capability, Logistical Performance Cycle, Manufacturing support performance cycle, Procurement performance cycle

### **Unit 4 Recent issues in SCM**

Role of computer/ IT in supply chain management, CRM Vs SCM, Benchmarking concept, features and implementation, Outsourcing –basic concepts, value addition in SCM, Concept of Demand Chain Management

### **Unit 5 Logistic Information System and Ecommerce**

Concept of Logistics Information System (LIS), Importance of LIS, Principles of designing LIS, Logistics Information Architecture, Application of Information Technology in Logistics and Supply Chain Management, Requirements of LIS in E-Commerce, E-Logistics Structure and Operation, Logistic Resource Management (LRM)

## **Suggested Readings:**

- *G. Raghuram (IIMA), Logics and supply chain management, Macmillan, 2000*
- *Emiko Bonafield, Harnessing value in supply chain, Johnwiley - Singapore, 1999.*
- *B.S. Sahay, Macmillan – Supply Chain Management, 2000, (Pearson Education, 2004)*

## MEC -306 Marketing Research

### Objective

This paper aims to develop skills in the students to conduct the market research and to help them to understand the procedure thoroughly and apply it in practical world.

### Course Content:

**Unit-1 Marketing Research Dynamics- Introduction,** Value and Cost of Information  
*Data Collection Sources and Methods:* Introduction, Meaning and Nature of Data, Methods of Data collection, Tools and techniques for Data collection, Interview Method, Instrument Designing- Introduction.

**Unit-2 Measurement and Scaling Techniques-**Introduction, Importance of Measurement and Scaling in Marketing Research, Scales of Measurement: Fundamental Properties, Primary Scales of Measurement, Attitude Measurement Scales, Types of Comparative Scales, Non – Comparative scale, Selecting an Appropriate Scale, Scale Evaluation, Motivational Research Techniques.

**Unit-3 Data Processing and Preliminary Data Analysis:** Introduction, Survey Field Work and Data Collection, Nature and Scope of Data Preparation, Editing, Coding, Data Entry, Data Cleaning, Preliminary Data Analysis, Assessing for Normality and Outliers

**Unit-4 Data Analysis:** Introduction, Descriptive Statistics, Univariate Analysis, Bivariate Analysis, Analysis of Variance, Multivariate Analysis; Discriminant Analysis, Factor Analysis, Conjoint Analysis, Multidimensional Scaling and Clustering Methods.

**Unit-5 Applications of Marketing Research I:** Introduction, Consumer Market Research, Business-to-Business Market Research, Product Research, Pricing Research, Motivational Research, Distribution Research, Advertising Research, Media research, Sales Analysis and Forecasting, Data Mining.

*Recent Trends in Marketing Research:* Introduction, Marketing Information System and Research, Online Marketing Research, Recent, Research in Lifestyle Retail, Marketing Research and Social Marketing, Trends in Services Marketing Research and Branding Research.

### Suggested Readings:

- *Marketing Research by Naresh K. Malhotra*
- *Research Methodology by C.R. Kothari*
- *Marketing Research Tools and techniques by Nigel Bradley*



## **MEC-311 Entrepreneurship Development**

**Unit 1<sup>st</sup>:** Entrepreneurship: Concept, Types of Entrepreneurship, knowledge and skills requirement; Characteristic of successful entrepreneurs; role of entrepreneurship in economic development; entrepreneurship process; factors impacting emergence of entrepreneurship, Entrepreneur v/s Intrapreneur, Entrepreneur Vs. Entrepreneurship, Entrepreneur Vs. Manager,

**Unit 2<sup>nd</sup>:** Entrepreneurial Environment, Rural Entrepreneurship, Theories of Entrepreneurship, And Legal Forms of Enterprises, Electronic Startups, Entrepreneurship Development Program: Needs and Objectives of EDPs, Phases of EDPs, Evaluation of EDPs

**Unit 3<sup>rd</sup>** Feasibility & Prefeasibility study, Fundamental of a good feasibility plan & Components of feasibility – market feasibility, technical/operational feasibility, financial feasibility; drawing business plan; preparing project report; presenting business plan to investors.

**Unit 4<sup>th</sup>** Institutional Assistance, Role of Government in promoting Entrepreneurship, MSME policy in India, Agencies for Policy Formulation and Implementation: District Industries Centers (DIC), Small Industries Service Institute (SISI), Entrepreneurship Development Institute of India (EDII), National Institute of Entrepreneurship & Small Business Development (NIESBUD), National Entrepreneurship Development Board (NEDB), Role of SIDBI.

**Unit 5<sup>th</sup>** Small Skills Unit, Dynamics of small business environment - Causes for small business failure - Success factors for small business, Women Entrepreneurship: Meaning, Characteristic features, Problems of Women Entrepreneurship in India, Developing Women Entrepreneurship in India, Incentive subsidiary. Recent emerging concepts like Atmanirbhar Bharat, Make in India.

### **Suggested Readings**

1. S.S.KHANKA “Entrepreneurial Development” S.Chand & Co. Ltd. Ram Nagar New Delhi, 1999.
2. Hisrich R D and Peters M P, “Entrepreneurship” 5th Edition Tata McGraw-Hill, 2002.
3. E. Gordon & K. Natarajan Entrepreneurship Development Himalaya 2008\
4. Charantimath, Poornima, Entrepreneurship Development and Small Business Enterprises, Pearson Education, New Delhi.
5. Hisrich, Robert D., Michael Peters and Dean Shepherded, Entrepreneurship, Tata McGraw Hill, ND
6. Sundar, K. *Entrepreneurship Development*. Vijay Nicole Imprints Private Limited, Chennai.

## **MEC-312 Summer Training Project Report**

At the end of second semester, all students will have to undergo summer training of 6 weeks with an organization by taking up a project study. The conditions of successfully completing the programme shall not be deemed to have been satisfied unless a student undergoes summer training under the supervision of the department in organizations as approved by the Department / Faculty from time to time. Each student will be required to submit a project report to the Department / Faculty for the work undertaken during this period within five weeks of the commencement of the third semester for the purpose of evaluation in the third semester.

# Semester – IV

## **MEC-411 Major Research Project**

Major Research Project study shall commence in the **beginning of fourth semester** and will have two papers weight. It may be Industry oriented internship cum project or departmentally allocated research project.

# **MEC-401 E-Business Philosophy**

## **Objectives**

The objective of this paper is to educate the learner about e-Business philosophy and various components of it.

## **Course Contents:**

### **UNIT 1 - Introduction to E-Business**

Evolution of E-Business, Principles of E –business, E-business models, E-Business Strategies, Legal Aspects of E-Business, Steps to Successful E-Business Implementation. Case and scenario discussion for e- business.

### **UNIT 2 - E-Business Issues & Internet Marketing**

Organizational issues, implementation issues, marketing issues, Internet marketing, different stages of Internet marketing, Critical success factors for Internet marketing, Managing Search Engine, Building online Trust.

### **UNIT 3 E-business frameworks**

Channel Enhancement, Global Markets, E-Selling, E –Buying, E –Procurement, Convergence strategies. E-Business Design: Overview, Steps in e-business design, reversing the value chain, Knowledge building, E-market models, Service and Operation Excellence, Coalitions.

### **UNIT 4 Issues and Challenges in E-Business**

Consumer Protection, Cyber Crimes and Cyber Laws, E-cash advantages and disadvantages, Electronic data interchange, Data mining and E-Marketing. Data Analytics and Applications.

### **UNIT 5 E-Business Operations and Processes**

Competitiveness, Profitability and productivity, Operations success- Competing through effective operations, Processes-Products and services to match customers needs, Interactive models and software windows for daily operations decisions- Enterprise software- readability and enhanced functionality of SAP R/3 information

## **Suggested Readings**

- *E-Business Fundamental by Bansal SK*
- *E-Business by Gupta VK*
- *E-Business and E-Commerce Management 2e by Dave Chaffey*
- *The E-Business Book: A Step-by-Step Guide to E-Commerce and Beyond by Davle M SMith*

## **MEC-402 E-Business Technologies and Trends**

### **Objectives**

The objective of this paper is to educate the learner about Trends and technologies of e-Business in various business sectors like marketing, governance, trading etc.

### **Course Contents:**

#### **UNIT 1 E- Marketing**

Marketplace v/s Market space, Impact of e-commerce on market, Marketing issues in e-marketing, Direct marketing, One-to-one marketing.

#### **UNIT 2 E-Trading**

Areas of e-financing, E-Trading, Trading v/s e-trading, Importance and advantages of e-trading, Operational aspects of e-trading, E-Trading in India

#### **Unit 3 E-Ticketing:**

Online booking systems, online booking procedure-Railways & Airlines, Tourist and Travel Industry, Hotels and Entertainment Industry

#### **UNIT 4 E-Banking**

Concept, Traditional v/s E-banking, Indian E-Banking Environment, Production and Distribution in E-Banking, Key Issues in E-Banking, Future of E-Banking.

#### **UNIT 5 E-Governance**

Overview of E-Governance, E-Governance Strategies, E-Governance in Rajasthan/India, Government Portals and Enterprises, E-Governance in Global Scenario.

### **Suggested Readings**

- *E-government: From Vision To Implementation: A Practical Guide With Case Studies* by Subhash Bhatnagar
- *E-Governance in India: Issues and Cases* by JayShree Bose, ICFAI Publication
- *E-Banking in India: Issues and Cases* by JayShree Bose, ICFAI Publication

# **MEC-403 Warehouse Management and Data Mining (WMDM)**

## **Objectives**

The objective of this paper is to create awareness about warehouse Management and educate the learner about use of data mining in warehouse management.

## **Course Contents**

### **Unit 1 Concept of Warehouse**

Introduction, Objectives, Warehouse Structure, Meaning of a Warehouse, Need for warehousing management, Evolution of warehousing, Role of a warehouse manager, Functions of Warehouses, Types of Warehouses, Warehousing Cost, Warehousing Strategies.

### **Unit 2 Warehousing in Business Functions**

Supply Chain Impact on Stores and Warehousing, Retail Logistics, Retail transportation, Challenges in retail warehousing, Issues in retail logistics, managing retail shrinkage Significance of Warehousing in Logistics, Warehousing Management Systems (WMS).

### **Unit 3 Warehouse Operations and Applications**

Warehouse Operations, Receiving inventory, Picking inventory, Locating inventory, Organizing inventory, Dispatching inventory, Equipment Used for a Warehouse, Warehouse information, Importance of Warehouse Information, Decision Making Using Warehouse Information, ICT Applications in a Warehouse.

### **Unit 4 Technology Aids in Warehouse Management**

Retailing and Warehousing, Warehousing and Supply Chain, Role of government in warehousing, Bar Code Scanners, Wireless LAN, Mobile Computers, Radio Frequency Identification (RFID), Retail product tracking in warehouse using RFID

### **Unit 5 Data mining and Data Warehouse**

Introduction, Data Mining Functionalities, Classification of data mining systems – Major issues in data mining, Data warehouse and OLAP technology for data mining, What is a data warehouse – A Multi dimensional model, ,Data Warehouse Architecture, Data Warehouse Implementation.

## **Suggested Readings**

- *Michael J A Berry, Gordon S Linoff, Data Mining Techniques, Wiley Publishing inc, Second Edition, 2004. ISBN: 81-265-0517-6.*
- *Alex Berson, Stephen J.Smith, Data warehousing , data mining & OLAP, , Tata McGraw Hill Publications,2004.*

## MEC -404 BUSINESS ANALYTICS

**Objective:** This course aims to develop overall analytical skills of the students and to help them to apply analytical techniques in business decision making.

### Course Contents:

**Unit I- Introduction to Business Analytics:** Applications, Objectives, Business Analytics and Competitive Advantage, Different types of Data, Big data, Data Mining Process, Data Mining and tools(Hadoop), Introduction to programming Language (R, Python)

**Unit II- Descriptive Analytics:** Introduction, Visualising and exploring data, Descriptive statistics, Sampling and Estimation, Introduction to Probability Distribution, Tools Application, Correlation and other statistical Tools.

**Unit III- Predictive Analytics:** Principles of Forecasting, Predictive Modelling: Logic driven and Data driven Models, Time series, Types of Forecasting, Forecasting Methods and their Characteristics, Trend, Seasonality, Cyclist, Hold winner Forecasting method.

**Unit IV- Prescriptive Analytics:** Business rule algorithms, nonlinear optimization, Machine learning and Artificial Intelligence, Computational Modelling.

**Unit V- Ethics and Analytics:** Data collection and Protection laws, Ethical Use of Analytics, Analytics and Privacy Principles.

### Suggested Readings:

- *JAMES, E.R (2017) BUSINESS ANALYTICS (2 EDITION). PEARSON EDUCATION LIMITED, UK*
- *UNIT – I, II, III, IV*
- *Albright, S.C. & Wayne L. Winston, W.L. (2015) Business Analytics: Data Analysis and Decision Making (5 edition), Cengage Learning Limited*
- *Unit – I, II, III IV*
- *Collmann, J. & Matei, S.A(2016) Ethical Reasoning in Big Data: An Exploratory Analysis (Computational Social Sciences) 1st ed. Springer International Publishing Switzerland*
- *Unit V*
- *Mitchell, T.M. (2017)Machine Learning. First edition. McGraw Hill Education*











# **Master of Business Administration**

## **MBA-FSM (Financial Services Management)**

### **SYLLABUS**



**2021-2023**

**Faculty of Management Studies  
Mohanlal Sukhadia University**

**UDAIPUR (RAJ.)**

## **THE PROGRAMME**

The Master of Business Administration (Financial Services Management) is a two year full-time program. The course structure and program administration are as follows:

### **COURSE STRUCTURE**

The programme has been organized in two years-First Year and Second Year, each year comprising two semesters. The list of papers offered during First Year and Second Year of the programme shall be as follows:

#### **FIRST YEAR**

##### **SEMESTER-I : FM-101 to FM 108**

FM-101	Management Process and Organizational Behavior
FM-102	Statistical Methods
FM-103	Managerial Economics
FM-104	Quantitative Methods
FM-105	Information Technology
FM-106	Managerial Communication
FM-107	Marketing Management
FM-108	Accounting For Managers

##### **SEMESTER-II : FM-201 TO FM-208**

FM-201	Corporate Evolution and Strategic Management
FM-202	Business Legislation
FM-203	Financial Management
FM-204	Research Methodology
FM-205	Management Information System
FM-206	Marketing of Financial Services
FM-207	Human Resource Management
FM-208	Security Analysis& Investment Management

## **SECOND YEAR**

### **SEMESTER -III (FSM): FM-301 TO FM-308**

FM-301	Risk Management
FM -302	Wealth Management
FM -303	Merchant Banking Services
FM -304	Mutual Funds
FM -305	Commercial Bank Management
FM -306	Insurance Management
FM -307	International Financial Management
FM -308	Corporate Restructuring

### **SEMESTER -IV (FSM)**

#### **CP-401 Major Research Project**

The course would be deemed to be completed only when the students will clear two Modules of NISM and NCFM. The list of modules would be given during the third semester.

The conditions of successfully completing the programme shall not be deemed to have been satisfied unless a student takes a major research project, under the supervision of the department, in organizations as approved by the Department/Faculty from time to time. Each student will be required to submit a project report to the Department/Faculty for the work undertaken during this period within three weeks of the completion of the major research project, duly approved by the supervisor for the purpose of evaluation in the fourth semester

## **PROGRAMME ADMINISTRATION (SUGGESTED GUIDELINES)**

### **Evaluation**

- (i) Each paper will carry 100 marks (Except Papers FM-401) of which minimum of 20% of marks should be for internal assessment and remaining percentage of marks be for written examination. The duration of written examination for each paper shall be three hours.
- (ii) The internal assessment marks shall be based on factors such as: Participation in seminars, case discussions and group work activities
  - \* Class tests, quizzes, individual and group oral presentations
  - \* Submission of written assignments, term papers and viva-voce
  - \* Class-room participation and attendance

There will be one midterm class test which will carry 10 marks. If any candidate does not appear in any of the midterm tests on medical or other valid grounds, he may appear in the defaulter test by depositing a fee of Rs. 150/- per course.

The course for the midterm test will be first three units but the defaulter test coverage will be entire course.

Home Assignment and individual and group presentation will carry 05 marks and attendance will carry 05 marks.

- (iii) The scheme of evaluation of project studies shall be as follows:

Paper FM-401, will carry 200 marks, final project study shall commence after Third semester and the report should be submitted towards the end of fourth semester.

The written part for each of the project studies shall account for 80% of marks and the viva-voce to be conducted by a duly constituted examination board for the remaining 20% of marks.

## **Promotion and Span Period**

- (i) The span period of the programme is four years from the date of registration in the programme.
- (ii) The minimum marks for passing the examination for each semester shall be 40% in each paper and 50% in aggregate for all the courses of the semester.
- (iii) To be eligible for promotion to the second year of the programme, a student must clear successfully at least 12 papers out of the 16 papers offered during first year of the programme.
- (iv) If a student fails in more than 2 papers in third semester, he/she will be declared as fail and he will be required to reappear in all the papers, as ex-student, whenever the semester is held.
- (v) The degree shall be awarded to successful students on the basis of the combined results of first year and second year examinations as follows:
  - Securing 60% and above : Ist Division -
  - All other : IInd Division
- (vi) A student to be eligible for award of degree has to clear all the papers offered during two-year programme within the span period.
- (vii) The candidates will be required to pass in the external examination of 80 marks.

*The institute/ university may evolve their own grading system for evaluation*

## **Re-examination**

A candidate who has secured minimum marks to pass in each paper but has not secured the minimum marks required to pass in aggregate for the semester concerned may take re-examination in not more than two papers to obtain the aggregate percentage required to pass the semester.

A regular student will be allowed to re-appear in any paper in any semester. However, the total number of attempts for a paper shall not exceed four during the span period of the programme. As regards the ex-students, they will be allowed to re-appear in papers only in the semester examination held, subject to total number of attempts for a paper not exceeding four during the span period of the programme.



## **Attendance**

No candidate shall be considered to have pursued a regular course of study unless he/she is certified by the Head/Dean of the Department/Faculty to have attended the three-fourths of the total number of classroom sessions conducted in each semester during his/her course of study. Any student not complying with this requirement will not be allowed to appear in the semester examination. However, the Head/Dean may condone the required percentage of attendance by not more than 10 per cent during a semester.

A student not allowed to appear in the preceding semester examination due to shortage of attendance, may appear in the papers of the proceeding semester along with the papers of current semester after making up the attendance shortfall. Remedial classes, however, will not be arranged by the Department/ Faculty for the purpose.

**SEMESTER-I**  
**FM-101 to FM 108**

## **FM-101 : MANAGEMENT PROCESS AND ORGANIZATIONAL BEHAVIOR**

### **Objectives**

The objectives of this paper are to familiarize the student with basic management concepts and behavioral processes in the organization.

### **Course Contents**

#### **Unit -I**

Evolution of management thought, Systems and contingency approach for understanding organizations, managerial processes, functions, skills and roles in an organization; Social Responsibility of Business; Leadership: Concept, Nature, Importance, Attributes of a leader, Leadership Grid. Decision making: Concept, Nature, Importance, and Process. Types of decisions. Problems in decision making

#### **Unit-II**

Introduction to Organizational Behavior: Definition, Importance, Scope, Fundamental Concepts of OB, Different models of OB: Autocratic, Custodial, Supportive, Collegial and SOBC. Attitudes: Nature and dimensions of attitude, ABC Model, Developing the right attitude. Transactional Analysis: Ego states. Johari window

#### **Unit-III**

Motivation: Definition, Importance, Motives – Characteristics, Classification of motives - Primary & Secondary motives. Theories of Motivation - Maslow's Theory of need hierarchy - Herzberg's theory. Morale - Definition and relationship with productivity - Morale Indicators.

#### **Unit-IV**

Group Dynamics and Team building: Concept of Group & Team. Formal and Informal Groups. Importance of Team building. Conflict Management: Definition. Traditional vis-à-vis Modern view of conflict, Sources and Levels of Conflict, Types of conflict: Intrapersonal, Interpersonal, and Organizational. Constructive and Destructive conflict. Conflict management: Conflict Resolution Styles.

## Unit-V

Stress management: Definition, Causes, Managing stress, Stress as a motivator, Types of Stress, Stress Vs Burnout, Strategies to manage stress, Work life balance. Group decision making: Advantages, Disadvantages and techniques. Change management: Concept of change, change as a natural process, Importance & Causes of change – social, economic, technological, organizational. Learning – unlearning, Concept of learning organizations. Kurt Lewin's Change Management Process.

### Suggested Readings

1. Koontz, H and Wehrich, H. *Management*. 10th ed., New York, McGraw Hill, 1995.
2. Luthans, F. *Organizational Behaviour*. 7th ed., New York, McGraw Hill, 1995.
3. Robbins, S P. *Management*. 5th ed., New Jersey, Englewood Cliffs, Prentice Hall Inc., 1996.
4. Robbins, S P. *Organizational Behaviour*. 7th ed., New Delhi, Prentice Hall of India, 1996.
5. Singh, Dalip Emotional *Intelligence at Work, Response Books*, Sage Publications, Delhi, 2001
6. Staw, B M. *Psychological Dimensions of Organizational Behaviour*. 2nd Ed., Englewood Cliffs, New Jersey, Prentice Hall Inc., 1995.
7. Stoner, J. etc. *Management*. 6th ed., New Delhi, Prentice Hall of India, 1996.
8. Dr. K Sundar, *Essential of Organisational Behaviour*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **FM-102: STATISTICAL METHODS**

### **Objectives**

The objective of the course is to make the students familiar with some basic statistical and linear programming techniques. The main focus, however, is in their applications in business decision making.

### **Course Contents**

#### **Unit –I**

Introduction: Application of Statistics in Business & Management; Basic Concepts of Statistical Studies: Population, Variable and Parameter, Sample; Classification of Data;. Diagrammatic & Graphical Presentation of Data: Bar Diagram, Histogram, Pie – Diagram, Frequency Polygons, and Ogives.

#### **Unit-II**

Summary Statistics: Measures of Central Tendency: Arithmetic Mean, Weighted Mean, Median and Mode .Index Numbers: Concept &Applications.

#### **Unit-III**

Measures of Dispersion: Range, Average Deviation. Standard Deviation, Variance and Coefficient of Variation.

#### **Unit-IV**

Forecasting Techniques: Simple Correlation & Regression Analysis, Time Series Analysis-Trend Analysis, Cyclical Analysis, Seasonal Analysis, Irregular Variation

#### **Unit-V**

Probability : Introduction of Probability Theories, Concepts, Addition & Multiplication Theorems, Probability Distributions: Binomial Poission, Normal and Exponential

### **Suggested Readings**

1. Chadha, N. K. *Statistics for Behavioral and Social Scientists*, Reliance Publishing House, Delhi,1996
2. Gupta, S P and Gupta M P. *Business Statistics*. New Delhi, Sultan Chand, 1997.
3. Kazmier, L J and Pohl, N F. *Basic Statistics for Business and Economics*. New York, McGraw Hill, 1988.
4. Levin Richard I and Rubin David S. *Statistics for Management*. New Jersey, Prentice Hall Inc., 1995.
5. Terry, Sineich. *Business Statistics by Examples*. London, Collier Mac Millian Publishers, 1990.

6. Quantitative Techniques - N.D.Vohra

**FM-103 : MANAGERIAL ECONOMICS**

**Objectives**

The Objectives of this course is to acquaint the participants with concepts and techniques used in Micro-Economic Theory and to enable them to apply this knowledge in business decision-making. Emphasis is given to changes in the nature of business firms in the context of globalization.

**Course Contents**

**Unit -I**

Scope, Concepts and Techniques of Managerial Economics, Nature of business decision-making, Marginal analysis, optimization; Demand functions, Law of Demand - Utility Concept, Cardinal and Ordinal Approach.

**Unit -II**

Price effect, Income and substitution effects, Income consumption curve & Price consumption curve, Concept of Consume surplus, Elasticity of Demand; Price Elasticity, Income Elasticity, Cross Elasticity, Advertising Elasticity. Demand Forecasting: Meaning and Significance.

**Unit -III**

Production Function, Concept, Isoquants, Equilibrium, Law of Variable Proportions, Law of Returns to Scale, Cost Function, Types of Costs, Theory of Firm - Profit Maximization, Sales Maximization.

**Unit -IV**

Market Structure: Concept of Equilibrium, Perfect Competition, Monopoly, Monopolistic, Oligopoly : Kinked demand curve, Price leadership models, Full cost pricing, Baumol's theory of sales revenue maximization, Williamsons' Managerial discretionary Theory, Cyert & March behavioral Theory. Theoretical Concept of Pricing, Pricing Polices in Practices Non-Price Competition.

**Unit -V**

Macro Economics : Aggregates and Concepts -GNP and GDP-Aggregate Consumption-Demand, Determination of National Income, Concept and Measurement of National Income. Balance of

Payments, Monetary Policy & Fiscal Policy. Globalization and Indian Business environment. Multiplier effect.

### **Suggested Readings**

1. Adhikary, M. *Business Economics*, New Delhi, Excel Books, 2000.
2. Baumol, W J. *Economic Theory and Operations Analysis*. 3rd ed., New Delhi, Prentice Hall Inc., 1996.
3. Mehta, P.L. *Managerial Economics*. New Delhi Sultan Chand & Sons.
4. Keat, Paul G & Philips K. Y. Young, *Managerial Economics*, Prentice Hall, New Jersey, 1996.
5. Koutsoyiannis, A. *Modern Micro Economics*. New York, Macmillan, 1991.
6. Milgrom, P and Roberts J. *Economics, Organization and Management*. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1992.
7. Diwedi D.N. *Managerial Economics*. Vikas Publishing, New Delhi.

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **FM-104 : QUANTITATIVE METHODS**

### **Objectives**

The objective of the course is to make the students familiar with some basic statistical and linear programming techniques. The main focus, however, is in their application in business decision making.

### **Course Contents**

#### **Unit-I**

Matrices and their Applications. Markov's Analysis, Function and Iterations of Business Applications.

#### **Unit-II**

Linear Programming: Introduction of Operations Research, Scope and Models in Operations research, Scope and models in Operations Research, Introduction of linear Programming, Formulation of LPP, Solutions of LPP-Graphical Methods & Simplex Procedure ,Duality.

#### **UNIT –III**

Introduction of Transportation Problems, Procedure of finding optimal solution, Assignment Problem & its solution.

#### **UNIT-IV**

Decision Theory: Introduction of Decision Theory, Decision Environments, Decision Making under Risk- EMV & EOL Decision Making under Uncertainty- Maximax, Maximin, Minimax, Regret& Laplace Criterion.

Games Theory - 2x2 zero sum game with dominance - Pure Strategy and Mixed Strategy.

#### **UNIT-V**

PERT- CPM, Inventory control. Monte Carlo Simulation (Elementary idea only).

### **Suggested Readings :**



1. Narang ,A S. *Linear Programming And Decision Making* . New Delhi , Sultan Chand,1995.
2. Sharma , J.K. *Fundamentals of Operation research* ,Machmillan, New Delhi,2001
3. *Quantitative Techniques* –N.D. Vohra

## **FM-105: INFORMATION TECHNOLOGY**

### **Objectives:**

The objective of the course is to make student aware about the emerging information technological issues engaging the world.

### **Course Contents**

#### **Unit -I**

Introduction to Computers: Evolution of Computers, Basic Architecture and components, Application Software and Packages - Introduction to Embedded Software. Artificial intelligence (AI), AI Tools –An overview, Fundamentals of operating system- Windows, Unix/Linux, Android.

#### **Unit -II**

Software Packages

- a) Word Processor –Editing, Printing and Formatting of Document Mail merge.
- b) Electronic Spread sheet – Range, Formulas, Functions, Graphs, Basis statistical formulae.
- c) Presentation Tool – Creating effective presentations

#### **Unit -III**

File and Data Management –Data files types/Organizations; Master & Transaction Files; Basics of Data Processing; Introduction to DBMS concepts, DBMS Software: Creating a database, Data entry and basic queries. Report generation & Label generation .

#### **Unit -IV**

Financial Accounting Software- Account creation, Journal Entry, Ledger posting, Balance Sheet, P& L Account, Flow Charting : Input-Process –Output presentation , Programming Concepts. Data Communications And networking \_LAN & WAN.

#### **Unit -V**

.Introduction to Word Wide Web-Internet operations, emerging communication technologies .Introduction to Social Networking, E Commerce ,E –Banking And E- Governance .

### **Suggested Readings**

1. Rajaraman, V. (2004). *Introduction to Information Technology*. PHI.
2. Turban, Rainer and Potter (2003). *Introduction to information technology*. John Wiley and sons.
3. Sinha, P.K., PritiSinha (2002). *Foundation of computing*. BPB Publications.
4. Ram, B. (2003). *Computer Fundamentals*. New Age Publications

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **FM- 106 :   MANAGERIAL COMMUNICATION**

### **Objectives:**

The objective of the course is to make student aware about the communication techniques.

### **Course Contents**

#### **Unit -I**

Introduction to managerial communication: Meaning, Importance & objectives - Principles of Communication, forms of communication, Communication Process, Barriers of effective communication, Techniques of effective communication.

#### **Unit -II**

Nonverbal communication: Body Language, Gestures, Postures, Facial Expressions, Dress codes. The Cross Cultural Dimensions of Business Communication. Listening & Speaking, Techniques of eliciting response, probing questions, Observation, Business and social etiquettes.

#### **Unit -III**

Managerial speeches: Principles of Effective Speech & Presentations. Technical & Non-technical presentations. Speech of introduction -speech of thanks - occasional speech - theme speech, Use of audio visual aids. Reports: Types of Business Reports - Format, Choice of vocabulary, coherence and cohesion, paragraph writing, organization reports by individual, Report by committee.

#### **Unit -IV**

Interview Techniques: Mastering the art of conducting and giving interviews, Placement interviews - discipline interviews - appraisal interviews - exit interviews. Group communication: Importance, Meetings - group discussions. Video- conferencing. Case study and written analysis of case (WAC)

#### **Unit -V**

Introduction to managerial writing: Business letters: Inquiries, Circulars, Quotations, Orders, Acknowledgments Executions, Complaints, Claims & adjustments, Collection letter, Banking correspondence, Agency correspondence, Bad news and persuading letters, Sales letters, Job application letters - Bio-data, Covering Letter, Interview Letters, Letter of Reference. Memos, minutes, Circulars, notices & Email Etiquettes.

### **Suggested Readings:**

1. Lesikar, R.V. & Flatley, M.E. (2005). *Basic Business Communication Skills for Empowering the Internet Generation*. Tata McGraw Hill Publishing Company Ltd. New Delhi.
2. Ludlow, R. & Panton, F. (1998). *The Essence of Effective Communications*. Prentice Hall of India Pvt. Ltd.
3. Adair, J. (2003). *Effective Communication*. Pan Mcmillan.
4. Thill, J. V. & Bovee, G. L. (1993). *Excellence in Business Communication*. McGraw Hill, New York.
5. Bowman, J.P. & Branchaw, P.P. (1987). *Business Communications: From Process to Product*. Dryden Press, Chicago.

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **FM-107 :     MARKETING MANAGEMENT**

### **Objectives**

The purpose of this course is to develop understanding of the underlying concepts, strategies and issues involved in the marketing of products and services.

### **Course Contents**

#### **Unit -I**

Nature and scope of marketing, Corporate orientations towards the marketplace, The Marketing environment and Environment scanning, Marketing information system and Marketing research, Understanding consumer and Industrial markets.

#### **Unit -II**

Understanding consumer behavior, factors influencing consumer behavior and buying process; organizational buying; Market segmentation, Targeting and positioning; Product decisions - product mix, product life cycle, new product development, branding and packaging decisions.

#### **Unit -III**

Pricing methods and strategies, Promotion decisions promotion mix, advertising, sales promotion, publicity and personal selling; Channel management - selection, co-operation and conflict management, vertical marketing, Implementation and systems.

#### **Unit -IV**

Services Marketing: The emergence of service, The service consumer behavior, Service positioning and targeting, Service quality, promoting the service, Relationship Marketing, Services marketing in India.

#### **Unit -V**

Emerging issues in marketing: Consumerism, Green marketing, Sustainable development and consumption, Digital marketing, E-CRM

## Suggested Readings

1. Enis, B M. *Marketing Classics: A Selection of Influential Articles*. New York, McGraw Hill, 1991.
2. Kotler, Philip and Armstrong, G. *Principles of Marketing*. New Delhi, Prentice Hall of India, 1997.
3. Kotler, Philip. *Marketing Management: Analysis, Planning, Implementation and Control*. New Delhi, Prentice Hall of India, 1994.
4. Ramaswamy, V S and Namakumari, S. *Marketing Management: Planning, Control*. New Delhi, MacMillan, 1990.
5. Stanton, William, J. *Fundamentals of Marketing*. New York, McGraw Hill, 1994.
6. Neelamegham, S. *Marketing In India: Cases and Readings*. New Delhi, Vikas, 1988.
7. Lovelock. Christopher H. *Services Marketing* Prentice Hall.
8. Dr. K Sundar, *Essential of Marketing, Tata McGraw Hill, 2012*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **FM - 108 : ACCOUNTING FOR MANAGERS**

### **Objectives**

The basic purpose of this course is to develop an insight of postulates, principles and techniques of accounting and utilization of financial and accounting information for planning, decision-making and control.

### **Course Contents:**

#### **Unit -I**

Meaning and Definition of Accounting, Parties or Users interested in Accounting, Branches of Accounting, Meaning and Definition of Management Accounting, Distinction between Management Accounting and Financial Accounting. Accounting Concepts and Conventions.

#### **Unit -II**

Basic Accounting terminologies, Classification of Accounts, Meaning of Journal, Writing of Journal Entries. Secondary Books of Accounting, Preparation of Trial Balance Financial Statement Analysis, Ratio analysis, Funds Flow Analysis, Cash Flows analysis.

#### **Unit -III**

Elements of Costs; (a) Materials Costs: - Materials purchasing, receiving, storing and issuing including pricing of issues. Labour Costs and Labour Turnover.

#### **Unit -IV**

Overheads- Identifying the overheads with cost centre. Allocation, Apportionment and Absorption – Accounting treatment of under and Over Absorption. (Preparation of Cost Sheet, items to be excluded while preparing cost sheet.

#### **Unit -V**

Managerial Decision Making Techniques: Marginal costing – Cost volume profit analysis, BEP Budgetary control, Operating and Financial Budgets, Performance Budgeting, Zero-Base Budgeting; Flexible Budgets. Standard Costing – Materials Cost and Labour cost variances only. Accounting Standards.



## **Suggested Readings**

- 1 . Anthony R N and Reece J S. *Accounting Principles*, 6th ed., Homewood, Illinois, Richard D. Irwin, 1995.
2. Bhattacharya S K and Dearden J. *Accounting for Management Text and Cases*. New Delhi, Vikas, 1996.
3. Heitger, L E and Matulich, Serge. *Financial Accounting*.New York, Mc-Graw Hill, 1990.
4. Hingorani, N L. and Ramanathan, A R. *Management Accounting*. 5th ed., New Delhi, Sultan Chand, 1992.
5. Horngren, Charles etc. *Principles of Financial and Management Accounting*.Englewood Cliffs, New Jersey, Prentice Hall Inc., 1994.
6. Needles, Belverd, etc. *Financial and Managerial Accounting*.Boston, Houghton Mifflin Company, 1994.
7. Vij, Madhu. *Financial and Management Accounting*.New Delhi, Anmol Publications, 1997
8. Theory & Problems in Management & Cost Accounting - Khan & Jain

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

**SEMESTER-II :**

**FM- 201 TO 208**

## **FM-201 BUSINESS POLICY & STRATEGIC MANAGEMENT**

### **Objectives**

The Objectives of this course is to develop understanding about strategic processes and their impact on a firm.

### **Course Contents:**

#### **Unit-I**

Strategy and the Quest for Competitive Advantage: Military origins of strategy – Evolution - Concept and Characteristics of strategic management – Defining strategy – Mintzerbg’s 5Ps of strategy – Corporate, Business and Functional Levels of strategy - Strategic Management Process. . Strategic Intent & Strategy Formulation: Vision, mission and purpose – Business definition, objectives and goals – Stakeholders in business and their roles in strategic management - Corporate Social Responsibility, Ethical and Social Considerations in Strategy Development.

#### **Unit-II**

Strategic analysis: Analyzing Company’s Resources and Competitive Position - Organizational Capability Profile – Strategic Advantage Profile – Core Competence - Distinctive competitiveness. Analyzing Company’s External Environment: Environmental appraisal – Scenario planning – Preparing an Environmental Threat and Opportunity Profile (ETOP) – Industry Analysis - Porter’s Five Forces Model of competition.

#### **Unit-III**

Corporate Portfolio Analysis: Business Portfolio Analysis - Synergy and Dysergy - BCG Matrix – GE 9 Cell Model - Concept of Stretch, Leverage and fit 6. Generic Competitive Strategies: Low cost, Differentiation, Focus. . Grand Strategies: Stability, Growth (Diversification Strategies, Vertical Integration Strategies, Mergers, Acquisition & Takeover Strategies, Strategic Alliances & Collaborative Partnerships), Retrenchment, Outsourcing Strategies. Tailoring strategy to fit specific industry – Life Cycle Analysis - Emerging, Growing, Mature& Declining Industries.

#### **Unit-IV**

New Business Models and strategies for Internet Economy: Shaping characteristics of E-Commerce environment – E-Commerce Business Model and Strategies – Internet Strategies for Traditional Business – Key success factors in E-Commerce – Virtual Value Chain. Strategy implementation - Project implementation – Procedural implementation – Resource Allocation – Organization Structure – Matching structure and strategy.

## **UNIT- V**

Behavioural issues in implementation – Corporate culture – Mc Kinsey's 7s Framework - Concepts of Learning Organization . Functional issues – Functional plans and policies – Financial, Marketing, Operations, Personnel, IT. Strategy Evaluation – Operations Control and Strategic Control - Symptoms of malfunctioning of strategy — Balanced Scorecard.

Cases in strategic management: A minimum of 5 cases encompassing the above topics to be analyzed and discussed in the class.

### **Suggested Readings :-**

1. A Thompson Jr., A J Strickland III, J E Gamble, Crafting & Executing Strategy – The Quest for Competitive Advantage, Tata McGraw Hill, 4th ed., 2005.
2. Ranjan Das, Crafting the Strategy: Concepts and Cases in Strategic Management, Tata McGraw Hill, 2004.
3. Henry, Mintzberg, Bruce, Ahlstrand and Joseph, Lampel (1998). Strategy Safari. 31Free Press, New York.
4. Gary, Hamel and Prahalad, C. K. (1999). Competing for the Future.HBS Press.
5. Ed. C.A. Montgomery, M.E. Porter, Strategy – Seeking and Securing Competitive Advantage, Harvard Business Review Publications, 1991.
6. Peter F. Drucker, Managing in a Time of Great Change, Truman Talley Books / Plume Penguin Group, 1998.

## **FM-202: BUSINESS LEGISLATION**

### **Objectives**

The course is designed to assist the students in understanding basic laws affecting the operations of financial institutions.

### **Course Contents**

#### **Unit -I**

The Contract Act, 1872 Nature and classification of contracts - Essential elements of a valid contract - Offer and Acceptance - Consideration , Capacities of Parties, free consent, Void agreement, Performance and discharge of contract, Breach of contract - Meaning and remedies, Contingent contracts, Quasi Contracts.

Introduction to special contracts - Indemnity & Guarantee, Bailment & Pledge, Agency.

#### **Unit -II**

Sales of Goods Act, 1930 - Contract for Sale of Goods - Meaning - Essentials of a Contract of Sale -Formalities of a Contract of sale, Provisions relating to Conditions and Warranties Caveat and Emptor relating to transfer of property or ownership, Provisions relating to performance of Contract of Sale - Rights of Unpaid Seller – Rules as to delivery of goods.

#### **Unit-III**

The Negotiable Instruments Act, 1881 Negotiable Instruments - Meaning, Characteristics, Types, Parties - Holder and holder in Due Course, Negotiation and Types of Endorsements, Dishonor and Discharge of Negotiable Instrument, Liabilities of parties on Negotiable Instrument.

#### **Unit -IV**

The Companies Act, 2013 Company - Definition, Meaning, Features and Types of companies Incorporation of a company - Memorandum of Association, Articles of Association and Prospectus Share Capital and Recent Amendments.

## **Unit -V**

The Consumer Protection Act, 1986 Definitions of Consumer, Complainant, Goods, Services - Meaning of Consumer Dispute, Complaint, Unfair Trade Practices, Restrictive Trade Practices, Rights of Consumers, Consumer Disputes Redressal Agencies.

The Information Technology Act, 2000 Digital Signature - Digital Signature Certificate Electronic Governance Electronic Records Certifying Authorities Penalty & Adjudication.

Intellectual Property Rights: Conceptual understanding of patents, copyrights, trademarks and designs.

### **Suggested Readings**

1. *Avtar Singh. Company Law. 11th ed. Lucknow, Eastern, 1996.*
2. *Khergamwala, J S. The Negotiable Instrument Acts. Bombay, N.M. Tripathi, 1980.*
3. *Ramaiya, A. Guide to the Companies Act. Nagpur, Wadhwa, 1992.*
4. *Shah, S M. Lectures on Company Law. Bombay, N.M. Tripathi, 1990.*
5. *Tuteja, S K. Business Law For Managers. New Delhi, Sultan Chand, 1998.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **FM-203 : FINANCIAL MANAGEMENT**

### **Objectives**

The purpose of this course is to acquaint the students with the broad framework of financial decision making in a business unit.

### **Course Contents**

#### **Unit -I**

Aims and Objectives of Financial Management; Role of Finance Manager, Time Value of Money; Instruments of Long term Finance, Cost of Different Sources of Raising Capital, Weighted Average Cost of Capital, Marginal Cost of Capital

#### **Unit -II**

Operating and Financial Leverage, Valuation and Capital Structure Decisions, Capital structure Theories – NI and NOI approach, MM Hypothesis without taxes and under corporate taxes, Optimum Capital Structure, Economic Value Added.

#### **Unit -III**

Methods of Capital Budgeting – Payback, ARR, IRR, NPV and PI, Analysis of Risk in Capital Budgeting – Sensitivity Analysis, Scenario Analysis, Financial Modeling, Use of Excel for Financial Decision Making.

#### **Unit -IV**

Working Capital Concept, Nature and scope, Determinants of Working Capital, Instruments of Short-term Financing - Management of Working Capital, Cash, Receivable and Inventory Management. Dividend Policy, Dividend Models, Recent development in Financial Management – GDR, ADR, FCCB, ZCB, DDB, Warrants, SPN, Equi pref, Sweat Equity Shares, ESOP, Tracking Stocks, Disaster Bonds, Mortgage Based Securities, etc.

#### **Unit -V**

Leasing, Types of Leasing, Introduction to Equipment Leasing, Financial Evaluation of Leasing. Hire Purchase Consumer Finance Factoring and Forfeiting, Bill Discounting, Housing Finance.

## **Suggested Readings**

1. *Archer, Stephen H. etc. Financial Management. New York, John Wiley, 1990.*
2. *Bhalla, V K. Financial Management and Policy. 2<sup>nd</sup> ed., New Delhi, Anmol, 1998.*
3. *Brealey, Richard A. and Myers Stewart C. Principles of Corporate Finance. 5<sup>th</sup> ed., New Delhi, McGraw Hill, 1996.*
4. *Hampton, John. Financial Decision Making. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1997.*
5. *Van Horne, James C. Financial Management and Policy. 1<sup>st</sup> ed., New Delhi, Prentice Hall of India, 1997.*
6. *Winger, Bernard and Mohan, Nancy. Principles of Financial Management. New York, Macmillan Publishing Company, 1991.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.



## **FM-204 : RESEARCH METHODOLOGY**

### **Objectives**

To equip the students with the basic understanding of the research methodology and to provide an insight into the application of modern analytical tools and techniques for the purpose of management decision making.

### **Course Contents**

#### **Unit-I**

Foundation of Research: Meaning, Objectives, Motivations, utility. Concept of Theory, empiricism, deductive and inductive theory .Characteristics of scientific Method, Understanding the Language of Research –Concept & Construct. Definition –Variable .Research Process, Nature and Scope of Research Methodology; Problem Formulation and Statement of Research Objectives.

#### **Unit-II**

Research Design; Concept And Importance in Research , Features of good research design , Types of Research Designs – Exploratory Research Designs, Descriptive Research Designs Experimental Research Designs

Qualitative & Quantitative Research : Qualitative research-Quantitative Research. Difference between Qualitative & Quantitative Research

#### **Unit –III**

Measurement: Concept of measurement- What is measured? Problems in measurement in management research- Validity and reliability .Levels of Measurement –Nominal, Ordinal, Interval, Ratio. Attitude Scaling techniques, Motivational Research Techniques

Types of Data: Secondary Data –Definition Sources ,Characteristics . Primary data –Definitions , Advantages & Disadvantages Over Secondary data, Observation Method ,Questionnaire Construction , Personal Interview ,Telephonic Interview ,Mail Survey ,Email/Internet survey.

Sampling: Concepts of Statistical Population, Sample ,Sampling Frame ,Sampling error, Sample Size ,Non Response. Characteristics of a good Sample .Probability Sample –Simple Random Sample, Systematic Sample ,Stratified Random Sample & multistage sampling .Non Probability Sample –Judgment ,Convenience ,Quota & Snowballing methods .Determining size of sample – Practical consideration in sampling & sample size.

#### **Unit -IV**

Data Analysis : Data Preparation – Univariate analysis (Frequency Tables ,bar charts, pie charts ,percentages). Null and Alternate Hypothesis; Type I and Type II error; critical Region; level of

significance. Parametric and Non- Parametric test, Parametric: t-Test & Z test & Multivariate Analysis, Non- Parametric test : Run test, KW test, Whitney test.

## **Unit -V**

Bivariate Analysis – Cross Tabulation and Chi –Square, F-ANOVA.

Report Preparation : Pre-Writing Consideration, Format of Marketing research report ,common Problem Encountered when preparing the marketing research report .Presenting the research report.

### **Suggested Readings**

1. *Andrews, F.M. and S.B. Withey Social Indicators of Well Being, Plenum Press, NY, 1976*
2. *Bennet, Roger: Management Research, I LO, 1 983*
3. *Fowler, Floyd J. Jr., Survey Methods, 2<sup>nd</sup> ed., Sage Pub., 1993*
4. *Fox, J.A. and P.E. Tracy: Randomized Response: A Method of Sensitive Surveys, Sage Pub., 1986*
5. *Gupta, S.P. Statistical Methods, 30<sup>th</sup> ed., Sultan Chand, New Delhi, 2001*
6. *Golden, Biddle, Koren and Karen D. Locke: Composing Qualitative Research, Sage Pub., 1997*
7. *Salkind, Neil J. Exploring Research, 3<sup>rd</sup> ed., Prentice-Hall, NJ, 1997*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **FM-205 : MANAGEMENT INFORMATION SYSTEM**

### **Objective**

The objective of the course is to develop the basic understanding of the decision support system of the artificial intelligence for business Organization.

### **Course Contents:**

#### **Unit-I**

Management Information System: Definitions - Basic Concepts Frameworks - Major Trends in Technology, applications of Information Technology. System & Design: Systems Development initiative, Different Methodologies - Life Cycle & Prototype approach, Detailed study on Life Cycle Design & implementation, Case Study.

#### **Unit-II**

Managerial Decision Making: Decision making process, problem solving techniques, how decisions are being supported - decision styles group decision making, features of various CBIS.

#### **Unit -III**

Decision Support System : An Overview ; Relevance, Scope of DSS, characteristic and capabilities of OSS, components of OSS, classification of DSS, Database Management System: Sources of data -data file environment database environment - data models - relevance of relational data base design in DSS.

#### **Unit -IV**

Model Base Management system: Types of models, function, time, certainty, uncertainty, risk, structure OR models, Dichotomous model of mind - Simon's model in information system design simulation technique. Dialog generation management system.

#### **Unit -V**

User interface - graphics menus - Forms OSS tools - DSS generators - specific DSS. Constructing a DSS: Steps in designing a OSS identification of decision, building- of DSMS, building of MSMS - building of DGMS, implementation, performance testing. Recent trends in MIS

## **Suggested Readings**

1. Keen, Peter G.W.: Decision Support System an Organizational Perspective Addison-Wesley Pub.
2. *Theierauff, Robert J. Decision Support System for-effective planning - - Prentice Hall - 1982.*
3. *Krober, Donald W., and Hugh.J. Watson Computer Based Information System Newyork, 1984*
4. *DavisL, Michael W. A management approach - Macmillan Publishing Company, Prentice HaliNew Jersey, 1988.*
5. *Andrew P. Decision Support System Engineering, Sage, John Wiley & Sons, New York, 1991.*
6. *Leod, Raymond Me JR Management information systems - Macmillan Publishing Company, New York - 5th Edition - 1993.*
7. *Turban, Efrain Decision Support & Expert Systems - Management Perspective - Macmillan Publishing Company, New York, 1988*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **FM-206 : MARKETING OF FINANCIAL SERVICES**

### **Unit-I**

Introduction to financial services, Nature and Scope of Financial Services. Types of Financial Services , Non-Banking Financial Companies: Function and Types.

### **Unit-II**

Online marketing for financial services and Introduction to Digital Marketing: concepts SEO, SMM and marketing through Facebook and Instagram.

### **Unit-III**

Venture Capital Financing Advisory Services. Mergers/Amalgamations and Acquisition /Takeovers. Credit Rating, Credit Cards, Microfinance, Stock Broking, E-Broking Regulatory framework for Financial Services, Recent Developments.

### **Unit-IV**

Consumers Behaviour in Service, Encounter Environmental Issues, Positioning Services in Competitive Market, Financial Services; Product Development, Designing Communication, Mix for Financial Services, The Marketing Mix for Financial Services, Designing and Managing Financial Services.

### **Unit –V**

Problems and Challenges in Marketing of Bank Services, Marketing of Insurance Services, Marketing of Allied Services; Mutual Funds, Credit Cards, Housing Finance, Personal Loans, Factoring Services, Quality issues in Financial Services, Pricing of Financial Services.

### **Suggested Readings**

*Bhalla V.K. Management of Financial Services. Anmol New Delhi, 2001.*

*Khan M.Y. Financial Services. TMH New Delhi 3rd edition 2004.*

*Bhole L.M. Financial Institutions and Markets TMH 4/e 2004*

*Gorden, E and Natrajan Emerging Scenario of Financial Services.*

*Clifford Gomez. "Financial Markets, Institutions and Financial Services" Prentice Hall of India.*

*Pathak V. Bharti. "The Indian Financial System". Pearson Education, Second Edition.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course. Cases of at least four Banks and other Institutions on Marketing Strategy will be discussed in the class

## **FM-207: HUMAN RESOURCE MANAGEMENT**

### **Unit-I**

Human Resources Management-Introduction and Importance, Human Aspect of Management, HRM Evolution. Difference between Personnel Management and HRM. HRM in a Changing Environment, Role of a HR Manager.

### **Unit -II**

Human Resources Planning: Objectives, Importance, Process and Manpower Estimation

Job analysis, Job Description, Job Specification.

Recruitment: Meaning and Sources of Recruitment.

Selection: Essentials of selection procedure and Process

Placement and Induction, Retention of Employees.

### **Unit-III**

Training and Development- Objectives and Needs, Training Process, Methods of Training, Tools and Aids

Evaluation of Training Programs. Career Planning and Succession Planning.

### **Unit-IV**

Performance Management System: Definition, Concepts and Ethics.

Performance Appraisal: Methods, Rating Errors

Compensation Management: Concepts and Components, Perks and Benefits.

Job Evaluation: concept and methods

Productivity Management: Concept, TQM, Kaizen and Quality Circles.

### **Unit-V**

Industrial Relations: Disputes, Causes, Settlement of Disputes -Grievance Procedure and Collective Bargaining.

Industrial Relations & Trade Unions, Retirement/Separation, Superannuation, Voluntary Retirement Schemes, Resignation, Discharge, Dismissal, Suspension, Layoff.

## **Suggested Readings**

1. *Aswathappa, K. Human Resource and Personnel Management Tata McGraw Hill, New Delhi, 1997*
2. *De Cenzo, D A & Robbins S P. Human Resource Management. 5th ed., New York, John Wiley, 1994.*
3. *Guy, V & Mattock J. The New International Manager. London, Kogan Page, 1993.*
4. *Holloway, J. ed. Performance Measurement and Evaluation. New Delhi, Page, 1995.*
5. *Monappa, A. & Saiyadain M. Personnel Management. 2nd ed., New Delhi, Tata McGraw-Hill, 1966.*
6. *Stone, Lloyed and Leslie W. Rue, Human Resource and Personnel Management Richard D. Irwin, Illinois, 1984.*
8. *Dr. K Sundar, Essential of Human Resource Management*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.



## **FM-208: SECURITY ANALYSIS AND INVESTMENT MANAGEMENT**

### **Objectives**

The objective of this course is to impart knowledge to students regarding the theory and practice of Security Analysis and

### **Course Contents:**

#### **Unit-I**

Indian Financial System. Capital Market & Money Market. Risk and Return; Types of Securities, Investment Alternatives, Non Security Forms of Investment , Listing &Delisting of Securities.

#### **Unit-II**

Mechanics of Investing; Primary Market, Secondary Market; Trading Mechanism, Stock Market Terminologies, Market Indices and Return, SEBI Regulations, Investors Protection. Dematerialization & Depositories.

#### **Unit-III**

Valuation Theories of Fixed and Variable Income Securities; The Return &Risk and the Investment Decision, Equity Research Reports : Sector analysis & Company Analysis. Major international Indices : Dow Jones ,Hang Seng .NIKKI, NASDAQ ,FTSE,CAC,CBOT etc.

#### **Unit-IV**

Stock Market Analysis – Fundamental Analysis: Economic, Industry & Company Analysis .Technical Analysis: Dow Theory , Technical Indicators, Charts, Moving Averages, Oscillators ,ROC,RSI, Efficient Market Hypothesis , Recent Developments in the Indian Stock Market.

## Unit-V

Portfolio Management Markowitz, Mean Variance Criteria, Sharpe Single Index model, CAPM.

### Suggested Readings

1. *Pandiyar Pumthavatheey, Security Analysis & Portfolio.Mgt. New Delhi Vikas Publishing House, Pvt. Ltd., 2009.*
2. *Bhalia, V K. Investment Management: Security Analysis and Portfolio Management., 8th ed., New Delhi, S. Chand,2001.*
3. *Fischer, Donald E. and Jordan, Ronald J. Security Analysis and Portfolio Management. 6th ed., New Delhi, Prentice Hall of India, 1995.*
4. *Fuller, Russell J. and Farrell, James L. Modern Investment and Security Analysis. New York, McGraw Hill, 1993.*
5. *Haugen, Robert H. Modern Investment Theory. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1987.*
6. *Huang, Stanley S C and Randall, Maury R. Investment Analysis and Management. London, Allyn and Bacon, London,1987.*
7. *Sharpe, William F. etc. Investment. New Delhi, Prentice Hall of India, 1997.*

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

**SECOND YEAR: III SEMESTER**

**FM- 301 TO 308**

## **FM-301: RISK MANAGEMENT**

Course Contents

### **UNIT-I**

Introduction to Risk Management; The meaning of Risk, Types of Risk, The cost of Risk. Risk Management, Derivatives: Definition, Classification & Features, Forwards and Futures, Participants in Derivative Markets.

### **UNIT-II**

Hedging through Derivatives, Interest Rate Futures, Index Futures, Currency Futures, Commodity Futures , Concept of Insurance.

### **UNIT-III**

Options Concept, Types of Trading Strategies, Option Pricing Models: BS model & Binomial model , Synthetic Options, Sensitivity of Financial Options Premium, Option Greeks.

### **UNIT-IV**

Swap Concept: Currency Swaps, Interest Rate Swaps, Pricing of Swaps. Weather Derivatives, Values at Risk, Commodity Derivative Market.

### **UNIT-V**

Regulatory Framework of Derivative Markets, Recent Developments in Risk Management, Exotic Options, CDS, CLBO, Risk Management Basics.

The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.

## **FM-302 : WEALTH MANAGEMENT**

### **Course Contents**

#### **UNIT-I**

Introduction: Financial Planning : Background, Role of Financial Planner, Financial Planning Process, Client Data Collection, Client Data Analysis, Life Cycle, Wealth Cycle, Risk Profiling and Asset Allocation.

#### **UNIT-II**

Financial Plan, Goal-based Financial Plan, Comprehensive Financial Plan, Financial Blood-Test Report (FBR), Financial Planning in India.

Investment Products & Services

Derivatives:-Futures, Options. Mutual Fund. Venture Capital / Private Equity Funds. Hedge Funds, Structured Products, Portfolio Management Services (PMS).

Investment Evaluation Framework

Risk-Return Framework, Risk:-Standard Deviation, Beta.

Risk Adjusted Returns:-Sharpe Ratio, Treynor Ratio, Alpha

#### **UNIT-III**

Investment & Risk Management: Equity

Role of Equity, Active and Passive Exposures, Returns from Passive, Exposure to S&P CNX Nifty, Sector Exposure and Diversification, Fundamental and Technical Analysis, Fundamental Valuation Approaches, Investment and Speculation, Leveraging.

Investment & Risk Management: Debt

Role of Debt, Deposits and Debt Securities, Valuation of Debt Securities, Yields and Interest Rate Risk, Interest Rate and Debt Investments, Credit Exposure and Debt Investments, Concentration Risk, Passive Investments in Debt.

Investment & Risk Management: Alternate Assets

Gold:-Role of Gold, Gold Investment Routes, Rupee returns from Gold.

Real Estate:-Role of Real Estate, Real Estate Investment Routes, Real Estate Indices

SSELECTIVVELLY-Invest Classification Scheme for Investment Products

## **UNIT-IV**

### **Risk Profiling & Asset Allocation**

Risk Profiling, Why Asset Allocation?, Strategic Asset Allocation, Tactical Asset Allocation, Fixed Asset Allocation, Flexible Asset Allocation, Asset Allocation Returns in Equity and Debt:- Fixed Asset Allocation with Annual Re-balancing, Flexible Asset Allocation.

Asset Allocation Returns in Equity, Debt and Gold:-Fixed Asset Allocation with Annual Re-balancing, Flexible Asset Allocation

Allocation to Speculation, Diversification in Perspective.

### **Risk Management through Insurance:**

Risk Assessment, Life Insurance, Health Insurance, General Insurance, Safeguards in Insurance

## **UNIT-V**

### **Elements of Taxation:**

Previous Year and Assessment Year, Gross Total Income, Income Tax Slabs, Advance Tax, Tax Deducted at Source (TDS), Exempted Income.

Deductions from Income:- Section 80C, Section 80CCC, Section 80CCD, Section 80D, Section 80E, Section 80GG.

Long Term and Short Term Capital Gain / Loss, Speculation Profit / Loss, Capital Gains Tax exemption under Section 54EC, Capital Gains Tax exemption under Section 54F, Setting Off & Carry Forward

### **Taxation of Investment Products:**

Dividend Tax / Tax on Income Distributed by Mutual Fund, Securities Transaction Tax (STT), Capital Gains Taxation, Taxation of Fixed Deposits and Fixed Maturity Plans:-Fixed Deposits, Fixed Maturity Plans (FMP)

Dividend and Growth Options in Mutual Fund schemes, Wealth Tax.

### **Estate Planning:**

Background, Assets & Liabilities, Nomination, Inheritance Law, Will, Trust.

Recent trends in wealth management.

## **FM – 303: MERCHANT BANKING SERVICES**

Course Contents

### **UNIT-I**

Merchant Banking: Nature & Scope, Types of Merchant Bankers, Regulation of Merchant Banking Activity.

### **UNIT-II**

Project Preparation & Appraisal

Types of securities, Money Market Instruments

Design of Capital Structure

Savings & Primary Markets

### **UNIT-III**

Pre-Issue Management: Types of Issues & Analysis of Prospectus

Public Issue through Prospectus, Private Placement, Bought Out Deals

Pricing of Securities, Book Building Methods

SEBI Guidelines for Public Issues

Management of Public Issues: Marketing & Underwriting, Allotment/ Refunds, Listing Requirements

### **UNIT-IV**

Buy-Back of Shares

Mergers, Acquisitions, Amalgamations and Takeovers

### **UNIT-V**

Loan Syndication: Domestic & External

Advisory Services: Non-Resident Indian Investors, Overseas Corporate Body, Foreign Institutional Investors

Recent Developments.

(The list of cases and special references including recent articles will be announced in the class at the time of launching of the course).

## **FM-304 : MUTUAL FUNDS**

### **Course Contents**

#### **UNIT-I**

Mutual Fund : Meaning and definition, Mutual Fund and Financial System.

#### **UNIT-II**

Regulatory framework of Mutual Fund, Advantages of Mutual Fund, Growth of Mutual Fund industry, Procedure of setting up new Mutual Fund, Organization and management of Mutual Fund.

#### **UNIT-III**

Types of Mutual Fund, Mutual Fund schemes and services and marketing of Mutual Fund schemes.

Systematic Approach to Investing:- Lump-Sum Investment, Systematic Investment Plan (SIP), Systematic Withdrawal Plan (SWP), Systematic Transfer Plan (STP).

#### **UNIT-IV**

Accounting, transparency and disclosures Selection of Mutual Fund scheme, Risks in Mutual Fund, Custodian Services. Recent Developments in Mutual Fund Industry. International Funds .

#### **UNIT-**

Performance Evaluation of Mutual Funds:

Risk-Return Framework, Risk:-Standard Deviation, Beta.

Risk Adjusted Returns:-Sharpe Ratio, Treynor Ratio, Jensen's Alpha, Duration based strategies.

*The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.*



## **FM-305 : COMMERCIAL BANK MANAGEMENT**

### **Course Contents**

#### **UNIT-I**

An introduction to the Banking Business, Present structure of Commercial Banking System in India, Management and Organizational Set-up of the commercial Banks in India.

#### **UNIT-II**

Asset Liability Management Techniques and Hedging Interest Rate and Credit Risk ; Determining and Measuring Interest Rate and Controlling a Bank's Interest - Sensitive Gap, The Concept of Duration and Managing a Bank's duration Gap.

#### **UNIT-III**

Managing the Bank's Investment Portfolio and Liquidity Position; The Investment function in Banking, Liquidity and Reserve Management Strategies, Managing Bank Sources of Funds ; Management of Capital Funds, Management of Deposits Management of Primary and secondary reserves.

#### **UNIT-IV**

Management of Loans ; Working Capital Financing, Consumer and Housing loans, Equipment Financing, Priority Sector Lending, Export Financing.

#### **UNIT-V**

Non Fund Based Services ; Letter of Guarantee, Depository Services, Portfolio Management, Bank Assurance, Mutual Fund Marketing, Other Allied Services, E-Banking, Network Banking, BIS in Banking, Recent Developments in Indian Banking Industry.

*The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.*

## **FM-306 : INSURANCE MANAGEMENT**

### **Course Contents**

#### **UNIT-I**

Insurance : Introduction of Insurance, Mathematical Basis of Insurance, Nature of Insurance Business, Classification of Insurance, Principles of Contract of Insurance, Insurance Documents, IRDA.

#### **UNIT-II**

Life Insurance Classification of Life Insurance Policies, Assignment of Life Insurance, Practical Aspects of Life Insurance.

#### **UNIT-III**

General Insurance; Non Life Insurance Fire Insurance, Automobile Insurance, Marine Insurance, Property Insurance, Health Insurance, Agriculture Insurance, Cattle Insurance, Social Insurance, Travel Insurance Miscellaneous Insurance.

#### **UNIT-IV**

Functions and Organizations of Insurers, Product Design and Development, Underwriting Claims Insurance, Insurance Pricing,

#### **UNIT-V**

Insurance Intermediaries, Reinsurance, Information Technology in Insurance Emerging Issues in Insurance Sector.

*The list of cases and specific references including recent articles will be announced in the class at the time of launching of the course.*

## **FM-307: INTERNATIONAL FINANCIAL MANAGEMENT**

### **Course Contents**

**Unit I:** International Finance: Overview Globalization and the Multinational Firm; International Monetary System, Balance of Payments, The Market for Foreign Exchange.

**Unit II:** Foreign Exchange Arithmetic: Forward Exchange contracts, Forward Exchange Rates based on cross rates, Interbank deals, Execution of forward contract, Cancellation/Extension of forward contract, Currency Swaps, International Parity Relationship and Forecasting Foreign Exchange Rate.

**Unit III:** International Financial Markets & Cash Mgt.: International Banking and Money Market, International Bond Market, LIBOR, International Equity Markets, ADR, GDR, EURO, Multinational Cash Management.

**Unit IV:** International Portfolio Management with Exposure Management: International Portfolio Investments, Foreign Direct Investment and Cross-Border Acquisitions, Management of Economic Exposure, Management of Transaction Exposure, Management of Translation Exposure, Foreign Trade Contracts & Procedures.

**Unit V:** International Commercial Terms: Incoterms, Letters of Credit - Meaning and Mechanism, Types of Letters of Credit, Operation of a Letters of Credit, Export-Import Bank of India, Export Credit Insurance.

*The list of cases and specific references including recent articles and reports will be announced in the class at the time of launching of the course.*

## **FM-308 : CORPORATE RESTRUCTURING**

### **Course Contents**

#### **UNIT-I**

Introduction: Meaning of corporate restructuring, need, scope and modes of restructuring, historical background, global scenario, national scenario.

Strategies: Planning, formulation and execution of various corporate restructuring strategies - mergers, acquisitions, takeovers, disinvestments and strategic alliances, demergers and hiving off, reverse merger.

Corporate Demergers and Reverse Mergers: Concept of demerger; modes of demerger - by agreement, under scheme of arrangement; demerger and voluntary winding up; legal and tax aspects of demerger.

#### **UNIT-II**

Mergers and Amalgamations: Meaning and concept; legal, procedural, economic, accounting, taxation and financial aspects of mergers and amalgamations including stamp duty and allied matters; interest of small investors; merger aspects under competition law; jurisdiction of courts; filing of various forms; Amalgamation of banking companies and procedure related to Government companies; Cross border mergers.

Takeovers: Meaning and concept; types of takeovers; legal aspects - SEBI takeover regulations; procedural, economic, financial, accounting and taxation aspects; stamp duty and allied matters; payment of consideration; bail out takeovers and takeover of sick units; takeover defences; cross border takeovers.

#### **UNIT-III**

Funding of Mergers and Takeovers: merits and demerits; funding through various types of financial instruments including equity and preference shares, options and securities with differential rights, swaps, stock options; ECBs, funding through financial institutions and banks; management buyouts/leveraged buyouts.

#### **UNIT-IV**

Valuation of Shares and Business: Introduction; need and purpose; factors influencing valuation; methods of valuation of shares; corporate and business valuation. Financial Restructuring: Reduction of capital; reorganization of share capital Buy-back of shares—concept and necessity; legal provision for buy-back of shares by listed and unlisted

companies.

## **UNIT-V**

Post Merger Re-organisation: Factors in post merger reorganization: integration of businesses and operations, financial accounting, taxation, post merger valuation, human and cultural aspects; assessing accomplishment of post merger objectives; measuring post merger efficiency.

## **SEMESTER-IV**

### **FM-401 : MAJOR RESEARCH PROJECT**

The objective of this course is to prepare the students to conduct a study of an

Industry/organization or project utilizing the tools and techniques learned in the first three semesters of the programme.

The focus of the study could be an in depth analysis of an industry and within the industry study of an organization as a case study. The emphasis is on macro and micro level study of issues /problems. Alternatively, if an organization has a problem, its diagnosis and solution in the form of an analytical analysis or model building could be considered which can be implemented.

The comprehensive project study could also be carried out as a comparative analysis of the same industry in different countries, if feasible.

The project should have substantial primary/secondary data. The student is expected to conduct a detailed survey of literature and/or analysis of the secondary/ primary data. In case of a status report of an industry, it is expected that the student collects data regarding all aspects related to a particular industry, analyze the data and present the findings.

Prior to conduct of the study, a student is required to prepare a short research proposal of the study and it is also expected that the study would lead to recommendations and implementable plans of action.

### **Types of Projects:**

1. Comprehensive case study of Industry or segment
2. Organizational study aimed at inter-organizational comparison/validation of theory/survey of management practices with reference to particular industry.
3. Field study (empirical study) with respect to any research issue.
4. Feasibility Study as Comprehensive Project.

### **EXPECTED FORMAT FOR PREPARATION OF THE PROPOSAL**

- Introduction and Statement of the Problem
- Short Literature Survey

- Research Design and Hypothesis, if any
- Research Methodology
- Data Sources
- Time Budget
- Tentative Chapter Plan
- Expected Contribution of the study
- Beneficiaries
- A short write up on the researcher
- Bibliography/Appendices, if any

## **REPORT FRAMEWORK**

- Initial pages
- Executive summary
- Introduction/statement of problem
- Detailed survey of literature
- Need – objective of the study
- Methodology/Focus/Scope/Limitations
- Text of the study including analysis
- Conclusions and Recommendations including plan of action
- Bibliography
- Appendices

## **FORMAT OF PRESENTATION**

1. The student is expected to follow the required style for presentation of the report including Tables, References, Bibliography and Appendices.

2. Literature Survey should be related to the problem of study. Review of the studies in the area and critical examination of them including conclusions of the student should form part of the literature survey.
3. Acknowledgement of all sources of information through footnoting and bibliography is an essential requirement of the study.

### **CONDUCT OF THE PROJECT**

1. The comprehensive study should be done by students.
2. A faculty member should be assigned to each group. The faculty member should ensure that there is proper analysis of data with some amount of originality. Cut and paste of data/analysis/material should not be allowed.
3. Ideally the comprehensive study should start from the third semester and the deadlines for different activities such as identification of topics, presentation of proposal, data collection, etc., can be specified by the respective institution so as to discourage last minute compilation and collation of data/materials.
4. Two copies of the report (one print + one digital) should be submitted by the student(s) to the institute. The institute has to submit combined CD of all the projects to the







## **(Programme Specific Outcomes and Course Outcomes)**

### **Programme Specific Outcomes: (M.Sc. Industrial Chemistry)**

PSO1 The course is an important and career orienting in the field of industry which opens many jobs and prepared skill professionals. The students will be able to opt for jobs in the field of food industries, pharmaceutical companies, pesticides, cement, textile and polymer industries.

PSO2 Students will be able to demonstrate the waste minimizing techniques, waste treatment and recycling of waste and they will understand the importance of the green synthesis.

PSO3 The knowledge gained from this programme will enhance their entrepreneurial and innovative skills.

PSO4 Students will learn basic laboratory techniques and safety measurements.

### **M. Sc. Industrial Chemistry (Semester-I) – Course-Inorganic Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will have better understanding of corrosion studies and testing methods.

CO2 Students will have sound knowledge about homogenous and heterogenous catalysis.

CO3 students will receive a good knowledge about metals and their extraction.

### **M. Sc. Industrial Chemistry (Semester-I) – Course-Organic Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will have better understanding of the nature of bonding and reaction mechanism in organic molecules and will learn various methods to determine the rate of an organic reaction and the factors affecting the rate of an organic reaction, nature of transition state and intermediates.

CO2 Students will have sound knowledge about the types and mechanism of various organic reactions such as substitution reactions, additions reactions and elimination reactions.

CO3 Students will learn about different name reactions and their mechanism and will able to get knowledge about retrosynthetic approach for synthesis of organic molecules.

CO4 Students will have broad knowledge about the molecular orbital symmetry and pericyclic reactions including electrocyclic reactions, cycloaddition reactions and sigmatropic reactions.

CO5 Students will be able to synthesize organic compounds from one step synthesis and demonstrate quantitative estimation of organic molecules.

## **M. Sc. Industrial Chemistry (Semester-I) – Course-Physical Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will understand the detailed knowledge of foundational concepts of chemical kinetics, thermodynamics, enzyme kinetics, clock reactions, macromolecules and surface chemistry.

CO2 Students are able to demonstrate experiments based on chemical kinetics.

## **M. Sc. Industrial Chemistry (Semester-I) – Course-Spectroscopy in Analysis-I**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will learn about the basic principles of electromagnetic radiations and its interaction with matter. Students will also gain the knowledge about the rotational spectroscopy.

CO2 Students will learn the basic principles, instrumentation and applications of various spectroscopic techniques including ultraviolet and Infra-Red spectroscopy, Raman spectroscopy, electronic Spectroscopy.

## **M. Sc. Industrial Chemistry (Semester-II) – Course-Environmental and Green Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Vast knowledge on principle and concepts of green chemistry, waste management: waste minimizing techniques, waste treatment and recycling of waste.

CO2 Students will learn to design safer chemicals, solvent free reactions, avoiding toxic reagents and energy efficiency by adopting green synthesis.

CO3 A brief idea about environmental chemistry, chemical and photochemical reactions in the atmosphere and toxicological effects of various metals and pesticides on environment.

CO4 Students will learn the analysis of pollution, sampling and monitoring of air and water, acidity, alkalinity and microorganism in water.

## **M. Sc. Industrial Chemistry (Semester-II) – Course- Instrumentation Techniques**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Explain the theoretical principles and important applications of classical analytical methods.

CO2 Explain the theoretical principles of selected instrumental methods within electroanalytical and spectrometric/spectrophotometric methods, and main components in such analytical instruments.

CO3 Explain the theoretical principles of various separation techniques in chromatography, and typical applications of chromatographic techniques.

CO4 To learn ion exchange and gel electrophoresis technique specially used in industry.

## **M. Sc. Industrial Chemistry (Semester-II) – Course- Fundamentals of Polymer Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will gain knowledge about different polymers, their classification and kinetic aspects.

CO2 Mechanistic aspects of various polymerization techniques will be gained by the students.

## **M. Sc. Industrial Chemistry (Semester-II) – Course- Spectroscopy in Analysis-II**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 A broad but still detailed overview of the state-of-the-art of spectroscopic methods used in chemistry, with a particular focus on the most advanced topics (NMR, MASS Spectrometry, XRD).

CO2 The aim of the Programme is also to provide students with specific competencies related to the use of spectroscopic techniques in chemistry and with systemic and instrumental transferable skills.

## **M.Sc. Industrial Chemistry (Semester-III) -Course- Speciality Polymers**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1. It helps the students to invent, design, make and use materials for products, processes and services.

CO2. They deploy these activities based on an in-depth understanding of polymer processing, the structure of polymer and their properties, including the intricate relationships between them.

CO3. The general knowledge about the synthesis of different polymers viz. conducting, ionic, hydrophilic and fire resistant polymers and biopolymers will be valuable in polymer and pharmaceutical industries. The synthesis of biopolymer is ration approach for drug design.

CO4. Course helps to create skilled professionals who can operate in the design, fabrication, and testing of engineering materials.

## **M.Sc. Industrial Chemistry (Semester-III)-Course-Industrial Aspects of Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1. It includes synthesis and knowledge about fertilizers, glass, ceramics, and cement. It helps to develop interpretation skills.

CO2. It demonstrates the synthesis of silicates and mineral resources and explosive.

CO3. The main target of the course is to produce qualified trainees who can operate in the design, fabrication, and testing of chemicals.

## **M.Sc. Industrial Chemistry (Semester-III)-Course-Organic Reagents, Natural Products and Colorants**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1. Students will learn the role of various reagents in organic transformations and the factors affecting the rate of an organic reactions, nature of transition state and intermediates, stereochemistry of products. These reagents will be especially useful in industrial applications.

CO2. Brief information about the dyes and colorants that will be helpful for their industrial applications.

CO3. Identify and characterize various classes of natural products by their structure and know biosynthesis of the various classes of natural products. Discuss the use of natural products in the biological process.

CO4. Natural Products are pleiotropic molecules which have plethora of biological activities. The Knowledge of their structure elucidation and synthesis will be helpful in drug design and to study their impacts on human health. Analyze and discuss the information and data related to the various classes of natural products.

## **M.Sc. Industrial Chemistry (Semester-III)- Course-Medicinal Chemistry-I**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1. It gives information about the different approaches for drug design. The pharmacokinetic parameters related to it and relevant physicochemical properties.

CO2. Knowledge about the Anti-pyretic, Analgesic and Anti-viral drugs.

CO3. A comprehensive information about the sedatives, Hypnotics, CNS Stimulants.

CO4. A brief about the cardiovascular agents and anti-histaminic agents.

CO5. An overview of different anti-malarial and anti-biotic drugs is presented.

## **M.Sc. Industrial Chemistry (Semester-IV)-Course- Textile Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1: The students will study of different types of dyes, their classification, chemical bonding and interactions behind the fastness of dyes.

CO2: Study of various methods of dyeing, various forms of dyes and their industrial applications.

CO3: General methods to synthesis of dyes and their impact on environment shall help the students to learn role of dyes in textile industries.

## **M.Sc. Industrial Chemistry (Semester-IV)-Course-Effluents treatment and waste management**

CO1: They will learn about the industrial pollution and waste generation and treatment process.

CO2: This delivers information about the environment toxicology and poisoning of food chains.

CO3: Radioactive pollution and solid waste generation and its management to solve the problem of environmental pollution.

## **M.Sc. Industrial Chemistry (Semester-IV)-Course- Agro based Chemicals**

CO1: The students will be enriched about the synthesis and knowledge of Paper and Pulp Industries, Fermentation industry and surfactants.

CO2. It demonstrates the synthesis pesticides, Food and diary chemistry, Oil/fats/Wax/Soaps. It helps to develop interpretation skills.

CO3. The main target of the course is to produce qualified trainees who can operate in the design, fabrication, and testing of chemicals in food, paper, pesticide industries.

## **M.Sc. Industrial Chemistry (Semester-IV)-Medicinal Chemistry-II**

**Course outcomes:** On the completion of this course students will be able to learn the following:

**CO1:** Information about structural features of agents belonging to the therapeutic class. Structural influence on the mechanism of pharmacological action (SAR). Structurally specific and non-specific drugs.

**CO2:** Knowledge about Anaesthetics and Anti-inflammatory drugs.

**CO3:** Comprehensive information about Anti-convulsants, anti-anxiety and Tranquilizers.

**CO4:** Knowledge about the diuretic agents, anti-parkinson agents, antineoplastic, anti-thyroid agents and their mechanism of action.



## **(Programme Specific Outcomes and Course Outcomes)**

### **Programme Specific Outcomes: (M.Sc. Chemistry)**

PSO1 The knowledge gained from this programme will enhance their entrepreneurial and innovative skills.

PSO2 Students will learn basic laboratory techniques and safety measurements.

PSO3 Student will learn various spectroscopic techniques and their principles, which will enable them to determine the structure of a molecule.

PSO4 Students will be able to demonstrate the waste minimizing techniques, waste treatment and recycling of waste and they will understand the importance of the green synthesis.

### **M. Sc. Chemistry (Semester-I) – Course- Inorganic Chemistry**

CO1 Students will understand metal ligand bonding, complex equilibria and reactions of metal complex.

### **M. Sc. Chemistry (Semester-I) – Course- Organic Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will have better understanding of the nature of bonding in organic molecules and they will be able to justify the aromatic, anti-aromatic and non-aromatic behaviours of organic molecules.

CO2 Students will learn various methods to determine the rate of an organic reaction and the factors affecting the rate of an organic reaction, nature of transition state and intermediates.

CO3 Students will have sound knowledge about the types and mechanism of various organic reactions such as substitution reactions, addition reactions and elimination reactions.

CO4 students will receive a good knowledge about the organic reactions and their mechanism occurring on aromatic compounds.

### **M. Sc. Chemistry (Semester-I) – Course- Physical Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will understand the detailed knowledge of foundational concepts of chemical kinetics, enzyme kinetics, clock reactions, macromolecules, quantum chemistry, HMO theory and application to some conjugated system.

CO2 Students are able to demonstrate experiments based on chemical kinetics.

## **M. Sc. Chemistry (Semester-I) – Course- Group Theory and Spectroscopy**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will have deep knowledge about the symmetry properties of a molecule, symmetry elements, symmetry operations and representation of symmetry by point group and character table. They will also be able to correlate the group theory with the molecular spectroscopy.

CO2 Basic principles of electromagnetic radiations and its interaction with matter. Students will also gain the knowledge about the rotational spectroscopy.

CO3 Students will learn the basic principles, instrumentation and applications of various spectroscopic techniques including Infra-Red spectroscopy, Raman spectroscopy, electronic spectroscopy and Mössbauer Spectroscopy.

## **M. Sc. Chemistry (Semester-II) – Course- Inorganic Chemistry**

CO1 Students will be able to learn about chemistry of metal carbonyls, metal nitrosyls, dinitrogen complex, dioxygen complex boranes and cluster compounds.

## **M. Sc. Chemistry (Semester-II) – Course- Organic Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 A comprehensive knowledge on molecular chirality, optical activity, stereospecific and stereoselective synthesis, methods of resolution and asymmetric synthesis.

CO2 Mechanistic aspects of various rearrangement reactions including the nature of migration, migratory aptitude and memory effects.

CO3 students will gain the knowledge about the use of the various reagents in organic synthesis and functional group transformation.

CO4 Students will have broad knowledge about the molecular orbital symmetry and pericyclic reactions including electrocyclic reactions, cycloaddition reactions and sigmatropic reactions.

## **M. Sc. Chemistry (Semester-II) – Course- Physical Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will have basic knowledge of thermodynamics of open system, statistical thermodynamics, electrochemistry, surface chemistry, theories of electrified interfaces.

CO2 Students will be able to demonstrate experiments with the help of Conductivity Bridge, verify distribution law based on immiscible liquids

## **M. Sc. Chemistry (Semester-II) – Course- Environmental and Green Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Vast knowledge on principle and concepts of green chemistry, waste management: waste minimizing techniques, waste treatment and recycling of waste.

CO2 Students will learn to design safer chemicals, solvent free reactions, avoiding toxic reagents and energy efficiency by adopting green synthesis.

CO3 A brief idea about environmental chemistry, chemical and photochemical reactions in the atmosphere and toxicological effects of various metals and pesticides on environment.

CO4 Students will learn the analysis of pollution, sampling and monitoring of air and water, acidity, alkalinity and microorganism in water.

## **M. Sc. Chemistry (Semester-III) – Course- Advanced Spectroscopic Techniques**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 A broad but still detailed overview of the state-of-the-art of spectroscopic methods used in chemistry, with a particular focus on the most advanced topics addressed by these methods.

CO2 The aim of the Programme is also to provide students with specific competencies related to the use of spectroscopic techniques in chemistry and with systemic and instrumental transferable skills.

CO3 Students will be able to explain the principle and instrumentation of electronic spectroscopy and analyze the electronic spectra of different species.

CO4 To explain the principle and instrumentation of nuclear magnetic and electron spin resonance spectroscopy and apply the knowledge in characterizing the molecules and also their use in medical diagnostics.

CO5 Explain the principle, instrumentation, and application of X-Ray spectroscopy to study X-ray structural analysis of crystals.

## **M. Sc. Chemistry (Semester-III) – Course- Bioinorganic, Bioorganic and Biophysical Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Describe the factors that govern the stability, folding, and dynamics of proteins.

CO2 Explain the kinetics, thermodynamics, and mechanism of protein folding and their implications in misfolding.

CO3 Describe the structure and biological functions of proteins and explain the role of metals in biology.

CO4 Explain the roles of metals in medicinal chemistry and toxic effects of metals.

CO5 assess molecular structure and interactions present in proteins, nucleic acids, carbohydrates and lipids.

CO6 be familiar with organization and working principles of various components present in living cell.

### **M. Sc. Chemistry (Semester-III) – Course- Modern aspects of Inorganic Chemistry**

CO1 Students will have sound knowledge of magnetochemistry, photochemistry of inorganic compounds and solid state chemistry.

### **M. Sc. Chemistry (Semester-III) – Course- Advanced Bio-Inorganic Chemistry**

Students will understand fundamental of bioinorganic chemistry and role of metal in biology.

### **M. Sc. Chemistry (Semester-III) – Course- Modern Interfaces of Organic Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Know the use of transition metal based and other catalysts for different organic reactions.

CO2 Know the use of reagents for different reaction transformations specially used in industrial applications

CO3 Be familiar with various coupling reactions and their applications in industry.

CO4 Retrosynthetic approach to planning organic syntheses.

CO5 Application of phase transfer catalysts, polymer supported reagents, biocatalysts, microwave and ultrasound induced reactions.

## **M. Sc. Chemistry (Semester-III) – Course- Chemistry of Heterocyclic Compounds**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Comprehend nomenclature of different heterocyclic compounds.

CO2 Interpret synthesis and reactivity of fused, six membered and smaller heterocyclic compounds, mostly used in industry as such or its derivatives

CO3 Alternative general methods for ring synthesis and application of such methods for the preparation of specific groups of heterocyclic systems

## **M. Sc. Chemistry (Semester-III) – Course- Physical Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will able to know nuclear models, nuclear reactions, radiation counting techniques, nuclear power reactor and use of nuclear chemistry.

CO2 Students will also increased in knowledge with thermodynamic parameters for a chemical reaction, structure effect, solvent effect, isotope effect on rate of reaction, solid and gas phase reactions

CO3 Students are able to demonstrate experiments based on potentiometer, kinetics of clock reactions, effect of concentration, temperature and ionic strength on the chemical reaction.

## **M. Sc. Chemistry (Semester-IV) – Course- Special Methods of Analysis**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Explain the theoretical principles and important applications of classical analytical methods.

CO2 Explain the theoretical principles of selected instrumental methods within electroanalytical and spectrometric/spectrophotometric methods, and main components in such analytical instruments.

CO3 Explain the theoretical principles of various separation techniques in chromatography, and typical applications of chromatographic techniques.

CO4 To learn ion exchange and gel electrophoresis technique specially used in industry.

## **M. Sc. Chemistry (Semester-IV) – Course- Photochemistry and Supramolecules**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 basics of photochemical laws to strengthen the concept used in organic photochemistry.

CO2 basics of photochemical reactions of alkenes, carbonyl and aromatic compounds.

CO3 Predict the course of an organic photochemical reaction and identify the product with the type of functional group present on the molecule

CO4 Apply photochemistry concepts, plan and program molecules for photochemical application of specific interest

CO5 Appreciate the photochemical phenomena by light and be able to design simple photochemical reactions

CO6 Discuss the role of supramolecular chemistry in organic chemistry, chemical biology, materials science and nanotechnology.

## **M. Sc. Chemistry (Semester-IV) – Course- Organometallic Chemistry**

CO1 Students will have sound knowledge of organometallic compounds.

## **M. Sc. Chemistry (Semester-IV) – Course- Inorganic Polymers**

CO1 Students will be able to learn about chemistry of phosphorous, nitrogen, silicon and metal based inorganic polymers.

## **M. Sc. Chemistry (Semester-IV) – Course- Medicinal Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 General structural features of agents belonging to the therapeutic class.

CO2 Relevant physicochemical properties.

CO3 Relevant chemical reactions/synthetic pathways for selected drugs.

CO4 Structural influences on mechanism of pharmacologic action (structure-activity relationship)

CO5 Structural influences on pharmacologic/toxicological/therapeutic profiles.

CO6 Determine the pharmacophore in drug molecule especially important to drug discovery.

CO6 Knowledge about antineoplastic, cardiovascular, local antiinfective, psychoactive drugs and its mechanism of action.

## **M. Sc. Chemistry (Semester-IV) – Course- Chemistry of Natural Products**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Identify and characterize various classes of natural products by their structure and knows biosynthesis of the various classes of natural products.

CO2 Draw structural and molecular formulas of natural products compound.

CO3 Recognize the structure of terpenes, steroids, alkaloids, flavonoids.

CO4 Analyze and discuss the Information and data related to the various classes of natural products.

CO5 Discuss the use of natural products in the biological process.

## **M. Sc. Chemistry (Semester-IV) – Course- Physical Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will enhance the knowledge of molecular photochemistry, radiation less transitions, radiation chemistry and its application

CO2 Students will also increased in knowledge of chemistry of solids, crystals defects and structure, properties and uses of semiconductor and superconductors

CO3 Students are able to demonstrate experiments based on surface tension, spectrophotometer and phase equilibrium.

<p><b>Programme Specific Outcomes and Course Outcomes</b>  <b>Department of Mathematics and Statistics</b></p>
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**Programme Specific Outcomes**

**PSOs of B.Sc. Mathematics**

- PSO1. Understand Group Theory, Ring Theory and Fields and apply in problems.
- PSO2. Understand the basic concept of Differential Equations of various types and apply in various real life problems.
- PSO3. Understand the Geometrical Interpretations of 2D and 3D shapes and evaluate their area and volume.
- PSO4. Analyse real numbers and their applications by certain results and apply then in various pure problems.
- PSO5. Analyse numerical problems and apply in various problems by different methods.
- PSO6. Understand the basic definition of Graph Theory, Tree and Boolean Algebra and analyse their application.

**PSOs of M.Sc. Mathematics**

- PSO1. Understand the concept of group theorems, ring theory and field theory and evaluate their applications also expansion of these concepts from the view point of Discrete Mathematics.
- PSO2. Analyze and interpret real and complex functions with their applications.
- PSO3. Study the analytic and numerical solutions of various differential equations, initial and boundary value problems by various approaches.
- PSO4. Apply various techniques in solving linear and non-linear programming problems and find their applications.
- PSO5. Understand the concept of hydrodynamics, equation of Continuity, rigid dynamics, moment of inertia and boundary surface with their applications.
- PSO6. Find applications of tensor analysis in electromagnetism and physics.
- PSO7. Discuss testing of hypothesis by various Mathematical distributions.



<b>Course Outcomes</b>	<b>COs of the course “Algebra” (B.Sc. I Year)</b>
	CO1 Understand concepts of matrices, system of linear equation and their consistency, using by rank.
	CO2 Understand different methods to find the solution of cubic equations.
	CO3 Understand basic concept of group subgroup, cyclic group, permutation group etc. and analyse their applications.
	CO4 Apply Lagrange’s theorem and understand the concept of normal sub group, centre of group etc.
	CO5 Apply Cayley theorem of finite groups.
	<b>COs of the course “Calculus” (B.Sc. I Year)</b>
	CO1 Understand concepts of arc length and Geometrical interpretation of results obtained from it.
	CO2 Understand the concepts of Asymptotes points of inflexion and apply them in curve tracing.
	CO3 Apply Beta and Gamma function in quardature and rectification.
	CO4 Understand the concept of differential equation and their types and analyse their applications.
	<b>COs of the course “Geometry” (B.Sc. I Year)</b>
	CO1 Identify the nature of conic of second and third degree.
	CO2 Geometrical properties of ellipse and hyperbola as well as 3-D shapes
	CO3 Interpret the relation between plane and straight line.
CO4 Evaluation of principal plane and direction of conics.	
<b>COs of the course “Advanced Calculus” (B.Sc. II Year)</b>	
CO1 Understand basic concepts of continuity important theorems.	
CO2 Concepts of partial differentiation and its applications.	
CO3 Evaluate double and triple integrals and their applications.	
CO4 Understand vectors & scalars quantity, evaluate of gradient, divergence and curl. Some important vector identity.	
CO5 Understand Gauss’s theorem, Stoke’s theorem and Green’s theorem and their applications.	

**COs of the course “Differential equations”(B.Sc. II Year)**

CO1 Understand the concept of exact, simultaneous and total differential equation and analyse their applications.

CO2 Evolution of solution of linear differential equation with variable coefficients by various approach.

CO3 Classify the partial differential equation and evaluate their solution using different approaches.

CO4 Analyze numerical solution of differential equation.

**COs of the course “Mechanics” (B.Sc. II Year)**

CO1 Finding resultant of coplanar forces and study equilibrium of bodies under three or more forces.

CO2 Interpretation of virtual work by forces.

CO3 Study the projective motion of various particles.

CO4 Finding velocity and acceleration in various direction and study rectilinear motion.

CO5 Study the motion of particle in resisting medium.

**COs of the course “Real Analysis” (B.Sc. III Year)**

CO1 Understand the concepts of real number and analyse their properties.

CO2 Study sequence, series and their applications.

CO3 Apply Riemann integrals in evaluation of some integrals.

CO4 Understand the concept of uniform convergence and study their application.

**COs of the course “Abstract Algebra” (B.Sc. III Year)**

CO1 Understand the concept of ring theory and their applications.

CO2 Study the concept of homomorphism and isomorphism of rings and their applications.

CO3 Evolution of examples of vector spaces and related problems.

CO4 Apply Sylvester law of nullity in linear transformations.

**COs of the course “Discrete Mathematics” (B.Sc. III Year)**

- CO1 Understand the basic concept of sets and propositions, permutations and combinations.
- CO2 Understand the basic of relations and functions, Pigeon Hole principle graphs and related theorems.
- CO3 Understand the basic concept of trees and finite state machines.
- CO4 Understand the basic concept of Recurrence relations solution by the method of generation functions.
- CO5 Basic concept of Boolean algebra Lattices, Duality, Digital network switching circuits.

**COs of the course “Numerical Analysis and Operation Research” (B.Sc. III Year)**

- CO1 Study the interpolation methods of equi-distance and unequal distance intervals.
- CO2 Discusses the numerical integration methods and their derivations.
- CO3 Understand the concept of linear programming problems and methods of solving it.
- CO4 Apply assignment and transportation problem in various physical problems.

**COs of the course “Mathematical Statistics” (B.Sc. III Year)**

- CO1 Understand the basic concept of probability, independent events and related problems.
- CO1 Understand the basic of Random variables, distribution functions, density functions.
- CO1 Understand the basic concept of theoretical probability distribution and related theorems.
- CO1 Understand the basic definition of Mathematical expectation, moments and related theorems.
- CO1 Understand the basic concept of curve fitting by the least square principle, fitting of straight line and parabola and regression.

**COs of the course “Algebra-I” (Sem-I)**

- CO1 Understand types of direct product of subgroups. Cauchy’s theorem for abelian and non abelian groups.
- CO2 Understand and apply Sylow’s three theorem. Composition series and Jordan Holder theorem.
- CO3 Understand solvable group and their properties fundamental theorem for finite abelian group.
- CO4 Understand Annihilators of subspace, invariant and projection.
- CO5 Understand types of Linear transformation and diagonalization.

**COs of the course “Real Analysis” (Sem-I)**

- CO1 Study the measure and their properties of subsets of Real numbers.
- CO2 Study the measurability of various functions discuss.
- CO3 Discuss the integral properties of measurable functions.
- CO4 Discuss the convergence of equation of measurable function and other applications.
- CO1 Establish the relations between the solutions of various differential equations.
- CO2 Application of special function to solve various problems.
- CO3 Study the various problems of special functions.
- CO4 Understand the concept of orthogonal polynomials and generating functions.

**COs of the course “Differential Equations and Calculus of Variation” (Sem-I)**

- CO1 Understand concept of partial differential equations, existence and uniqueness theorem and solution of second order PDE through Monge’s method.
- CO2 Understand concepts of canonical forms and reduction of second order semi linear partial differential equations to canonical forms. classification of second order PDE having more than two independent variables, Cauchy’s problem.

- CO3 Understand concept of BVP's of second order ordinary differential equations, Sturm-Liouville BPS's Lagrange's identity and relevant theorems and properties based on study Eigen values and Eigen functions.
- CO4 Study solution of second order PDE's by the method of separation of variables, Green's functions and solution of second order homogeneous BPV's through Green's function.
- CO5 Understand concept of calculus of variations functional, Euler-Lagrange differential equation for externals and its alternative forms. Solution of variational problems using Ritz method.

**COs of the course "Mechanics" (Sem-I)**

- CO1 Understand the concepts of hydrodynamics, equation of continuity and boundary surface.
- CO2 Derive Feeler's dynamical equations and Bernoulli's equation with applications and problems
- CO3 Understand the concept of central orbit and planetary motion with Kepler's laws.
- CO4 Understand the concept of special theory of relativity, Michelson-Marley experiment and Lorentz transformation.
- CO5 Describe applications of Lorentz transformations and concept of Minkowski's 4-dimensional continuum space, relativistic Hamiltonian and Lagrangian.

**COs of the course "Differential Geometry-I" (Sem-I)**

- CO1 Understand the basic concept of plane section and circular section.
- CO2 Understand the concept of any section of a central conicoid. Generating lines Tangent plane.
- CO3 Understand the basic concept of projection of generators, Hyperbolic paraboloid.
- CO4 Understand the basic of confocal conoids elliptic coordinates, parameter of confocals.
- CO5 Understand the basic concept of conoids inflexional tangents and indicatrix.

**COs of the course “Algebra-II” (Sem-II)**

- CO1 Understand prime fields, polynomial rings, integral domain, Euclidean domain, principal ideal domain and unique factorization domain and their related theorems.
- CO2 Understand concept of modules, sub module, Quotient modules with suitable examples. Fundamental theorem of homomorphism and isomorphism.
- CO3 Understand finitely generated modules with fundamental theorem, Noetherian and Artinian modules and related theorems.
- CO4 Understand field extension with examples types of extension. Perfect field and finite fields.
- CO5 Understand Automorphism, Galois theory of field extension and its theorem. Solution of polynomial equations.

**COs of the course “Complex Analysis” ( Sem-II)**

- CO1 Interpret complex numbers Geometrically and study the concept of analytic function and their applications.
- CO2 Understand the concept of conformal transformation and apply it in various problems.
- CO3 Discusses the concept of complex integrations and its application.
- CO4 Study of various types of singularities and zero and application of Cauchy’s Residue’s theorem.

**COs of the course “Special Functions” (Sem-II)**

- CO1 Find solutions of various differential equations using series solution.
- CO2 Understand concept of various special functions and their relations.
- CO3 Study properties of various special functions.
- CO4 Discuss applications of special functions in various problems.
- CO5 Understand concept of generating functions and their applications.

**COs of the course “Mechanics” (Sem-II)**

- CO1 Understand the concept of Rigid dynamics, moment of inertia, product of inertia, Momental ellipsoid and principal axes.
- CO2 Understand D’Alembert’s principle and derive equations of motion.  
Study motion about a fixed axis
- CO3 Understand the motion in two dimensions under finite forces and impulsive forces.
- CO4 Understand principles of the conservation of momentum and conservation of energy.
- CO5 Derive Lagrange’s equations in generalized coordinates under finite and impulsive forces.

**COs of the course “Differential Geometry-II” ( Sem-II)**

- CO1 Understand the concept of differential geometry.
- CO2 Understand the basic of surfaces. Ruled surface and developable surface and related theorems.
- CO3 Understand the concept of curvature of normal section principal radii.
- CO4 Understand the concept of an oblique section radius of curvature, lines of curvature of an ellipsoid.
- CO5 Understand the concept of umbilicus, curvature at point of a generator of a skew surface curve linear coordinates.

**COs of the course “Topology” (Sem-III)**

- CO1 Understand the concept of metric space with properties and examples open set, closed set, sequence, compact space and related theorems.
- CO2 Understand basic concepts of topology, bases, countable space and related theorems.
- CO3 Understand the various types of topological space  $T_0$   $T_1$   $T_2$  etc. and related theorems, compactness and their theorems.
- CO4 Understand Connectedness and continuity related theorems.
- CO5 Understand function algebra and some important theorems.

**COs of the course “Tensor Analysis” (Sem-III)**

- CO1 Understand the concepts of tensors, its types and operations. Define Quotient law, fundamental tensor and associate tensors.
- CO2 Understand the concepts of Christoffel symbols, transformation of Christoffel symbols and covariant differentiation of tensors.
- CO3 Define Geodesics, null geodesics and applications, understand the concept of Riemannian, Normal Gaussian Coordinates and parallel propagation.
- CO4 Define and understand Riemannian, Curvature tensor, its properties and conformal curvature tensor.
- CO5 Understand the concept of electromagnetism, Max well’s equations, transformation of electric and magnetic intensities and energy momentum tensor for electromagnetic field.

**COs of the course “Numerical Analysis-I” (Sem-III)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Understand the basic concept of iteration theory, rate of convergence, acceleration of convergence, multiple and complex roots.
- CO2 Understand the real and complex roots, Bisection method, secant method, Regula falsie method, Newton Raphson method.
- CO3 Concept of synthetic division Birge vieta method, Graffes root squaring method.
- CO4 Understand the solution of Gauss Jordan method, partition method, Jacobi method.
- CO5 Understand the basic concept of Eigen value problem, power method complex Eigen values.



**COs of the course “Computer Programming in-C” (Sem-III)**

- CO1 Understand basic concepts of computer and generations of computer.
- CO2 Understand concepts of computer languages, use of all PC software's, Algorithm, flow chart.
- CO3 Understand concepts and features of High level language C.
- CO4 Understand concepts of how to compile and run C Programs.
- CO5 Understand concepts of writing and run all programs on topics mentioned in syllabus.

**COs of the course “Discrete Mathematics” (Sem-III)**

- CO1 Understanding fundamental concepts of mathematical logic and certain Algebra concepts from the view point of Discrete Mathematics.
- CO2 Expansion of the Algebra concepts from the view point of Discrete Mathematics.
- CO3 Introduction to the Mathematical structure of Lattices, Partially ordered sets and their various kinds of Lattices.
- CO4 Introduction to Boolean Algebra, its relation with Lattices and relevant concepts.
- CO5 Minimization of Boolean function, Various canonical forms and Karnaugh-Map.

**COs of the course “Optimization Techniques-I” (Sem-III)**

- CO1 Explain linear programming problem (L.P.P.), parametric linear programming and method used to solve it.
- CO2 Analyse the discrete changes in the parameters of the problem and its effect on optimal solution.
- CO3 Enumerate fundamentals of integer programming techniques and apply different techniques to solve various optimization problems arising from different areas.
- CO4 Understanding of project scheduling by PERT and CPM.
- CO5 Understand how optimization can be used to solve industrial problems.

**COs of the course “Mathematical Theory of Statistics-I” (M-III)**

- CO1 Understand concepts of probability, laws of probability, Baye’s theorem and its applications.
- CO2 Understand basic concepts of Mathematical expectations, moments generating function, inversion theorem and its applications.
- CO3 Understand and apply Binomial, Poisson distribution etc.
- CO4 Understand Normal, Gamma and Beta distributions and its applications in real life problem.
- CO5 Understand basic concepts of curve fitting, Correlation and regression and their applications.

**COs of the course “Integral Equation” (Sem-III)**

- CO1 Study the concept of linear integral equations and their classifications.
- CO2 Finding solution of linear integral equations.
- CO3 Study the various properties of Eigen values and Eigen functions.
- CO4 Apply Hilbert Schmidt theorem in solving freedholm integral equation of second kind.
- CO5 Discusses freedholm theorems and their applications.

**COs of the course “Functional Analysis” (Sem-IV)**

- CO1 Know about normal linear and Banach space and their applications.
- CO2 Understand the various Important theorems.
- CO3 Know about inner product space and Hilbert space with various important law.
- CO4 Understand orthonormal basis and sets.
- CO5 Learn various operation and apply to solve problems.

**COs of the course “Relativity and Cosmology” (Sem-IV)**

- CO1 Understand the principle of covariance equivalence, Mach’s principle and Newton’s potential derive Einstein field equations.
- CO2 Discuss Schwarzschild extensor solution singularise and related problems. Derive energy momentum tensor for perfect fluid.
- CO3 Discuss planetary orbit, Three crucial tests of general relativity, Radar echo delay and study Schwarzschild interior solution.
- CO4 Understand principle of cosmology, Einstein and De-sitter Universes and their derivations with properties and their comparison.
- CO5 Understand the concept of non-static cosmological models, Hubble’s law derivation of Robertson-walker metric, its geometric feature and expressions for FRW model.

**COs of the course “Numerical Analysis-II” (Sem-IV)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Understand the concept of curve fitting with least square principle.
- CO2 Understand the numerical solution of ordinary differential equations by Taylors series method, Picard’s method, Fuler’s method and modified eulers method.
- CO3 Understand the solution of Rungekutta method and stability analysis.
- CO4 Understand the solution of linear boundary value problems of ordinary differential equations by finite difference methods.
- CO5 Understand the solution of Non linear boundary value problems by finite difference scheme.

**COs of the course “Computer Programming of Numerical Methods” (Sem-IV)**

- CO1 Understand concepts of Normalized floating numbers, perform operations of normalized floating number and to write & run C program on Normalized floating Number.
- CO2 Understand concepts of write and run programs to find roots of Algebraic and Transcendental equations.

- CO3 Understand concepts of write and run programs to solve numerical solutions of simultaneous linear equations.
- CO4 Understand concepts of write and run programs of Differentiation and integration.
- CO5 Understand concepts of write and run Programs of numerical solutions of Differential equation.

**COs of the course “Discrete Mathematics” (Sem-IV)**

- CO1 Understand basic concept of Graph Theory, introducing planar graphs.
- CO2 Trees (an important class of graphs, planar graphs, Bipartite graphs, Spanning trees and their properties.
- CO3 Discussion of Euler’s Theorem related to Euler graphs, Directed graphs and certain other advanced concepts of trees.
- CO4 Finite state machines and related concepts and their various kinds understanding.
- CO5 Grammar, Languages and their construction derivations etc. with their various type and certain advanced concepts.

**COs of the course “Optimization Techniques-II” ( M-I)**

- CO1 Explain the fundamental knowledge of non linear programming and dynamic programming problems.
- CO2 Uses of classical optimization techniques.
- CO3 Describes the basics of different evolutionary algorithms.
- CO4 Analyse and appreciate variety of performance measure for various optimization problems.
- CO5 Understand the different methods of optimization and be able to suggest a technique for a specific problem.

**COs of the course “Mathematical Theory of Statistics-II” (M-IV)**

CO1 Describe Chi square and t distribution with properties and applications.

CO2 Understand F distribution with properties and applications.

CO3 Understand basic concepts of estimation, criterion of good estimators, consistency, efficiency, sufficiency and unbiaseeness.

CO4 Discuss the method of maximum Likelihood estimator and its properties and find M.L.E. for binomial, Poisson and Normal populations.

CO5 Discuss testing of hypothesis, error Neyman Pearson Lemma and its applications.

**COs of the course “Integral Transform” (Sem-IV)**

CO1 Understand the concept of Laplace transform and study its applications in finding solution of differential equations.

CO2 Study the concept of Fourier transform and its applications.

CO3 Discuss the application of Mellin transform.

CO4 Study the Henkel transform with elementary property and its applications.

## M.C.A 2-year Degree Programme

### Programme Specific Objective

- PSO1 Develop an ability to apply knowledge in computing discipline
- PSO2 Develop ability to demonstrate team work with the ability of leadership
- PSO3 Develop ability to use current technologies, skill and models for computing practices
- PSO4 Develop ability to communicate ideas effectively
- PSO5 Produce entrepreneurs who can develop customized solution for small to large Enterprises
- PSO6 To develop students to become globally competent
- PSO7 To inculcate Entrepreneurial skill among students

### M.C.A. SEMESTER – I

#### MCA-T101 Principle of Programming Languages

Sr. No.	Outcomes
CO1	To understand basic structure of Computer and perform computer arithmetic operations and understand various number system concepts.
CO2	To get insight into various types of software's and types of operating systems currently available for the computer systems
CO3	To learn about basic computer networking terms with a focus on signal transmission and various types of topologies of computer networks.
CO4	Able to design a document and its processing, working with spreadsheet and creating the power point presentation with graphics. Also, able to understand basics of database management system.

#### MCA-T102 Operating System

Sr. No.	Outcomes
CO1	Learn about various types of OS, their design issues, feature migration and computing Environments. Multithreading models. Different
CO2	Able to identify Process and Threads concept.
CO3	Able to learn CPU Scheduling, Process Synchronization, Deadlocks
CO4	Learn the concepts of Storage and Memory Management, Virtual Memory and File System.
CO5	Learn the concepts of Protection, Security

### MCA-T103 Database Management system

Sr. No.	Outcomes
CO1	Understand basic database concepts, including the structure and Operation of the relational data model, logical database design Principles, including E-R diagrams
CO2	Impart the knowledge about relationship algebra and calculus Construct simple and advanced database queries using Structured Query Language
CO3	Able to understand different types of indexing, query execution and <del>optimization and hashing techniques</del>
CO4	Learn transaction concepts, serializability concurrency and locking and <del>recovery mechanisms</del>
CO5	Understand object oriented database concepts.

### MCA-T104 MIS and E-Commerce

Sr. No.	Outcomes
CO1	Learn about various Need, Purpose and Objectives of Management Information Systems
CO2	Able to identify Information, Management and Decision Making & Support Systems
CO3	Able to learn about e-commerce and use of internet for it. Learn Business models for e-commerce
CO4	Identify the various Enabling technologies for e commerce and E-payment systems.
CO5	Learn about E-marketing and E-security mechanisms

### MCA-T105 Python programming

Sr. No.	Objectives
CO1	Master the fundamentals of writing Python scripts.
CO2	Learn core Python scripting elements such as variables and flow control structures.
CO3	Discover how to work with lists and sequence data.
CO4	Write Python functions to facilitate code reuse.
CO5	Use Python to read and write files

**MCA-P101****DBMS and OS lab**

Sr. No.	Objectives
CO1	Construct the various models in DBMS
CO2	Able to develop E-R diagrams for any given problem domain.
CO3	Construct simple and advanced database queries using Structured Query Language (SQL).
CO4	Understand need for Schema Refinement and database normalization.

**MCA-P102****Python programming lab**

Sr. No.	Outcomes
CO1	Perform the STRING operations in python.
CO2	Implementation of CLASSES and their operations in python.
CO3	Perform the FILE handling in python.
CO4	Perform the XML, Serialization and Web Services operations.

**MCA-P103 Skill Course**

Sr. No.	Outcomes
CO1	Able to learn soft skills.
CO2	Able to participate in the group discussion and develop oratorical skills
CO3	Able to write letter and business communication skills
CO4	Resume writing and participate in extempore
CO5	Able to make presentation effective.



### MCA-B101 Data Structure

Sr. No.	Outcomes
CO1	Understand the concepts of algorithms and their Rate of growth, analyze its time and space complexities. Understand the concepts of linear data structures like Arrays, and Linked lists.
CO2	Understand the concepts of Stack, Queues and Storage Management.
CO3	Evaluate the different forms of Trees and their Applications
CO4	Understand the concepts of non-linear data structures like graphs and Strings with their features.
CO5	Apply the concepts of different types of searching and sorting algorithms with their applications.

### MCA-B102 Basic Mathematic

Sr. No.	Objectives
CO1	Be able to apply problem-solving and logical skills.
CO2	Have a deeper understanding of mathematical theory.
CO3	Have a solid knowledge of elementary statistics.
CO4	Be able to communicate mathematical/logical ideas in writing.

### M.C.A. SEMESTER II

#### MCA-T201 DAA

Sr. No.	Objectives
CO1	Able to define algorithms complexity, order notations,
CO2	Learn different algorithm design techniques with their applications such as Divide and conquer greedy methods.
CO3	Design algorithms using dynamic programming, Backtracking, branch and bound approaches and their solution based on real time data sets and
CO4	Able to demonstrate various Matrix multiplication algorithms, Data structures for set manipulation problems
CO5	Able to classify various real time problems in different categories like P, NP, NP Complete, and NP Hard based on their execution complexity.

**MCA-T202****Java Programming**

Sr. No.	Outcomes
CO1	Understand the Different paradigms for problem solving and overview of OOPS principles. Describe the procedural and object oriented paradigm with concepts of memory allocation and deallocation.
CO2	Understand the concepts of Classes and data abstraction and Overloading using java language
CO3	Understand Garbage Collection, Exceptions Handling, and Templates, File handling
CO4	Apply the concept of Standard template library (STL), AWT and Swings.
CO5	Learning the JDBC Database Connectivity.

**MCA-T203****Software engineering**

Sr. No.	Outcomes
CO1	Understanding the Software Engineering Fundamentals, Software development Process with different types of models, Project management Concepts.
CO2	Understand the Software Quality Assurance concepts, Software Configuration Management,
CO3	Understand the Software Quality Assurance concepts, Software Configuration Management, Analysis Concepts and Principles
CO4	Get acquainted with Design Concepts and Principles, Software Testing.
CO5	Understand the purpose of Reengineering with some CASE Tools.

**MCA- T204 Computer Networks**

Sr. No.	Outcomes
CO1	Know network terminology and concepts, design issues , Protocol Architecture, various service primitives with understanding of Data Communications techniques
CO2	Understand various type of encoding techniques and data link control protocols
CO3	Understand various routing. Switching concepts techniques and signalling protocols
CO4	A brief study of various network topologies and devices used in in layered structure of OSI model.
CO5	Get acquainted with various application layer, transport and network layer protocols

**MCA-T205****Computer Architecture**

Sr. No.	Objectives
CO1	To understand the structure, function and characteristics of computer systems
CO2	understand the design of the various functional units and components of computers
CO3	To identify the elements of modern instructions sets and their impact on processor design.
CO4	Understand concepts of register transfer logic and arithmetic

**MCA-P201****Design and Analysis of Algorithm Lab**

Sr. No.	Outcomes
CO1	Perform the experiments for time and space complexities calculation. Plot graphs for Rate of growth,
CO2	Perform the operations to understand the concepts of Stack, Queues, link lists and Storage Management.
CO3	Perform the operations to understand the different forms of Trees and their Applications
CO4	Perform the operations to understand the concepts of non-linear data structures like graphs and Strings with their features.
CO5	Apply the concepts of different types of searching and sorting algorithms with tables and their applications.

**MCA-P202****Java Programming Lab**

Sr. No.	Objectives
CO1	Design program and code for understanding the OOPS principles, procedural and object oriented paradigm with concepts of memory allocation and deallocation.
CO2	Design program and code for Classes and data abstraction and Overloading
CO3	Design program and code for Garbage Collection, Exceptions Handling Templates, File handling.
CO4	Design program and code for using and designing the Standard template library (STL), AWT and Swings.
CO5	Working with different type of Database Connectivity and crud operations.

**MCA-P203****Industrial Training**

Sr. No.	Outcomes
CO1	To provide students the opportunity to test their interest in a particular career before permanent commitments are made.
CO2	To develop skills in the application of theory to practical work situations
CO3	To enhance the ability to improve students creativity skills and sharing ideas.
CO4	To produce post graduates who are credible, creative and proficient.
CO5	To cultivates the leadership ability of the students and gives them the responsibility to execute and perform the given task.

## M.C.A. SEMESTER III

### MCA-T301 Artificial Intelligence and Machine Learning

Sr. No.	Outcomes
CO1	Understand basics of AI, Control strategies- forward and backward chaining, Heuristic search techniques
CO2	Learn Neural Architecture and Expert System, learning rule, Back propagation
CO3	Learn Machine Learning and linear model
CO4	Learn Tree and Probabilistic Models
CO5	Understand the concept of Dimensionality Reduction and Evolutionary Models, Graphical Models

### MCA-T302 Digital Marketing

Sr. No.	Outcomes
CO1	developing an overall understanding of digital marketing / online marketing platforms
CO2	Idea of web analytics, social media tools, marketing through search engines, search engine optimisation,
CO3	Idea of mobile marketing, email marketing, Pay per click, digital display marketing, content marketing and Strategizing marketing
CO4	Understand the search engine as a default entry point to the internet. Learn how to get a website listed among top search engine results.
CO5	Learn to use white paper, brochure, case studies for unique interaction.

### MCA-T303 Embedded Systems

Sr. No.	Outcomes
CO1	Become aware about General Purpose Processor and IC technologies
CO2	To acquire knowledge of different types of Custom processors
CO3	Able to understand ASIP and its relevant methodologies.
CO4	Effectively understand the Memory and Interfacing performances.
CO5	Case study of embedded system (Digital Camera)

### MCA-T304 Cloud Computing

Sr. No.	Outcomes
CO1	Learning the basic Concept of cloud computing, Architecture and virtualization.
CO2	Know about various major cloud Platforms in Industry and applications in cloud
CO3	Understand SLA and risk approaches and Energy efficiency in data centers
CO4	Learn about various storage concepts and the Storage Network Design in cloud environment.
CO5	Understand the advance topics in Consensus in Cloud Computing and Byzantine failure with their solutions.

### MCA-T305 Compiler Design

Sr. No.	Outcomes
CO1	Provide an understanding of the fundamental principles in compiler design
CO2	Provide the skills needed for building compilers for various situations that one may encounter in a career in Computer Science.
CO3	Learn the process of translating a modern high-level language to executable code required for compiler construction.
CO4	Provide an understanding of the fundamental principles in compiler design
CO5	Analyze & implement required module, which may include front-end, back-end, and a small set of middle-end optimizations.

### MCA-P301 Embedded Systems Lab

Sr. No.	Outcomes
CO1	To make students familiar with the basic concepts and terminology of the target area, the embedded systems design flow.
CO2	To give students an understanding of the embedded system architecture
CO3	To acquaint students with methods of executive device control and to give them opportunity to apply and test those methods in practice
CO4	To teach students to make measurements with the specified accuracy.
CO5	develop hardware-software complex with the use of the National Instruments products

MCA-P302 Artificial Intelligence and Machine learning lab

Sr. No.	Outcomes
CO1	To acquire knowledge on intelligent systems and agents, formalization of knowledge, reasoning with and without uncertainty, machine learning and applications at a basic level
CO2	To learn and grow after they are introduced to scenarios in the form of data.
CO3	To introduce students to the basic concepts and techniques of Machine Learning.
CO4	To develop skills of using recent machine learning software for solving practical problems.
CO5	To gain experience of doing independent study and research.

## M.C.A. SEMESTER – IV

### MCA-T401      Cryptography & Network Security

Sr. No.	Outcomes
CO1	To understand basics of Cryptography and Network Security.
CO2	To be able understand the key exchange mechanisms, Digital envelope and Digital signatures.
CO3	Learn about how to secure and manage Network and use of Virtual private Networks.
CO4	To understand various network security protocols to protect against the threats in the networks.
CO5	Be able to learn and configure simple firewall architectures

### MCA-T402      Modeling and Simulation

Sr. No.	Outcomes
CO1	Learn different types of simulation techniques
CO2	overview of the modeling and simulation approaches with emphasis on applications
CO3	use of models (e.g., physical, mathematical, or logical representation of a system, entity, phenomenon, or process) as a basis for simulations
CO4	To develop data utilized for managerial or technical decision making.
CO5	To simulate a state-space model in a computer.

### MCA-T403      Departmental Elective – I

#### MCA-E403-1      Software testing

Sr. No.	Outcomes
CO1	To study fundamental concepts in software testing, including software testing objectives, process.
CO2	To learn how to planning a test project, design test cases and data, conduct testing operations, manage software problems and defects, generate a testing report
CO3	define and develop a test tool to support test automation and Defects Testing
CO4	Able to do Business Intelligence Testing by white and black box testing.
CO5	Analyze performance related issues and tackle device plans

#### MCA-E403-2      Real Time Systems

Sr. No.	Objectives
CO1	Basic concepts of Real time systems, application and importance of RTS in real-life.



CO2	Learning scheduling real-time tasks and their Schedulability tests.
CO3	Schedulability analysis and time driven task scheduling
CO4	Event based task scheduling and priority handling in real time scheduling.
CO5	Resource Access control problems and solutions in multiprocessor system. Faults and their handling in real time systems.

#### MCA-E403-3 Business Intelligence in ERP System

Sr. No.	Outcomes
CO1	Purpose of business intelligence is to support better business decision making.
CO2	Provides an overview of the technology of BI and the application of BI to an organization's strategies and goals.
CO3	Objective of improving strategic decision-making and providing a competitive advantage.
CO4	An overview of Business Intelligence (BI) and analytics in the ERP

#### MCA-E403-4 Mobile Computing

Sr. No.	Outcomes
CO1	Basics of mobile technology wireless communication mobile device classification and wireless networks
CO2	Implementation of cellular system and power control. Understanding of concept of AMPS system, TACS system, NMT system, NTT system
CO3	Basic understanding of GSM its standardization and evolutionary directions
CO4	Transmission of data in cellular networks with various schemes of transmission as well as its evolution
CO5	Learning the basics of Android and design its applications

### MCA-E403-5 Image Processing

Sr. No.	Outcomes
CO1	To study the image fundamentals and mathematical transformations necessary for image processing.
CO2	To study the image enhancement techniques
CO3	To study image restoration procedures
CO4	To study the image compression procedures.
CO5	To study the image segmentation procedures.

### MCA-E403-6 Robotics

Sr. No.	Outcomes
CO1	To learn about robotics essentials.
CO2	Learn End Effectors and Robot Controls.
CO3	Understand the Robot transformations and different range of sensors
CO4	Learn Robot work cell design and control-Sequence control
CO5	Understand the concept of Micro/Nano Robotics System

### MCA-E403-7 Internet of Things

Sr. No.	Outcomes
CO1	Learn about basics of IoT and understand the Deployment templates with NETCONF-YANG platform design Methodology.
CO2	Understand the IoT Architecture
CO3	Understand the IoT Protocols
CO4	Know about working on IoT with Raspberry Pi & Arduino
CO5	Undertake case Studies and Real-World Applications

## MCA-T404 Departmental Elective – II

### MCA-E404 -1 Information Systems & Cyber Security

Sr. No.	Outcomes
CO1	Understand the elements of information security and techniques of network security.
CO2	Define and describe the nature and scope of cybercrime
CO3	To Enable Learner To Understand, Explore, And Acquire A Critical Understanding Cyber Law
CO4	Identify the Information Technology Act, 2000. Secure records and certification authorities
CO5	Understanding Intellectual Property Rights.

### MCA-E404-2 Ethical Hacking and Digital Forensics

Sr. No.	Outcomes
CO1	To provide an understanding Computer network and forensics fundamentals
CO2	Learn network security controls
CO3	Able to understand ethical hacking and its type
CO4	To understand the role of computer forensics in real world
CO5	Able to understand mobile OS architecture and legal issue

### MCA-E404-3 Bio-Informatics

Sr. No.	Outcomes
CO1	Understand Bioinformatics technologies, Boolean networks, molecular modeling
CO2	Understand the Pattern Matching and Visualization
CO3	Modeling the Bioinformatics networks
CO4	Learn about Gene regulation, motif recognition, motif detection, strategies for motif detection
CO5	Familiar with the Microarray technology for genome expression study, image analysis for data extraction

### MCA-E404-4 Data Mining and Data Warehousing

Sr. No.	Outcomes
CO1	Learn Database Management System Concepts and Architecture and data warehouse
CO2	Able to understand the Warehouse Implementation and OLAP Technology for Data Mining

CO3	Able to Understand Data Preprocessing
CO4	Learn Data Mining Methods
CO5	Able to understand Fuzzy Logic Clustering and Introduction to Fuzzy Logic

#### MCA-E404-5 Soft Computing

Sr. No.	Outcomes
CO1	Learn about Soft/hard computing
CO2	Understand Neural networks and learn about application of ANN
CO3	Learn about Neural network and recent applications of neural network
CO4	Understand the fuzzy logic, fuzzy systems, and fuzzy classification and defuzzification methods.
CO5	Learn about the genetic algorithm and various operators

#### MCA-E404-6 Ad Hoc Networks

Sr. No.	Outcomes
CO1	Learn about basics of Wireless Communication Technology and understand about Ad Hoc and sensor networks.
CO2	Understand the MAC Protocol and MAC-IEEE 802.11.
CO3	Learn about Routing Protocols and Transport Layer in Ad Hoc Wireless Networks.
CO4	Understand the Routing Protocol
CO5	Understand the Wireless Sensor Networks (WSNS) and Mac Protocols

#### MCA-E404-7 Natural Language Processing

Sr. No.	Outcomes
CO1	Understand the basics of NLP-Language and Information Retrieval concepts.
CO2	Learn about Word Level Analysis and Syntactic Analysis.
CO3	Know about Semantic Analysis and Discourse Processing
CO4	Able to do gain understanding about Natural Language Generation and Machine Translation
CO5	Learn the Information Retrieval concepts and use Lexical Resources like World Net etc.

## MCA-P401 Software Project

Sr. No.	Outcomes
CO1	Identify the requirements for the real world problems.
CO2	Conduct a survey of several available literatures and prepare software requirement specification
CO3	Study and enhance software/ hardware skills.
CO4	Demonstrate and build the project using appropriate process model, hardware requirements, coding, emulating and testing.
CO5	To work in teams and prepare a report and present the findings of the study conducted in the preferred domain

## M.C.A 2-year Degree Programme

### Programme Specific Objective

- PSO1 Develop an ability to apply knowledge in computing discipline
- PSO2 Develop ability to demonstrate team work with the ability of leadership
- PSO3 Develop ability to use current technologies, skill and models for computing practices
- PSO4 Develop ability to communicate ideas effectively
- PSO5 Produce entrepreneurs who can develop customized solution for small to large Enterprises
- PSO6 To develop students to become globally competent
- PSO7 To inculcate Entrepreneurial skill among students

### M.C.A. SEMESTER – I

#### MCA-T101 Principle of Programming Languages

Sr. No.	Outcomes
CO1	To understand basic structure of Computer and perform computer arithmetic operations and understand various number system concepts.
CO2	To get insight into various types of software's and types of operating systems currently available for the computer systems
CO3	To learn about basic computer networking terms with a focus on signal transmission and various types of topologies of computer networks.
CO4	Able to design a document and its processing, working with spreadsheet and creating the power point presentation with graphics. Also, able to understand basics of database management system.

#### MCA-T102 Operating System

Sr. No.	Outcomes
CO1	Learn about various types of OS, their design issues, feature migration and computing Environments. Multithreading models. Different
CO2	Able to identify Process and Threads concept.
CO3	Able to learn CPU Scheduling, Process Synchronization, Deadlocks
CO4	Learn the concepts of Storage and Memory Management, Virtual Memory and File System.
CO5	Learn the concepts of Protection, Security

### MCA-T103 Database Management system

Sr. No.	Outcomes
CO1	Understand basic database concepts, including the structure and Operation of the relational data model, logical database design Principles, including E-R diagrams
CO2	Impart the knowledge about relationship algebra and calculus Construct simple and advanced database queries using Structured Query Language
CO3	Able to understand different types of indexing, query execution and optimization and hashing techniques
CO4	Learn transaction concepts, serializability concurrency and locking and recovery mechanisms
CO5	Understand object oriented database concepts.

### MCA-T104 MIS and E-Commerce

Sr. No.	Outcomes
CO1	Learn about various Need, Purpose and Objectives of Management Information Systems
CO2	Able to identify Information, Management and Decision Making & Support Systems
CO3	Able to learn about e-commerce and use of internet for it. Learn Business models for e-commerce
CO4	Identify the various Enabling technologies for e commerce and E-payment systems.
CO5	Learn about E-marketing and E-security mechanisms

### MCA-T105 Python programming

Sr. No.	Objectives
CO1	Master the fundamentals of writing Python scripts.
CO2	Learn core Python scripting elements such as variables and flow control structures.
CO3	Discover how to work with lists and sequence data.
CO4	Write Python functions to facilitate code reuse.
CO5	Use Python to read and write files

**MCA-P101****DBMS and OS lab**

Sr. No.	Objectives
CO1	Construct the various models in DBMS
CO2	Able to develop E-R diagrams for any given problem domain.
CO3	Construct simple and advanced database queries using Structured Query Language (SQL).
CO4	Understand need for Schema Refinement and database normalization.

**MCA-P102****Python programming lab**

Sr. No.	Outcomes
CO1	Perform the STRING operations in python.
CO2	Implementation of CLASSES and their operations in python.
CO3	Perform the FILE handling in python.
CO4	Perform the XML, Serialization and Web Services operations.

**MCA-P103 Skill Course**

Sr. No.	Outcomes
CO1	Able to learn soft skills.
CO2	Able to participate in the group discussion and develop oratorical skills
CO3	Able to write letter and business communication skills
CO4	Resume writing and participate in extempore
CO5	Able to make presentation effective.



### MCA-B101 Data Structure

Sr. No.	Outcomes
CO1	Understand the concepts of algorithms and their Rate of growth, analyze its time and space complexities. Understand the concepts of linear data structures like Arrays, and Linked lists.
CO2	Understand the concepts of Stack, Queues and Storage Management.
CO3	Evaluate the different forms of Trees and their Applications
CO4	Understand the concepts of non-linear data structures like graphs and Strings with their features.
CO5	Apply the concepts of different types of searching and sorting algorithms with their applications.

### MCA-B102 Basic Mathematic

Sr. No.	Objectives
CO1	Be able to apply problem-solving and logical skills.
CO2	Have a deeper understanding of mathematical theory.
CO3	Have a solid knowledge of elementary statistics.
CO4	Be able to communicate mathematical/logical ideas in writing.

### M.C.A. SEMESTER II

#### MCA-T201 DAA

Sr. No.	Objectives
CO1	Able to define algorithms complexity, order notations,
CO2	Learn different algorithm design techniques with their applications such as Divide and conquer greedy methods.
CO3	Design algorithms using dynamic programming, Backtracking, branch and bound approaches and their solution based on real time data sets and
CO4	Able to demonstrate various Matrix multiplication algorithms, Data structures for set manipulation problems
CO5	Able to classify various real time problems in different categories like P, NP, NP Complete, and NP Hard based on their execution complexity.

**MCA-T202****Java Programming**

Sr. No.	Outcomes
CO1	Understand the Different paradigms for problem solving and overview of OOPS principles. Describe the procedural and object oriented paradigm with concepts of memory allocation and deallocation.
CO2	Understand the concepts of Classes and data abstraction and Overloading using java language
CO3	Understand Garbage Collection, Exceptions Handling, and Templates, File handling.
CO4	Apply the concept of Standard template library (STL), AWT and Swings.
CO5	Learning the JDBC Database Connectivity.

**MCA-T203****Software engineering**

Sr. No.	Outcomes
CO1	Understanding the Software Engineering Fundamentals, Software development Process with different types of models, Project management Concepts.
CO2	Understand the Software Quality Assurance concepts, Software Configuration Management,
CO3	Understand the Software Quality Assurance concepts, Software Configuration Management, Analysis Concepts and Principles
CO4	Get acquainted with Design Concepts and Principles, Software Testing.
CO5	Understand the purpose of Reengineering with some CASE Tools.

**MCA- T204 Computer Networks**

Sr. No.	Outcomes
CO1	Know network terminology and concepts, design issues , Protocol Architecture, various service primitives with understanding of Data Communications techniques
CO2	Understand various type of encoding techniques and data link control protocols
CO3	Understand various routing. Switching concepts techniques and signalling protocols
CO4	A brief study of various network topologies and devices used in in layered structure of OSI model.
CO5	Get acquainted with various application layer, transport and network layer protocols

**MCA-T205****Computer Architecture**

Sr. No.	Objectives
CO1	To understand the structure, function and characteristics of computer systems
CO2	understand the design of the various functional units and components of computers
CO3	To identify the elements of modern instructions sets and their impact on processor design.
CO4	Understand concepts of register transfer logic and arithmetic

**MCA-P201****Design and Analysis of Algorithm Lab**

Sr. No.	Outcomes
CO1	Perform the experiments for time and space complexities calculation. Plot graphs for Rate of growth,
CO2	Perform the operations to understand the concepts of Stack, Queues, link lists and Storage Management.
CO3	Perform the operations to understand the different forms of Trees and their Applications
CO4	Perform the operations to understand the concepts of non-linear data structures like graphs and Strings with their features.
CO5	Apply the concepts of different types of searching and sorting algorithms with tables and their applications.

**MCA-P202****Java Programming Lab**

Sr. No.	Objectives
CO1	Design program and code for understanding the OOPS principles, procedural and object oriented paradigm with concepts of memory allocation and deallocation.
CO2	Design program and code for Classes and data abstraction and Overloading
CO3	Design program and code for Garbage Collection, Exceptions Handling Templates, File handling.
CO4	Design program and code for using and designing the Standard template library (STL), AWT and Swings.
CO5	Working with different type of Database Connectivity and crud operations.

**MCA-P203****Industrial Training**

Sr. No.	Outcomes
CO1	To provide students the opportunity to test their interest in a particular career before permanent commitments are made.
CO2	To develop skills in the application of theory to practical work situations
CO3	To enhance the ability to improve students creativity skills and sharing ideas.
CO4	To produce post graduates who are credible, creative and proficient.
CO5	To cultivates the leadership ability of the students and gives them the responsibility to execute and perform the given task.

## M.C.A. SEMESTER III

### MCA-T301 Artificial Intelligence and Machine Learning

Sr. No.	Outcomes
CO1	Understand basics of AI, Control strategies- forward and backward chaining, Heuristic search techniques
CO2	Learn Neural Architecture and Expert System, learning rule, Back propagation
CO3	Learn Machine Learning and linear model
CO4	Learn Tree and Probabilistic Models
CO5	Understand the concept of Dimensionality Reduction and Evolutionary Models, Graphical Models

### MCA-T302 Digital Marketing

Sr. No.	Outcomes
CO1	developing an overall understanding of digital marketing / online marketing platforms
CO2	Idea of web analytics, social media tools, marketing through search engines, search engine optimisation,
CO3	Idea of mobile marketing, email marketing, Pay per click, digital display marketing, content marketing and Strategizing marketing
CO4	Understand the search engine as a default entry point to the internet. Learn how to get a website listed among top search engine results.
CO5	Learn to use white paper, brochure, case studies for unique interaction.

### MCA-T303 Embedded Systems

Sr. No.	Outcomes
CO1	Become aware about General Purpose Processor and IC technologies
CO2	To acquire knowledge of different types of Custom processors
CO3	Able to understand ASIP and its relevant methodologies.
CO4	Effectively understand the Memory and Interfacing performances.
CO5	Case study of embedded system (Digital Camera)

### MCA-T304 Cloud Computing

Sr. No.	Outcomes
CO1	Learning the basic Concept of cloud computing, Architecture and virtualization.
CO2	Know about various major cloud Platforms in Industry and applications in cloud
CO3	Understand SLA and risk approaches and Energy efficiency in data centers
CO4	Learn about various storage concepts and the Storage Network Design in cloud environment.
CO5	Understand the advance topics in Consensus in Cloud Computing and Byzantine failure with their solutions.

### MCA-T305 Compiler Design

Sr. No.	Outcomes
CO1	Provide an understanding of the fundamental principles in compiler design
CO2	Provide the skills needed for building compilers for various situations that one may encounter in a career in Computer Science.
CO3	Learn the process of translating a modern high-level language to executable code required for compiler construction.
CO4	Provide an understanding of the fundamental principles in compiler design
CO5	Analyze & implement required module, which may include front-end, back-end, and a small set of middle-end optimizations.

### MCA-P301 Embedded Systems Lab

Sr. No.	Outcomes
CO1	To make students familiar with the basic concepts and terminology of the target area, the embedded systems design flow.
CO2	To give students an understanding of the embedded system architecture
CO3	To acquaint students with methods of executive device control and to give them opportunity to apply and test those methods in practice
CO4	To teach students to make measurements with the specified accuracy.
CO5	develop hardware-software complex with the use of the National Instruments products

MCA-P302 Artificial Intelligence and Machine learning lab

Sr. No.	Outcomes
CO1	To acquire knowledge on intelligent systems and agents, formalization of knowledge, reasoning with and without uncertainty, machine learning and applications at a basic level
CO2	To learn and grow after they are introduced to scenarios in the form of data.
CO3	To introduce students to the basic concepts and techniques of Machine Learning.
CO4	To develop skills of using recent machine learning software for solving practical problems.
CO5	To gain experience of doing independent study and research.

## M.C.A. SEMESTER – IV

### MCA-T401      Cryptography & Network Security

Sr. No.	Outcomes
CO1	To understand basics of Cryptography and Network Security.
CO2	To be able understand the key exchange mechanisms, Digital envelope and Digital signatures.
CO3	Learn about how to secure and manage Network and use of Virtual private Networks.
CO4	To understand various network security protocols to protect against the threats in the networks.
CO5	Be able to learn and configure simple firewall architectures

### MCA-T402      Modeling and Simulation

Sr. No.	Outcomes
CO1	Learn different types of simulation techniques
CO2	overview of the modeling and simulation approaches with emphasis on applications
CO3	use of models (e.g., physical, mathematical, or logical representation of a system, entity, phenomenon, or process) as a basis for simulations
CO4	To develop data utilized for managerial or technical decision making.
CO5	To simulate a state-space model in a computer.

### MCA-T403      Departmental Elective – I

#### MCA-E403-1      Software testing

Sr. No.	Outcomes
CO1	To study fundamental concepts in software testing, including software testing objectives, process.
CO2	To learn how to planning a test project, design test cases and data, conduct testing operations, manage software problems and defects, generate a testing report
CO3	define and develop a test tool to support test automation and Defects Testing
CO4	Able to do Business Intelligence Testing by white and black box testing.
CO5	Analyze performance related issues and tackle device plans

#### MCA-E403-2      Real Time Systems

Sr. No.	Objectives
CO1	Basic concepts of Real time systems, application and importance of RTS in real-life.



CO2	Learning scheduling real-time tasks and their Schedulability tests.
CO3	Schedulability analysis and time driven task scheduling
CO4	Event based task scheduling and priority handling in real time scheduling.
CO5	Resource Access control problems and solutions in multiprocessor system. Faults and their handling in real time systems.

#### MCA-E403-3 Business Intelligence in ERP System

Sr. No.	Outcomes
CO1	Purpose of business intelligence is to support better business decision making.
CO2	Provides an overview of the technology of BI and the application of BI to an organization's strategies and goals.
CO3	Objective of improving strategic decision-making and providing a competitive advantage.
CO4	An overview of Business Intelligence (BI) and analytics in the ERP

#### MCA-E403-4 Mobile Computing

Sr. No.	Outcomes
CO1	Basics of mobile technology wireless communication mobile device classification and wireless networks
CO2	Implementation of cellular system and power control. Understanding of concept of AMPS system, TACS system, NMT system, NTT system
CO3	Basic understanding of GSM its standardization and evolutionary directions
CO4	Transmission of data in cellular networks with various schemes of transmission as well as its evolution
CO5	Learning the basics of Android and design its applications

## MCA-E403-5 Image Processing

Sr. No.	Outcomes
CO1	To study the image fundamentals and mathematical transformations necessary for image processing.
CO2	To study the image enhancement techniques
CO3	To study image restoration procedures
CO4	To study the image compression procedures.
CO5	To study the image segmentation procedures.

## MCA-E403-6 Robotics

Sr. No.	Outcomes
CO1	To learn about robotics essentials.
CO2	Learn End Effectors and Robot Controls.
CO3	Understand the Robot transformations and different range of sensors
CO4	Learn Robot work cell design and control-Sequence control
CO5	Understand the concept of Micro/Nano Robotics System

## MCA-E403-7 Internet of Things

Sr. No.	Outcomes
CO1	Learn about basics of IoT and understand the Deployment templates with NETCONF-YANG platform design Methodology.
CO2	Understand the IoT Architecture
CO3	Understand the IoT Protocols
CO4	Know about working on IoT with Raspberry Pi & Arduino
CO5	Undertake case Studies and Real-World Applications

## MCA-T404 Departmental Elective – II

### MCA-E404 -1 Information Systems & Cyber Security

Sr. No.	Outcomes
CO1	Understand the elements of information security and techniques of network security.
CO2	Define and describe the nature and scope of cybercrime
CO3	To Enable Learner To Understand, Explore, And Acquire A Critical Understanding Cyber Law
CO4	Identify the Information Technology Act, 2000. Secure records and certification authorities
CO5	Understanding Intellectual Property Rights.

### MCA-E404-2 Ethical Hacking and Digital Forensics

Sr. No.	Outcomes
CO1	To provide an understanding Computer network and forensics fundamentals
CO2	Learn network security controls
CO3	Able to understand ethical hacking and its type
CO4	To understand the role of computer forensics in real world
CO5	Able to understand mobile OS architecture and legal issue

### MCA-E404-3 Bio-Informatics

Sr. No.	Outcomes
CO1	Understand Bioinformatics technologies, Boolean networks, molecular modeling
CO2	Understand the Pattern Matching and Visualization
CO3	Modeling the Bioinformatics networks
CO4	Learn about Gene regulation, motif recognition, motif detection, strategies for motif detection
CO5	Familiar with the Microarray technology for genome expression study, image analysis for data extraction

### MCA-E404-4 Data Mining and Data Warehousing

Sr. No.	Outcomes
CO1	Learn Database Management System Concepts and Architecture and data warehouse
CO2	Able to understand the Warehouse Implementation and OLAP Technology for Data Mining

CO3	Able to Understand Data Preprocessing
CO4	Learn Data Mining Methods
CO5	Able to understand Fuzzy Logic Clustering and Introduction to Fuzzy Logic

#### MCA-E404-5 Soft Computing

Sr. No.	Outcomes
CO1	Learn about Soft/hard computing
CO2	Understand Neural networks and learn about application of ANN
CO3	Learn about Neural network and recent applications of neural network
CO4	Understand the fuzzy logic, fuzzy systems, and fuzzy classification and defuzzification methods.
CO5	Learn about the genetic algorithm and various operators

#### MCA-E404-6 Ad Hoc Networks

Sr. No.	Outcomes
CO1	Learn about basics of Wireless Communication Technology and understand about Ad Hoc and sensor networks.
CO2	Understand the MAC Protocol and MAC-IEEE 802.11.
CO3	Learn about Routing Protocols and Transport Layer in Ad Hoc Wireless Networks.
CO4	Understand the Routing Protocol
CO5	Understand the Wireless Sensor Networks (WSNS) and Mac Protocols

#### MCA-E404-7 Natural Language Processing

Sr. No.	Outcomes
CO1	Understand the basics of NLP-Language and Information Retrieval concepts.
CO2	Learn about Word Level Analysis and Syntactic Analysis.
CO3	Know about Semantic Analysis and Discourse Processing
CO4	Able to do gain understanding about Natural Language Generation and Machine Translation
CO5	Learn the Information Retrieval concepts and use Lexical Resources like World Net etc.

## MCA-P401 Software Project

Sr. No.	Outcomes
CO1	Identify the requirements for the real world problems.
CO2	Conduct a survey of several available literatures and prepare software requirement specification
CO3	Study and enhance software/ hardware skills.
CO4	Demonstrate and build the project using appropriate process model, hardware requirements, coding, emulating and testing.
CO5	To work in teams and prepare a report and present the findings of the study conducted in the preferred domain

## Master in Information Technology CBCS based (M. Sc IT)

### **Program Specific Outcomes (PSO):**

After successful completion of the M Sc (IT) program students will have:

**PSO1:** Essential technical and practical skills for solving real-world problems by applying Information Technology.

**PSO2:** Ability to demonstrate excellent programming, analytical, logical and problem solving skills in developments

**PSO3:** Ability to use IT tools and platforms necessary for practical needs in industry and R&D organizations.

**PSO4:** Ability to acquire social and ethical attributes that enable them in applying their skills for societal needs.

**PSO5:** Initiate and lead projects within the scientific field and be responsible for the work of individuals and groups

**PSO6:** Students will become successful professionals to gain Employment and/or to become eligible for Computer Science Ph.D. programme.

**PSO7:** Students will demonstrate the ability to communicate effectively and to work as a team.

### **Semester – I**

**M1MIT01-CT01**

**Computer Architecture**

#### **Course Outcomes**

CO1: Understand the theory and architecture of central processing unit.

CO2: Learn the concepts of parallel processing, pipelining and interprocessor communication

CO3: Define different number systems, binary addition and subtraction, 2's complement representation and operations with this representation.

CO4: Understand concepts of register transfer logic.

CO5: Explain different types of addressing modes.

CO6: Understand concepts of Hardwired control and micro programmed control.

CO7: Discuss different types of computer arithmetic operations.

**M1MIT02-CT02****Introduction to Programming****Course Outcomes**

CO1: Makes students gain a broad perspective about the uses of computers in engineering industry.

CO2: Develops basic understanding of computers, the concept of algorithm and algorithmic thinking.

CO3: Develops the ability to analyze a problem, develop an algorithm to solve it.

CO4: Develops the use of the C programming language to implement various algorithms, and develops the basic concepts and terminology of programming in general.

CO5: Introduces the more advanced features of the C language

**M1MIT03-CT03****Data Structure****Course Outcomes**

CO1: Be familiar with basic techniques of algorithm analysis and writing recursive methods

CO2: Master the implementation of linear and non linear data structures like Stack, Queue, linked lists and binary trees

CO3: Familiar with advanced data structures such as balanced search trees, hash tables, priority queues

CO4: Able to understand sorting algorithms including Selection, bubble, quick sort, merge sort etc

CO5: Working with graph algorithms such as traversals, shortest path and minimum spanning tree

**M1MIT04-CT04****Discrete Mathematics****Course Outcomes**

CO1: Understand the basic principles of sets and operations in sets.

CO2: Learn and prove basic set equalities.

CO3: Apply counting principles to determine probabilities.

CO4: Demonstrate an understanding of relations and functions and be able to determine their properties.

CO5: Use of truth tables for expressions involving the following logical connectives: negation, conjunction, disjunction, conditional

CO6: Define and use the terms: proposition (statement), converse, inverse, contrapositive, tautology, and contradiction.

### **M1MIT05-CP01**

### **Practical-I Data Structure Programming**

#### **Course Outcomes**

CO1: To design and implement various data structure algorithms.

CO2: To introduce various techniques for representation of the data in the real world.

CO3: To develop application using data structure algorithms.

CO4: Determine and analyze the complexity of various algorithms.

### **M1MIT06-CP02**

### **Practical-II Web Development Using HTML & CSS**

#### **Course Outcomes**

CO1: Choose, understand, and analyze any suitable real time web application.

CO2: Integrate client and server side scripting languages to develop dynamic web applications.

CO3: To develop and deploy real time web applications in web servers and in the cloud.

CO4: Extend this knowledge to new technologies and platforms.



**M1MIT07-SP01**

**Communication & Presentation Skill**

**Course Outcomes**

CO1: Understand the role of communication

CO2: Awareness of appropriate communication strategies

CO3: Prepare and present messages with a specific intent.

CO4: Analyze speaking communication skills

**Semester – II**

**M2MIT01-CT05**

**Database Systems**

**Course Outcomes**

CO1: Write SQL programs for effective data definition and manipulation.

CO2: Develop ER diagrams for logical design of database systems.

CO3: Perform Normalization

CO4: Able to design database, tables and relationships among them.

CO5: Implement a small scale database development using commercially available DBMS tools.

**M2MIT02-CT06**

**Operating System**

**Course Outcomes**

CO1: Interpret various OS functions

CO2: Demonstrate the knowledge of functions of Operating Systems

CO3: Formulate the Problem and develop the solution for same in terms of CPU time, disk access, virtual memory etc

CO4: Compare and analyze the different implementation approach of operating system abstractions.

CO5: Programming with shell

**M2MIT03-CT07****Algorithms****Course Outcomes**

CO1: Ability to analyze the performance of algorithms.

CO2: Selection of appropriate algorithm design techniques for solving problems.

CO3: Use of set of rules design methods including greedy approach, divide and conquer, dynamic programming, backtracking, branch and bound etc.

CO4: To understand tractable and intractable problems.

CO5: To introduce problem classes taxonomy.

**M2MIT04-CT08****Object Oriented Programming using C++****Course Outcomes**

CO1: Knowledge of object-oriented design and the concepts of encapsulation, abstraction, inheritance, and polymorphism;

CO2: Design, implement, simple programs in an object-oriented programming language.

CO3: Understanding of encapsulation and information hiding.

CO4: Implementation of “is-a” relationships among objects using a class hierarchy and inheritance.

CO5: Compare and contrast overloading and overriding methods in an object-oriented language.

CO6: Defining Real world problems in terms of abstract classes.

**M2MIT05-CP03****Practical-I: Algorithm Implementations****Course Outcomes**

CO1: To find an algorithm to solve the problem and prove that the algorithm solves the problem correctly.

CO2: To understand the mathematical criterion for deciding whether an algorithm is efficient or not

CO3: To understand basic techniques for designing algorithms, including the techniques of recursion, divide-and-conquer, and greedy.

CO4: To acquire knowledge in NP Hard and NP-Completeness problem

**M2MIT06EP01X**

**Practical-II:**

**Elective Lab-I: Web Application Development**

**A. Web Development using Dot NET**

**Course Outcomes**

CO1: To get familiarize with Microsoft.Net, C#, VB.NET and ASP.NET technologies.

CO2: Create user interactive web pages using ASP.Net.

CO3: Create simple data binding applications using ADO.Net connectivity.

CO4: Performing Database operations for Windows Form and web applications.

**B. Web Development using PHP & MYSQL**

Course Outcomes

CO1: Understand the usage of PHP and MySQL in dynamic web development

CO2: Able to setup and configure MySQL, PHP, Apache web server development environment.

CO3: Become a PHP/MySQL web developer to create small applications

CO4: Create a dynamic database centric website using PHP and MySQL

## **Semester III**

### **M3MIT01CT09**

### **Computer Networks**

#### Course Outcomes

CO1: Understand different types of networks, topologies and applications of them in real world.

CO2: Understand types of addresses, data communication used over Internet.

CO3: Understand the concept of networking models, protocols

CO4: Learn basic networking hardware and tools like Cisco router, packet tracer etc.

CO5: Recognize the trends of Computer Networking.

CO6: Evaluate the challenges in building networks and solutions to those.

### **M3MIT02CT10**

### **Java Programming**

#### Course Outcomes

CO1: Build software development skills using java programming for real world applications.

CO2: Implement frontend and backend of an application

CO3: Implement classical problems using java programming.

CO4: Use Java in a variety of technologies and on different platforms.

CO5: Use an integrated development environment like netbeans, websphere to write, compile, run, and test simple object-oriented Java programs.

CO6: Document a Java program using Javadoc.

CO7: Understand the concept of Applet, swings and JDBC.

### **M3MIT03ET01X**

### **Elective -1 A. Introduction to Data Science**

#### Course Outcomes

CO1: Insight into role of Scientists

CO2: Analyzing of big Data

CO3: Learn Techniques and Tools for Transformation of Data

CO4: Understand Data Mining

CO5: Different formats of data storage and processing

## **B. Computer Graphics**

Course Outcomes

CO1: Basic Mathematical concepts related to matrices and geometry.

CO2: Understanding of different types of projections.

CO3: 2 dimensional and 3 dimensional Transformation and their applications

CO4: Working with pixel, resolution and colors models

CO5: Knowledge of half toning and visible surface detection

## **M3MIT04ET02X**

### **A. Software Engineering**

Course Outcomes

CO1: Aim to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

CO2: Apply engineering design to produce solutions that meet specified needs

CO3: Recognize professional responsibilities in engineering situations and make informed judgments

CO4: Ability to function effectively on a team whose members together provide leadership

CO5: Ability to use the techniques, skills, and modern engineering tools and processes necessary for software engineering practice.

CO6: Apply software engineering perspective through software design and construction, requirements analysis, verification, and validation, to develop solutions to modern problems

### **B. Image Processing**

Course Outcomes

CO1: Understand the need for image transforms different types of image transforms and their properties

- CO2: Analyze images in the frequency domain using various transforms.
- CO3: Evaluate the techniques for image enhancement and image restoration.
- CO4: Categorize various compression techniques.
- CO5: Learn different techniques employed for the enhancement of images.
- CO6: Learn different causes for image degradation and overview of image restoration techniques.
- CO7: Develop image processing application.

### **M3MIT05EP03X**

### **Practical-I: Elective Lab-II A. Android Programming**

#### Course Outcomes

- CO1: Install and configure Android application development tools.
- CO2: Design and develop user Interfaces for the Android platform.
- CO3: Save state information across important operating system events.
- CO4: Apply Java programming concepts to Android application development.
- CO5: Design and implement Database Application and Content providers.
- CO6: Use multimedia, camera and Location based services in Android App.
- CO7: Able to handle security issues in Android platform

### **B. Microprocessor & Micro-controller Programming**

#### Course Outcomes

- CO1: Design and implement programs on 8085
- CO2: Design flip flop, gates and other logic circuits.
- CO3: Understand the architecture and instruction set simulator
- CO4: Acquainted with different types of registers

### **M3MIT06EP04X**

### **Practical-II: Elective Lab-III**

#### A. Big Data Analytics

#### Course Outcomes

- CO1: Identify Big Data and its Business Implications.

CO2: Understanding the components of Hadoop and Hadoop Eco-System

CO3: Access and Process Data on Distributed File System

CO4: Develop Big Data Solutions

CO5: Learn Machine Learning Techniques

## **B. Cloud Computing**

Course Outcomes

CO1: To learn what are Cloud Services and how to use them.

CO2: To understand the concept of Virtualization

CO3: To study Task Scheduling algorithms.

CO4: Learn to apply Map-Reduce concept to applications.

CO5: Use and Examine different cloud computing services

CO6: Analyze the components of open stack & Google Cloud platform

CO7: Understand Mobile Cloud Computing as well as key components of Amazon web Service

## **C. Web Application Project**

Course Outcomes

CO1: Apply client/server communication techniques such as server, application, session variables, cookies and server behaviors.

CO2: Determine the needs for web database and connectivity.

CO3: Apply code reuse with templates, libraries, and snippets.

CO4: Evaluate several alternatives in the design of a web application.

CO5: Develop a functional web application.

**M3MIT07EP05X****Practical-III: Minor Project**

## Course Outcomes

CO1: Identify the requirements for the real world problems.

CO2: Conduct a survey of several available literatures and prepare software requirement specification.

CO3: Study and enhance software/ hardware skills.

CO4: Demonstrate and build the project using appropriate process model, hardware requirements, coding, emulating and testing.

CO5: To report and present the findings of the study conducted in the preferred domain

CO6: Demonstrate an ability to work in teams and manage the conduct of the research study.

**Semester IV****M4MIT01PW01****Project Work**

CO1: Demonstrate a sound technical knowledge of their selected project topic.

CO2: Undertake problem identification, formulation and solution.

CO3: Design solutions to complex problems utilizing a systems approach.

CO4: Communicate with team members and the community at large in written and oral forms.

CO5: Demonstrate the knowledge, skills and attitudes of as a professional developer.



## **SYLLABUS**

**M.Voc- Fashion Technology & Designing**

**Semester System**



**DEPARTMENT OF FASHION TECHNOLOGY AND DESIGNING**

**UNIVERSITY COLLEGE OF SOCIAL SCIENCES AND HUMANITIES  
MOHANLAL SUKHADIA UNIVERSITY, UDAIPUR**

## M.Voc- Fashion Technology & Designing

### Semester System

Master of Vocation (M.Voc.) is launched under the scheme of University Grants Commission on skill development based higher education leading to Master of Vocation (M.Voc.) Degree.

**M.Voc. Programme:** The M.Voc. programme has been designed as per CBCS framework emphasizing on skill-based education.

**1. Duration of Course:** The duration of course is 2 years integrated course with one early exit point and one lateral entry.

<b>Award</b>	<b>Duration</b>	<b>Specification</b>
Post Graduate Certificate	First Semester	If exit after six months
Post Graduate Diploma	1 Year (First and Second Semester)	If exit after one year

**Note:**

#### **For Early Exit:**

- After successful completion of First semester (first year) a Post Graduate Certificate will be awarded to the candidate.
- After successful completion of Second semester (first year) a Post Graduate Diploma will be awarded to the candidate.
- After successful completion of Fourth semester (2<sup>nd</sup> year) M.Voc. –Fashion Technology & Designing Degree will be awarded to the candidate.

#### **2. Eligibility criteria for admission:**

- Undergraduate Degree from any institute/ University recognized by law in India (B.Tec./ B.Sc./ B.A./ B.Com) degree with specialization in relevant subjects (Apparel Designing/ Costume Designing/ Apparel Construction/ Fashion Designing/ Home science/ Community & Applied Science etc.).
- Undergraduate Degree in any other subject with basic foundation certificate or diploma course in fashion/ costume / apparel / textile and likewise subjects.
- Undergraduate Diploma of minimum three years duration from NIFT/ NID/ Polytechnic College/ Degree College in related subjects like Costume Designing, Apparel Construction, Fashion Designing, Fashion Technology, Textile Designing and likewise subjects.
- Candidates appearing in the qualifying examination are also eligible to apply if the candidate produces a proof of having acquired the minimum prescribed qualification at the time of

admission. Or if the Final Year/ Final Semester (as the case may be) result of qualifying degree is not declared by the concerned board/ University till the date of admission/ counseling, his/ her admission in such case will be strictly provisional subject to the following conditions: (i) Affidavit on non-judicial stamp paper of Rs. 10/- is submitted by candidate. (ii) The candidate will submit the final result of qualifying Degree providing his/ her eligibility on or before academic session ends (iii) Candidates having compartment in previous qualifying exams will be considered only for provisional admission.

- It is further clarified that provisional admission will be considered only in such cases where the result of Final year/ Semester of the qualifying degree have not been declared by the concerned university/ board in its totality.
- As the course is vocational and skill based, hence the admission eligibility will be Minimum Passing marks obtained. The Merit list will be prepared based on the following criteria -

Sr. No.	I	A	B	C	D	Total
Category	% obtained in UG level programs	UG in relevant subjects	Diploma courses (More than 1 Yr duration)	Diploma courses (1Yr duration)	Certificate courses	
Marks	X %	10	8	7	5	$I(X\%) + (A/B/C/D)$

### 3. Total number of Seats:

- M.Voc.-Fashion Technology & Designing: 30 seats
- Reservation of Seats:** As per rules of University

**4. Course Fee:** Course fee will be decided as per the prevalent mechanism for fee fixation in the University.

**5. Admission Process:** Based on Merit (As per University rule)

**6. Faculty:** The University should use its regular faculty if existing, additionally; they may recruit or hire faculty on contractual basis and guest faculty as per UGC norms.

### 7. Marks Distribution:

The Distribution of marks for University examination and continuous internal assessment is as follows -

	Total Allotted Marks	Minimum Passing Marks	University Exam Marks	Minimum Passing marks	Continuous Internal Assessment	Minimum Passing Marks
<b>Theory</b>	100	40	80	32	20	08

<b>Practical</b>	100	40	60	24	40 (20 Internal Assessment + 20 Project work)	16
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### Marks distribution of the Continuous Internal Assessment

1.	Attendance	20%	% of the total Marks of the Internal Assessment
2.	Written Assignment/ Project	40%	
3.	Mid- semester tests/ Internal Examination	40%	

### 8. Classification of Successful Candidates:

The successful candidate shall be classified on the basis of aggregate marks secured

- a) 75% or more with Distinction
- b) 60% or more in First division
- c) 50% or more but less than 60% in the Second division
- d) 40% to below 50% in the Third division

**9. Attendance:** Every candidate will be required to attend a minimum theory and practical classes, laboratory work, project work as per university norms.

**10. Conferment of Degree:** A candidate who has passed all the examinations as prescribed, shall be eligible to receive the degree of “M.Voc.-Fashion Technology and Designing” from the University.

**11. Award of Medal/ Prize:** The general rules and conditions of the University for the Award of Medal/ Prizes etc.

### 12. Qualification requirement (for teaching staff)

- M. Design / M.Sc./ M.Voc. with specialization in Fashion Design/ Fashion and Textile Design/ Fashion Technology/ Costume Designing/ Textiles and Apparel Designing and likewise subjects with minimum 55% marks. All subjects of Post-Graduation should be related to Textiles and Clothing + NET / SET/ As per UGC norms
- Since NET is not available in Fashion Design/Fashion Technology and likewise subjects at present, hence Industry Experts/ Artisans/ Masters in fine Art & Craft will be considered.

**13. Qualification for Lab Assistant:** Diploma/ Degree in Fashion Designing/Technology and likewise subjects with good technical knowledge of sewing machines maintenance, sewing garments and Pattern making etc.

**14. Programme Objectives:** The Program Educational Objectives of M.Voc in Fashion Technology & Designing PG Program are to prepare the students:

- Excel in their professional career related to fashion, textile, quality, design, manufacturing, management and research

- Identify problems in the textile & apparel domain and provide suitable solutions focusing on the need of the industry and society
- Provides training, support and guidance for encouraging use of our traditional textile crafts in the garment export sector
- Imbibe awareness on the significance of professional and social ethics in their professional career
- Educator or Trainer in fashion schools or organizations imparting and sharing the knowledge acquired by them
- Dynamic and confident individuals who excel in any profession they have undertaken due to their strong foundation

**15. Programme Outcomes :** Program Outcomes (POs), are attributes acquired by the student

- Fashion and Fabric Theory Knowledge: Understanding Theories & Principles of Design & Construction; Traditional Textiles & Costumes, Fashion theories, Marketing, Merchandising & Quality Control.
- Design Process Knowledge: To use the understanding of elements and principles of design to create new designs on paper, graphics, textile and garments.
- Design / Develop product prototypes: Design & Construct a garment by draping/ flat pattern making/drafting to meet desired specification, performance: well-suited with client need, trend, market analysis, social and environmental considerations.
- Modern Tool Usage: Computer Knowledge and expertise to apply appropriate CAD and Computer Graphics knowledge to design and create new and industry acceptable Textures, prints, designs, silhouettes along with 2D & 3D Designs.
- Sustainability: Understanding & Applying traditional craft practices and methods to add value to a product or garment & uplift, revive the craft in line with the modern trend.
- Communication: Communicating ideas in the form of artistic fashion illustrations, graphic illustration, styling, exhibitions and visual display of merchandise, conduct a fashion event or run an organization.
- Designer and Society: Understanding the basic clothing needs of the customer based on the various criteria such as age, occupation, gender, status, etc. & apply this knowledge on a professional & human Level.
- Individual and team Work: Articulate teamwork principles, work with a multidisciplinary team, and appreciate the role of a leader, leadership principles and attitudes conducive to effective professional practices.
- Lifelong Learning: Engage in life –understand & Utilize information and communication technologies to research, evaluate, create, and communicate information as it relates to fashion design concepts at an advanced level.

## Detailed Syllabus

### M.Voc. (Fashion Technology & Designing) Scheme of Papers under CBCS Guidelines

Course Code	Name of Course	Type of Course	Credit Distribution				Marks (Scaled)		
			L	T	P	TOTAL	IA	UE	T
<b>First Semester (Total Credits: 26) Core Course: 26 Credits</b>									
MFD/1/CC/011	Fashion: Design & Development (Theory)	CC	5	1	0	6	20	80	100
MFD/1/CC/012	Indian And Global Fashion (Theory)	CC	4	0	0	4	20	80	100
MFD/1/CC/013	Quality Control in Garment Industry (Theory)	CC	4	0	0	4	20	80	100
MFD/1/CC/014	Basics of Apparel Construction (Practical)	CC	0	0	4	4	30	70	100
MFD/1/CC/015	Surface Ornamentation (Practical)	CC	0	0	8	4	30	70	100
MFD/1/CC/016	Draping (Practical)	CC	0	0	8	4	30	70	100
<b>Second Semester (Total Credit: 24) Core Course: 12 Credits, Open Electives: 8, Soft Skill: 4</b>									
MFD/2/CC/021	Fashion Merchandising (Theory)	CC	5	1	0	6	20	80	100
MFD/2/OE/022	Fashion Accessories (Theory)	OE	4	0	0	4	20	80	100
MFD/2/OE/023	Effective Dressing Skills (Theory)	OE	4	0	0	4	20	80	100
MFD/2/CC/024	Flat Pattern Design (Practical)	CC	0	0	12	6	30	70	100
MFD/2/SC/025	Fabric Study and Its Applications (Practical)	SC	0	0	4	2	30	70	100
MFD/2/SC/026	Computer Application (Practical)	SC	0	0	4	2	30	70	100
<b>Third Semester (Total Credit: 24) Core Course: 14 Credits, Open Electives: 8, Soft Skill: 2</b>									
MFD/3/OE/031	Indian Costumes (Theory)	OE	4	0	0	4	20	80	100
MFD/3/CC/032	Garment Industry Departments (Theory)	CC	6	0	0	6	20	80	100
MFD/3/CC/033	Application of Textiles in Fashion (Theory)	CC	3	1		4	20	80	100
MFD/3/CC/034	Computer Aided Designing (Practical)	CC	0		8	4	30	70	100
MFD/3/OE/035	Apparel Construction (Practical)	OE	0	0	8	4	30	70	100

MFD/3/SC/036	Craft Project (Practical)	SC	0	0	4	2	50	50	100
<b>Fourth Semester (Total Credit: 26) Core Course: 24 Credits, Soft Skill: 2</b>									
MFD/4/CC/041	Research Methodology (Theory)	CC	4	2	0	6	20	80	100
MFD/4/CC/042	Fashion Retail (Theory)	CC	4	0	0	4	20	80	100
MFD/4/SC/043	Fashion Communication (Practical)	SC	0	0	4	2	30	70	100
MFD/4/CC/044	Advanced Fashion Illustration (Practical)	CC	0	0	8	4	30	70	100
MFD/4/CC/045	Fashion Styling and Promotion (Practical)	CC		0	8	4	20	80	100
MFD/4/CC/046	Internship/ Special Project (one month)	CC	0	0	0	6	0	100	100

**Note: Core Courses (CC), Open Elective (OE), Soft Skill Course (SC)**

## SEMESTER I

<b>FASHION DESIGN &amp; DEVELOPMENT (THEORY)</b>
<b>Course Code: MFD/1/CC/011</b>
<b>Objectives:</b>
<ul style="list-style-type: none"><li>● Educate the concept related to elements and principles of design, terminology related to fashion.</li><li>● Explain theories of origin &amp; its use.</li><li>● To acquaint the students with the basic factors influencing fashion.</li><li>● To foster an understanding of international designers and their work.</li><li>● To familiarize the students with the role of a designer.</li></ul>
<b>Outcomes:</b>
<ul style="list-style-type: none"><li>● Adapt elements &amp; principles of design in context to apparel.</li><li>● Reflect the application of theories of clothing origin &amp; its use in day to day life.</li><li>● Apply knowledge of styles, silhouettes, different types of clothing, prints, etc.</li><li>● Relate the understanding of functions of clothing in apparel selection.</li><li>● Utilize skills gained for apparel design &amp; development process.</li></ul>
<b>CONTENTS:</b>
<b>Unit I: Fashion Terms and Concepts</b>
<ul style="list-style-type: none"><li>● <b>Terms for Different Types of Clothing-</b> Casual wear, Sportswear, Ethnic wear, Active wear, Formalwear, Loungewear, Swimwear, Bespoke, Capsule, Wardrobe, Corporate, Designer, Eveningwear, Haute Couture, juniors, Misses, Oversize, Petites, Reversible, Sportswear, Vintage</li><li>● <b>Terms for Different Types of Styles-</b> Androgynous (Unisex), Boho/ Bohemian, Classic, Cruise Wear, Eclectic, Edgy, Elegant, Glam, In Vogue, On Trend, Preppy, Punk, Sporty Tailored, Relaxed, Sophisticated</li><li>● <b>Terms for Different Types of Prints-</b> Floral, Stripes, Check, Dots, Geometric, Directional, Computerized, Animal, Abstract, Numerical, Alphabetical, Nursery</li><li>● <b>Fashion Cycle</b> – Fashion Leaders/ Followers/ Innovators/ Motivators/ Victims</li><li>● <b>Theories of Fashion Adoption</b> – Trickle Down, Trickle Up, Trickle Across</li></ul>
<b>Unit II: Theories of Clothing Origin</b>
<ul style="list-style-type: none"><li>● Modesty Theory</li><li>● Immodesty Theory</li><li>● Adornment Theory</li><li>● Protection Theory</li></ul>
<b>Unit III: Clothing Functions</b>



- Maslow's Hierarchy of Human Needs- Self-Actualization, Esteem, Love and Belonging, Safety, Physiological needs
- Protection
- Comfort
- Identity
- Status and Prestige
- Ornamental and Aesthetic
- Sociability and Conformity
- Insignia (Symbols & Badges)
- Hygiene & Sanitations
- Camouflaging
- Rebellion

#### **Unit IV: Understand Basic Design Concepts**

- Types of Garment Silhouettes - A-line, Hourglass, Sheath, Dropped Waist, Bell
- Types of Necklines - U, V, Boat, Asymmetric, Halter, Scallop, Scoop, Square, Sweetheart, Turtle, Plunge, Keyhole
- Types of Sleeves - Cap, Bell, Bishop, Leg-o-Mutton, Raglan, Kimono, Petal, Puff, Flounce, Shirt
- Types of Tops - Tube, Tank, Sleeveless, Blouson, Shirt, Peplum, Tunic, Polo, Peasant, Wrap
- Types of Skirts - A-line, Wrap, Mini, Midi, Maxi, Straight, Godet, Handkerchief, Yoke, Pleated, Tiered, Sarong, Pencil
- Types of Pants- Straight, Bell-bottoms, Harem, Shorts, Capri, Palazzo, Cargo, Breeches, Culottes, Bermuda

#### **Unit V: Skills required for Apparel Design & Development Process:**

- Fashion Forecasting
- Design Development
- Sourcing of Resources
- Development of a Sample Garment
- Preparation of Specification Sheet
- Preparation of Cost Sheet
- Quality Control

#### **Text Books:**

- Gini Stephens Frings (2007), Fashion Concept to Consumer 1. ` , Pearson
- Elaine Stone (2013), 2. Dynamics of Fashion, Fair Child Books
- Fred Davis (2002), Fashion, Culture and Identity, University of Chicago Press 3.

#### **Recommended Readings:**

- The Dynamics of Fashion, Elaine Stone, Fairchild Publication, 2008
- Frings Gini, Fashion-From Concept To Consumer, (5th Edition), Prentice Hall Publications, 1996
- Marshall S G, Jackson H O, Stanley Ms, Kefgen M & Specht T, (2009), Individuality In Clothing & Personal Appearance, 6th Edition, Pearson Education, USA.

- Shorie,G.P.,Vastra Vigyan KeMoolSidhant,VinodPustak Mandir, Hospital Road, Agra, 2007. (Hindi Book)
- Verma, Promila.,Vastra Vigyan Evam Paridhan,Madhya Pradesh Hindi Granth Academy, Bhopal, 2003 (Hindi Book)
- Jarnow, Jand Judelle, B.,Inside Fashion Business, Merrill Prentice Hall, New Jersey, 1987

**Journals/E – Journals:**

- International Journal of Clothing Science and Technology  
<https://www.emeraldinsight.com/loi/ijcst>
- Asian Textile Journal (ATJ) Jennifer Kwatra publications, Mumbai.  
<https://www.atjournal.com/>
- Asian Technical Textile (ATT) Jennifer Kwatra publications, Mumbai.  
<https://www.atjournal.com/journal.html>
- ATA Journal for Asia on Textile and Apparel (Open access) ADSALE publishing, Hongkong.  
<https://www.ourglobal.com/journal/?issn=10158138>

<b>INDIAN AND GLOBAL FASHION (THEORY)</b>
<b>Course Code: MFD/1/CC/012</b>
<b>Objectives:</b>
<ul style="list-style-type: none"> <li>● To make students aware about Indian fashion industry.</li> <li>● To inform the students about the importance &amp; role of social media.</li> <li>● To prepare students for the global competition.</li> <li>● To imbibe awareness on the significance of textile &amp; apparel associations &amp; institutions.</li> <li>● To acquaint the students about Indian &amp; international designers &amp; their collection.</li> </ul>
<b>Outcomes:</b>
<ul style="list-style-type: none"> <li>● Excel in their professional career related to manufacturing, management and research in the Indian fashion industry.</li> <li>● Effective participation in fashion promotion activities.</li> <li>● Understand the impact of social media &amp; its role in promotion of Indian and global fashion industry.</li> <li>● Remembering and understanding the need of various textile associations &amp; institutions required for the growth of the industry.</li> <li>● Recognize &amp; take inspiration from indian &amp; international designers &amp; their collection.</li> </ul>
<b>CONTENTS:</b>
<b>Unit I: Indian Fashion Industry: Meaning, Role, Importance at National and Global Level</b>
<ul style="list-style-type: none"> <li>● Power loom Industry</li> <li>● Handloom Industry</li> <li>● Apparel Industry</li> <li>● Fashion Industry</li> </ul>
<b>Unit II: Fashion Promotion Activities</b>

<ul style="list-style-type: none"> <li>● Fashion Fairs &amp; Trade Fairs</li> <li>● Fashion Shows, Fashion Week and Fashion Exhibitions</li> <li>● Garment Technology Trade Fair</li> <li>● Buyer-Seller Meets</li> </ul>
<b>Unit III: Social Media: Role in Promotion of Indian and Global Fashion Industry</b>
<ul style="list-style-type: none"> <li>● Social Media: Meaning and SWOT analysis</li> <li>● Role of social media in promotion of Indian fashion industry</li> <li>● Role of social media in Brand value development</li> <li>● Social Media Platforms available for promotional activities related to Fashion world</li> </ul>
<b>Unit IV: Associations &amp; Institutions</b>
<ul style="list-style-type: none"> <li>● Ministry of Textiles – Role &amp; Importance</li> <li>● Apparel Export Promotion Council</li> <li>● Textile Craft Council</li> <li>● Apparel/ Textile Parks</li> <li>● Weaver’s Craft Council, Jaipur</li> <li>● Case study of local NGO’s – Sadhna, Aavaran and Kamli Vanvaasikalyan Parishad</li> </ul>
<b>Unit V: Design Study</b>
<ul style="list-style-type: none"> <li>● Indian Designers – Sabyasachi, Manish Malhotra, Manish Arora, Ritu Kumar and Anita Dongre</li> <li>● International Designers – Alexander McQueen, Coco Chanel, Donatella Versace, Giorgio Armani</li> </ul>

**Text Books:**

- The Chronicle of western Costume, John Peacock, Thamed & Hudson, 2010.
- Stuart Robinson, 1969”A History of Printed Textiles”, Studio Vista Ltd., London.
- Gini Stephens Frings: Fashion From Concept To Consumer, Prentice Hall, N. Jersey
- Castellino, M., Fashion Kaleidoscope, Rupa Publication India Pvt Ltd, Kolkata
- Dickerson K., Inside The Fashion Business, Pearson Education, New Delhi, 2003
- Leslie D. Burns, The Business Of Fashion, Fairchild Publication, New York, 2006
- Stone E., In Fashion, Fairchild Publication, Second Edition, New York ,2012

**Recommended Readings:**

- 1 Dorothy S. Lyle & Jeanne Brinkley, Contemporary Clothing, Bennet & Mc Knigh Publishing Company, Peoria, Illinois, 1983
2. Ulla Vad Lane-Rowley, Using Design Protection In The Fashion & Textile Industry, Jhon Wiley & Sons, Ist Edition 1997
3. Venkatesan. R, &Katti, V. Indian Textile Policy For 21<sup>st</sup> Century, B R Publishing Corporation

**Journals/ E-Journals:**

- AUTEX Research Journals(AUTEXRJ) (Open access) published by Lodz University of Technology, Poland.  
<https://www.autexrj.com/>
- Canadian Textile Journal (CTJ) (Open access), St-Laurent, Quebec Canadian Textile Journal Pub. Co., Canada.

- <https://www.scimagojr.com/journalsearch.php?q=83524&tip=sid&clean=0>
- Clothing and Textiles Research Journal, SAGE Publications Asia-Pacific PTE LTD, California.  
<https://journals.sagepub.com/home/ctr>

<b>QUALITY CONTROL IN GARMENT INDUSTRY</b>
<b>Course Code: MFD/1/CC/013</b>
<b>Objectives:</b>
<ul style="list-style-type: none"> <li>• To introduce students to quality control components.</li> <li>• To acquaint the students with the production standards and professional ethics of the various quality control departments.</li> <li>• Educate the students about the concepts &amp; role of sourcing.</li> <li>• To educate regarding the tools, equipments &amp; machinery used in the spreading, cutting &amp; sewing departments.</li> <li>• Explain the importance of quality control in the garment packaging department.</li> </ul>
<b>Outcomes:</b>
<ul style="list-style-type: none"> <li>• Relate to quality control components &amp; terminology.</li> <li>• Be aware of the challenges &amp; opportunities of quality control present in the textile &amp; apparel industry.</li> <li>• Understand the term sourcing &amp; its practical applicability.</li> <li>• Enable, identify &amp; use effectively the tools, equipments &amp; machinery of the spreading, cutting &amp; sewing departments.</li> <li>• Practice quality control in the garment manufacturing departments.</li> </ul>
<b>CONTENTS:</b>
<b>Unit I: Terminology</b>
<ul style="list-style-type: none"> <li>• Quality, Quality Control, Quality Assurance, Quality Inspection, Quality Parameters</li> </ul>
<b>Unit II: Quality Parameters in Sourcing Department</b>
<ul style="list-style-type: none"> <li>• Purchasing: purchasing specs, buying by grade, testing and inspection of raw materials</li> </ul>
<b>Unit III: Quality Parameters in Spreading and Cutting Department</b>
<ul style="list-style-type: none"> <li>• Fabric Preparation for Spreading &amp; Cutting (Washing, Checking Grainline, Straightening, Pressing)</li> <li>• Spreading Quality Specifications (Alignment of Fabric, Fabric Tension, Fabric Defects, Fabric Direction, Placement of Prints/ Motifs)</li> <li>• Cutting Quality Specifications (Marker Inspection, Appropriate Cutting Tools Selection, Bundling, Sorting)</li> </ul>
<b>Unit IV: Quality Parameters in Sewing Department</b>
<ul style="list-style-type: none"> <li>• Importance of Quality Standards for Sewing Operations, In-Process Quality Inspection</li> </ul>
<b>Unit V: Quality Parameters in Packaging Department</b>
<ul style="list-style-type: none"> <li>• Garment Packaging – Defects, Workmanship, Size, Neatness, Cleanliness, Stains, Pressing</li> </ul>

**Text Books:**

- The Fundamentals of Quality Assurance in the Textile Industry Stanley Bernard Brahams, ISBN 9781498777889 Published November 14, 2016 by Productivity Press
- Garment Manufacturing Technology.,Rajkishore Nayak and Rajiv Padhye,2015,Woodhead Publishing
- Work quality Management in the textile Industry , B.Purushothama 2013,Woodhead Publishing
- Garment Manufacturing: Processes, Practices and Technology .,by Prasanta Sarkar , 2015 Paperback
- Hand Book of Garments Manufacturing Technology , Eiri Staff ,2007,Hardcover – Import

**Recommended Readings:**

- Dorothy S. Lyle & Jeanne Brinkley, Contemporary Clothing, Bennet & Mc Knigh Publishing Company, Peoria, Illinois, 1983
- Ulla Vad Lane-Rowley, Using Design Protection In The Fashion & Textile Industry, Jhon Wiley & Sons, Ist Edition 1997
- Venkatesan. R, & Katti, V.Indian Textile Policy For 21<sup>st</sup> Century, B R Publishing Corporation

**Journals/ E-Journals:**

- Colourage, Colour publications Limited, New Delhi.  
<https://colourpublications.in/colourage-journal/>
- Clothing and Textile Research Journal (CTRJ), SAGE Publications Asia-Pacific PTE LTD, California.  
<https://journals.sagepub.com/home/ctr>
- FIBERS and TEXTILES in Eastern Europe, FTEE publishers, Poland, Eastern Europe.  
<https://ftee.com.pl/>
- Indian Journal of Fiber and Textile Research, India.  
<http://op.niscair.res.in/index.php/IJFTR>

<b>BASICS OF APPAREL CONSTRUCTION (PRACTICAL)</b>
<b>Course Code: MFD/1/CC/014</b>
<b>Objectives:</b>
<ul style="list-style-type: none"> <li>● To impart knowledge about different aspects of pattern making and commercial pattern making.</li> <li>● Demonstrate the process of drafting &amp; adapting fashion garment, collars &amp; sleeves.</li> <li>● Introduce skills to organize a fashion &amp; lifestyle exhibition.</li> </ul>
<b>Outcomes::</b>
<ul style="list-style-type: none"> <li>● Understand basic &amp; advanced pattern making &amp; apply the knowledge to create patterns.</li> <li>● Utilizing the knowledge &amp; skills gained to avail income generation opportunities.</li> <li>● Capable of managing &amp; organizing fashion events.</li> </ul>
<b>CONTENTS:</b>
<b>Unit I: Preparation of the Basic Sloper for the Following</b>

<ul style="list-style-type: none"> <li>• Childs Bodice Block, Sleeve Block and Skirt Block</li> <li>• Female Bodice Block, Sleeve Block and Skirt Block</li> </ul>
<b>Unit II: Adaptation and Construction of the Following Sleeves</b>
<ul style="list-style-type: none"> <li>• Sleeve – Set in Sleeves – Plain Sleeve, Puff Gathered Top and Bottom, Bell Sleeve, Bishop Sleeve</li> <li>• Sleeveless Style - Cape Sleeve</li> <li>• Style with Bodice and Sleeve Combined – Raglan Sleeve, Kimono Sleeve, Magyar Sleeve</li> </ul>
<b>Unit III: Drafting, Adaptation and Construction of the Following Collars</b>
<ul style="list-style-type: none"> <li>• Shirt, Sailor’s, Cape, Peter Pan (Flat &amp; Raised) and Shawl Collars</li> </ul>
<b>Unit IV: Development of Fashion Garment</b>
<ul style="list-style-type: none"> <li>• Draft and Construct Child and Female Apparel</li> </ul>
<b>Unit V: Fashion Exhibition</b>
<ul style="list-style-type: none"> <li>• Exhibit Apparel and lifestyle Products</li> </ul>

**Text Books:**

- More Dress Pattern Designing, Natalie Bray, Blackwell Series, 2010
- Gerry Cooklin., Garment Technology for Fashion Designers., Book Link, USA.
- Sewing for Fashion Design. Nurie. Relis/Gail Strauss-Reston Publishing Co.

**Recommended Readings Books:**

- Reader’s Digest., Complete Guide of Sewing & Knitting, The Reader’s Digest Association Ltd., London
- Ajgaonkar, D.B., Knitting Technology, Universal Publishing Corporation, Mumbai
- Armstrong, J., Patternmaking for Fashion Design (Ii Edition), Adison, Wesely Publishing Company, 1995.

**Journals/ E-Journals:**

- Indian Textile Journal(ITJ) (Open access) ASAPP Info Global Group, India.  
<https://indiantextilejournal.com/>
- Industria Textila, Institutional National de Cercetare-Dezvoltare PentruTexttile Pielarie, Romania.  
<http://www.revistaindustriatextila.ro/>
- International Journal of Clothing Science and Technology, St-Laurent, Quebec Canadian Textile Journal Pub. Co., Canada.  
<https://www.scimagojr.com/journalsearch.php?q=12755&tip=sid&clean=0>
- International Journal of Textile and Fashion Technology (IJTFT) (Open access), Transstellar Journal Publications and Research Consultancy Private Limited (TJPRC), India.  
<http://www.tjprc.org/journals/international-journal-of-textile-and-fashion-technology229>

<b>SURFACE ORNAMENTATION (PRACTICAL)</b>
<b>Course Code: MFD/1/CC/015</b>
<b>Objectives:</b>

<ul style="list-style-type: none"> <li>● To familiarize students with various techniques of surface ornamentation for value addition.</li> <li>● To enable students to use various surface enrichments in apparel and home furnishings.</li> <li>● To develop an innovative approach in the manufacturing of products using dyeing &amp; printing, embroidery, machine sewing techniques, etc.</li> </ul>
Outcomes:
<ul style="list-style-type: none"> <li>● Discover new ideas &amp; designs using various techniques of surface ornamentation.</li> <li>● Developing new ways of thinking, seeing and creating in product designing &amp; manufacturing.</li> <li>● Perform with confidence while exploring &amp; combining various surface ornamentation techniques.</li> </ul>
<b>CONTENTS:</b>
<b>Unit I: Dyeing &amp; Printing</b>
<ul style="list-style-type: none"> <li>● Development of products with various printing techniques such as - Stencil Printing, Block Printing, Batik, Tie and Dye, Hand Painting etc.</li> </ul>
<b>Unit II: Embroidery</b>
<ul style="list-style-type: none"> <li>● Product Development using various Hand Embroidery Techniques</li> <li>● Product Development using various Machine Embroidery Techniques</li> </ul>
<b>Unit III: Machine Sewing Techniques</b>
<ul style="list-style-type: none"> <li>● Develop Home Furnishing articles using Appliqué, Patch Work, Quilting, different types of Tucks, Pleats etc.</li> </ul>
<b>Unit IV : Fabric Textures</b>
<ul style="list-style-type: none"> <li>● Developing self fabric textures using techniques such as Drawn Thread Work, Counted Thread Work etc.</li> </ul>
<b>Unit V : Fabric Texture Yarn crafts</b>
<ul style="list-style-type: none"> <li>● Developing Products using various techniques such as Macramé, Crochet etc.</li> </ul>

**Text Books:**

- Wood, D. The Practical Encyclopedia of Sewing, Anness Publishing Ltd, USA
- Surface Ornamentation Techniques ( Embroidery) Theory - I Year, Neetu Azad ,2021
- Surface Ornamentation Techniques - Embroidery 1st Semester Trade Theory, A. Mahendiran, 2018

**Recommended Readings:**

- Readers Digest, Complete Guide to Needle Work, The Readers Digest Association Inc, Pleasantville, New York

**Journals/ E-Journals:**

- International Journal of Textile Science, Scientific & Academic Publishing Co, USA.  
<http://journal.sapub.org/textile/>
- Fibers and Polymers, Springer Nature Switzerland AG.  
<https://www.springer.com/journal/12221>
- Journal of Textile Science & Engineering, Hilaris SRL, Belgium.  
<https://www.hilarispublisher.com/textile-science-engineering.html>
- Journal of Textile Engineering, J-Stage, Japan.

<b>DRAPING (PRACTICAL)</b>
<b>Course Code: MFD/1/CC/016</b>
<b>Objective:</b>
<ul style="list-style-type: none"><li>● To enable the students to obtain perfect fit and harmony between the fabric &amp; design of the garment.</li><li>● Educate &amp; aware the students about the various fabric characteristics &amp; terms.</li><li>● Impart draping skills for understanding &amp; performing creative draping.</li></ul>
<b>Outcomes:</b>
<ul style="list-style-type: none"><li>● Student will excel in the job responsibility entrusted on him or her.</li><li>● Relate &amp; apply the knowledge of fabric characteristics while performing practical jobs as well as in day to day life.</li><li>● Dynamic and confident individuals who excel in any adaptation &amp; draping.</li></ul>
<b>CONTENTS:</b>
<b>Unit I: Fabric Characteristics and Terms</b>
<ul style="list-style-type: none"><li>● Method of draping - types of dress forms.</li><li>● Preparation of fabric for draping, seam allowances, marking and tracing, making basic front and back, bodice block by draping on dress form.</li></ul>
<b>Unit II: Bodice Adaptation</b>
<ul style="list-style-type: none"><li>● Asymmetrical Darts</li><li>● Bodice Styles: Classic Princess Drape, Armhole Princess Line, Panel Bodice, Halter Style Line, Off Shoulder, Cowl, Surplice.</li></ul>
<b>Unit III : Skirt Adaptation</b>
<ul style="list-style-type: none"><li>● A-Line</li><li>● Flared</li><li>● Panel</li><li>● Stylized Yoke With Flare, Gathers &amp; Pleats</li></ul>
<b>Unit IV: Draping Apparels</b>
<ul style="list-style-type: none"><li>● Skirts</li><li>● Top</li><li>● One Piece Dress</li></ul>
<b>Unit V: Creative Draping</b>
<ul style="list-style-type: none"><li>● Draping of creative dress using Newspapers, Waste Products, etc.</li></ul>

**Text Books:**

- Abling, Bina and Maggio, Kathleen. 2008. Integrating draping, drafting and drawing, Fairchild Books, Inc.
- Patternmaking for Fashion Design, Helen Joseph-Armstrong, 4th Edition, Pearson Publication, 2012,
- Draping for Apparel Design, 2013, Helen Joseph-Armstrong
- Cutting & Sewing Theory, Gayatri Verma & Kapil Dev, Asian Publishers, 2015



- Armstrong, H Joseph., (2000). Draping For Apparel Design, Fairchild, New York

### **Recommended Readings:**

- Crawford, C.A., The Art Of Fashion Draping, Fairchild Publications, New York.
- Hillhouse, M.S. And Mansfield, E.A., Dress Design- Draping And Flat Pattern, London.
- Sheldon, Maratha Gene., Design Through Draping, Usa Burgers Publishing Company.

### **Journals/ E-Journals:**

- Journal of Fashion Technology & Textile Engineering, Scitechnol publications, Switzerland.  
<https://www.scitechnol.com/fashion-technology-textile-engineering.php>
- Journal of Textile (Open access), Hindawi Limited, UK.  
<https://www.hindawi.com/journals/jtex/#:~:text=Journal%20of%20Textiles%20has%20ceased,archiving%20for%20electronic%20scholarly%20journals>
- Journal of Industrial Textile (JIT), SAGE Publications Asia-Pacific PTE LTD, USA.
- Journal of Industrial Textiles - All Issues (sagepub.com)
- Journal of Textile Institute(JTI), Taylor and Francis, UK.  
<https://www.tandfonline.com/journals/tjti20>
- Pakistan Textile Journal(PTJ) (Open access), Nadeem Mazhar, Pakistan.  
<https://ptj.com.pk/>

## SEMESTER II

<b>FASHION MERCHANDISING (THEORY)</b>
<b>Course Code: MFD/2/CC/021</b>
<b>Objectives:</b>
<ul style="list-style-type: none"><li>● To acquaint students with basics of merchandising.</li><li>● To introduce the concept of sourcing strategies and sales promotion.</li><li>● Educate the concept of Standardization and Quality Control in Apparel Industry.</li><li>● Imbibe awareness about Visual Merchandising &amp; its Application in marketing.</li></ul>
<b>Outcomes:</b>
<ul style="list-style-type: none"><li>● Apply the knowledge of merchandising to excel in his/her profession.</li><li>● Demonstrate understanding to successfully create visual display's to promote marketing.</li><li>● Articulate teamwork in the sourcing process.</li><li>● Implement Standardization requirement in the Production process.</li></ul>
<b>CONTENTS:</b>
<b>Unit I: Merchandising</b>
<ul style="list-style-type: none"><li>● Meaning &amp; Definition of Merchandising</li><li>● Responsibilities of Merchandiser</li></ul>
<b>Unit II: Introduction to Standardization and Quality Control in Apparel Industry</b>
<ul style="list-style-type: none"><li>● Importance of Consumer Perception of Apparel Quality</li><li>● Managing apparel quality through inspection and sampling procedures</li></ul>
<b>Unit III: Sourcing</b>
<ul style="list-style-type: none"><li>● Stages of Sourcing</li><li>● Global Sourcing</li><li>● The role of merchandiser in sourcing</li></ul>
<b>Unit IV: Fashion Visual Merchandising</b>
<ul style="list-style-type: none"><li>● Functions of Visual Merchandising</li><li>● Elements of Visual Merchandising</li></ul>
<b>Unit V: Visual Merchandising Application</b>
<ul style="list-style-type: none"><li>● Store Exteriors, Interiors &amp; Windows – Image</li><li>● Elements of Display – Merchandise, Props, Signage, Lighting, Fixtures, Mannequins, Floral &amp; Graphics</li></ul>

### **Text Books:**

- Fashion Merchandising ,Vasant Kothari,2011
- Fashion Merchandising Principles and Practice,James Clark,2014, 2nd Edition ,Springer Publication .
- Fashion and Style,Mariana Draws & Elya Lams ,2013,Canadian Agricultural Adaptation Program
- Fashion Retailing and Visual Merchandising ,JNU, Jaipur, First Edition 2013
- Fashion Marketing,Mike Easey,2009,A John Wiley & Sons, Ltd., Publication
- Rosenau, J. A., Wilson David L. David., Apparel Merchandising-The Line Starts Here, Fairchild Publications, New York.2006

- Mehta, Pradeep., Managing Quality In The Apparel Industry, New Age International Pvt. Limited,2004

**Recommended Readings:**

- Stone, Elaine. & Samples, J.A., Fashion Merchandising, Mc Graw Hill Book Co. New York
- Swanson, Kristen K. & Everett, Judith C., Promotion In The Merchandising Environment, Fairchild Publications, New York.2000.
- (38) Fashion Merchandising | vasant kothari - Academia.edu
- (38) Fashion and Style Reference Guide.pdf | Marianna Draws - Academia.edu
- Fashion merchandising (slideshare.net)
- (PDF) Fashion marketing (researchgate.net)
- Introduction to fashion merchandising (textiletoday.com.bd)

**Journals/ E-Journals:**

- Journal of Textile Institute (JTI), Taylor and Francis, UK.  
<https://www.tandfonline.com/journals/tjti20>
- Pakistan Textile Journal (PTJ) (Open access), Nadeem Mazhar, Pakistan.  
<https://ptj.com.pk/>
- The Journal of Cloth and Culture (JCC), Taylor and Francis Ltd., UK.  
<https://journals.indexcopernicus.com/journal/11926>
- Textile Research Journal, SAGE Publications Asia-Pacific PTE LTD, USA.  
<https://journals.sagepub.com/home/trj>
- Textile Asia (Open access) Business Press Ltd, Hongkong.  
<https://www.textilesasia.com/>

<b>FASHION ACCESSORIES (THEORY)</b>	
<b>Course Code: MFD/2/OE/022</b>	
<b>Objectives:</b>	<ul style="list-style-type: none"> <li>● To acquaint students of the different trims, components, accessories and embellishments used as fashion accessories.</li> <li>● To make them acquire skills essential to effectively design &amp; use accessories.</li> <li>● Aware the students about the difference between worn &amp; carried accessories.</li> <li>● Introduction of the Indian &amp; global fashion accessory industry.</li> </ul>
<b>Outcomes:</b>	<ul style="list-style-type: none"> <li>● Apply the knowledge of accessories while choosing accessories.</li> <li>● Classify &amp; compare between types of accessories.</li> <li>● Design &amp; develop accessories based on the current trends.</li> <li>● Understand and analyze the market trends and design market friendly, sustainable, ethically viable and client friendly designs and products.</li> </ul>
<b>CONTENTS:</b>	
<b>Unit I: Fashion Accessories</b>	

<ul style="list-style-type: none"> <li>● Definition, Meaning</li> <li>● Classification – Worn and Carried</li> <li>● Importance and Uses of Fashion Accessories</li> </ul>
<b>Unit II: Worn Accessories</b>
<ul style="list-style-type: none"> <li>● Belts &amp; Suspenders</li> <li>● Gloves</li> <li>● Hats (Fedora, Straw Hat, Cowboy, Helmet, Party hat, Pillbox, Sun hat, Lampshade, Cap, Hood)</li> <li>● Scarves</li> <li>● Jewelry</li> <li>● Glasses</li> <li>● Wigs</li> <li>● Watches</li> <li>● Footwear (Sneaker, Stiletto, Kitten Heel, Ballets, Wedges, Ankle Boots, Cowboy shoes, Slippers, Peep toe, Clogs, Mules, Strappy Sandals)</li> </ul>
<b>Unit III: Carried Accessories</b>
<ul style="list-style-type: none"> <li>● Handbags – Types (Clutch, Tote bag, Pouch, Shoulder Bag, Sling/Cross body Bag, Duffle, Bag pack) &amp; different materials used.</li> <li>● Hand kerchief</li> <li>● Umbrella</li> </ul>
<b>Unit IV: Global Fashion Accessory Industry</b>
<ul style="list-style-type: none"> <li>● Top International Fashion Accessory Brands – Origin, Logo &amp; Products (Chanel, Burberry, Armani, Gucci, Dior)</li> </ul>
<b>Unit V: Indian Fashion Accessory Industry</b>
<ul style="list-style-type: none"> <li>● Top Indian Fashion Accessory Brands – Origin, Logo &amp; Products (Chumbak, Baggit, FabIndia, Bata, Voylla)</li> </ul>

**Text Books:**

- HOME ECONOMICS – FASHION ACCESSORIES- Module 1, Jelbeth Janice C. Agapay ,First Edition 2020,Published by the Department of Education – Division of Cagayan de Oro Schools Division Superintendent:
- Basics Fashion design -09 :Designing Accessories:Exploring the Design.John Lau,2012 AVA Publishing
- Fashion Accessories (Studies in Fashion) ,Olivier Gerval,2010.Paperback Publishers

**Recommended Readings: :**

- Individuality in clothing selection and personal appearance By Suzanne G Marshall, Prentice hall.
- Fashion from concept to consumer By Gini Stephens, Prentice hall

**Journals/ E-Journals:**

- International Journal of Clothing Science and Technology  
<https://www.emeraldinsight.com/loi/ijcst>

- Asian Textile Journal (ATJ) Jennifer Kwatra publications, Mumbai.  
<https://www.atjournal.com/>
- Asian Technical Textile (ATT) Jennifer Kwatra publications, Mumbai.  
<https://www.atjournal.com/journal.html>
- ATA Journal for asia on Textile and Apparel (Open access) Adsale publishing, Hongkong.  
<https://www.ourglocal.com/journal/?issn=10158138>
- AUTEX Research Journals(AUTEXRJ) (Open access) published by Lodz University of Technology, Poland.  
<https://www.autexrj.com/>

<b>EFFECTIVE DRESSING SKILLS (THEORY)</b>	
<b>Course Code: MFD/2/OE/023</b>	
<b>Objectives:</b>	
<ul style="list-style-type: none"> <li>● To equip the students with basic knowledge and skills required for making the required minor alterations in readymade garments to get the correct look and fit.</li> <li>● To help develop the ability to recognize and evaluate quality workmanship and making wise buying decisions.</li> <li>● To help learn the ways to leverage various optical illusions of line, colour and texture to create the right impression with clothes and accessories.</li> <li>● To help the students in acquiring skills for dressing up effectively for special occasions including interviews.</li> </ul>	
<b>Outcomes:</b>	
<ul style="list-style-type: none"> <li>● Create an awareness of the differences in body types and about the art of selecting styles that enhance the visual appeal.</li> <li>● Students apply the knowledge of the required dressing styles and skills for various professions.</li> <li>● Understand the role of effective dressing in making one's presence felt in personal &amp; professional life.</li> <li>● Excel in their profession as a fashion stylist.</li> </ul>	
<b>CONTENTS:</b>	
<b>Unit I: Body Types</b>	
<ul style="list-style-type: none"> <li>● Pear</li> <li>● Inverted Triangle</li> <li>● Round</li> <li>● Hourglass</li> <li>● Straight</li> </ul>	
<b>Unit II: Clothing Selection Criteria</b>	

<ul style="list-style-type: none"> <li>● Season/Climate</li> <li>● Body Types</li> <li>● Occasion</li> <li>● Age</li> <li>● Occupation</li> <li>● Socio Economic Status</li> <li>● Fabric</li> <li>● Workmanship and Fitting</li> <li>● Price</li> </ul>
<b>Unit III: Psychological and Sociological Influences of Clothing</b>
<ul style="list-style-type: none"> <li>● How Dress Affects Behavior</li> <li>● Non Verbal Communication: First Impression</li> <li>● Verbal Communication: Halo Effect Self Concept &amp; Image</li> </ul>
<b>Unit IV: Effective use of Line &amp; Color in Apparels</b>
<ul style="list-style-type: none"> <li>● Line – Effect on Dresses</li> <li>● Color – Effect on Dresses</li> </ul>
<b>Unit V: Care and Maintenance of Wardrobe-</b>
<ul style="list-style-type: none"> <li>● Daily and Periodic Care</li> <li>● Storage</li> <li>● Cleaning-Wet and Dry</li> <li>● Stain Removal</li> </ul>

**Text Books:**

- Navneet Kaur, 2010, Comdex Fashion Design, Dreamtech Press
- Elizabeth Liechty, Steineckert D., Rasband J., 2009, Fitting And Pattern Alteration, Fairchild Publication

**Recommended Readings:**

- Sturm M, 1973, Guide To Modern Clothing McGraw- Hill
- Chata Romano, 2002, Plan Your Wardrobe, New Holland Publication

**Journals/ E-Journals:**

- Canadian Textile Journal (CTJ) (Open access), St-Laurent, Quebec Canadian Textile Journal Pub. Co., Canada.  
<https://www.scimagojr.com/journalsearch.php?q=83524&tip=sid&clean=0>
- Clothing and Textiles Research Journal, SAGE Publications Asia-Pacific PTE LTD, California.  
<https://journals.sagepub.com/home/ctr>
- Colourage, Colour publications Limited, New Delhi.  
<https://colourpublications.in/colourage-journal/>
- Clothing and Textile Research Journal (CTRJ), SAGE Publications Asia-Pacific PTE LTD, California.  
<https://journals.sagepub.com/home/ctr>
- FIBERS and TEXTILES in Eastern Europe, FTEE publishers, Poland, Eastern Europe.  
<https://ftee.com.pl/>

- Indian Journal of Fiber and Textile Research, India.  
http://op.niscair.res.in/index.php/IJFTR

<b>FLAT PATTERN DESIGN (PRACTICAL)</b>
<b>Course Code: MFD/2/CC/024</b>
<b>Objectives:</b>
<ul style="list-style-type: none"> <li>● To develop an understanding of various types of pattern making.</li> <li>● To acquaint students with the techniques of flat pattern design.</li> <li>● To introduce students to the concepts of dart shifting &amp; dart manipulation.</li> <li>● To foster an understanding of redesigning of old apparel through flat pattern technique.</li> </ul>
<b>Outcomes:</b>
<ul style="list-style-type: none"> <li>● Draft patterns using the different pattern making techniques.</li> <li>● Understand the different types of dart sifting methods.</li> <li>● Convert darts for creating different elements of the garment.</li> <li>● Re-create new designs of an old apparel using flat pattern designing.</li> </ul>
<b>CONTENTS:</b>
<b>Unit I : Introduction to Techniques in Pattern Making</b>
<ul style="list-style-type: none"> <li>● Drafting</li> <li>● Flat Pattern Method</li> <li>● Draping</li> </ul>
<b>Unit II : Flat Pattern Design on Bodice Block through Dart Manipulation:</b>
<ul style="list-style-type: none"> <li>● Moving, Dividing and Combining Darts by Pivot &amp; Slash and Spread</li> </ul>
<b>Unit III : Converting Dart into</b>
<ul style="list-style-type: none"> <li>● Seam Lines, Gathers, Pleats, Tucks, and Yokes</li> </ul>
<b>Unit IV : Dart Manipulation</b>
<ul style="list-style-type: none"> <li>● Moving Basic Dart by Slash and Pivot Method</li> <li>● Decorative Darts</li> <li>● Darts, Tucks and Pleats</li> <li>● Converting Dart to Flare</li> <li>● Style Lines and Yokes</li> </ul>
<b>Unit V : Redesigning of Old Apparel through Flat Pattern Technique</b>

**Text Books:**

- Relis, Nurie., & Jaffe, Hilde., Draping For Fashion Design, Prentice Hall Career & Technology, New Jersey.1993
- Armstrong, J., Draping For Fashion Design, Fair Child Publications ,New York.2004
- Pattern Making for Fashion Design, Helen J Armstrong, Prentice Hall. UK , 2009
- Pattern Grading for Women`s Clothes, Gerry Cooklin, Wiley India Pvt. Ltd., 2009
- Encyclopedia of Dress Making, Raul Jewel,APH Publishing, 2015
- Garment Technology for Fashion Designers Gerry Cooklin, Book Link. Wiley-Blackwell. US, 2012
- Pattern Cutting & Making Up, Martin Shoben & Janet Ward, CBS Publishers, 1999

**Recommended Readings:**

- Hanford, Jack. Professional Pattern Grading: For Women's, Men's And Children's
- Pamela, C. Stringer., (1995). Pattern Drafting For Dress Making, Augustan Publishers & Distributors, Delhi.
- Holman., Pattern Cutting Made Easy: A Step By Step Introduction, Om Publications
- Principles of Pattern Making & Grading -  
[http://buc.edu.in/sde\\_book/fashion\\_design.pdf](http://buc.edu.in/sde_book/fashion_design.pdf)
- The Fashion Sketch Book -  
<https://www.google.co.in/search?q=historic+textiles+book+pdf&oq=historic+textiles+book+pdf&aqs=chrome..69i57.9805j0j8&sourceid=chrome&ie=UTF->

**Journals/ E-Journals:**

- Indian Textile Journal(ITJ) (Open access) ASAPP Info Global Group, India.  
<https://indiantextilejournal.com/>
- Industria Textila, Institutional National de Cercetare-Dezvoltare PentruTexttile Pielarie, Romania.  
<http://www.revistaindustriatextila.ro/>
- International Journal of Clothing Science and Technology, St-Laurent, Quebec Canadian Textile Journal Pub. Co., Canada.  
<https://www.scimagojr.com/journalsearch.php?q=12755&tip=sid&clean=0>
- International Journal of Textile and Fashion Technology (IJTFT) (Open access), Transstellar Journal Publications and Research Consultancy Private Limited (TJPRC), India.  
<http://www.tjprc.org/journals/international-journal-of-textile-and-fashion-technology229>
- International Journal of Textile Science, Scientific & Academic Publishing Co, USA.  
<http://journal.sapub.org/textile/>
- Fibers and Polymers, Springer Nature Switzerland AG.  
<https://www.springer.com/journal/12221>

<b>FABRIC STUDY AND ITS APPLICATIONS (PRACTICAL)</b>	
<b>Course Code: MFD/2/SC/025</b>	
<b>Objectives:</b>	<ul style="list-style-type: none"> <li>● The student will be familiarized with the various fabrics and accessories available in the market.</li> <li>● The students will be able to understand the basic dimensions of fabric properties.</li> <li>● To familiarize with the trims &amp; accessories available in the market.</li> <li>● To enhance the knowledge of various fabrics &amp; trims while preparing scrap book.</li> <li>● To acquaint the concept of color fastness, dimensional stability,etc. In fabrics &amp; trims.</li> </ul>
<b>Outcomes:</b>	



<ul style="list-style-type: none"> <li>• Understand &amp; identify the properties of different fabrics.</li> <li>• Excel in appropriate selection of trims &amp; fabrics as per design requirement.</li> <li>• Relate to the effective use &amp; design of various trims with regard to the garment specifications.</li> <li>• Analyze available trims &amp; accessories in line with the current market trend.</li> </ul>
<b>CONTENTS:</b>
<b>Unit I: Exploration in terms of fall, handle, drape and use of variety of following fabrics</b>
<ul style="list-style-type: none"> <li>• Cotton Fabrics</li> <li>• Silk Fabrics</li> <li>• Woolen Fabrics</li> <li>• Synthetic Fabrics</li> <li>• Other Fabrics</li> <li>• Lining And Interlinings</li> </ul> <p>Pay special attention to type of fabric, basic weave, thread count, balance, end use of fabric, and its general care</p>
<b>Unit II: Preparation of scrap book for fabrics related to various fabric construction techniques (felting/knitting/weaving/braiding etc).</b>
<b>Unit III: Understanding the Characteristics, Uses of various types of Trims &amp; Accessories</b>
<ul style="list-style-type: none"> <li>• Support Materials: Interfacing, Lining, Interlining</li> <li>• Support Devices: Shoulder Pad, Sleeve Headers And Collar Stays</li> <li>• Closures: Zippers, Buttons, Button Holes, Hooks 'N' Eye, Press 'N' Studs, Buckles, Belts</li> <li>• Trims: Ribbons, Laces And Braids</li> <li>• Non Woven</li> </ul>
<b>Unit IV: Market Survey and Collection of various types of Trims &amp; Accessories</b>
<b>Unit V: Analyzing Fabric Samples For:</b>
<ul style="list-style-type: none"> <li>• Colorfastness to Washing, Ironing, Crocking, Sunlight and Perspiration.</li> <li>• Dimensional Stability</li> <li>• Dyeing And Printing Defects</li> </ul>

**Text Books:**

- Understanding Fabrics, Akshay Fabrics, Sarv International, 2017
- Raoul Jewel (2001), Encyclopedia of Dress Making, APH Publication Corporation
- Dana Willard (2012), Fabrics A-to-Z: The Essential Guide to Choosing and Using Fabric for Sewing, Harry N Abrams
- Clive Hallett (2014), Fabric to Fashion, Laurence King Publishing
- Fabric Source & Marketing, Bombay. (Monthly Magazine).
- Penelope, Cream., The Complete Book Of Sewing- A Practical Step By Step Guide To Sewing Techniques Adk Publications Book, New York 1996
- Drudi, Elisabetta, Kuky., Fabric Textures And Patterns, He Pepin Press, Singapore, 2008.
- Hallet.C., Johnston.A., Fabric For Fashion- A Comprehensive Guide To Natural Fibers, Laurence King Publishing Ltd., London, 2010.

- Hallet. C, Johnston.A., Fabric For Fashion-The Swatch Book, Laurence King Publishing Ltd., London, 2010

**Recommended Readings:**

- Humphries., Fabric Reference (Ii Edition), Prentice Hall International, New York, 2000.
- Fashion Studies –Text Book  
[http://cbseacademic.in/web\\_material/doc/fashion\\_studies/3\\_XII\\_Text\\_Book.pdf](http://cbseacademic.in/web_material/doc/fashion_studies/3_XII_Text_Book.pdf)
- Fabric Study -  
[http://cbse.nic.in/publications/vocational/Fashion%20Design%20and%20Garment%20Technology/Fabric%20Study%20-%20\(Textbook%20+%20Practical%20Manual\)%20XII.pdf](http://cbse.nic.in/publications/vocational/Fashion%20Design%20and%20Garment%20Technology/Fabric%20Study%20-%20(Textbook%20+%20Practical%20Manual)%20XII.pdf)
- Fashion & Style -  
[http://www.gov.pe.ca/photos/original/4hsk\\_fashionRG.pdf](http://www.gov.pe.ca/photos/original/4hsk_fashionRG.pdf)

**Journals/ E-Journals:**

- Journal of Textile Science & Engineering, Hilaris SRL, Belgium.  
<https://www.hilarispublisher.com/textile-science-engineering.html>
- Journal of Textile Engineering, J-Stage, Japan.  
<https://www.jstage.jst.go.jp/browse/jte/>
- Journal of Fashion Technology & Textile Engineering, Scitechnol publications, Switzerland.  
<https://www.scitechnol.com/fashion-technology-textile-engineering.php>
- Journal of Textile (Open access), Hindawi Limited, UK.  
<https://www.hindawi.com/journals/jtex/#:~:text=Journal%20of%20Textiles%20has%20ceased,archiving%20for%20electronic%20scholarly%20journals>
- Journal of Industrial Textile (JIT), SAGE Publications Asia-Pacific PTE LTD, USA.
- Journal of Industrial Textiles - All Issues (sagepub.com)

<b>COMPUTERS APPLICATIONS (PRACTICAL)</b>
<b>Course Code: MFD/2/SC/026</b>
<b>Objectives:</b>
<ul style="list-style-type: none"> <li>● Develop a basic concept of computers &amp; its structure.</li> <li>● Enable students to understand the working of ms office and its use in organizations.</li> <li>● Enable students to work with professional documents i.e. Records, letters, and resumes, spec sheets, cost sheets and presentations for themes or collections.</li> <li>● Develop ability to use internet and various search engines for academic purpose</li> </ul>
<b>Outcomes:</b>
<ul style="list-style-type: none"> <li>● Enhance their capacity of working with ms office.</li> <li>● Professional readiness in using basic computer applications.</li> <li>● Independent creation of documents such as resumes, letters, spec sheets, presentations, etc.</li> <li>● Use internet facilities while designing &amp; developing garments.</li> </ul>
<b>CONTENTS:</b>

<b>Unit I :Windows</b>
<ul style="list-style-type: none"> <li>● Start and shutdown of windows. Starting different applications. Using applications like calculator, paint, word</li> <li>● Observe various features of windows like menus, push buttons, drop down list, check boxes, option buttons etc.</li> <li>● Perform file management operations such as copying, deleting, renaming, creating folders, renaming folders using - My computer, Windows Explorer, searching files and folders.</li> <li>● Change windows format such as wallpaper, date &amp; time format, Installing printer, installing &amp; removing programs by using add /remove programs, change display properties</li> </ul>
<b>Unit II: Microsoft Word</b>
<ul style="list-style-type: none"> <li>● Type sample bio data</li> <li>● Type a report with pictures on social and environmental issues</li> <li>● Type an application for job</li> <li>● Prepare a time table in tabular format</li> </ul>
<b>Unit III :Microsoft Excel</b>
<ul style="list-style-type: none"> <li>● Create a sample result sheet of your class</li> <li>● Create salary sheet for Employees</li> </ul>
<b>Unit IV :Internet</b>
<ul style="list-style-type: none"> <li>● Creation of email account</li> <li>● Send E-mail, Receive E-Mail (use attachment)</li> <li>● Management of email accounts</li> <li>● Searching information on internet</li> </ul>
<b>Unit V: Microsoft PowerPoint</b>
<ul style="list-style-type: none"> <li>● Creating PowerPoint presentation, Running presentation</li> <li>● Applying design template, background, transition effects, animation to slide</li> <li>● Preparing custom presentations</li> </ul>
<b>Assignments:</b>
<ul style="list-style-type: none"> <li>● Students are required to write an article in MS-Word on any well known fashion designer from any fashion magazine. It should include his/her personal details, photo, major achievements, contribution to the fashion world, glimpses of his/her work. The article should be properly formatted, placement of the pictures in alignment with the text matter with a suitable caption, name of the author etc.</li> <li>● Students are required to prepare a Powerpoint presentation on any popular brand of fashion using the available information. The presentation should use the support of clip arts, drawing objects, external image files, texts with 3D effects, patterns, gradients, backgrounds and templates. The ideas and communication should be easily conceivable by the audience.</li> </ul>

**Text Books:**

- Comdex Computer Course, Vikas Gupta, PM Publications, 2015
- Mastering MS Office – 2000 by Tech Media

- Abhay Upadhyay, Elementary Of Computers.
- Peter Norton, “Introduction To Computers”, Tmh, 2001
- Mastering Word 2000 – Mansfield And Olsen
- Mastering Excel 2000 – Martin, Hansen, Klingher& Beth
- Courter, “Mastering Office 2000”, Bpb Publications.
- Bill Bruck, “Ms-Office 2000”, Tmh.

**Recommended Readings:**

- Robbins, “Mastering Dos”, Bpb Publications
- Content Development Group, “Working WithMs Office 2000”, Tmh
- Mansfield & Olsen, “Mastering Word 2000”, Bpb Publications
- Martin, Hansen, Klingher& Beth, “Mastering Excel 2000”, Bpb Publications
- Murray, “Mastering Power Point 2000”, Bpb Publications.
- Mahapatra & Sinha, “Essentials Of Information Technology”, Dhanpat Rai Publishing
- <http://freecomputerbooks.com/microsoftOfficeBooks.html>

**Journals/ E-Journals:**

- Pakistan Textile Journal(PTJ) (Open access), Nadeem Mazhar, Pakistan.  
<https://ptj.com.pk/>
- The Journal of Cloth and Culture (JCC), Taylor and Francis Ltd., UK.  
<https://journals.indexcopernicus.com/journal/11926>
- Textile Research Journal, SAGE Publications Asia-Pacific PTE LTD, USA.  
<https://journals.sagepub.com/home/trj>
- Textile Asia (Open access) Business Press Ltd, Hongkong.  
<https://www.textilesasia.com/>

**SEMESTER III**

<b>INDIAN COSTUMES (THEORY)</b>
<b>Course Code: MFD/3/OE/031</b>
<b>Objectives:</b>
<ul style="list-style-type: none"> <li>● To learn the regional splendors of Indian consumers.</li> <li>● To give knowledge about various traditional Indian draping styles.</li> <li>● To give them knowledge about ornaments worn by common as well as royal people.</li> <li>● Educate the reason &amp; importance of headgear’s worn.</li> <li>● Acquaint the students about the traditional embroideries &amp; textiles of Rajasthan.</li> </ul>
<b>Outcomes:</b>

<ul style="list-style-type: none"> <li>● Design contemporary styles by a thorough study of regional heritage.</li> <li>● Develop the skill of adapting basic silhouettes for designing.</li> <li>● Incorporate the knowledge about traditional ornaments into contemporary style to suit current trends.</li> <li>● Identify &amp; revive the traditional sari's of India with a sustainable approach.</li> <li>● Create &amp; design contemporary garments using traditional embroideries &amp; textiles of Rajasthan.</li> </ul>
<b>CONTENTS:</b>
<b>Unit I: Indian Male Costume</b>
<ul style="list-style-type: none"> <li>● <b>Topwear</b> - Kurta, Sherwani, Angrakha, Nehru Jacket, Achkan, Jama, Jodhpuri Jacket, Shirt, Choga, Bandhgala, Barabandi, Pheran, Jhabba, Pathani Suit</li> <li>● <b>Bottomwear</b> – Pyjama, Dhoti, Lungi, Breeches, Churidar</li> </ul>
<b>Unit II: Indian Accessories</b>
<b>(A) Male Accessories</b>
<ul style="list-style-type: none"> <li>● <b>Male Headgear</b> – Turban, Pheta, Dastar, Sikh Pagdi, Mysore Peta, Rajasthani Safa, Rajasthani Padgi, Gandhi Topi, Kashmiri Skull cap(karakuli), Puneri Turban, Kullu/Pahari Topi</li> <li>● <b>Footwear</b> – Mojri, Kolhapuri Chappal, Jutti</li> <li>● <b>Male Jewelry</b> – Chain, Kada, Ear Studs, Rings, Kamarbandh</li> </ul>
<b>(B) Female Accessories -</b>
<ul style="list-style-type: none"> <li>● Head Jewelry - Maangtika, Jhoomar, Bor, Rakhdi, Sheeshphool</li> <li>● Neck Jewelry - Choker, Mangalsutra, Chain, Haar, Mandalia, Hansli</li> <li>● Hand Jewelry – Bajubandh, Haathphool, Kangan, Kada, Rings</li> <li>● Ear &amp; Nose Jewelry – Jhumkha, Karnphool, Baali, Tops, Nose Pin, Nath</li> <li>● Waist Jewelry – Kandora, Satka</li> <li>● Ankle and Feet Jewelry – Payal, Kada, Ghungroo, Bichhyia</li> <li>● <b>Footwear</b> – Mojri, Kolhapuri Chappal, Jutti</li> </ul>
<b>Unit III: Indian Female Costume</b>
<ul style="list-style-type: none"> <li>● Sari, Sari-lehenga, Salwar suit, Pheran, Rajputi Poshak, Mekhla-Chadar, Parkar Polki, Ghagra Choli, Odhani, Churidar, Salwar, Gharara, Sharara, Anarkali</li> </ul>
<b>Unit IV: Traditional Indian Sari's</b>
<ul style="list-style-type: none"> <li>● Patola, Baluchari, Banarasi, Bandhani, Leheriya, Bomkai, Chanderi, Jamdani, Chikankari, Ilkal, Kasavu, Kanjeevaram, Pochampalli, Paithani, Venkatgiri, Tant, Sambhalpuri</li> </ul>
<b>Unit V: Traditional Embroideries &amp; Textiles of Rajasthan</b>
<ul style="list-style-type: none"> <li>● Embroidery – Danka, Zari, Gota Patti, Mukesh, Aari-Tari, Zardosi, Mochi Bharat, Heer Bharat, Karchobi zari</li> <li>● Textiles – Pichwai of Nathdwara, Phad painting, Sanganeri printing, Bagru, Dabu, Bandhani, Leheriya, Bhupalshahi, Samandar leheriya, Mothra, Kota doria</li> </ul>

**Text Books:**

- Indian Costumes, A. Biswas ,2017,Publications Division Ministry of Information & Broadcasting

- The Costumes and Textiles of India: Brij Bhushan, Jamila. , 1958 Taraporevala, Bombay Publishers

**Recommended Books:**

- Annual reports of Textile Ministry
- Crafts of India - Handmade in India – Aditi Ranjan & MP Ranjan, Council of Handicraft Development Corporations
- Craft traditions of India - <http://www.ncert.nic.in/NCERTS/l/lehc1ps.pdf>
- <https://www.mooc-list.com/course/recovering-humankinds-past-and-saving-universal-heritagecoursera>

**Journals/ E-Journals:**

- International Journal of Clothing Science and Technology  
<https://www.emeraldinsight.com/loi/ijcst>
- Asian Textile Journal (ATJ) Jennifer Kwatra publications, Mumbai.  
<https://www.atjournal.com/>
- Asian Technical Textile (ATT) Jennifer Kwatra publications, Mumbai.  
<https://www.atjournal.com/journal.html>
- ATA Journal for Asia on Textile and Apparel (Open access) Adsale publishing, Hongkong.  
<https://www.ourglocal.com/journal/?issn=10158138>
- AUTEX Research Journals(AUTEXRJ) (Open access) published by Lodz University of Technology, Poland.  
<https://www.autexrj.com/>

<b>GARMENT INDUSTRY DEPARTMENTS (THEORY)</b>
<b>Course Code: MFD/3/CC/032</b>
<b>Objectives:</b>
<ul style="list-style-type: none"> <li>● To give knowledge about various departments of garment manufacturing industry.</li> <li>● Introduce the working of the designing &amp; sampling department &amp; the role of the merchandiser.</li> <li>● To study about basic tools used in the cutting &amp; stitching departments.</li> <li>● Inculcate values &amp; ethics of the various garment industry departments.</li> </ul>
<b>Outcomes:</b>
<ul style="list-style-type: none"> <li>● Gain knowledge of the role &amp; responsibilities of a merchandiser in various departments.</li> <li>● Capable of using various tools &amp; machineries of the different departments.</li> <li>● Effectively apply his/her knowledge to fulfill the role of a professional.</li> <li>● Remember and understand the importance of process &amp; flow of the garment industry.</li> </ul>
<b>CONTENTS:</b>
<b>Unit I: Designing &amp; Sampling Department</b>

<ul style="list-style-type: none"> <li>● Designer's Role in Designing &amp; Sampling</li> <li>● Merchandiser's Role in Designing &amp; Sampling</li> <li>● Importance of Designing &amp; Sampling Department in Production</li> </ul>
<b>Unit II: Cutting Department</b>
<ul style="list-style-type: none"> <li>● Fabric Spreading Machine</li> <li>● Specialized Cutting Machine – Straight Knife, Round Knife, Laser Cutting, Die Cutting (Collars &amp; Cuffs), Plasma Torch, Automatic Cutting Machines</li> <li>● Spreading &amp; Cutting Parameters – Fabric Layout, Marking, Bundling, Numbering of Garment Plies</li> </ul>
<b>Unit III: Stitching Department</b>
<ul style="list-style-type: none"> <li>● General Preparation of Sewing machine</li> <li>● Sewing Machines – Single needle Lockstitch machine, Overlock Sewing machine, Flatlock sewing machine, Button attaching Machine, Buttonhole machine, Bartack Machine, Zigzag Sewing machine, Multineedle chainstitch machine, Computerized Sewing machine</li> </ul>
<b>Unit IV: Finishing &amp; Inspection Department</b>
<ul style="list-style-type: none"> <li>● Functions of the Finishing &amp; Inspection Department - Thread Trimming, Button Attaching, Checking Garments, Removing Stains, Repair Work &amp; Mending</li> </ul>
<b>Unit V: Pressing &amp; Packaging Department</b>
<ul style="list-style-type: none"> <li>● Functions of Pressing &amp; Packaging Department – Ironing, Tagging, Folding, Packing</li> </ul>

**Text Books:**

- More Dress Pattern Designing, Natalie Bray, Blackwell Series, 2010
- Gerry Cooklin., Garment Technology for Fashion Designers.,Book Link, USA.
- Srivastava, M., Computer Aided Apparel Fashion Designing and Production Pattern Making, Himanshu Publications, New Delhi, 2011
- Hallet. C, Johnston. A., Fabric For Fashion-The Swatch Book, Laurence King Publishing Ltd., London, 2010
- Hallet.C., Johnston. A., Fabric For Fashion- A Comprehensive Guide To Natural Fibers, Laurence King Publishing Ltd., London, 2010
- Humphries., Fabric Reference (II Edition), Prentice Hall International, New York, 2000

**Recommended Readings:**

- Pamela, C. Stringer., Pattern Drafting For Dressmaking, Augustan Publishers & Distributors,Delhi, 1995
- Michele M. Granger, Tina M. Sterling, Fashion Entrepreneurship Retail Business Planning, Fairchild Publications, 2011
- Eascy M., " Fashion Marketing" Blackwell Science, 1994
- Kotler Philip, " Marketing Management " prentice Hall, New Delhi, 2000
- J. Jarnow and K.G. dickerson, " Inside the Fashion Business", Prentice Hall, 1997
- Elaine Stone, Jean A Samples, "Fashion Merchandising", Mc Graw Hillbook, 1985
- Readers Digest, Complete guide to Sewing, Pleasant ville-Nu Gail L,Search Press Ltd, 1993

- On Trend – The Fashion Series -  
<http://www.deborahweinswig.com/wpcontent/uploads/2017/02/From-Runway-To-Checkout-February-1-2017.pdf>
- Fashion Studies –Text Book  
[http://cbseacademic.in/web\\_material/doc/fashion\\_studies/3\\_XII\\_Text\\_Book.pdf](http://cbseacademic.in/web_material/doc/fashion_studies/3_XII_Text_Book.pdf)
- Fashion & Style - [http://www.gov.pe.ca/photos/original/4hsk\\_fashionRG.pdf](http://www.gov.pe.ca/photos/original/4hsk_fashionRG.pdf)
- <https://www.mooc-list.com/course/management-fashion-and-luxury-companies-coursera>  
[e](https://www.mooc-list.com/course/management-fashion-and-luxury-companies-coursera)

#### **Journals/ E-Journals:**

- Canadian Textile Journal (CTJ) (Open access), St-Laurent, Quebec Canadian Textile Journal Pub. Co., Canada.  
<https://www.scimagojr.com/journalsearch.php?q=83524&tip=sid&clean=0>
- Clothing and Textiles Research Journal, SAGE Publications Asia-Pacific PTE LTD, California.  
<https://journals.sagepub.com/home/ctr>
- Colourage, Colour publications Limited, New Delhi.  
<https://colourpublications.in/colourage-journal/>
- Clothing and Textile Research Journal (CTRJ), SAGE Publications Asia-Pacific PTE LTD, California.  
<https://journals.sagepub.com/home/ctr>
- FIBERS and TEXTILES in Eastern Europe, FTEE publishers, Poland, Eastern Europe.  
<https://ftee.com.pl/>
- Indian Journal of Fiber and Textile Research, India.  
<http://op.niscair.res.in/index.php/IJFTR>



<b>APPLICATION OF TEXTILES IN FASHION (THEORY)</b>	
<b>Course Code: MFD/3/CC/033</b>	
<b>OBJECTIVES:</b>	
<ul style="list-style-type: none"> <li>● The course imparts the knowledge about the traditional fabric made using different materials and techniques which acts as an expression of the tradition and culture of India.</li> <li>● The students will also understand the modification of the properties of material to make it more contemporary in the recent decade.</li> <li>● The students will explore the contemporary fabrics of recent decades which offer exciting options for an increasingly complex range of consumer demands.</li> </ul>	
<b>Outcomes:</b>	
<ul style="list-style-type: none"> <li>● Acquire the knowledge about the characteristics of Indian traditional dyed, printed, painted, woven, and embroidered textiles and explore the constraints and benefits related to its application.</li> <li>● Gain &amp; apply knowledge about the significance and function of traditional textiles and embroideries.</li> <li>● Be aware about the demand of the Indian traditional textiles at global level.</li> </ul>	
<b>CONTENTS:</b>	
Understanding of Traditional Textiles for Process, Application and Design for the following	
<b>Unit I : Dyed And Printed</b>	
<ul style="list-style-type: none"> <li>● Kalamkari, Ajrakh, Fabric Tie-Dye, Yarn Tie-Dye, Block Printing, Natural Dyeing</li> </ul>	
<b>Unit II : Painting</b>	
<ul style="list-style-type: none"> <li>● Phad Painting, Pichhwai, Madhubani Painting, Mata Ni Pachedi, Warli, Kalamkari</li> </ul>	
<b>Unit III : Woven</b>	
<ul style="list-style-type: none"> <li>● Maharashtrian Shalu, Brocades of Banaras (Mashru, Himroo, Kimkhwab), Maheshwari, Kashmiri carpets, Jaipuri Quilts</li> </ul>	
<b>Unit IV : Embroidery</b>	
<ul style="list-style-type: none"> <li>● Chamba Rumal, Phulkari and Bagh, Gota Patti, Zardozi, Chikankari, Kasuti, Kutch, Appliqué</li> </ul>	
<b>Unit V : Significance of traditional textiles and embroideries at global level</b>	

**Text Books:**

- Textile and Fashion : Material Design and Technology.,Rose Sinclair, 2014,Woodhead Publishing

**Recommended Readings:**

- Ikat textiles of India, Chelna Desai Chronicle Books, San Francisco, 1988
- Saris of India, Kapur Chishti and Ambasanyal Amar VastraKosh, Wiley Eastern Limited, New Delhi. 1989
- The sari Linda Lynton,Thames & Hudson, London.1995
- Indian Ikat Textiles Rosemary CrillWeatherhill Inc. 1998

- Ajrakh Impressions and Expressions, Dr.ElaDedhia and M. Hundekar Colour Publication Private Limited, Mumbai. 2008
- Indian Embroidery Rosemary Crill, Victoria & Albert Museum,London.1999
- Silk Brocades YashodharaAgarwal, Roli& Janssen BV, New Delhi. 2003

**Journals/ E-Journals:**

- Indian Textile Journal (ITJ) (Open access) ASAPP Info Global Group, India.  
<https://indiantextilejournal.com/>
- Industria Textila, Institutional National de Cercetare-Dezvoltare PentruTexttile Pielarie, Romania.  
<http://www.revistaindustriatextila.ro/>
- International Journal of Clothing Science and Technology, St-Laurent, Quebec Canadian Textile Journal Pub. Co., Canada.  
<https://www.scimagojr.com/journalsearch.php?q=12755&tip=sid&clean=0>
- International Journal of Textile and Fashion Technology (IJTFT) (Open access), Transstellar Journal Publications and Research Consultancy Private Limited (TJPRC), India.  
<http://www.tjprc.org/journals/international-journal-of-textile-and-fashion-technology229>
- International Journal of Textile Science, Scientific & Academic Publishing Co, USA.  
<http://journal.sapub.org/textile/>

<b>COMPUTER AIDED DESIGNING ( PRACTICAL)</b>
<b>Course Code: MFD/3/CC/034</b>
<b>Objectives:</b>
To acquaint students with computer aided designing. To impart the skills of fashion designing through designing software. To enhance skills in creation of various elements such as croqui, prints, textures, etc. To help students to acquaint with application of skills of using software in creating fashion accessories. To develop skills effective in creation of a fashion portfolio.
<b>Outcomes:</b>
Understand the various tools of Corel draw & its applications. Enhance the art of fashion designing using designing software's. Develop competency of students in computer graphics to create their own artworks and patterns. Understand & create innovative portfolio.
<b>CONTENTS:</b>
<b>Unit I: Introduction to Corel Draw</b>
<ul style="list-style-type: none"> <li>● Tools of Corel Draw</li> <li>● Drawing 12 ½ female croqui with grids and guidelines</li> <li>● Stylization of Figures</li> </ul>

<b>Unit II : Creating illusion effects</b> (silhouette, color, texture and prints) by fashion details and draping it on fashion figures
<b>Unit III : Drawing Flat and Spec Sheets</b>
<b>Unit IV: Creating Fashion Accessories like Handbags, Footwear, Jewellery Etc.</b>
<b>Unit V: Designing the Following:</b> <ul style="list-style-type: none"> <li>● Posters and Fliers</li> <li>● Visiting Cards and Brochures</li> <li>● Theme based Portfolio Development</li> </ul>

**Text Books:**

- Computer Aided Design: Text book and Practice book : H. P. Pitroda 08-Jun-2021
- Optimize Designs in Less Time Jayanta Sarkar Published July 27, 2017 by CRC Press
- Introduction to Auto CAD 2020 2D and 3D Design By Bernd S. Palmby Routledge ,2020
- Computer Aided Design: Text book and Practice book , WalnutPublication

**Recommended Readings:**

- Coreldraw 11 For Windows; Visual Quick Start Guide
- Coreldraw 11: The Official Guide, Dream Tech Publishers.

**Journals/ E-Journals:**

- Fibers and Polymers, Springer Nature Switzerland AG.  
<https://www.springer.com/journal/12221>
- Journal of Textile Science & Engineering, Hilaris SRL, Belgium.  
<https://www.hilarispublisher.com/textile-science-engineering.html>
- Journal of Textile Engineering, J-Stage, Japan.  
<https://www.jstage.jst.go.jp/browse/jte/>
- Journal of Fashion Technology & Textile Engineering, Scitechnol publications, Switzerland.  
<https://www.scitechnol.com/fashion-technology-textile-engineering.php>
- Journal of Textile (Open access), Hindawi Limited, UK.  
<https://www.hindawi.com/journals/jtex/#:~:text=Journal%20of%20Textiles%20has%20ceased,archiving%20for%20electronic%20scholarly%20journals>

<b>APPAREL CONSTRUCTION (PRACTICAL)</b>
<b>Course Code: MFD/3/OE/035</b>
<b>Objective:</b> <ul style="list-style-type: none"> <li>● To Enable Students to Develop Skill in Constructing Garments.</li> <li>● Educate the components of paper drafts of Ethnic wear, Western wear, Casual wear/Formal wear, etc.</li> </ul>
<b>Outcomes:</b> <ul style="list-style-type: none"> <li>● Draft &amp; adapt the patterns of various garments.</li> <li>● Design, develop patterns &amp; construct garments with regard to various occasions.</li> </ul>
<b>CONTENTS:</b>

<b>Unit I:</b> Prepare paper drafts by making adaptations in basic blocks and constructing the following: Ethnic Wear
<b>Unit II:</b> Prepare paper drafts by making adaptations in basic blocks and constructing the following: Western Party Wear
<b>Unit III:</b> Prepare paper drafts by making adaptations in basic blocks and constructing the following: Casual Wear/Formal Wear
<b>Unit IV :</b> Prepare paper drafts by making adaptations in basic blocks and constructing the following: Night Wear
<b>Unit V :</b> Prepare paper drafts by making adaptations in basic blocks and constructing the following: Cocktail Wear

**Text Books:**

- More Dress Pattern Designing, Natalie Bray, Blackwell Series, 2010
- Gerry Cooklin., Garment Technology for Fashion Designers., Book Link, USA.
- Sewing for Fashion Design. Nurie. Relis/Gail Strauss-Reston Publishing Co.
- Jindal, Ritu., Handbook Of Fashion Designing, Mittal Publications, New Delhi.
- Reader's Digest-Complete Guide Of Sewing, The Reader's Digest Association Ltd., London
- Thomas, Anna, Jacob, The Art Of Sewing, UBSPD Publishers Distributors Ltd, New Delhi

**Recommended Readings:**

- Cream, Penelope., The Complete Book of Sewing, DK Publishing, New York.
- Kallal, Mary Jo., Clothing Construction, London: Macmillan New York.
- Shafeffer, Claire., The Complete Book of Sewing, Sterling , New York.
- Pamela, C. Stringer., (1995), Pattern Drafting For Dressmaking, Augustan Publishers & Distributors, Delhi

**Journals/ E-Journals:**

- Journal of Industrial Textile (JIT), SAGE Publications Asia-Pacific PTE LTD, USA.
- Journal of Industrial Textiles - All Issues (sagepub.com)
- Journal of Textile Institute(JTI), Taylor and Francis, UK.  
<https://www.tandfonline.com/journals/tjti20>
- Pakistan Textile Journal(PTJ) (Open access), Nadeem Mazhar, Pakistan.  
<https://ptj.com.pk/>
- The Journal of Cloth and Culture (JCC), Taylor and Francis Ltd., UK.  
<https://journals.indexcopernicus.com/journal/11926>
- Textile Research Journal, SAGE Publications Asia-Pacific PTE LTD, USA.  
<https://journals.sagepub.com/home/trj>
- Textile Asia (Open access) Business Press Ltd, Hongkong.  
<https://www.textilesasia.com>

<b>CRAFT PROJECT (PRACTICAL)</b>
<b>Course Code: MFD/3/SC/036</b>
<b>Objectives:</b>
<p>This subject provides a wide array on Indian Traditional embroideries &amp; textiles of India which is an integral part of Fashion for many years. This subject assists in understanding various NGO's who work to promote Indian crafts. The crafts that empower and are a source of income of few areas; studied by students to uplift them using their Design skills with the help of Artisans.</p> <ul style="list-style-type: none"> <li>● The subject also helps in identifying the crafts which are to be revived and preserved.</li> <li>● Also imparts the knowledge to update artist's, with technologies and creative inputs.</li> <li>● To awaken the creativity of a community, to create a sustainable product line for the recent fashion scenario.</li> </ul>
<b>Outcomes:</b>
To realize the requirement of a sustainable approach in the industry and strive to achieve the same.
<b>CONTENTS:</b>
<b>Step-1</b>
<ol style="list-style-type: none"> <li>1) Selection of the Craft</li> <li>2) Research on the Craft <ul style="list-style-type: none"> <li>- History</li> <li>- Origin</li> <li>- Manufacturing process</li> <li>- Product range</li> </ul> </li> <li>3) Search for the "Artisans" working for the craft.</li> <li>4) Initial approach to the "Artisans" for explaining the Project and its importance.</li> <li>5) Telephonic interaction with the Artisan regarding the current problems associated with the promotion and development of the craft.</li> <li>6) Search information for the various Organizations working to preserve the craft. <ul style="list-style-type: none"> <li>- NGO</li> <li>- Government Organization</li> <li>- Local Outlets</li> </ul> </li> <li>7) Application of the Craft in recent Fashion Scenario- <ul style="list-style-type: none"> <li>- Designer collection</li> <li>- Retail collection</li> </ul> </li> </ol>

**Step-2**

- 1) List down the challenges related to the craft.
- 2) Selection of the Product Category (any one)
  - Apparel
  - Corporate Gifts or Stationary
  - Accessories
  - Home/ corporate Decor
- 3) Students contribution in Product Identification & Development in terms of-
  - Motif Development
  - Print Development
  - Color Variations
  - Fabric Development
  - Design Development
- 4) Interpretation of ideas on paper
  - Pencil sketches
  - Color Sketches
- 5) Approval from the concerned Faculty
- 6) Approval from the Artisans regarding the changes. (through Internet)
- 7) Production (will be done at the actual location with the Artisan)

**STEP- 3**

- 1) Implementation and application of the Products in Fashion
- 2) Display
- 3) Show

**Assignments-**

- Designing of Women's apparel, accessories, stationary, lifestyle products etc. using Indian Traditional Crafts
- Development of women's apparel products such as dresses, waistcoats, tops, jackets, skirts, Indian ethnic etc
- Development of accessories for Women such as, Jewelry, bags, foot wear, stoles, belts etc.
- Development of corporate stationery products such as Table stands, diaries, folders, pen stands, tea coasters etc.
- Development of home decor products such as Table cloth, wall hangings, flower pots, cushion covers, bed sheets etc.

**Text Books:**

- Crafts of India - Handmade in India - Aditi Ranjan & M.P. Ranjan, Council of Handicraft Development Corporation

**Recommended Readings:**

- Craft Traditions of India - <http://www.ncert.nic.in/NCERTS/l/lehc1ps.pdf>

**Journals/ E-Journals:**

- International Journal of Clothing Science and Technology  
<https://www.emeraldinsight.com/loi/ijcst>

- Asian Textile Journal (ATJ) Jennifer Kwatra publications, Mumbai.  
<https://www.atjournal.com/>
- Asian Technical Textile (ATT) Jennifer Kwatra publications, Mumbai.  
<https://www.atjournal.com/journal.html>
- Journal for Asia on Textile and Apparel (ATA) (Open access) Adsale publishing, Hongkong.  
<https://www.ourglobal.com/journal/?issn=10158138>

## SEMESTER IV

<b>RESEARCH METHODOLOGY (THEORY)</b>
<b>Course Code: MFD/4/CC/041</b>
<b>Objectives:</b> <ul style="list-style-type: none"><li>● To help students develop the skills needed in conducting research.</li><li>● To introduce students to the skills in report writing.</li><li>● To acquaint students with basic statistical techniques and their application.</li></ul>
<b>Outcomes:</b> <ul style="list-style-type: none"><li>● Relate steps of a research problem and work towards identifying new problems.</li><li>● Utilize the data collection techniques while conducting research to become a good researcher.</li></ul>
<b>CONTENTS:</b>
<b>Unit I: Research</b> <ul style="list-style-type: none"><li>● Definition and Concept of Research</li><li>● Objectives of Research</li><li>● Research Process, Problems, Criteria for Good Research, Significance of Research</li></ul>
<b>Unit II: Types of Research</b> <ul style="list-style-type: none"><li>● Descriptive Vs Analytical</li><li>● Applied Vs Fundamental</li><li>● Quantitative Vs Qualitative</li><li>● Conceptual Vs Empirical</li><li>● Historical</li></ul>
<b>Unit III: Research Design</b> <ul style="list-style-type: none"><li>● Meaning, Need and Characteristics of Good Research Design</li><li>● Variables- Meaning and Definition</li><li>● Hypothesis- Meaning and Definition</li></ul>
<b>Unit IV: Techniques of Data Collection</b> <ul style="list-style-type: none"><li>● Observation</li><li>● Survey Method</li><li>● Interview Method</li><li>● Questionnaire</li></ul>
<b>Unit V: Sampling</b> <ul style="list-style-type: none"><li>● Meaning</li><li>● Characteristics of a Good Sample selection</li><li>● Need for Sample selection</li><li>● Probability Sampling- Idea of Simple Random Sampling, Stratified and Cluster Sampling</li><li>● Non-Probability Sampling- Purposive And Quota Sampling</li></ul>

**Text Books:**

- Research Methods in Social Sciences, Veena Tucker, 2019, Pearson Education, Kindle Edition



- Research Methodology : Methods And Techniques ,C.R.Kothari and Gaurav Garg,2019 ,New Age International Publishers
- Research Methodology - For Ph.D. Course Work,Ranjit Singh ,2021,RT Publications
- Ahuja ,Ram., Research Methods, Rawat Publications, Jaipur
- Kothari, C.R., Research Methodology-Methods & Techniques. New Age International Publishers, New Delhi.
- Gupta S.P., Statistical Methods, Sultan Chand & Sons, New Delhi.
- Kaplan, Abhram, The Conduct Of BehaviouralScience ,Chandler Publishing Company
- Baker,L. Therese, Doing Social Research, Mc Grawhill International Editions, Sociology Series

**Recommended Readings:**

- Sancheti & Kapoor., Statistics, Sultan Chand And Sons, New Delhi.
- Badarkar, P.L. And Wilkinson T.S. (2000), Methodology And Techniques Of Social Research, Himalaya Publishing House, Mumbai

**Journals/ E-Journals:**

- ATA Journal for asia on Textile and Apparel (Open access) Adsale publishing, Hongkong.  
<https://www.ourglocal.com/journal/?issn=10158138>
- AUTEX Research Journals(AUTEXRJ) (Open access) published by Lodz University of Technology, Poland.  
<https://www.autexrj.com/>
- Canadian Textile Journal (CTJ) (Open access), St-Laurent, Quebec Canadian Textile Journal Pub. Co., Canada.  
<https://www.scimagojr.com/journalsearch.php?q=83524&tip=sid&clean=0>
- Clothing and Textiles Research Journal, SAGE Publications Asia-Pacific PTE LTD, California.  
<https://journals.sagepub.com/home/ctr>
- Colourage, Colour publications Limited, New Delhi.  
<https://colourpublications.in/colourage-journal/>

<b>FASHION RETAIL (THEORY)</b>
<b>Course Code: MFD/4/CC/042</b>
<b>Objectives:</b>
<ul style="list-style-type: none"> <li>● To create an awareness and understanding of the evolution and current structure of the apparel retailing industry in India.</li> <li>● To develop and understanding and appreciation of the four P's of marketing, basic principles of visual merchandising and effective customer handling practices.</li> </ul>
<b>Outcomes:</b>

<ul style="list-style-type: none"> <li>● Excel as a marketing professional using the knowledge of marketing strategies.</li> <li>● Co-relate roles &amp; responsibilities of marketing &amp; sales personnel.</li> <li>● Understand the importance of visual display as per the trend, seasons, etc.</li> </ul>
<b>CONTENTS:</b>
<b>Unit I: Retailing – Introduction</b>
<ul style="list-style-type: none"> <li>● Role of Retail in Marketing System</li> <li>● Importance of Retailing</li> </ul>
<b>Unit II: Types of Fashion Retail Outlets</b>
<ul style="list-style-type: none"> <li>● Department Store</li> <li>● Specialty Stores</li> <li>● Chain Store</li> <li>● Supermarkets</li> <li>● Ware House Retailers/Factory Outlets</li> <li>● E- Retailers</li> </ul>
<b>Unit III: Role of Marketing Strategy - 4 P's of Marketing</b>
<ul style="list-style-type: none"> <li>● Product – Merchandise Assortment</li> <li>● Place- Store Location And Layout</li> <li>● Price – Pricing Strategy</li> <li>● Promotion – In-Store Promotion And Advertising</li> </ul>
<b>Unit IV: Visual Merchandising – Its Importance</b>
<ul style="list-style-type: none"> <li>● Display Schedules – Seasons, Promotions, Special Sales. Themes</li> <li>● Type of Displays – Window Display, Interior Displays, Exterior Display</li> <li>● Common Problems In Display</li> </ul>
<b>Unit V: Roles And Responsibilities of Retail Store Personnel</b>
<ul style="list-style-type: none"> <li>● Responsibilities of Store Manager</li> <li>● Responsibilities of Sales Personnel</li> <li>● Responsibilities of HR</li> </ul>

**Text Books:**

- Fashion Merchandising Principles and Practice, James Clark, 2014, 2nd Edition, Springer Publication.
- Fashion and Style, Mariana Draws & Elya Lams, 2013, Canadian Agricultural Adaptation Program
- Fashion Retailing and Visual Merchandising, JNU, Jaipur, First Edition 2013

**Recommended Readings:**

- Leslie David Burns, Nancy O. Bryant, 2011, The Business Of Fashion Fairchild Publications
- Elaine Stone, 1987, Fashion Buying, McGraw-Hill
- Mary Frances Drake, Janice Harrison Spooone, Herbert Greenwald, 1992, Retail
- Fashion Promotion And Advertising Macmillan
- Michele M. Granger, Tina M. Sterling, 2011, Fashion Entrepreneurship Retail
- Business Planning, Fairchild Publications

**Journals/ E-Journals:**

- Clothing and Textile Research Journal (CTRJ), SAGE Publications Asia-Pacific PTE LTD, California.  
<https://journals.sagepub.com/home/ctr>
- FIBERS and TEXTILES in Eastern Europe, FTEE publishers, Poland, Eastern Europe.  
<https://ftee.com.pl/>
- Indian Journal of Fiber and Textile Research, India.  
<http://op.niscair.res.in/index.php/IJFTR>
- Indian Textile Journal(ITJ) (Open access) ASAPP Info Global Group, India.  
<https://indiantextilejournal.com/>
- Industria Textila, Institutional National de Cercetare-Dezvoltare PentruTexttile Pielarie, Romania.  
<http://www.revistaindustriatextila.ro/>

<b>Fashion Communication (Practical)</b>
<b>Course Code: MFD/4/SC/043</b>
<b>Objectives:</b>
<ul style="list-style-type: none"> <li>● To familiarize students with various methods of business communication.</li> <li>● To impart knowledge and skill in organizing fashion events.</li> </ul>
<b>Outcomes:</b>
<ul style="list-style-type: none"> <li>● Understand different types of business letters and use the same as required.</li> <li>● Utilize skills required in conducting interviews &amp; interpret the same.</li> <li>● Design &amp; create brand logo's, tag's, banner, etc.</li> </ul>
<b>Unit I : Business Letter</b>
Business Letters (Types, Essentials and Layout) <ul style="list-style-type: none"> <li>● Letter of Enquiry</li> <li>● Letter of Quotation</li> <li>● Letter of Orders</li> <li>● Letter of Advice</li> <li>● Letter of Trade Reference</li> <li>● Circular Letters</li> <li>● Letter of Complaint and Adjustments</li> <li>● Sales Letter</li> <li>● Credit Letters and Status Inquiries</li> <li>● Collection Letters</li> </ul>
<b>Unit II : Fashion Journalism - National</b>
<ul style="list-style-type: none"> <li>● Collect National Fashion Designers Interviews</li> </ul>
<b>Unit III : Fashion Journalism - Regional</b>
<ul style="list-style-type: none"> <li>● Interview a Regional Fashion Designer</li> </ul>
<b>Unit IV : Communication Design</b>

Plan a Startup & Create the following:

- Brand Logo
- Tag
- Shopping Bags
- Banner and Poster
- Visiting Card

**Unit V : Fashion Communication**

- Plan and Execute a Trade Activity – Fashion Show/ Exhibition/ Fair

**Text Books:**

- Fashion as Communication., Malcolm Barnard,2004,Second Edition,Routledge
- Fashion Communication, Marian Frances Wolbers, 2009; 1st edition, Fairchild Books
- Mohan, Krishna. And Banerjee, Meera., Developing Communication Skills, Macmillan Press
- Pal Rajender And Korlahalli J.J., Essentials Of Business Communications, Sultan Chand And Sons.
- Gupta C.V., Business Communication And Customer Relations, Sultan Chand And Sons.
- Pettit, Lesikarm Business Communication, Aitbs Publishers, New Delhi.

**Recommended Readings:**

1. Chaturvedi, P.D., Business Communication, Pearson Publication
2. Mathew, M.J., Business Communication ,Rbsa Publication, Jaipur
3. Taylor, Shirley., Communication Of Business, Pearson Publication

**Journals/ E-Journals:**

- International Journal of Clothing Science and Technology, St-Laurent, Quebec Canadian Textile Journal Pub. Co., Canada.  
<https://www.scimagojr.com/journalsearch.php?q=12755&tip=sid&clean=0>
- International Journal of Textile and Fashion Technology (IJTFT) (Open access), Transstellar Journal Publications and Research Consultancy Private Limited (TJPRC), India.  
<http://www.tjprc.org/journals/international-journal-of-textile-and-fashion-technology229>
- International Journal of Textile Science, Scientific & Academic Publishing Co, USA.  
<http://journal.sapub.org/textile/>
- Fibers and Polymers, Springer Nature Switzerland AG.  
<https://www.springer.com/journal/12221>
- Journal of Textile Science & Engineering, Hilaris SRL, Belgium.  
<https://www.hilarispublisher.com/textile-science-engineering.html>
- Journal of Textile Engineering, J-Stage, Japan.  
<https://www.jstage.jst.go.jp/browse/jte/>

**ADVANCED FASHION ILLUSTRATION (PRACTICAL)**

**Course Code: MFD/4/CC/044**

**Objectives:**

<ul style="list-style-type: none"> <li>● To enhance the creative skills in sketching and rendering for designing garments.</li> <li>● Introduce the concept of portfolio development.</li> </ul>
<b>Outcomes:</b>
<ul style="list-style-type: none"> <li>● Illustrate various fabric textures, prints, etc, to develop and create fabric swatches.</li> <li>● Design a line/collection of garments using the current market trends &amp; forecast.</li> <li>● Prepare a creative portfolio with all the required components.</li> </ul>
<b>CONTENTS:</b>
<b>Unit I: Rendering various textures and surface ornamentation using suitable color media</b>
<ul style="list-style-type: none"> <li>● Emboss, Self print, Rough, Crape, Satin, Leather, Quilts, Knit, Fur, Patchwork, E Embroidery etc. Developing a fabric swatch with own Color scheme</li> </ul>
<b>Unit II: Illustrate figure using basic cuts in clothing</b>
<ul style="list-style-type: none"> <li>● Optical illusion (using elements of design)</li> <li>● Drawing from the photographs</li> <li>● Drapes</li> </ul>
<b>Unit III: Design following collection</b>
<ul style="list-style-type: none"> <li>● Design Ramp wear collection for Female – Ethnic Wear</li> </ul>
<b>Unit IV: Design following collection</b>
<ul style="list-style-type: none"> <li>● Design Ramp wear collection for Female – Casual Wear</li> </ul>
<b>Unit V :Portfolio Development</b>
<ul style="list-style-type: none"> <li>● Mood Boards</li> <li>● Client Profile</li> <li>● Fabric And Colour Sheet</li> <li>● Illustration Sheet</li> <li>● Specification Sheet</li> </ul>

**Text Books:**

- Illustrating Fashion: Concept to Creation., Steven Stipelman,2010, Fairchild Books Publishers
- Fashion Illustration for Designers, Kathryn Hagen,2004,Prentice Hall Publishers
- Modern Fashion Illustration, Holly Nichols.2021, Centennial Books
- Fashion sketchbook: Fashion croquis book for girls, Todd Franklin ,2021,Notion Press
- Fashion Illustration, Anna Kiper, David & Charles Book, 2011
- Ireland., Fashion Design Drawing And Presentation, BT
- Batsford, London.2000
- Mckelvey, K., Fashion Source Book, Blackwell Science Ltd., 1996

**Recommended Readings:**

- Ireland, Patrick John., Fashion Design Illustration: Men, BtBatsford, London.1996
- Abling. Bina., Advance Fashion Sketch Book, Fairchild Publications, New York.2005
- Tate, S.L., (1987). The Complete Book Of Fashion Illustration, Harper R. Row, New York.
- Seama., Julian, Professional Fashion Illustration, B.T. Batsford Ltd., London.

**Journals/ E-Journals:**

- Journal of Fashion Technology & Textile Engineering, Scitechnol publications, Switzerland.  
<https://www.scitechnol.com/fashion-technology-textile-engineering.php>
- Journal of Textile (Open access), Hindawi Limited, UK.  
<https://www.hindawi.com/journals/jtex/#:~:text=Journal%20of%20Textiles%20has%20ceased,archiving%20for%20electronic%20scholarly%20journals>
- Journal of Industrial Textile (JIT), SAGE Publications Asia-Pacific PTE LTD, USA.
- Journal of Industrial Textiles - All Issues (sagepub.com)
- Journal of Textile Institute(JTI), Taylor and Francis, UK.  
<https://www.tandfonline.com/journals/tjti20>
- Pakistan Textile Journal(PTJ) (Open access), Nadeem Mazhar, Pakistan.  
<https://ptj.com.pk/>
- The Journal of Cloth and Culture (JCC), Taylor and Francis Ltd., UK.  
<https://journals.indexcopernicus.com/journal/11926>

<b>FASHION STYLING AND PROMOTION (PRACTICAL)</b>
<b>Course Code: MFD/4/CC/045</b>
<b>Objectives:</b>
<ul style="list-style-type: none"> <li>● To make students understand an in depth study of the “Stylist role” in Fashion as per the industry requirements.</li> <li>● To produce a strong visual document that explains the skills, techniques and vocational quality that qualifies a student to work as a “Stylist” in the Fashion Industry.</li> </ul>
<b>Outcomes:</b>
<ul style="list-style-type: none"> <li>● Design a catalogue based on the client specifications.</li> <li>● Compose an entire head to toe outfit as per the occasion &amp; work as a professional.</li> <li>● Create innovative &amp; attractive products for enhancing brand values.</li> </ul>
<b>CONTENTS:</b>
<b>Unit I :Catalogue Design</b>
<ul style="list-style-type: none"> <li>● Designing of Professional Catalogue for different Brand Categories.</li> <li>● The process includes selection of Apparel Brand, Study of various features of that Brand, keeping in mind the style of Promotion of that Brand</li> </ul>
<b>Unit II :Corporate Stationery Design</b>
Designing of Letter Head, Visiting Card, Envelope (3 options each)
<b>Unit III :Fashion Styling</b>
<ul style="list-style-type: none"> <li>● Selection of any one Category for Women</li> <li>● Assembling the Collection and Accessories</li> <li>● Developing a Look/ Mood for the Category</li> <li>● Shooting the Photographs for the same</li> </ul>
<b>Unit IV :Visual Merchandising</b>
Developing a Display solution for any reputed Brand
<b>Unit V :Catalogue Designing</b>
Designing a Catalogue of minimum 15 pages

## ASSIGNMENTS

Students are expected to work on the given Practical based on all the above contents and are also expected to compile them in the form of a specialized Portfolio.

### Text Books:

- Elizabeth Liechty, Steineckert D., Rasband J., 2009, Fitting And Pattern Alteration, Fairchild Publication
- Clive Hallett (2014), Fabric to Fashion, Laurence King Publishing
- Indian Costumes, A. Biswas ,2017,Publications Division Ministry of Information & Broadcasting

### Recommended Readings:

- Ireland, Patrick John., Fashion Design Illustration: Men, BtBatsford, London.1996
- Abling. Bina., Advance Fashion Sketch Book, Fairchild Publications, New York.2005
- Tate, S.L., (1987). The Complete Book Of Fashion Illustration, Harper R. Row, New York.
- Seama., Julian, Professional Fashion Illustration, B.T. Batsford Ltd., London.

### Journals/ E-Journals:

- Journal of Textile Institute(JTI), Taylor and Francis, UK.  
<https://www.tandfonline.com/journals/tjti20>
- Pakistan Textile Journal(PTJ) (Open access), Nadeem Mazhar, Pakistan.  
<https://ptj.com.pk/>
- The Journal of Cloth and Culture (JCC), Taylor and Francis Ltd., UK.  
<https://journals.indexcopernicus.com/journal/11926>
- Textile Research Journal, SAGE Publications Asia-Pacific PTE LTD, USA.  
<https://journals.sagepub.com/home/trj>
- Textile Asia (Open access) Business Press Ltd, Hongkong.  
<https://www.textilesasia.com/>

<b>Internship / Special Project (one month)</b>
<b>Course Code: MFD/4/CC/046</b>
<b>Objectives:</b>
<ul style="list-style-type: none"><li>● To gain real time work experience from the Industry.</li><li>● The internship will enrich the student for understanding of the career field, to develop useful skills.</li></ul>
<b>Outcomes:</b>
<ul style="list-style-type: none"><li>● Students will be able to work as a team in any organization and become accomplished or successful Designers, Entrepreneurs or Industry ready professionals.</li></ul>
<b>CONTENTS:</b>
<ul style="list-style-type: none"><li>● Internship refers to a stage/phase during which an individual will get an opportunity to experience her industry of interest before entering into full time future career.</li><li>● Internships exposes the candidate to understand the way particular industry functions and what it would be like to work in that scenario.</li></ul>

Follow, Learn and experience following as per instructions given by course teacher.

- (1) Theme based Apparel Designing and Construction with accessories
- (2) Organize an Exhibition/ Fashion Show
- (3) Exposure cum Educational Visit
- (4) Extension Lecture
- (5) Visit to established designer house

**Text Books:**

- Jarnow, JandJudelle, B., Inside Fashion Business, Merrill Prentice Hall, New Jersey, 1987
- Wood, D. The Practical Encyclopedia of Sewing, Anness Publishing Ltd, USA
- Readers Digest, Complete Guide to Needle Work, The Readers Digest Association Inc, Pleasantville, New York
- Rosenau, J. A., Wilson David L. David., Apparel Merchandising-The Line Starts Here, Fairchild Publications, New York.2006

**Recommended Readings:**

- Frings Gini, Fashion-From Concept To Consumer, (5th Edition), Prentice Hall Publications, 1996
- Marshall S G, Jackson H O, Stanley Ms, Kefgen M &Specht T, Individuality In Clothing & Personal Appearance, 6th Edition, Pearson Education, USA, 2009
- Shorie,G.P.,Vastra Vigyan Ke MoolSidhant,Vinod Pustak Mandir, Hospital Road, Agra, 2007.(Hindi Book)
- Verma, Promila.,Vastra Vigyan Evam Paridhan,Madhya Pradesh Hindi Granth Akademy, Bhopal, 2003 (Hindi Book)
- The Fashion Sketch Book -  
<https://www.google.co.in/search?q=historic+textiles+book+pdf&oq=historic+textiles+book+pdf&aqs=chrome..69i57.9805j0j8&sourceid=chrome&ie=UTF-8#>
- <http://www.arts.ac.uk/fashion/courses/short-courses/online-courses/pattern-cutting-course/> <http://mooc.live/fashion-design-through-patternmaking-the-sloper-online-course/>

**Journals/ E-Journals:**

- International Journal of Clothing Science and Technology  
<https://www.emeraldinsight.com/loi/ijcst>
- Asian Textile Journal (ATJ) Jennifer Kwatra publications, Mumbai.  
<https://www.atjournal.com/>
- Asian Technical Textile (ATT) Jennifer Kwatra publications, Mumbai.  
<https://www.atjournal.com/journal.html>
- ATA Journal for asia on Textile and Apparel (Open access) Adsale publishing, Hongkong.  
<https://www.ourglocal.com/journal/?issn=10158138>
- AUTEX Research Journals(AUTEXRJ) (Open access) published by Lodz University of Technology, Poland.  
<https://www.autexrj.com/>



## **(Programme Specific Outcomes and Course Outcomes)**

### **Programme Specific Outcomes: (M.Sc. Polymer Chemistry)**

PSO1 The programme provide knowledge which enhance innovative skills. The course is an important and career orienting in the field of various industry which opens many jobs and prepared skill professionals. The students will be able to opt for jobs in the field of food industries, pharmaceutical companies, pesticides, cement, textile and polymer industries.

PSO2 Students will learn basic laboratory techniques and safety measurements. The knowledge gained from this programme will enhance their entrepreneurial and innovative skills.

PSO3 Students will be able to demonstrate the waste minimizing techniques, waste treatment and recycling of waste and they will understand the importance of the green synthesis.

### **M.Sc. Polymer Chemistry (Semester-I) – Course-Inorganic Chemistry**

**Course outcomes:** Students will be able to learn the following aspects from this course:

CO1 Students will understand about metalloenzymes like vitamin B12 and B13 coenzymes.

CO2 Students will learn nitrogen fixation, role of metals and non metals in metabolism, metal and non metal deficiency, toxicity, ionophores etc.

CO3 Students will get knowledge about Structure and bonding in homo and heteronuclear molecules, VSEPR theory MO theory, homoneuclear and diatomic molecules etc.

CO4 Students will learn crystal field theory of coordination compounds, concepts of acids and bases etc.

### **M.Sc. Polymer Chemistry (Semester-I) – Course- Organic Chemistry**

**Course outcomes:** Students will be able to learn the following aspects from this course:

CO1 Students will have broad knowledge about structure and bonding of localized and delocalized chemical bond, various interaction, charge transfer complexes, various effects, types of organic reactions, neighboring group participation etc.

CO2 Students will understand about various reagents in organic synthesis.

CO3 Students will learn about addition to carbon –carbon multiple bond, addition to carbon – hetero multiple bonds

CO4 Students will get solid knowledge about various free radical reaction like allylic halogenation (NBS), oxidation of aldehydes to carboxylic acids, auto-oxidation, coupling of alkynes and arylation of aromatic compounds by diazonium salts, Sandmeyer reaction, free radical rearrangement, Hunsdiecker reaction etc.

CO5 Students will learn about green chemistry.

## **M.Sc. Polymer Chemistry (Semester-I) – Course- Physical Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will understand the detailed knowledge of foundational concepts of thermodynamics, chemical kinetics, Surface Chemistry, Micelles etc.

CO2 Students will be able to demonstrate Chemical equilibrium, Gibbs – Duhem equation, Equilibrium constant, phase diagram of one and two component system, phase rule.

## **M.Sc. Polymer Chemistry (Semester-I) – Course- Spectroscopy in Analysis-I**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will learn about the basic principles of electromagnetic radiations.

CO2 Students will learn the basic principles, instrumentation and applications of various spectroscopic techniques including ultraviolet, Atomic absorption spectroscopy, Photoelectron spectroscopy, Infra-Red spectroscopy, Raman spectroscopy etc.

## **M.Sc. Polymer Chemistry (Semester-II) – Course- Environmental and Green Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Vast knowledge on principle and concepts of green chemistry, waste management: waste minimizing techniques, waste treatment and recycling of waste.

CO2 Students will learn the analysis of pollution, sampling and monitoring of air and water, acidity, alkalinity and microorganism in water.

CO3 Students will learn to design safer chemicals, solvent free reactions, avoiding toxic reagents and energy efficiency by adopting green synthesis.

CO4 A brief idea about environmental chemistry, chemical and photochemical reactions in the atmosphere and toxicological effects of various metals and pesticides on environment.

## **M.Sc. Polymer Chemistry (Semester-II) – Course- Instrumentation Techniques for Analysis**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Explain the principles and important applications of Thermo gravimetry analysis (TGA), Differential thermal analysis (DTA) and Differential scanning calorimeter (DSC).

CO2 Explain the theoretical principles of selected instrumental methods within electroanalytical and spectrometric/spectrophotometric methods, and main components in such analytical instruments.

CO3 Explain the basic principles of D.C. Polarography.

CO4 Explain the Principle, technique and application of voltametric and cyclic voltametry, amperometry and anodic stripping voltametry.

CO5 Students will learn High Performance Liquid Chromatography (HPLC), Gas Liquid Chromatography, Gel Permeation or Size Exclusion Chromatography, Ion Exchange Solvent Extraction, Gel Electrophoresis, Radioactive Technique, Light Scattering Techniques etc.

## **M.Sc. Polymer Chemistry (Semester-II) – Course- Spectroscopy in Analysis-II**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 A broad but still detailed overview of the state-of-the-art of spectroscopic methods used in chemistry, with a particular focus on the most advanced topics (NMR, MASS Spectrometry, ESR, XRD, Massbauer).

CO2 The aim of the Programme is also to provide students with specific competencies related to the use of spectroscopic techniques in polymer chemistry and with systemic and instrumental transferable skills.

## **M.Sc. Polymer Chemistry (Semester-II) – Course- Fundamentals of Polymer Chemistry**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will gain knowledge about different polymers like Addition Polymer, Coordination Polymer, Condensation polymer and their classification and kinetic aspects.

CO2 Mechanistic aspects of various polymerization techniques will be gained by the students.

## **M.Sc. Polymer Chemistry (Semester-II) – Skill Course- Polymer processing management**

It is skill course. The course is an important and career orienting in the field of industry which opens many jobs and prepared skill professionals. The students will be able to opt for jobs in the field of food industries, pharmaceutical companies, pesticides, cement, textile and polymer industries.

## **M.Sc. Polymer Chemistry (Semester-III) -Course- Physical and Chemical Properties of Polymers**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will gain knowledge about various Molecular mass of polymer, Polymer Reaction, Amorphous and Crystalline state etc.

CO2 Students will understand the detailed knowledge of Diffusion in polymer, Behavior of polymers in polar and non polar solvent, Rheology and its applications etc.

## **M.Sc. Polymer Chemistry (Semester-III) -Course- Specialty Polymers**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 The general knowledge about the synthesis of different polymers. They deploy these activities based on an in-depth understanding of polymer processing, the structure of polymer and their properties, including the intricate relationships between them.

CO2 Students will learn about outline manufacturing and properties of various polymers.

## **M.Sc. Polymer Chemistry (Semester-III) -Course- Materials for compounding and reinforcement**

**Course outcomes:** On the completion of this course students will be able to learn about latex, vulcanization, compounding ingredients, textile/reinforcing materials, adhesive and bonding, thermoplastic rubbers, physical and functional properties of different composites etc.

## **M.Sc. Polymer Chemistry (Semester-III) -Course- Tyre and Rubber processing Operations**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will learn about mixing, trouble shooting in mixing, extrusion, calendaring, moulding, advantages and disadvantages between different molding techniques etc.

CO2 Students will gain knowledge of fabrication techniques, various allied instrumental control systems etc. The course is an important and career orienting in the field of tyre industry which opens many jobs.

## **M.Sc. Polymer Chemistry (Semester-IV) -Course- Polymer and Environment**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1: They will learn about the industrial pollution and waste generation and treatment process.

CO2: This delivers information about the environment toxicology, UNIDO programme on polymer, 4 R's approach etc.

## **M.Sc. Polymer Chemistry (Semester-IV) -Course- Rubber Product Technology**

**Course outcomes:** On the completion of this course students will be able to learn the following:

CO1 Students will gain knowledge about pneumatic tyre, tyre types, various tyre reinforcing materials, tyre design and performance, destructive and non-destructive tests of tyre etc. which increase the skill of students.

CO2 Students will learn about tube and valves, defects and testing of belt, hoses, handmade and circular woven hoses, sports goods: compounding and process of tennis Ball, football, basketball, volleyball and golf ball, cables etc.

## **M.Sc. Polymer Chemistry (Semester-IV)-Course- Testing and Characterization of Rubber Products**

**Course outcomes:** On the completion of this course students will be able to learn different types of testing of tyres , tubes, valves, footwears, hoses, cables, moulded and extruded rubber goods etc.

## **M.Sc. Polymer Chemistry (Semester-IV)-Course- Two months training programme**

**Course outcomes:** On the completion of this course students will go to research laboratory or industry for two months training programme after that they submit their report and certificate. Students will gain knowledge how to work in industries.

Program Name	Program outcome
<b>B. Pharmacy (B. Pharm.)</b>	<p>On completion of the B. Pharm. program, a student will be able to:</p> <ol style="list-style-type: none"> <li>1. Demonstrate knowledge of the basic pharmaceutical sciences and the ability to acquire, manage and use current information for problem solving.</li> <li>2. Describe the synthesis, formulation, analysis and pharmacological aspects of drugs and pharmaceuticals.</li> <li>3. Identify the rules and regulations involved in the drug discovery and development, manufacture, distribution and sale of medicines.</li> <li>4. Observe record, analyze, criticize, organize, improvise and manage documents, data and information related to pharmaceutical products and practices.</li> <li>5. Develop problem-based learning approach and analytical thinking in his/her academic and professional life.</li> <li>6. Demonstrate the ability to plan and implement professional activities.</li> <li>7. Act efficiently as a leader in the diverse areas of the profession.</li> <li>8. Write, interpret and communicate effectively and scientifically.</li> <li>9. Apply the knowledge and skills gained through education to gain recognition in professional circle and society.</li> <li>10. Partnering with other health care communities to provide innovative solutions.</li> <li>11. Create awareness in society about the effective and safe use of medicines.</li> <li>12. Demonstrate eco-friendly products and processes to maintain public health.</li> <li>13. Imbibe ethical practices and moral values in personal and professional endeavors.</li> <li>14. Tackle future challenges through lifelong learning.</li> </ol>

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**M.Sc. ZOOLOGY**

**PROGRAMME SPECIFIC OUTCOMES (PSO)**

- M.Sc. Zoology is a 2 year postgraduate course run under the CBCS scheme. It relates with the study of animal kingdom starting from a single cell, their structure, function, biochemistry, physiology, cell and molecular biology, biotechnology, conservation biology, bioinformatics etc.
- The entire syllabus is divided into four semesters each having 4 theory papers and 2 practicals accounting to a total of 16 theory and 8 practicals for each student.
- Third semester offers 2 elective courses namely Entomology and Insect Toxicology and Wildlife Biology.
- Students are gain expertise and indepth theoretical and practical knowledge of all the basic and allied field s of Zoology.
- The programme is designed in such a way to provide both academic and professional training and proficiency in animal science.
- The course imbibes students with state of art knowledge of every aspect animal science and its allies.

**PROGRAMME OUTCOMES (PO)**

- To understand the existing and new avenues of the biological sciences with special reference to animal science and imbibe the knowledge from all different perspectives.
- To Gain knowledge and understand concepts in all the contemporary fields of Zoology.
- To provide students with a broad understanding of animals and their interactions with the environment and to explain how organisms function at the level of the gene, cell, tissue, organ, organ-system and physiology.
- To equip students with competent and significant research knowledge to engage in any biomedical or bioscience research.
- To enable the students for gaining competencies for various competitive examinations of private and Government sectors as teachers, lecturers, food inspector, environmental inspectors etc.



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**SEMESTER I**

**Paper I: Biosystematics, Structure and Function of Invertebrates (Course Code- MI ZOO 01CT-01)**

**Course Outcome:**

- To study the fundamentals of taxonomy, nomenclature and classification of invertebrates.
- To study molecular cytotaxonomy and role of genetics in taxonomy.
- To know the functional aspects of different systems of invertebrates.
- To study the various physiological mechanisms of various organ systems like locomotory, integumentary, reproductive, digestive etc., in invertebrates.
- To make students aware about how life evolved from simple to complex organization by modification in various systems and thus enhancing efficiency in Invertebrates.
- To help explain and compare the functional morphology of invertebrates.

**Paper II: Ethology and Evolution (Course Code- MI ZOO02CT-02)**

**Course Outcome:**

- Students would be imparted knowledge about basic and important concepts of ethology
- To give an insight into the various methods of studying animal behavior.
- To study about social organization, animal societies and its importance.
- To get acquainted with different types of learning and biological rhythms.
- To know the history and concept of evolution.
- To understand the mechanisms and factors involving in evolution process.
- To know the evolutionary patterns of various animals at micro and macro level.

**Paper III -Instrumentation and Techniques in Biology (Course Code-MI ZOO03 CT03)**

**Course Outcome:**

- To study the principle, working mechanism and application of various types of microscopes like electron, phase contrast, atomic absorption etc., used in biological experiments.
- To study the principle, working mechanism and application of various types of instruments like pH meter, spectrophotometer, centrifuge etc., used in biological experiments.
- To know the different types of separation techniques of electrophoresis and chromatography.
- To understand the technique of histological slide preparation by knowing the concepts of fixation, staining techniques etc.,
- To get aware about section cutting using microtome, cryostat etc.,
- To know about techniques like decalcification, cryopreservation, freezing techniques etc.

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**Paper IV: Cell and Molecular Biology (Course code-MI ZOO 04 CT-04)**

**Course Outcome:**

- To gain insight into how processes are integrated at the molecular level to create a functional eukaryotic cell.
- To provide knowledge about the biomembranes, transport across them.
- To know the principles of cell communication and adhesion and cell- cell signaling.
- To acquire advanced knowledge of molecular biology of cell cycle, its regulation and the checkpoints.
- To study the biology of aging, genetic mechanism of cell death in terms of necrosis and apoptosis.
- To have an insight into the intracellular transport mechanism, protein trafficking and their regulation.
- To know about chromatin, karyotype, somatic cell genetics etc.,

**Practical I: (Paper I and II) (Course code-MI ZOO 05 CP 01)**

**Course Outcome:**

- This course involves the practical knowledge related to theory papers I and II.
- It acquaints the students with various types of invertebrates by studying museum specimens and slides of their internal parts etc.
- Students are imparted practical knowledge of preparing permanent slides of various materials available as well as by collection of material.
- Virtual dissection helps to have practical knowledge about the anatomy of different animals.
- Experiments related to animal behavior provide practical insight into how the behavior is performed and varies under different circumstances.
- Exercises on evolutionary biology give clear indication of how estimations of gene and genotype frequencies are made.

**Practical II: (Paper –III and IV) (Course code-MI ZOO 06CP-02)**

**Course Outcome:**

- This course involves the practical knowledge related to theory papers III and IV.
- To demonstrate the practical usage of various instruments.
- To prepare paraffin block, perform sectioning, and prepare double stained slide.
- To know and prepare different solutions, fixatives and stains.
- To prepare slides of mitosis and meiosis to demonstrate cell division.
- To study human karyotype and sex chromatin.

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**SEMESTER II**

**Paper I: Biodiversity and Conservation Biology (Course code-M2 ZOO 01CT-05)**

**Course Outcome:**

- To learn the concepts of biodiversity and mega diversity of India.
- To study the different causes leading to habitat destruction, impacts of climate change, overexploitation and environmental impact assessment.
- To gain knowledge about Conservation biology and methods of conservation.
- To know about different conservation categories of animals and global as well as national conservation agencies.
- To study different plant and animal interaction in the context of population ecology and community ecology.
- To know about Restoration ecology, human conflicts with animals and species reintroduction programmes.

**Paper II: Environmental Toxicology (Course Code-M2 ZOO 02 CT06)**

**Course Outcome:**

- To have a wide knowledge about environmental toxicology.
- To understand the Environmental stress and its management strategies.
- To know the different types of pollution and their control.
- To have an insight into the general principles of toxicology, toxicokinetics and toxicodynamics.
- To know the bioindicators and biomarkers of environmental health.
- To study different toxicants, their mechanism of action and kinetics.
- To gain insight into the safety evaluation of toxicants, risk management, assessment and monitoring.

**Paper III: Developmental Biology (Course code-M2ZOO03CT-07)**

**Course Outcome:**

- To get knowledge about gametogenesis, fertilization and its mechanism.
- To know about the mechanism of cleavage, blastulation and gastrulation in different animals.
- To have an insight into mechanisms of induction, competence and differentiation.
- To know how animals achieve symmetry and axis.
- To study morphogenesis and organogenesis and their genetic mechanism.
- To know how evolution has changed the development process in the phylogeny.
- To gain knowledge about modern techniques of developmental biology and socio ethical issues.

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**Paper IV: Animal Physiology and Immunology (Course Code-M2ZOO 04CT08)**

**Course Outcome:**

- To help the students in understanding how the body functions adapts with respect to its external and internal environment.
- To study about thermoregulation, osmotic balance, hormonal regulation in relation to the environment.
- To understand the all areas of immunology and study the innate and adaptive immunity, antigens and antibodies.
- To know about the immune deficiency diseases, hypersensitivity and vaccines.

**Practical I: (Paper I and II) (Course Code-M2 ZOO05- CP03)**

**Course Outcome:**

- This course involves the practical knowledge related to theory papers I and II.
- The students are given exposure to field by visits to natural habitats and protected areas and wetlands of Rajasthan for detailed study.
- Analysis of habitat characteristics and determination of various parameters of population and species.
- Practical demonstration and performance of bioassays of different pesticides and dose calculation are taught.
- Effect of heavy metal toxicity on various mammalian tissues is demonstrated.

**Practical II: (Paper III and IV) (Course code-M2 ZOO6CP-04)**

**Course Outcome:**

- This course involves the practical knowledge related to theory papers III and IV.
- It gives knowledge about the structure of reproductive organs.
- To acquire students with basic knowledge of experimental embryology that leads to understanding cleave, blastula and gastrula.
- To demonstrate the development of chick embryo.
- To help study the internal structure of various immune organs viz spleen, thymus, bone-marrow, kidney, lymph nodes etc.
- Demonstration of different experiments of blood related to clotting and bleeding time, formation of haematin crystals and differential staining.

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**SEMESTER III**

**Paper I: Vertebrates (Course code-M3ZOO01CT-09) (Core)**

**Course Outcome:**

- To critically examine the origin and diversification history of vertebrates.
- To study the origin and classification of vertebrates.
- To have an insight into various concepts of origin and phylogenetic relationship of vertebrates starting from agnatha, gnathostomes, pisces, amphibians, reptiles, aves and mammals.
- Evolutionary significance of vertebrates is studied.

**Paper II: Computational biology, Biostatistics and Bioinformatics (Course Code-M3 ZOO 02 CT-10) ) (Core)**

**Course Outcome:**

- To learn the strategies of data collection, analysis of data, measurement of central tendencies and different sampling techniques.
- To understand the proper interpretation of data generated in the biology using correlation, regression and significance tests.
- To have access to computer statistical programs – Prism, SPSS.
- To have knowledge about probability and different probability distribution.
- To understand the Statistical designing of experiments and importance of research designs.
- To give knowledge about computer and its applications for further research and to use of different scientific database.
- To introduce to bioinformatics and various tools like proteomics, genomics, microarray etc.

**Elective I A: Entomology and Insect Toxicology**

**Paper I: SYSTEMATIC ENTOMOLOGY AND INSECT ECOLOGY (Course Code-M3ZOO 03 ET-01A) (Elective)**

**Course Outcome:**

- To give a detailed knowledge about Origin and Evolution of insects.
- To know taxonomical position, classification and use of identification keys for the largest inhabitants of the earth i.e., insects.
- To give knowledge about collection, identification and preservation aspects of insects.
- To study about different insect societies and their success rate.
- To provide information about the ecology, population dynamics, intra and interspecific relations along with human and insect interactions.

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**Elective I B: Wildlife Biology**

**Wildlife Biology I : Biodiversity and Wildlife Ecology (Course Code-M3ZOO-03 ET01B) (Elective)**

**Course Outcome:**

- To understand the concepts, levels and values of biodiversity alongwith different types of species of biodiversity importance.
- To study the organization and characteristics of biotic community and population ecology
- To know about the Ecology of major habitats, patterns of habitat utilization and dispersion.
- To have idea about the Major vegetation types of India, phenology and distribution.
- To study the forest soils, conservation methods and forest menstruation.
- To provide insight into Silviculture.

**Elective II A: Entomology and Insect Toxicology**

**Paper II: Insect Organization and Physiology (Course Code-M3ZOO04 ET02A) (Elective)**

**Course Outcome:**

- To inculcate knowledge of morphology and physiology of insects.
- To study the integument, appendages and wing development.
- To have knowledge about various systems namely muscular, digestive, circulatory, excretory and respiratory systems of insects and to know their physiology and how they make insects the most successful organisms on the earth.
- To provide information about the morphology and physiology of neuro endocrine system.
- To impart knowledge about the reproductive, endocrine system, growth, development and metamorphosis in insects.

**Elective II B : Wildlife Biology**

**Wildlife Biology II : Conservation Biology (Course Code-M3ZOO 04ET02B) (Elective)**

**Course Outcome:**

- To gain knowledge about Conservation biology and biodiversity conservation
- To have an insight into *ex situ* and *in situ* methods of conservation
- To have an idea about international conservation bodies – IUCN, UNDP, FAO, WWF
- To have knowledge about national parks, wildlife sanctuaries and biosphere reserves of India

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- To know about the formation and management of zoological parks and zoo sanitation
- To have an idea of Indian wildlife and endangered and threatened species
- To impart knowledge about wildlife forensics, conservation ethics and values

**Practical- I (Core Paper I & II) (Course Code-M3ZOO05CP05)**

**Course Outcome:**

- This course involves the practical knowledge related to core theory papers I and II.
- It acquaints the students with various types of vertebrates by studying museum specimens and slides of their internal parts etc.
- Students are imparted practical knowledge of preparing permanent slides of various materials available
- Virtual dissection helps to have practical knowledge about the anatomy of different vertebrate animals.
- Comparison of axial skeleton of pisces, amphibians, reptiles, aves and mammals gives an idea about the bones and their development
- Understand the application of statistical techniques in biological research.
- To know the statistical problems in biological science which are useful for the students for their research works.
- To work on computer statistical programs – Prism, SPSS
- To have practical knowledge about how to perform various statistical tests like significance tests, ANOVA, etc.
- To use various bioinformatics tools like proteomics, genomics, microarray etc.
- To calculate probability and different probability distribution.

**Practical-II (Elective I A and II A: Entomology and Insect Toxicology) (Course Code -M3ZOO 05 EP01A)**

**Course Outcome:**

- This course involves the practical knowledge related to elective IA and IIA theory papers.
- Students are exposed to field visits for identification and collection of insects of various orders.
- To inculcate practical knowledge and usage of various collection, identification and preservation methods of insects at various stages
- Dissections of insects from different orders gives an insight of the anatomy of various systems
- To demonstrate the different types of antennae, mouthparts, wings etc., which are an important parameter for identification
- Insect preservation boxes are made for future studies
- Microtomy of internal organs helps to analyze the detailed structure

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**Practical-II (Elective I B and II B: Wildlife Biology) (Course Code-M3ZOO05  
EP01B) Biodiversity, Wildlife Ecology and Conservation Biology**

**Course Outcome:**

- This course involves the practical knowledge related to elective IB and II B theory papers.
- The students are given exposure to field by visits to Zoological garden and a small report is submitted by them.
- Practical knowledge about identification of mammalian species using hair imprinting and scat analysis is given which is an important aspect for wildlife studies.
- Analysis of population density, species dominance, habitat characteristics etc., are done in field.
- Soil and water analysis in the field are demonstrated.



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**SEMESTER IV**

**Paper II: Applied Zoology (Course Code-M4ZOO01CT11) (Core)**

**Course Outcome:**

- To study the concepts of applied zoology.
- To study various protozoans, helminthes and insects in relation to the human diseases they cause.
- To acquire information on beneficial insects, sericulture and apiculture.
- Students are introduced to vector biology and are imparted knowledge regarding different vector borne diseases especially in humans and their recent facts.
- To impart knowledge about agricultural pests.
- Brief idea of pisciculture, fish industry, pearl culture and pearl industry are given.
- To provide knowledge about Sustainable agriculture, organic farming and vermicomposting.

**Paper II: Animal Biotechnology (Course Code-M4ZOO02CT-12) (Core)**

**Course Outcome:**

- To give an insight into the various aspects of biotechnology, rDNA technology and genetic engineering.
- To provide knowledge about dealing with different procedures involving genes viz., isolation, sequencing, labeling, probing, cloning techniques etc.
- To study different hybridization techniques, DNA fingerprinting, blotting techniques etc.
- To study the mechanism of gene regulation, gene targetting, gene therapy and human genome project.
- To learn the application of biotechnology and genetic engineering in various fields.
- To study the Role of biotechnology in health care diagnosis.
- To learn the Intellectual Property Rights and patenting laws.
- To give knowledge about Ethical and social implications of gene technology.

**Elective I A: Entomology and Insect Toxicology**

**Paper I: Economic and Commercial Entomology (Course Code-M4ZOO03 ET - 01A) (Elective)**

**Course outcomes:**

- To impart knowledge about pests of economic importance and their management
- To study about synthetic insecticides, assessment of pest status and their chemical control
- To provide an insight into the biological control of insects and integrated pest management

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- To acquaint with role of biotechnology and nanotechnology in insect control
- To give knowledge of medical entomology where life cycle, disease transmission and control measures of flies, fleas and ticks etc.,
- To have an insight of mosquito borne diseases, other vector borne diseases, disease outbreak and integrated vector management strategies
- To study commercial entomology by providing an insight into apiculture, sericulture and lac culture and their status in India

**Elective I B: Wildlife Biology**

**Paper I B: Wildlife Biology : Indian Wildlife (Course code-M4ZOO 03ET -01B)**  
**(Elective)**

**Course outcomes:**

- To study about various aspects of Indian wildlife.
- To study the various Zoogeographical regions of India and their fauna and special mention of fauna of Thar desert.
- To have an insight into the Status, distribution, physical characteristics and ethology of important endangered animals and plants of the country.
- To study about the different special wildlife programs like Project Tiger, Project Elephant, Operation Rhino, Project Crocodile running in the country.
- To gain knowledge about Wildlife Institutes in India and wildlife legislation including different acts and plans.
- To study the damages caused by wildlife- their identification and control.

**Elective II A: Entomology and Insect Toxicology**

**Paper II: Insect Toxicology and Forensic Entomology (Course Code-M4ZOO04ET -02A) (Elective)**

**Course outcomes:**

- To study the different toxicological parameters and impact of insecticide misuse.
- To impart knowledge about mode of action of organophosphates and carbonates on target organism.
- To have an insight into how Bioassay of insecticide is done in laboratory and the methods of diluting insecticide to a recommendation level.
- To study the host plant resistance mechanism and transgenic crops in pest management.
- To impart knowledge about the research methodology and use of statistics in entomology.
- To study the role of insects and other arthropods in forensics i.e., forensic application of entomology which is of utmost importance in current scenario.

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**Elective II B : Wildlife Biology**

**Paper II: Wildlife Biology : Wildlife Management (Course Code-M4ZOO 04ET - 02B)**

- To provide knowledge about wildlife management and strategies.
- To give information about History and cultural background of Indian Wildlife.
- To study the different methods of wildlife counting like census method, mark recapture methods etc.
- To introduce students to remote sensing and Geographic Information System (GIS).
- To impart knowledge about forest management, forest laws, acts and principles.
- To provide insight into social forestry and how involvement of common people, extension and education, tourism, finance help in wildlife management
- To demonstrate the application of biostatistics in wildlife.

**Practical- I (Core Paper I & II) (Course Code-M4ZOO06-CP06)**

**Course Outcome:**

- This course involves the practical knowledge related to core theory papers I and II.
- Students are given practical knowledge of rearing and the life cycle study of any stored product pest, phytophagous pests or medically important insects.
- To study permanent slides of disease causing protozoans, helminthes and arthropods.
- Extraction and quantification of DNA is practically demonstrated.
- Practical knowledge and demonstration of Agarose gel electrophoresis for DNA, RNA and protein.

**Practical-II (Elective I A and II A: Entomology and Insect Toxicology)**

**Entomology and Insect toxicology (Course Code-M4ZOO06-EP02A)**

**Course Outcome:**

- Students are given practical knowledge about Collection ,identification and rearing of phytophagous pests and different mosquitoes.
- Estimation of LD50 and LC 50 of insecticides using insects is demonstrated.
- Students are acquainted with techniques of appliances used for the application of insecticides.
- Analysis of Blood cells, meiotic and polytene chromosomes is being practically taught.
- Various rearing techniques, mechanisms and use of equipments is learnt by the student.

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**Practical-II (Elective I B and II B: Wildlife Biology)**

**Indian Wildlife and Wildlife Management (Course Code-M4ZOO06-EP02B)**

**Course Outcome:**

- Visit to natural habitats and wildlife sanctuaries, desert, mountain range, wetland and especially Rajasthan for the detail study.
- Visit to wetland for demonstration and field exposure of students.
- Students are acquainted with use of Taxonomic identification and preparation of taxonomic key of given animals.
- Practical knowledge of POP preparation of pugmarks and footprints, designing the animal housing, enclosures, Permanent preparation of barbs of different avian feathers and use of statistical parameters is imparted.
- Students also have to submit a project report on the different field visits done.

**DIPLOMA IN PUBLIC HEALTH ENTOMOLOGY (DPHE)**

**PROGRAMME SPECIFIC OUTCOMES (PSO)**

- PG Diploma in Public Health Entomology is a 1-year diploma course run under the CBCS scheme in the department of zoology. It relates with the study of many vectors borne diseases such as malaria, dengue, chikungunya, scrub typhus, zika etc.
- The entire syllabus is divided into 2 semesters each having 4 theory and 2 practical papers accounting to a total of 8 theory and 4 practicals for each student.
- First semester has introductory part of various national programmes, morphology and biology of vectors, lifecycle of disease-causing agents and their control strategies.
- Second semester has knowledge about arboviruses, medically important vectors, and their control strategies.
- Students are gain expertise and in-depth theoretical and practical knowledge about the public health concern related to vector borne diseases.
- The programme is designed in such a way to provide both academic and professional training as well as field practices.

**PROGRAMME OUTCOMES (PO)**

- To understand the morphology, biology and behaviour of medically important vectors and pathogens.
- To Gain knowledge and understand concepts of public health concern.
- To equip students with field and significant research knowledge as well as practices in public health concern.

**SEMESTER I**

**Paper I: Anophelines, Culicines and their medical importance (DPHE 1- CT-01A)**

**Course Outcome:**

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The paper 1 cover detailed study on morphology of anopheles, culex, aedes and its habitat which is useful to understand the bionomics and distribution of these mosquito and understand the malaria, lymphatic filariasis, and other arthropods diseases spreading and transmission. It also includes general characteristics of Mosquitoes and their identification. It also reveals about Concepts and control/management. Principles of malaria eradication and control: Malaria Control in India – NMCP, NMEP, MPO, PfCP, UMS, RBM, EMCP, NVBDCP, WHO, Global Malaria Control Strategy.

**Paper II: Sand flies, Black flies, Muscoid flies and their medical Importance (DPHE 1- CT-02A)**

**Course Outcome:**

This paper 2 included morphology and biology of Sand fly and muscoid flies and understanding the biology about myiasis, kala azar, onchocerciasis diseases. It also includes Distribution, Behaviour, Biology Disease transmission cycle of these diseases. The Study of forensic flies and its role in crime detection is help in the forensic crime detection and pattern wise succession pattern of different types of flies on an animal caracaces.

**Paper III: Other Arthropods of Medical and Veterinary Importance (DPHE 1- CT-03A)**

**Course Outcome:**

The paper 3 includes about the study of Classification, morphology and life cycle of fleas, lice, ticks, bugs, cockroach, and Cyclops that are vector for many diseases. This paper is also important to understand Arthropods vectors of human disease the spread many diseases to human.

**Paper IV: Integrated Methods of Vector Management (DPHE 1- CT-04A)**

**Course Outcome:**

The paper 4 contain detail account of Integrated vector management of vectors that is important to the efficient control of disease transmitting vectors. It gives us a detailed account about Insecticides, Insect Growth Regulators, Insecticide Application Equipments, Agriculture and Public Health Practices, Community participation in vector management and sustainable use of insecticides. Insecticide Resistance and Management Present status of insecticide resistance and Impact of insecticide resistance on the control of vectors also important that covers in this paper.

**Practicals I (DPHE 1- CP-01A)**

**Course Outcome:**

- To get practical knowledge and hand practices about collection and identification of medically important insects and mounting of their body parts.
- It also helps in differentiation of mosquitoes and field survey of mosquitoes.
- To gain practical knowledge about different aspects of vector biology and rearing of medically important insects.

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**Practicals II (DPHE 1- CP-02A)**

**Course Outcome:**

- To get practical knowledge about collection, sampling and live demonstration of vectors.
- To get practical knowledge about handling of different pesticide application equipments
- To get practical knowledge about monitoring of insecticide resistance/susceptibility in field strains against larvicides/adulticides.

**SEMESTER 2**

**Paper I: Anophiline and Culicine Diagnosis, treatment and prognosis (DPHE 2- CT-05B)**

**Course Outcome:**

Mosquito borne diseases are major threat to the human health. The 1st paper covers the diagnosis, treatment and prognosis method of mosquito borne disease. It involves Life cycle of human malaria parasites and Transmission factors, Taxonomic position and Distinguishing characters of different species of human malarial parasites. Arboviruses such as Dengue, Chikungunya, Japanese encephalitis, Zika, West Nile, and Yellow fever viruses are also affect the human health that is also covered in in this paper.

**Paper II: Sand flies, Black flies, Muscoid flies and their medical ImportanceMedical importance of sand fly – borne diseases: MAJOR Diseases arising from sand flies black flies and mucoid flies(DPHE 2- CT-06B)**

**Course Outcome:**

The paper 4 cover many important aspects about medical importance of fleas, lice, ticks, bugs, cockroach, Cyclops. It also includes Various National Vector Borne Disease Control Programmes in India and Role of WHO and major National institutes in eradication of fly borne diseases.

**Paper III: Other Arthropods of Medical and Veterinary Importance (DPHE 2- CT-07B)**

**Course Outcome:**

The paper understands us about many diseases like chagas disease, trench fever, relapsing fever, typhus, plague, Lyme disease, KFD, CCHF, Q fever, babesiosis, tularemia, cockroach borne diseases. It also helps to understand the transmission and controlling measures of these diseases.

**Paper IV: Biological & Environmental Methods for the Control of Vectors (DPHE 2- CT-08B)**

**Course Outcome:**

The paper 4 cover many important aspects related to the environmental and biological of control of vectors and pesticides management. It reveals about the biological control of

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vectors by Larvivorous fish, Biocontrol/predatory potential, and Natural enemies of Arthropods.

**practical I (DPHE 2- CP-03B)**

- To get practical knowledge and hand practices about staining process, Blood smear preparation and identification of malaria parasite, Parasite counting and density grading.
- Demonstration of membrane filtration technique, ICT card test, and Og4C3 technique.
- It also helps to gain Clinical symptoms, Clinicopathological studies, Treatment Diagnosis, Prognosis and Vaccination process, public health issues.
- To gain practical knowledge about Isolation and identification of bacterial pathogens, Testing of mosquito larvicidal and pupicidal activity and different aspects and techniques of vector control strategies.

**Practical II (DPHE 2- CP-04B)**

- To get knowledge about identification of larvivorous fish.
- To get knowledge about handling of equipments for Environmental Management.
- To get knowledge about demonstration of community mobilization techniques

**Programme Specific Outcomes and Course Outcomes**  
**Department of Mathematics and Statistics**

<b>Programme Specific Outcomes</b>	<p><b>PSOs of B.Sc. Statistics</b></p> <p>PSO1. Understand the basic concept of descriptive statistics, probability theory along with computational techniques and official statistics.</p> <p>PSO2. Focus on Discrete and continuous probability distribution and density function, also describe.</p> <p>PSO3. Classifications of infermics, concept of design of experiments, quality control and concepts of theory of sample survey.</p> <p><b>PSOs of M.Sc. Statistics</b></p> <p>PSO1. Preliminaries of integration and probability distribution.</p> <p>PSO2. Analysis study of different sampling methods and classification of design of experiments.</p> <p>PSO3. Study of multivariate analysis, optimization techniques and different models of stochastic process.</p> <p>PSO4. Advanced study of design, inference and sample survey.</p>
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<p><b>Course Outcomes</b></p>	<p><b>COs of the course “Descriptive Statistics” (B.Sc. I Year)</b></p> <p>After completion of classes students will be able to learn:-</p> <p>CO1 Describe the concept o statistics, population sample, types of data, method to collect them, their classification, tabulation and presentation with the help of different frequency curves and diagrams.</p> <p>CO2 Learn various measure of location, quartiles deciles and their properties, merits and demerits.</p> <p>CO3 Learn various measure of dispersion, Lorenz curve and requisites to obtain an ideal measure of dispersion.</p> <p>CO4 Understand different types of moments and different measure of Skewness and Kurtosis.</p> <p>CO5 Learn theory of attributes upto three variable, also consistency, association and independence of attributes.</p> <p><b>COs of the course “ Probability Theory” (B.Sc. I Year)</b></p> <p>After completion of classes students will be able to learn:-</p> <p>CO1 All the basic term for probability its definition and addition law of probability also solve simple problem of probability.</p> <p>CO2 Conditional and multiplication law of probability and simple applications.</p> <p>CO3 Types o random variable their probability mass function and density functions.</p> <p>CO4 Mathematical expectation its definition, additive and multiplicative law and elementary idea of conditional expectation etc.</p> <p>CO5 Moments and cumulates generating function and their properties.</p> <p><b>COs of the course “Computational Techniques &amp; Official Statistics” (B.Sc. I Year)</b></p> <p>After completion of classes students will be able to learn:-</p> <p>CO1 Statistical organization of India, its functions and publication.</p> <p>CO2 Linear programming problem its formulation and presentation by different method.</p>
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CO3 Interpolation formulae, different operators with their properties and estimation of missing value.

CO4 Divided difference formulae and inverse interpolation.

CO5 Numerical integration and related problems.

### **COs of the course “Statistics Practical” (B.Sc. I Year)**

Course outcome:- After completion of classes students will learn:

- \* Presentation of raw data.
- \* Graphical presentation of frequency polygon, curve and ogives.
- \* Diagrammatic representation of Bars and Diagram.
- \* Measure of central tendency.
- \* Measure of dispersion.
- \* Moments and measures of skewness and Kurtosis.
- \* Evaluation of probabilities by different method.
- \* Association of attributes.
- \* Problems based on interpretation.

### **COs of the course “ Probability Distributions” (B.Sc. II Year)**

After completion of classes students will be able to learn:-

CO1 Weal law of large numbers and central limit theorem for i.i.d. random variables.

CO2 Different univariate discrete distribution their properties and application.

CO3 Some other discrete distributions their properties and application like geometric, multinomial and distribution etc.

CO4 Different univariate continuous distribution their properties and application.

CO5 Some more continuous distributions and their properties and application.

**COs of the course “Sampling Distributions And Elements Of Estimation”(B.Sc. II Year)**

After completion of classes students will be able to learn:-

- CO1 Univariate sampling distribution its concept, properties and concepts of standard error of an estimate. Chi-square distribution its derivation, properties and problems.
- CO2 t, F and Z sampling distribution with their properties.
- CO3 Concept of point estimation and its properties.
- CO4 Bias, Mean square error and variance, MVUE and its properties.
- CO5 Concept of interval estimation and its properties.

**COs of the course “Applied Statistics” (B.Sc. II Year)**

After completion of classes students will be able to learn:-

- CO1 Method of least square, fitting of polynomial and plausible solution of linear equations.
- CO2 Concept of correlation, regression.
- CO3 Partial and multiple correlation coefficient and multiple regression.
- CO4 Different components of time series and different method to obtain it.
- CO5 Construction of Index numbers types of it and requisites of an ideal index number.

**COs of the course “Statistics Practical” (B.Sc. II Year)**

After completion of classes students will be able to learn:-

- \* Fitting of Binomial, Poisson and Normal distribution.
- \* Calculation of area of normal curve.
- \* Calculation of correlation coefficient by different method.
- \* Fitting of curves.
- \* Construction of regression line.
- \* Calculation of multiple and partial correlation coefficient and regression equations (for three variables only)
- \* Determination of trend line by different method.
- \* Determination of seasonal variation by different method.
- \* Construction and index method.

**COs of the course “Statistical Inference” (B.Sc. III Year)**

After completion of classes students will be able to learn:-

- CO1 Procedure of testing hypothesis its terminology and determination of BCR for testing simple v/s simple hypothesis in uniform and normal population.
- CO2 Theory of test of significance for large samples and t-distribution.
- CO3 Test of significance for Chi-square and F-sampling distribution.
- CO4 Different method o estimation with their properties.
- CO5 Elements of Non-parametric inference and sequential analysis.  
Construction of O.C. and ASIN function and properties of SPRT.

**COs of the course “Design Of Experiments And Statistical Quality Control” (B.Sc. III Year)**

After completion of classes students will be able to learn:-

- CO1 ANOVA for one-way and two-way classification. Basic concepts, models and its types in design of experiments.
- CO2 ANOVA for CRD & RBD and its efficiency.
- CO3 Missing plot technique for single value in RBD and ANOVA for LSD.
- CO4 Statistical quality control with different charts for variables and attributes.
- CO5 Principles of acceptance of sampling plan and their functions.

**COs of the course “Theory Of Sample Surveys And Vital Statistics” (B.Sc. III Year)**

After completion of classes students will be able to learn:-

- CO1 Concepts of sample surveys principle steps in a sample survey, its limitations. Principle of sampling design and procedure of selecting random samples.
- CO2 Simple and stratified random sampling.
- CO3 Cluster and two stage sampling their definition and estimation of mean and variance.
- CO4 Ratio and regression method of estimation and systematic sampling.

CO5 Uses of vital statistics and method to obtaining it and measurements of different components of vital statistics and description and construction of life table.

**COs of the course “Statistics Practical” (B.Sc. III Year)**

After completion of classes students will be able to learn:-

- \* Testing of hypothesis for large samples.
- \* t-test for the significance of single and difference of mean.
- \* F-test for equality of variances.
- \*  $\chi^2$ - test for specified variance, goodness of fit, independence of attributes and Homogeneity of correlation coefficient.
- \* Non-parametric test.
- \* ANOVA for one-way classification and two-way classification.
- \* ANOVA of CRD, RBD and LSD.
- \* Estimation of missing value.
- \* statistical quality control.
- \* Sample surveys problem by SRS and stratified sampling.
- \* Vital statistics.

**COs of the course “Measure and Integration” (Sem-I)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Set theory with its limits, classes and functions.
- CO2 Measure and its properties.
- CO3 Probability measure- measurable space.
- CO4 Measurable functions and its properties.
- CO5 Properties of Integral.

**COs of the course “Matrices and Linear Algebra” (Sem-I)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Matrices properties, partitioning and universe matrices with linear dependence and independence.
- CO2 Basic and dimension, orthonormal basis.
- CO3 Characteristic equations with Eigen values and vectors.
- CO4 Bilinear and quadratic forms.
- CO5 Singular value and Jordon decomposition.

**COs of the course “Probability Theory” (Sem-I)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Axiomatic approach to probability and its application.
- CO2 Independence of experiments and events, Baye’s theorem and its application.
- CO3 Random variables, distribution function and multivariate and frequency function.
- CO4 Mathematical expectation and its properties.
- CO5 WLLN and central limit theorem.

**COs of the course “Theoretical Distributions” (Sem-I)**

Course outcome:- at the end of class students will gain knowledge of

CO1 Generating functions and their applications.

CO2 Inversion theorem, derivation of distribution function and application of central limit theorem.

CO3 Discrete distributions with their properties and application.

CO4 Continuous distributions with their properties and application.

CO5 Compound distributions, Pearsonian system of frequency curve.

**COs of the course “Practicals Based on C-Programming in Computational Statistics” (Sem-I)**

Course outcome:- at the end of class students will gain knowledge of

Introduction to computer and its uses. Application of C-programming in various areas of computational statistics. Techniques related to generating random number. Developing algorithm, flow chart and program for some useful statistical data analysis problems.

**COs of the course “Practicals Based on CT 03 & CT 04” (Sem-I)**

Course outcome:- at the end of class students will gain knowledge of

\* Calculation of moments, Skewness and Kurtosis.

\* Fitting of Binomial, Poisson and Normal distribution.

\* Calculation of area under normal curve.

### **COs of the course “Sampling Distributions” (Sem-II)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Univariate sampling distributions, Chi-square distribution ( central and non-central) and their applications.
- CO2 t- and F distribution (central and non central) and their applications.
- CO3 Orthogonal polynomials, order statistics and their distribution.
- CO4 Sampling distribution of median and range, regression and correlation, null and non-null distribution of sample correlation coefficient.
- CO5 Bivariate distribution (discrete and Continuous)

### **COs of the course “Statistical Inference-I” (Sem-II)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Elements of statistical decision functions, point estimation and their properties.
- CO2 Minimum mean square, MVU and UMVU estimators, CR bounds.
- CO3 Various method to obtain maximum likelihood estimators (MLE's) interval estimation.
- CO4 Basic concepts of testing hypothesis, two kind of errors, NP Lemma for determination of best critical region.
- CO5 Non-parametric test and sequential analysis its construction and its application.

### **COs of the course “Design of Experiments-I” (Sem-II)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Analysis of models, orthogonal polynomial, ANCOVA, transformation.
- CO2 Principles of experimentation, CRD, RBD.
- CO3 LSD & BIBD and their analysis.
- CO4 Factorial experiments and confounding.
- CO5 Missing plot technique with reference to RBD and split plot design.



**COs of the course “Theory of Sample Surveys-I” (Sem-II)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Planning and execution of analysis of sample survey, simple random sampling.
- CO2 Stratified and cluster sampling.
- CO3 Two stage and systematic sampling.
- CO4 Ratio and regression method of estimation, Double sampling.
- CO5 Elements of unistage sampling with varying probability.

**COs of the course “Practicals Based on CT 05 & CT 06” (Sem-II)**

Course outcome:- at the end of class students will gain knowledge of

- \* Calculate correlation and regression for Bivariate frequency distribution.
- \* Large sample test, F-test, Chi-Square test and t-test.
- \* Barlet’s test for homogeneity of variance.
- \* Power curves for testing simple hypothesis v/s composite hypothesis.
- \* Test of significance for simple correlation coefficient.
- \* Non-parametric test.
- \* SPRT calculations of constants.
- \* Fitting of orthogonal polynomials.

**COs of the course “Practicals Based on CT 07 & CT 08” (Sem-II)**

Course outcome:- at the end of class students will gain knowledge of

- \* Analysis of CRD, RBD, LSD and BIBD.
- \* Analysis of RBD, LSD with missing observations.
- \* Analysis of a factorial experiments confounded factorial experiments.
- \* Drawing of random samples from finite populations.
- \* Drawing samples from Binomial and normal populations.
- \* Estimation of population mean and variance in SRS, stratified sampling.
- \* Systematic sampling, cluster sampling, two stage sampling, double sampling and by ratio and regression method of estimation.
- \* PPSWR selection of sample and estimation.

### **COs of the course “Multivariate Analysis” (Sem-III)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Multivariate normal distribution and its properties and distribution of quadratic forms.
- CO2 MLE's of the mean vector and covariance matrix.
- CO3 Hotelling's  $T^2$  its properties and uses, Mahalanobis  $D^2$ .
- CO4 Wishart distribution and its properties classification of observations.
- CO5 Null and non-null distributions of partial and multiple correlation coefficients and multivariate central limit theorem.

### **COs of the course “Statistical Inference-II” (Sem-III)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Likelihood ratio test and its applications.
- CO2 Properties of MLE's and generalization of CR inequality for multiparametric case.
- CO3 Complete family of probability distributions.
- CO4 UNP test with and more than one parameter.
- CO5 Similar regions and relationship between notions of completeness.

### **COs of the course “Practicals Based on CT 09” (Sem-III)**

Course outcome:- at the end of class students will gain knowledge of

- \* Multivariate analysis.
- \* Linear combination of correlated normal variates and evaluation of probabilities.
- \* Estimation and testing of mean vector, covariance, partial and multiple correlation coefficient.
- \* Analysis of discriminate functions. Their software development in C-language.

### **COs of the course “Operations Research” (Sem-III)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 OR definition, scope and nature, transportation and assignment problems.

- CO2 Deterministic, Inventory models with at most one linear restriction and without restriction probabilistic inventory models.
- CO3 Queuing theory and its differ models of process.
- CO4 Simulation, definition, its types uses and limitations.
- CO5 Steady state, solutions of Markovian queuing models.

**COs of the course “Stochastic Processes” (Sem-III)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Stochastic process with stationary transition probabilities and its properties.
- CO2 Classification of states stationary distribution of a Markov chain.
- CO3 Markov pure jump process, passion process, birth and death process.
- CO4 Second order processes mean and covariance function.
- CO5 Stochastic differential equations, estimation theory and special distribution.

**COs of the course “Practicals Based on DSE 01 & DSE 02” (Sem-III)**

Course outcome:- at the end of class students will gain knowledge of

- \* OP and stochastic.
- \* process and their software developments in C-language.

**COs of the course “Design of Experiments-II” (Sem-IV)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Linear estimation of Gauss Markoff theorem, testing of hypothesis and sub hypothesis.
- CO2 Analysis of two way elimination of heterogeneity, orthogonality connectedness and Balancedness, incomplete block designs.

- CO3 Concept of association scheme with two associate classes.
- CO4 Lattice and Linked block designs, MOLS for prime and power of prime, Construction and analysis of Youden square design.
- CO5 Methods of construction of BIBD and SBIBD.

### **COs of the course “Non-Parametric Inference” (Sem-IV)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Order statistics and their sampling distribution and hypothesis testing for population quantities.
- CO2 Tolerance limits for distribution and coverage's, Chi-square goodness of fit test and signed test.
- CO3 Test for two sample problems comparison and their distributions, Run test, median test and U-test.
- CO4 Linear ranks statistics, Probability distribution and irefulness.
- CO5 Correlation between rank order statistics and variate values. Test based on the total number of runs and the length of the longest run.

### **COs of the course “Practicals Based on CT 11” (Sem-IV)**

Course outcome:- at the end of class students will gain knowledge of

- \* Testing of hypothesis for one-way and two-way classification.
- \* Analysis of IBD, GDD.
- \* Analysis of linked block design.
- \* Analysis of simple lattice, youden square etc.

### **COs of the course “Theory of Sample Surveys” (Sem-IV)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Partition of sample space and definition of T-classes of linear estimators.
- CO2 Quenouille's techniques of bias reduction and its applications, methods of estimation in PPSWR, ratio method of estimation.

CO3 Ratio and regression method of estimation for PPSWR, Variance by HT-estimator and YG-estimators.

CO4 Sen- Midzuno scheme of sampling of inclusion probabilities.

CO5 The theory of multistage sampling with VPWR and VPWOR.

### **COs of the course “Demography” (Sem-IV)**

Course outcome:- at the end of class students will gain knowledge of

CO1 Census and vital data.

CO2 Stationary populations, construction of life table.

CO3 Stable population theory.

CO4 Demographic trends in India

CO5 Bivariate growth models, migration models, fertility and mortality analysis models.

### **COs of the course “Practicals Based on CT-12” (Sem-IV)**

Course outcome:- at the end of class students will gain knowledge of

\* Horvitz and Thompson’s procedure of estimating mean of the population.

\* Yates and Grundy method, Midzuno’s sampling scheme, Rao-Hartley Cochran schemes.

\* Two stage sampling method.

\* Ratio and regression method of estimation and software development of above practical in C- language.

**Programme Specific Outcomes and Course Outcomes**  
**Department of Mathematics and Statistics**

<b>Programme Specific Outcomes</b>	<p><b>PSOs of B.Sc. Statistics</b></p> <p>PSO1. Understand the basic concept of descriptive statistics, probability theory along with computational techniques and official statistics.</p> <p>PSO2. Focus on Discrete and continuous probability distribution and density function, also describe and applied statistics.</p> <p>PSO3. Classifications of inferences, concept of design of experiments and sample surveys. Project work has been also introduces an preliminaries level.</p> <p><b>PSOs of M.Sc. Statistics</b></p> <p>PSO1. Preliminaries of integration and probability distribution. Practical will be emphasize on MS-excel and SPSS.</p> <p>PSO2. Analysis study of different sampling methods and classification of design of experiments. R programming language has been introduced.</p> <p>PSO3. Study of multivariate analysis, optimization techniques and different models of stochastic process.</p> <p>PSO4. Demography, econometrics, Linear models and regression analysis have been introduced and the practical will be done on r software. Project work and dissertation will be done.</p>
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<p><b>Course Outcomes</b></p>	<p><b>COs of the course “Computational Techniques &amp; Official Statistics” (B.Sc. I Year)</b></p> <p>After completion of classes students will be able to learn:-</p> <p>CO1 Interpolation formulae, different operators with their properties and estimation of missing value.</p> <p>CO2 Divided difference formulae and inverse interpolation.</p> <p>CO3 Linear programming problem its formulation and presentation by different method.</p> <p>CO4 Introduction of Statistical Quality Control and their applications.</p> <p>CO5 Statistical organization of India, its functions and publication.</p> <p><b>COs of the course “Statistics Practical” (B.Sc. I Year)</b></p> <p>Course outcome:- After completion of classes students will learn:</p> <ul style="list-style-type: none"> <li>* Presentation of raw data.</li> <li>* Graphical presentation of frequency polygon, curve and ogives.</li> <li>* Diagrammatic representation of Bars and Diagram.</li> <li>* Measure of central tendency.</li> <li>* Measure of dispersion.</li> <li>* Moments and measures of skewness and Kurtosis.</li> <li>* Evaluation of probabilities by different method.</li> <li>* Association of attributes.</li> <li>* Problems based on interpretation.</li> <li>* Solution of LPP by Graphical and Simplex methods.</li> <li>* Statistical Quality Control: (i) &amp; R Charts (ii) X and a charts (iii) p, np and c charts.</li> <li>* Exercises on Finite Difference Theory</li> <li>* Lagrange's and Newton's divided difference formulae</li> <li>* Inverse interpolation by Langrange's formula.</li> <li>* Numerical Integration by Trapezoidal, Simpson's 1/3rd &amp; 3/8th rules.</li> </ul> <p><b>COs of the course “Applied Statistics” (B.Sc. II Year)</b></p> <p>After completion of classes students will be able to learn:-</p> <p>CO1 Method of least square, fitting of polynomial and plausible solution of</p>
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linear equations.

CO2 Concept of correlation, regression, Partial and multiple correlation coefficient and multiple regression.

CO3 Vital Statistics and its derivative and application

CO4 Different components of time series and different method to obtain it.

CO5 Construction of Index numbers types of it and requisites of an ideal index number.

### **COs of the course “Statistics Practical” (B.Sc. II Year)**

After completion of classes students will be able to learn:-

- \* Fitting of Binomial, Poisson and Normal distribution.
- \* Calculation of area of normal curve.
- \* Calculation of correlation coefficient by different method.
- \* Fitting of curves.
- \* Construction of regression line.
- \* Calculation of multiple and partial correlation coefficient and regression equations (for three variables only)
- \* Vital Statistics : (i) CDR, Age specific death rates, Standardized death rates (ii) CBR, GFR, ASFR, TFR (iii) Standardized birth rate (iv) Crude rate of natural increase GRR and NRR (v) Life tables and to find out certain values with its help.
- \* Determination of trend line by different method.
- \* Determination of seasonal variation by different method.
- \* Construction and index method.

### **COs of the course “Design Of Experiments And Sample Surveys” (B.Sc. III Year)**

After completion of classes students will be able to learn:-

CO1 ANOVA for one-way and two-way classification. Basic concepts, models and its types in design of experiments.

CO2 ANOVA for CRD & RBD and its efficiency, Missing plot technique for single value in RBD and ANOVA for LSD.

CO3 Concepts of population and sample, need for sampling, types of



sampling

CO4 SRS, Stratified etc sampling schemes

CO5 Other types of sampling schemes and their applications.

**COs of the course “PROJECT WORK” (B.Sc. III Year)**

The project work shall be spread over the whole year. A project may be undertaken by a group of students. However, the project report shall be submitted by each member of the group separately. A project report shall clearly state the problem addressed, the methodology adopted, the assumptions, the hypotheses formulated, any previous reference to the study undertaken, statistical analyses performed and the broad conclusion drawn. There shall be an external examiner and an internal examiner (preferably the supervisor of the student) for the evaluation of the project work. Out of total 50 marks assigned to the project, 30 marks will be assigned on the evaluation of the project report separately by both the examiners and 20 marks will be assigned on the oral presentation and viva-voce.

**COs of the course “Statistics Practical” (B.Sc. III Year)**

- \* Introduction to C-programming Language.
- \* The following practical topics are prescribed for practical work using C-programming language:
  - \* Large sample test of significance for mean, standard deviation and proportion for one and two sample problems.
  - \* t test for the significance of single mean and difference of means (paired and unpaired cases) etc...

**COs of the course “Measure and Integration” (Sem-I)**

Course outcome:- at the end of class students will gain knowledge of

CO1 Set theory with its limits, classes and functions.

CO2 Measure and its properties.

CO3 Probability measure- measurable space.

CO4 Measurable functions and its properties.

CO5 Properties of Integral.

**COs of the course “Matrices and Linear Algebra” (Sem-I)**

Course outcome:- at the end of class students will gain knowledge of

CO1 Matrices properties, partitioning and universe matrices with linear dependence and independence.

CO2 Basic and dimension, orthonormal basis.

CO3 Characteristic equations with Eigen values and vectors.

CO4 Bilinear and quadratic forms.

CO5 Singular value and Jordon decomposition.

**COs of the course “Probability Theory” (Sem-I)**

Course outcome:- at the end of class students will gain knowledge of

CO1 Axiomatic approach to probability and its application.

CO2 Independence of experiments and events, Baye’s theorem and its application.

CO3 Random variables, distribution function and multivariate and frequency function.

CO4 Mathematical expectation and its properties.

CO5 WLLN and central limit theorem.

**COs of the course “Theoretical Distributions” (Sem-I)**

Course outcome:- at the end of class students will gain knowledge of

CO1 Generating functions and their applications.

CO2 Inversion theorem, derivation of distribution function and application of central limit theorem.

CO3 Discrete distributions with their properties and application.

CO4 Continuous distributions with their properties and application.

CO5 Compound distributions, Pearsonian system of frequency curve.

**COs of the course “Practicals Based On Statistical Methods (Using MS-Excel & SPSS)” (Sem-I)**

Course outcome:- at the end of class students will gain knowledge of

\* Presentation of raw data, Graphical representation by (i) Histogram (ii) Frequency polygon (iii) Frequency curve and (iv) Ogives etc.

\* Measures of Central Tendency, Dispersions, Skewness, Kurtosis etc.

\* Fitting of curves: (i) Straight line (ii) Parabola (iii) Exponential and Power curves.

\* Computation of simple, multiple, partial and rank correlation coefficients.

\* Calculation of Multiple and Partial correlation coefficients and construction of multiple regression equations (for three variables only).

**COs of the course “Practicals Based on CT 03 & CT 04” (Sem-I)**

Course outcome:- at the end of class students will gain knowledge of

\* Random number generation.(i) Binomial, (ii) Poisson, (iii) Normal

\* Fitting of distributions.

\* Plot probability curves for different sets of parameters.

\* Practical using generating functions such as MGF, PGF, CGF, CFs..

\* Software development of above practical problems in Excell & SPSS and running the same on computers.

**COs of the course “ STATISTICAL COMPUTING WITH R ” (Sem-II)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 R language Essentials, preliminaries.
- CO2 Matrices and Arrays, Conditional Statements etc.
- CO3 Data frames, Descriptive Statistics, Graphical Approaches.
- CO4 Probability Distributions, plots etc.
- CO5 Correlation and regression, Design of experiments..

**COs of the course “Theory of Sample Surveys” (Sem-III)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Partition of sample space and definition of T-classes of linear estimators.
- CO2 Quenouille’s techniques of bias reduction and its applications, methods of estimation in PPSWR, ratio method of estimation.
- CO3 Ratio and regression method of estimation for PPSWR, Variance by HT-estimator and YG-estimators.
- CO4 Sen- Midzuno scheme of sampling of inclusion probabilities.
- CO5 The theory of multistage sampling with VPWR and VPWOR.

**COs of the course “Demography” (Sem-IV)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Census and vital data, preliminaries.
- CO2 Mortality and determinants.
- CO3 Life table and Construction of life table.
- CO4 Population growth and their rates, Stationary and Stable populations
- CO5 Migration and their types.

**COs of the course “ Project Work and Viva-Voce/ Dissertation” (Sem-IV)**

The Project Work will be spread over the whole semester. Project may be undertaken by the group of students and each teacher can guide upto 10 students, which can be relaxed by the Head of the department. However, the project report shall be submitted by each member of the group separately. A project report shall clearly state the problem addressed, the methodology

adopted, the assumptions and the hypotheses formulated, any previous reference to the study undertaken, statistical analyses using some advance statistical softwares/ packages such as R/ STATA/ SPSS/ Latex etc. performed and the broad conclusion drawn. There shall be an external examiner and an internal examiner (preferably the supervisor of the student) for the evaluation of the project work. Out of total 100 marks assigned to the project, 80 marks will be assigned on the evaluation of the project work separately by both the examiners and 20 marks will be assigned jointly by the examiners on the oral presentation and viva – voce).

**COs of the course “Practicals Based on CT 11” (Sem-IV)**

Course outcome:- at the end of class students will gain knowledge of

- \* Calculations of various rate, ratio, percentages etc.
- \* Population Pyramids
- \* Computations of various Death rates.
- \* Computations of various Birth rates, NRR, GRR etc.
- \* Construction of Life Tables-Abridged, Lotka Life Tables
- \* Constructions of Makehams and Gompertz curves
- \* Logistic curve fitting for projection.

**COs of the course “ Econometrics” (Sem-IV)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Nature and Scope of Econometrics - Review of GLM, OLS.
- CO2 Heteroscedasticity, Instrumental variable estimation.
- CO3 Simultaneous linear equations model.
- CO4 Recursive systems, k-class estimators.
- CO5 Definition of casuality and types.

**COs of the course “Linear Models And Regression Analysis” (Sem-IV)**

Course outcome:- at the end of class students will gain knowledge of

- CO1 Theory of linear estimation, generalized inverse of a matrix etc.
- CO2 ANOVA and multiple comparison tests etc.
- CO3 Simple, multiple regression models, homogeneity of variances etc.
- CO4 Selection of input variables and model selection
- CO5 Robust regression

**COs of the course “Practicals Based On DSE 01 & DSE 02 CT-12” (Sem-IV)**

Course outcome:- at the end of class students will gain knowledge of

1. OLS estimation and prediction in GLM.
2. Use of dummy variables (dummy variable trap) and seasonal adjustment.
3. GLS estimation and prediction.
4. Tests for Heteroscedasticity: pure and mixed estimation.
5. Fitting of Multiple linear regression models.
6. Estimation of regression coefficient, fitting of multiple linear regressions.
7. Non-linear regression.
8. Logistic Regression.
9. Residual Analysis for model adequacy, detection of outliers and influential observations.
10. Variable Selection procedures.
11. Collinearity Diagnostics.