UNIVERSITY OF DELHI

CNC-II/093/1(28)/2023-24/57
Dated: 04.09.2023

N O T I F I C A T I O N

Sub: Amendment to Ordinance V

[E.C Resolution No. 27-1/ (27-1-11) dated 25.08.2023]

Following addition be made to Appendix-II-A to the Ordinance V (2-A) of the Ordinances of the University;

Add the following:

Syllabi of Semester-III, IV, V and VI of the following B.Voc courses based on Undergraduate Curriculum Framework -2022 to be implemented from the Academic Year 2022-23.

1. B.Voc Healthcare Management (Jesus & Mary College)
2. B.Voc Retails Management and IT (Jesus & Mary College)
3. B.Voc Software Development (Ramanujan College)
4. B.Voc (Banking & Financial Services & Insurance (Ramanujan College)
5. B.Voc Web Designing (Kalindi College) – IIIrd Semester only
6. BA (Hons.) Multimedia and Mass Communication

SEMESTER-3
Bachelor of Vocation – Healthcare Management

DISCIPLINE SPECIFIC CORE COURSE – 7 Communication in Healthcare

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Communication in Healthcare	4	3	1	0	Class XII Pass	NA

Learning Objectives

By the end of the term students should be able to demonstrate the use of critical thinking, decisions making and problem-solving skills though effective written and oral business communication.

Learning outcomes

- Student will be able to get an understanding of principles & objectives of Communication.
- Student will be able to understand the importance of Communication in an organization.
- Student will be able to identify barriers of communication and the best methods to communicate effectively.
- Students will be able to effectively use different styles of communication

SYLLABUS OF DSC-7

Unit 1-Communication – Origin, Meaning and Definition (6 Hours)

- Principles of Communication
- Objectives of communication
- Styles of Human Communication

Unit 2-Communication as a process (5 Hours)

- Oral Communication
- Written Communication

- Filtering and distortion of Message
- Common causes that weaken Effective Communication

Unit 3-Interpersonal Communication (12 hours)

- Perception in Interpersonal communication
- Transactional Analysis
- Structure of Transaction
- Principles to initiate communication
- Communication in Organization Setting
- Communication Skills in Interview Setting
- Essential of Effective Communication
- Models of Understanding Interpersonal Relationship

Unit 4-Barriers to Communication (11 hours)

- Organizational Barriers
- Semantic Barriers
- Personal Barriers
- Barriers in Subordinates
- Psychological Barriers
- Other Barriers
- Overcoming Barriers in Communication

Unit 5-Flow of Communication in an Organization (11 hours)

- Downward Communication
- Upward Communication
- Horizontal Communication
- Problems in Downward Communication
- Problems in Upward Communication
- Problems in Horizontal Communication

Practical component (if any) -

N/A

Essential/recommended readings

1. M. Jones, Phil (2017), Exactly what to Say, Box Of Tricks Publishing
2. Kumar, Sanjay; Lata, Pushp (2015), Communication Skills, Oxford University Press.
3. Schiavo, Renata (2013), Healthcare Communication-From Theory to Practice, Jossey-Bass.
4. Garg, Kumar, Dr.Manoj (2020),English Communication-Theory & Practice, Abcibook.
5. Tuhovsky, Ian (2017), The Science of Effective Communication, Rupa & Co.

DISCIPLINE SPECIFIC CORE COURSE – 8: Medical Terminology-3

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Medical Terminology-3	4	3	1	0	Class XII pass	Medical Terminology-2

Learning Objectives

Includes structure, recognition, analysis, definition, spelling, pronunciation, and combination of medical terms from prefixes, suffixes, roots, and combining forms.

Learning outcomes

- Student will be able to get an understanding of Diseases and disorders of the system as mentioned in the medical terms.
- Student will be able to guide the patients about the treatment options and diagnostic procedures as advised by the physician.
- This subject will enhance the medical terminology vocabulary of different conditions and treatment methods of organ system which is required at Front office and radiology department to guide the patients.
- Students will get an understanding of general Terminology (procedures, diseases, treatment) related to different body system

SYLLABUS OF DSC-8

Unit-1 (10 hours)

Nervous System-

- Basic Anatomy & Physiology of Nervous System
- Common Terms in Nervous System
- Common Diseases
- Diagnostic Tests and Procedures
- Treatment
- Basic Knowledge of Hospital Care / Infrastructure / Facilities/ Intensive Care / Neuro ICU / Stroke ICU/ and other specialized needs for patient
- Importance of Rehabilitation Services for Neuro patients
- Basic understanding of Stroke management

Unit-2 (10 hours)

Musculoskeletal System- procedures, diseases, treatment

- Basic Anatomy & Physiology of Musculoskeletal System
- Common Terms
- Diagnostic Tests and Procedures
- Basic understanding of Pain Management
- Treatment

Unit-3 (10 hours)

Oncology -Types of Cancers

- Diagnostics & Procedures
- Basic Understanding of Medical Oncology, Surgical Oncology, Chemotherapy, Immunotherapy & Radiotherapy
- Treatment
- Psychological aspects of cancer care
- Importance of Cancer Awareness Program

Transplant Medicine

- Introduction to transplantation of Human Organs & tissues
- Different types of transplants
- Care after Transplant

Unit-4 (5 hours)

Cardiovascular System-

- Brief Introduction-Heart
- procedures, diseases, treatment
- Preventive Aspects.

Unit-5 (10 hours)

ENT & Ophthalmology-

- Introduction –Ear, Nose, Throat & Eyes
- Understanding of ENT & Ophthalmology procedures
- Day care Procedures
- Common diseases
- Treatment

Practical component (if any) –N/A

Essential/recommended readings-

1. Stedman, (2005), STEDMAN'S Medical Dictionary, Wolters Kluwer.
2. A. Gylys, Barbara; Wedding, Mary Ellen (2017), Medical Terminology Systems, F.A. Davis Company.

DISCIPLINE SPECIFIC CORE COURSE – 9: Medical Software Applications-2

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Medical Software Applications-2	4	3	1	0	Class XII pass	Medical Software Applications-1

Learning Objectives

- Basic Understanding of functioning of computers & its application in healthcare with a perspective on Hospital operations
- Create basic awareness on healthcare record systems and infrastructure.

Learning outcomes

- Student will get the basic understanding and awareness about the software being used in hospital.
- Awareness of modules being used in different departments will help the student to work efficiently on the Systems.

SYLLABUS OF DSC-9

Unit-1(9 hours)

- Review of FO module
- Describe various modalities for Patient Registration in HIS
- Describe Important Information and Credentials to be captured in HIS
- Physician Schedules, Appointment entry and rescheduling appointment
- Describe Escalation Matrix in case of Non-Compliance
- Assess the working status of HIS as and when required
- Admission Module-IP Number Generation, Wrist band for tracking of patients, Bed allotment, Requisition of drugs and consumables from the pharmacy, Discharge Summary.

Unit-2-(13 hours)

- Management Information System – Business Intelligence, MIS as a tool to managerial control

- Core Functions of HIS – Patient Management, Clinical Management-Clinical Decision, Medical Forms, Doctors Notes; Revenue Management; Inventory Management – Procures stocks, Medicines and Consumables for day-to-day consumption of hospital needs. This module helps in maintaining the stocks, reordering, financial planning, Inventory Management & Stock
- Maintenance of patient's Database in HIS

Unit-3-(10 hours)

- Introduction to CRM tool
- Describe the Importance of Electronic Health Records / Medical Records/ Computerized patient record system.
    - Software for Pharmacy
    - Lab
    - Radiology
    - Allergy Tracking
    - Consults
    - Dietetics
    - Progress Notes

Unit 4(13 hours)

Modules used in HIS

- Emergency Module –Sends alert to the corresponding departments, Consulting Details, Clinical Follow up, lab Test Reports, Service orders and bookings, Pharmacy/ Surgical Details, Statutory forms
- Basics of HR Module –Recruitment, Training & Development, Compensation Management, Employee Tracking , Work Flows and Benefits
- Basics of Store Module

Practical component (if any) –

N/A

Essential/recommended readings-

1. Kelkar, S.A. (2010), Hospital Informations Systems, PHI.

Discipline Specific Elective 1: Healthcare Organization Operations

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Healthcare Organization Operations	4	3	1	0	Class XII pass	NA

Learning Objectives

- To enable the students to understand the fundamental concepts of operations management
- To provide awareness on the roles and responsibilities of operations managers in different organizational contexts

Learning outcomes

1. Understand the key functions and roles within a healthcare organization.
2. Analyze the impact of healthcare policies and regulations on operations.
3. Identify strategies to improve operational efficiency and patient safety.
4. Evaluate the quality of healthcare services within an organization.
5. Apply management principles to healthcare operations.
6. Demonstrate an understanding of healthcare information systems and technology.
7. Discuss the importance of patient-centered care and its impact on organizational operations.

SYLLABUS OF DSE-1

Unit 1(10 hours)

Introduction to Healthcare Operations Management

- Overview of healthcare operations management
- Importance and challenges of managing healthcare operations
- Role of operations management in healthcare quality and patient safety
- Healthcare regulatory environment and compliance considerations

Unit 2(10 hours)

Healthcare Processes & Policies

- Hospital Policies
- Process mapping and flowcharting in healthcare
- Lean principles in healthcare operations

Unit 3(15 hours)

Healthcare Capacity Planning and Resource Management

- Managing healthcare capacity and demand
- Resource allocation and optimization in healthcare
- Scheduling and appointment systems
- Managing healthcare workforce and staffing challenges

Unit 4(10 hours)

Emerging Trends in Healthcare Operations

- Innovations in healthcare technology and management
- Telehealth and its impact on healthcare operations
- Population health management and preventive care
- Global healthcare operations and challenges

Practical component (if any) –
N/A

Essential/recommended readings
N/A

Suggestive readings

1. "Operations Management for Healthcare Organizations: Applying Lean Concepts to Improve Patient Safety and Outcomes" by Lisa M. Anderson and Lisa S. Anderson**.**
2. "Healthcare Operations Management" by Daniel B. McLaughlin, Julie M. Hays, and Eugene Schneller.
3. "Lean Hospitals: Improving Quality, Patient Safety, and Employee Engagement" by Mark Graban.

Discipline Specific Elective 1: Healthcare Economics & Policy

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Healthcare Economics & Policy	4	3	1	0	Class XII pass	NA

Learning Objectives

This course aims to provide students with an understanding of the key principles and concepts of healthcare economics and the role of policy in shaping healthcare systems. Students will examine the economic factors that influence healthcare decision-making, analyze healthcare policies and their impact on access, cost, and quality of care, and explore the challenges and opportunities in healthcare markets.

Learning outcomes

Upon successful completion of the course, students will be able to:

1. Explain the key economic concepts relevant to healthcare, such as scarcity, opportunity cost, and efficiency.
2. Analyze the factors influencing the demand and supply of healthcare services and their implications on healthcare delivery.
3. Evaluate the effectiveness of different healthcare financing and reimbursement models.
4. Critically assess the impact of healthcare policies on vulnerable populations and healthcare disparities.

SYLLABUS OF DSE-1

Unit 1(10 hours)

Introduction to Healthcare Economics

- Definition of Economics
- Circular flow of economic activity
- Relation between Economics and Health Economics
- Importance of Health Economics
- Theory of Utility
- Theory of Demand-Determinants of healthcare demand, Elasticity of healthcare demand

Unit 2(10 hours)

- Theory of Production: Concept, factors and its implications. Production function- short and long run. Laws of diminishing marginal returns and variable proportions.
- Theory of cost: short and long run cost function. Fixed and Variable costs- Opportunity Cost- Average and marginal cost
- Market- its concept in economics, Perfect competition- nature, short and long run equilibrium, concept of break even and shut down point

Unit 3(10 hours)

Healthcare Financing

- Overview of healthcare financing models
- Health insurance systems in India
- Public vs. private healthcare financing in India
- Pricing strategies in healthcare
- Cost-benefit and cost-effectiveness analysis in healthcare

Unit 4(15 hours)

Health Economics

- Indian scenario
- Effect of globalization and privatization
- Importance of PPP Model
- Problem faced by health industry
- Changing scenario of health industry
- Public initiative to eradicate difficulties
- Alternative Models of Hospital Behavior-Utility Maximizing Model, Physician Control Models, The Trend towards Multi Hospital Systems.

Practical component (if any) –
N/A

Essential/recommended readings
N/A

Suggestive readings

1. Indian Healthcare Economic & Policy by Rajeev Ahuja and Roger Jeffery
2. Healthcare Economics Made Easyby Satish Dinkar
3. Healthcare in India: A Comprehensive Analysis by Subrata Kumar Mitra and Vijay Govindarajan
4. Health Economics and Policy by James W. Henderson
5. Health Economics for Hospital Management- Shuvendu Bikash Dutta- Jaypee Brothers Publication

GENERAL ELECTIVE – 3: Patient Behavior & Psychology

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Patient Behaviour & Psychology	4	3	1	0	Class XII pass	Organization & Planning of Hospital Departments

Learning Objectives

It is aimed at helping the students to acquire knowledge & understanding of patient behavior and acquire the skills in managing them effectively in hospital settings.

Learning outcomes

1. Demonstrate an understanding of psychological theories and concepts relevant to patient behavior.
2. Analyze and interpret patient behavior in healthcare contexts using psychological frameworks.
3. Apply effective communication techniques to establish rapport and trust with patients.
4. Demonstrate cultural sensitivity in healthcare interactions and decision-making.
5. Develop strategies to address patient anxiety and improve coping mechanisms.
6. Devise patient-centered approaches to enhance treatment adherence and compliance.

SYLLABUS OF GE-3

Unit 1(10 hours)

Introduction:

- History and origin of science of psychology
- Definitions & Scope of Psychology
- Relevance to Healthcare Managers
- Methods of Psychology

Unit 2(10 hours)

Biology of behavior

- Body mind relationship modulation process in health and illness
- Genetics and behavior: Heredity and environment

- Brain and behavior: Nervous system, Neurons and synapse, Association Cortex, Rt and Lt Hemispheres
- Psychology of Sensations
- Muscular and glandular controls of behavior
- Nature of behavior of an organism/Integrated responses

Unit 3(15 hours)

Motivation and Emotional Processes

- Motivation: Meaning, Concepts, Types, Theories, Motives and behavior, Conflict resolution
- Emotions & stress
- Emotion: Definition components, Changes in emotions, theories, emotional adjustments, emotions in health and illness
- Stress: stressors, cycle, effect, adaptation & coping

Communication and Patient-Provider Relationship

- Verbal and non-verbal communication skills
- Active listening and empathy
- Building trust and rapport with patients

Unit 4(10 hours)

Developmental Psychology

- Psychology of people at different ages from infancy to old age
- Psychology of vulnerable individuals- challenged, women, sick, etc
- Psychology of groups

Practical component (if any) –
N/A

Essential/recommended readings
N/A

Suggestive readings

1. Introduction to Psychology by Clifford T.Norgan, Richard A.King
2. Psychology 5th Edition by Robert A.Baron/Girishwar Misra
3. Empathy: A History" by Susan Lanzoni
4. "The Compassionate Connection: The Healing Power of Empathy and Mindful Listening" by David Rakel

SEMESTER - IV

Bachelor of Vocation – Healthcare Management

DISCIPLINE SPECIFIC CORE COURSE – 10: Quality in Healthcare-Service & Medical Quality

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Quality in Healthcare-Service & Medical Quality	4	3	1	0	Class XII pass	NA

Learning Objectives

Create basic awareness on quality in healthcare and its applicability

Learning outcomes

- Student will get the basic understanding and awareness about the quality and the quality standards applicable to different departments of the hospital.
- Students will also understand the importance of Accreditation and International Patient Safety Goals
- Awareness of Quality will enhance patient safety and satisfaction in the hospital and students will be able to effectively implement the organization policies.

SYLLABUS OF DSC-10

Unit-1(12 hours)

Quality – An Overview

- Dimensions of Quality-
- Scope and Importance in Healthcare
- Quality Concept, Quality Assurance,
- Total Quality Management, Quality Circle,
- Medical Quality
- NABH, JACHO, ISO

Unit-2(12 hours)

- Medical Documentation Audits
- Introduction
- Definition of Medical Audit
- Need and Purpose of Medical Audit
- Types of Medical Audit
- Medical Audit Committee
- Medical Documentation Audits
    - Physician Documents
    - Nursing Documents

Organization Policies

- Emergency Codes
- Hospital Waste Management
- Hospital Infection Control

Unit 3(12 hours)

Quality Standards applicable to the Front Office

- Customer Service Excellence and Patient Satisfaction
- Patient Satisfaction Metrics- Quantitative Measures and Qualitative Measures
- Call Centre Experience –Service Enquiry, Appointment Fixing, Complaints
- OPD Services - Establishing Eye Contact, Greetings, End conversation with a standard closing statement as per the Hospital protocol
- In-Patient Experience
- Measure Patient Satisfaction
- Importance of Feedback & Closure

Unit 4(9 hours)

- What Defines Quality in Healthcare
- Quality Initiatives in ensuring Patient Safety-International Patient Safety Goals
- Quality Indicators in Healthcare
- Concept of Lean & Six Sigma

1. Introduction
2. Objectives
3. Importance of Lean & Six Sigma in Health Care Management

- Importance of Quality Improvement Projects

Practical component (if any) –

N/A

Essential/recommended readings-

1. Joshi, S.K. (2013), Quality Management in Hospitals, Jaypee Brothers Medical Publishers

DISCIPLINE SPECIFIC CORE COURSE – 11: Insurance Management (TPA Operations)

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Insurance Management (TPA Operations)	4	3	1	0	Class XII pass	NA

Learning Objectives

After completion of this module student should be able to describe the concept of health Insurance and Insurance management process in healthcare

Learning outcomes

- Student will get the basic understanding and awareness about the health insurance and different types of policies available to the insurer.
- Students will also understand the TPA's and the role of the same as a mediator between Health Insurance Organizations and Insurers.
- Awareness of TPA & Insurance policies will help students to effectively manage & handle the payment queries of the patients visiting the hospital

SYLLABUS OF DSC-11

Unit-1(12 hours)

Introduction to Health Insurance

- Concept of Health Insurance
- Definition, History & Scope of Health Insurance
- Types of Health Insurance
- Health Insurance in Private Health Sector (CGHS, ECHS, TPA, ESI.)
- Health Insurance in developing and developed countries
- Underwriting of Health Insurance

Unit 2(12 hours)

- Different Health Insurance Policies
- Analysis and Management
- GOI & State Govt. Policy in implementation of Health insurance

- Government Medical Services and Health Insurance Schemes
- IRDA Guidelines
- Hospital Empanelment: Criteria & Procedure
- Various Definitions under Mediclaim – Health Insurance Policies
- Standard Exclusions

Unit-3(9 hours)

- Concept of combined Life Insurance and Health Insurance
- Portability of Health Insurance
- Pre-Existing Diseases

Unit 4(12 hours)

- Hospitals / TPA / Insurance Company / Relationship and Problems.
- Cashless Mediclaim Processing & TPA
- Planned Hospitalization
- Emergency Hospitalization
- Claim Processing of Health Insurance

Practical component (if any) –
N/A

Essential/recommended readings-

1. Gupta, Dr. L.P., (2014), Health Insurance for Rich & Poor in India, Dr. L.P.GUPTA
2. Patukale, Prof.Kshitij, Mediclaim and Health Insurance, Prabhat Prakashan.
3. Dayal, Dr. Hargovind (2017), Fundamentals of Insurance, Notion Press.
4. Alexander, Sally, Risk and Insurance Management Manual for Libraries, Updated (ALCTS Monograph), ALA Editions.
5. IRDA Guidelines on Health Insurance - Govt. of India- https://www.financialservices.gov.in

DISCIPLINE SPECIFIC CORE COURSE – 12: Hospital Policies

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Hospital Policies	**4**	**3**	**1**	**0**	**Class XII pass**	**NA**

Learning Objectives

On completion of this module the students should be familiar with the various hospital policies of relevance

Learning outcomes

- Student will get the basic understanding and awareness about the different Hospital Policies with respect to NABH Accreditation standards.
- Students will also understand the importance & methodology of Incidence Reporting Systems and different incidents which needs to be documented
- Awareness of Patient & Staff Policies will give the students confidence of making hospitals safe place for patients/visitors/staff.

SYLLABUS OF DSC-12

Unit-1(10 hours)

Introduction to Hospital Policies

- Definition and Importance of SOP's, Policies, Manuals & Procedures.
- **AAC –** Registration Policy, Admission Policy, Bed Management Policy, Discharge Policy, Transport Policy, Admission to ICU Policy, Initial assessment Policy, Reassessment Policy, LAMA Policy.

Unit-2(10 hours)

- **COP –** Emergency Services, Ambulance Services, unique needs of End-of-Life Care, Care of Pediatric Patients, High Risk Obstetrical Pts., Rehabilitative Services, Patient Restraint Policy,
- **PRE –** Patient & Family Rights & Responsibilities, Patient and Family Education, Patient Confidentiality and Privacy, Patient Feedback (How to voice Complaint), Service Recovery, Policy on Informed Consent**,** Complaint Management process.

Unit-3(15 hours)

Patient & Staff Safety Policies

- Policy on Emergency Codes
- Hospital disaster Management
- Adverse Events
- Patient Identification
- Other Safety Codes
- Safety – Clinical Storage Guidelines, Electrical Equipment, Hazardous Material Spill, Handling of Cytotoxic Drugs
- Possession of Weapons by Patient and Visitors
- House Keeping Services Safety.

Unit 4(10 hours)

Incidence Reporting

- Incidence Investigation and Analysis
- Incidence Review
- Incident Report Form
- Benefits of doing Investigation
- How to Conduct an Investigative Interview
- Who should conduct the Investigation
- Root Cause Analysis
- Corrective & Preventive Actions
- Safety Orientation & Training

Practical component (if any) –

N/A

Essential/recommended readings-

1. Agarwal, Dr. Arun K. (2019), Standard Operating Procedures (SOP) for Hospitals in India, Notion Press.
2. NABH Accreditation Standards For Hospital- https://www.nabh.co>standard
3. References- Measures of Patient Safety Based on Hospitals- https://www.ncbi.nlm.gov
4. Accreditation Standards for Hospitals- https://www.babh.co

Discipline Specific Elective 2 :HRM in Healthcare

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
HRM in Healthcare	4	3	1	0	Class XII pass	NA

Learning Objectives

By the end of this course, students should be able to:

- Understand the unique challenges and dynamics of Human Resource Management (HRM) in the healthcare industry.
- Explore the role of HRM in promoting a positive organizational culture and employee engagement within healthcare settings.
- Develop skills in talent acquisition, recruitment, and retention strategies specific to healthcare professionals.
- Analyze the importance of training and development programs for healthcare staff to enhance their skills and knowledge.
- Gain insights into effective performance management and evaluation methods in healthcare organizations.
- Examine the legal and ethical considerations related to HRM in the healthcare sector.
- Learn about effective communication and conflict resolution techniques in healthcare teams.
- Understand the impact of healthcare policies and regulations on HRM practices.

Learning outcomes

Upon successful completion of this course, students will:

- Explain the key HRM challenges faced by healthcare organizations and propose strategies to address them effectively.
- Assess the role of HRM in fostering a positive and inclusive work environment in healthcare settings.
- Formulate talent acquisition and retention plans tailored to the specific needs of the healthcare industry.
- Design and implement training programs that enhance the skills and knowledge of healthcare professionals.

- Apply performance management techniques to evaluate healthcare staff and promote continuous improvement.
- Demonstrate an understanding of the legal and ethical considerations in HRM practices within healthcare organizations.
- Employ effective communication and conflict resolution skills to resolve HR-related issues in healthcare teams.
- Analyze the impact of healthcare policies and regulations on HRM decisions and compliance.

SYLLABUS OF DSE-2

Unit 1(5 hours)

Introduction to HRM in Healthcare

- Overview of HRM and its significance in the healthcare sector.
- Key challenges and opportunities in HRM specific to healthcare organizations.
- Understanding the healthcare industry's unique workforce requirements.

Unit 2(10 hours)

Organizational Culture and Talent Acquisition

- The role of HRM in shaping the organizational culture within healthcare settings.
- Strategies to promote employee engagement and job satisfaction in healthcare teams.
- Employee motivation and its impact on patient care.
- Recruitment strategies for attracting and selecting skilled healthcare professionals.
- Effective interviewing techniques and assessment methods for healthcare candidates.
- Diversity and inclusion in healthcare hiring.

Unit 3(5 hours)

Training and Development in Healthcare

- Identifying training needs and designing relevant programs for healthcare staff.
- Implementing continuous learning initiatives to enhance healthcare professionals' skills.
- Evaluating the effectiveness of training programs in healthcare settings.

Unit 4(5 hours)

Performance Management in Healthcare

- Establishing performance management systems for healthcare employees.
- Performance appraisal methods and feedback mechanisms in healthcare organizations.
- Addressing performance issues and fostering improvement.

Unit 5(10 hours)

Legal and Ethical Considerations in HRM

- Understanding healthcare-related employment laws and regulations.
- Ethics in HRM decisions, especially concerning patient privacy and confidentiality.
- Managing conflicts between ethical principles and organizational objectives.

Unit 6(10 hours)

Communication and Conflict Resolution in Healthcare Teams

- Effective communication strategies in healthcare settings.
- Handling conflicts and promoting teamwork among healthcare professionals.
- Building effective working relationships in a diverse healthcare workforce.

Practical component (if any) –
N/A

Essential/recommended readings

1. Human Resource Management in Healthcare: Principles and Practice, Author: Diane Huber
2. Strategic Human Resources Management in Health Services Organizations, Author: S. Robert Hernandez
3. Healthcare Human Resource Management, Author: Walter J. Flynn, Robert L. Mathis, John H. Jackson
4. The Healthcare Quality Book: Vision, Strategy, and Tools, Third Edition, Author: Maulik Joshi, Elizabeth R. Ransom, David B. Nash, Scott B. Ransom

Discipline Specific Elective 2 :Financial Management in Healthcare

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Financial Management in Healthcare	4	3	1	0	Class XII pass	NA

Learning Objectives

By the end of this course, students will be able to:

1. Understand the unique financial challenges faced by healthcare organizations.
2. Apply financial management techniques to improve the financial performance of healthcare institutions.
3. Analyze and interpret financial statements of healthcare organizations.
4. Develop effective budgeting and cost control strategies for healthcare settings.
5. Evaluate the financial implications of healthcare policies and regulations.
6. Make informed financial decisions to address healthcare industry-specific challenges.

Learning outcomes

Upon successful completion of this course, students will be able to:

1. Analyze the financial structure of healthcare organizations and propose improvements for enhanced financial performance.
2. Develop and implement budgeting and cost control strategies to optimize resource allocation.
3. Identify the financial impact of different healthcare policies and regulations on organizations.
4. Formulate financial plans and recommendations for healthcare organizations' sustainable growth.
5. Apply financial analysis techniques to assess investment opportunities and risk management in the healthcare sector.

SYLLABUS OF DSE-2

Unit 1(5 hours)

Introduction to Financial Management in Healthcare

- Overview of financial management concepts- Nature, scope, functions, goals, sources of finance
- Unique financial challenges in the healthcare industry

- Role of financial management in healthcare decision-making

Unit 2(15 hours)

Budgeting and Cost Control in Healthcare

- Budgeting process and techniques
- Cost behavior analysis in healthcare organizations
- Cost control strategies and cost reduction measures
- Capital Budgeting – Nature of Investment Decisions – Investment Evaluation criteria – Net Present Value (NPV), Internal Rate of Return (IRR), Profitability Index (PI), Payback Period, Accounting Rate of Return (ARR)

Working Capital Management including cash Management, Receivables Management, Inventory Management, Types & Determinants of working capital, credit management

Unit 3(10 hours)

Healthcare Reimbursement Systems

- Fee-for-service vs. value-based reimbursement
- Government and private payer systems
- Impact of reimbursement systems on financial management

Financial Planning and Decision-Making in Healthcare

- Capital budgeting and investment decisions
- Funding sources for healthcare projects
- Financial risk assessment and management

Unit 4(10 hours)

Healthcare Policy and Financial Implications

- Regulatory environment in healthcare
- Health insurance policies and their financial impact
- Healthcare reform and its financial consequences
- Concept of business plan, project plan
- Merger & Acquisition

Healthcare Revenue Cycle Management

- Patient billing and collections
- Revenue cycle optimization
- Managing accounts receivable and bad debts

Practical component (if any) –
N/A

Essential/recommended readings

1. Financial Management in Health Services by Finkler, S.A., Ward, D.M., & Calabrese, T.D.
2. Healthcare Finance: An Introduction to Accounting and Financial Managementby Louis C. Gapenski
3. Financial Management of Health Care Organizations: An Introduction to Fundamental Tools, Concepts, and Applications by William N. Zelman, Michael J. McCue, and Noah D. Glick
4. Financial Management, P. Chandra-TMH Publications

GENERAL ELECTIVE – 4:Patient Safety & Benchmarking in Healthcare

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Patient Safety & Benchmarking in Healthcare	4	3	1	0	Class XII pass	Patient Behavior& Psychology

Learning Objectives

By the end of this course, students should be able to:

- Explain the significance of patient safety in healthcare and its impact on patient outcomes.
- Identify potential risks, errors, and adverse events in healthcare processes.
- Apply patient safety principles and best practices to enhance the quality of care.
- Understand the concept of benchmarking in healthcare and its role in improving performance.
- Analyze healthcare data and implement benchmarking techniques to evaluate and compare healthcare outcomes.
- Develop strategies for continuous improvement and patient safety culture in healthcare organizations.

Learning outcomes

Upon successful completion of this course, students will:

- Demonstrate a comprehensive understanding of patient safety concepts and their importance in healthcare.
- Recognize and assess potential risks and errors in various healthcare scenarios.
- Apply patient safety strategies effectively to reduce adverse events and improve patient outcomes.
- Demonstrate proficiency in benchmarking methodologies and their application to healthcare performance analysis.
- Evaluate and interpret healthcare data to identify areas for improvement and measure progress.
- Formulate actionable plans to enhance patient safety and quality of care in healthcare organizations.

SYLLABUS OF GE-4

Unit 1(5 hours)

Introduction to Patient Safety

- Importance of patient safety in healthcare

- Patient safety culture and its impact
- Common patient safety challenges and errors

Unit 2(10 hours)

Understanding Adverse Events

- Types of adverse events and their causes
- Root cause analysis and error investigation
- Strategies to prevent adverse events
- Sentinel events and near miss events
- Incident Reporting System

Unit 3(10 hours)

Patient Safety Best Practices

- International Patient Safety Goals
- Medication safety and medication reconciliation
- Infection control measures
- Surgical safety and surgical checklist implementation

Unit 4(10 hours)

Benchmarking in Healthcare

- Definition and objectives of benchmarking
- Types of benchmarking in healthcare
- Data sources and metrics for benchmarking
- Developing improvement plans based on benchmarking results

Unit 5(10 hours)

Patient Safety Culture

- Creating a culture of safety in healthcare organizations
- Teamwork and communication in patient safety
- Human factors and their impact on patient safety
- Performance indicators for patient safety
- Continual monitoring and improvement strategies
- Patient engagement and its role in sustaining safety efforts

Practical component (if any) –

N/A

Essential/recommended readings

- Reason, J. (2000). Human error: Models and management. BMJ Books.
- Institute of Medicine (US) Committee on Quality of Health Care in America. (2001). Crossing the quality chasm: A new health system for the 21st century. National Academies Press.

Suggestive readings

- Leape, L. L. (2014). Patient safety: A human factors approach. CRC Press.
- Vincent, C. (Ed.). (2016). Patient safety. John Wiley & Sons.

SEMESTER-5

Bachelor of Vocation – Healthcare Management
Undergraduate Curriculum Framework 2022(UGCF)

DISCIPLINE SPECIFIC CORE COURSE – 13: Bio Medical Waste Management & Radiation Safety

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Bio Medical Waste Management & Radiation Safety	4	3	1	0	Class XII pass	NA

Learning Objectives

- To understand the significance of nosocomial infections, biomedical waste and its proper disposal
- To understand the harmful effects of Radiation and measures taken to ensure radiation safety

Learning outcomes

- Student will get the basic understanding and awareness about the different types of biomedical waste generated in the hospital
- Students will also understand the importance of segregation of BMW and different methods to treat different wastes.
- Awareness of Radiation Hazards in hospital will give students the methods of monitoring & reporting hazards.

SYLLABUS OF DSC-13

Unit 1- (12hours)

Introduction to Biomedical Waste

- Definition
- Classification of Bio- Medical waste
- Sources of Bio-Medical Waste

- Effects- Air, Water &Land Pollution
- Process of BMW Management – Segregation, collection, transportation, disposal

Unit -2(9 hours)

Types of BMW

- Liquid BMW, Radioactive waste, Metals / Chemicals /Drug waste
- Importance
- BMW Management & methods of disinfection

Unit 3(12 hours)

- Modern technology for handling BMW
- Monitoring & controlling of cross infection (Protective devices),
- Potential Health Risk -Needle Stick Injury, Exposure to Cytotoxic drugs, Chemical burns, Air Pollution,

Unit-4(12 hours)

- Radiation Hazards in a hospital,
- Safe use of Radioactive Drugs,
- Radioactive Waste Safe Disposal Guidelines
- Monitoring & Reporting
- Radiation safety -Training

Practical component (if any) –

N/A

Essential/recommended readings-

1. Gupta, Suharshi (2021), Biomedical Waste Management, LAP Lambert Academic Publishing.
2. Bio-Medical Waste Act & Rules Govt. of India- https://health.delhigovt.nic.in
3. Guidelines for Management of Healthcare waste as per Biomedical Waste Management Rules, 2016- https://cpcb.nic.in
4. Challenges in Biomedical Waste Management in Cities- https://www.hilarispublisher.com>open-acess

DISCIPLINE SPECIFIC CORE COURSE – 14: General Safety Codes, Fire Safety & Disaster Management in Hospitals

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
General Safety Codes, Fire Safety & Disaster Management in Hospitals	4	3	1	0	Class XII pass	NA

Learning Objectives

On completion of this module the students should be familiar with the General Safety Codes, Fire Safety & Disaster Management in Hospitals

Learning outcomes

- Students will get the basic understanding and awareness about the General Safety codes being followed in hospital for different kinds of emergencies.
- Students will be able to identify different risks and hazards in the hospital
- Students will be able to identify difference between emergency, accident and disasters and how to be prepared for different types of disasters.
- As the hospital work and surge of admissions increase during disasters, students will be able to work on proper planning and implementation of successfully managing the situation in various disasters.

SYLLABUS OF DSC-14

Unit 1(12 hours)

General Safety Codes in a hospital – Bomb Threat, Violent Patient, Cardiac arrest, Child abduction, Fire, Disaster, Clinical Storage Guidelines, Compressed gas Safety Precautions Hazardous Material Spill, Handling of Cytotoxic Drugs, Laser maintenance

Unit 2(12 hours)

Assessment of Risks and Hazards in Hospital-

- Disruption of Services – Electric, Failure of Elevators, Failure of Operating Theatre Air Conditioning System, Disruption of Services-Water
- Management – Accident Investigation and Analysis
- Safety Orientation Training
- Annual Evaluation of The Effectiveness of Safety Management Program

Unit 3(9 hours)

Fire Safety

- Minor Fire
- Major Fire (without Evacuation)
- Major fire (With Partial/full evacuation)
- Composition of firefighting team
- Duties of staff involved in fire
- Mock Drill
- Emergency Exit Plan

Unit 4(12 hours)

Hospital Disaster Management

- Basics of disaster management and Mass casualties
- Components of disaster plan : pre-hospital and hospital
- Disaster alertness in Hospital
- Disaster management planning and implementation
- Severity of illness amongst disaster victims and risk assessment
- Mock exercise on disaster management in Hospital

Practical component (if any) – N/A

Essential/recommended readings

1. National Disaster Management Guidelines- https://ndma.gov.in
2. Hospital Disaster Management Guidelines- https://nidm.gov.in
3. Muller, Robert J., (2017), Hospital Emergency Management: A Bible for Hospital Emergency Managers, CreateSpace Independent Publishing Platform.

DISCIPLINE SPECIFIC CORE COURSE – 15: Hospital Infection Control

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Hospital Infection Control	4	3	1	0	Class XII pass	NA

Learning Objectives

On completion of this module the students should be familiar with the hazards of Infections and Infection control practices in Hospitals

Learning outcomes

- Students will understand different types of hospital acquired infections and the ways infections are transmitted
- Students will understand the infection control and prevention measures to be implemented in the hospital to make it a safe place.
- Knowledge of Disinfection & Sterilization policies to be followed in the hospital will make students equipped about the practices to be followed in patient care areas.

SYLLABUS OF DSC-15

Unit 1(12 hours)

Epidemiology of communicable diseases, disease transmission

- Host defence immunizing agents, cold chain, immunization, disease monitoring and surveillance.
- Screening and surveys
- Notifiable diseases

Unit 2(12 hours)

Infection Control & Prevention-

- Hazards of infection
- Hospital Acquired Infection(HAI)
- Types of HAI
- Surveillance of HAI
- Risk Factors,
- Hospital Infection Control Measures- Universal Precautions, Hand Hygiene Protocols

- Investigation of an epidemic and role of hospital in its control.
- Hospital Infection Control committee

Unit 3(12 hours)

General Cleaning Disinfection and Sterilization-

- Cleaning and Disinfecting of Environmental Surfaces in Patient-Care Areas
- Antiseptics and disinfectants
- Methods of sterilization and disinfection

Unit 4(9 hours)

Spill Management-

- Types of Spillages
- Policy on Spill Management
- General Precautions

Practical component (if any) –
N/A

Essential/recommended readings

- S. Sastry, Apurba; R., Deepashree (2019), Essentials of Hospital Infection Control, Jaypee Brothers Medical Publishers.
- Singh, Sanjeev; Gupta, Shakti Kumar; Kant, Sunil (2012), Hospital Infection Control Guidelines, Jaypee Brothers Medical Publishers.

Discipline Specific Elective 3 :Material Management in Healthcare

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Material Management in Healthcare	4	3	1	0	Class XII pass	NA

Learning Objectives

This course provides an overview of material management principles and practices in the healthcare industry. It focuses on the effective management of medical supplies, equipment, and other materials to ensure their timely availability, cost-effectiveness, and quality in healthcare settings. Students will explore various aspects of material procurement, inventory control, distribution, and vendor management specific to healthcare organizations.

Learning outcomes

Upon successful completion of this course, students will be able to:

1. Understand the importance of material management in healthcare and its impact on patient care, safety, and operational efficiency.
2. Identify and apply various material management techniques and best practices in healthcare settings.
3. Analyze and optimize the inventory management process to reduce costs while maintaining adequate stock levels.
4. Evaluate the selection criteria for healthcare suppliers and establish effective vendor relationships.
5. Utilize technology and software tools to enhance material management processes in healthcare organizations.

SYLLABUS OF DSE-3

Unit 1(5 hours)

Introduction to Material Management in Healthcare

- Definition, scope and importance of materials management
- Aims, objectives & principles of materials management;
- Material Cycle
- Importance of material management in healthcare
- Material management challenges in healthcare settings

- Integrated Approach to Material planning & control

Unit 2(10 hours)

Inventory Control

- Definition & objectives of inventory control
- Types of inventory cost
- Pareto' law
- ABC/VED/SDE analysis
- Basic inventory management techniques
- Economic Order Quantity (EOQ) and Reorder Point (ROP) analysis
- Stock rotation and expiry management in healthcare

Unit 3(10 hours)

Material Procurement in Healthcare

- Purchasing process -Meaning of purchasing, Objectives of purchasing, 5 R‟s of purchasing, Centralized & Decentralized purchasing, General principles of procurement of medicine
- Identifying healthcare material needs and requirements
- Request for Proposal (RFP) and Request for Quotation (RFQ) processes
- Supplier selection and evaluation criteria
- Vendor Management

Unit 4(5 hours)

Stores Management

- Responsibilities and functioning of stores
- Types of Medical Stores, planning of hospital stores
- Location, lay-out planning and design of hospital stores
- Preservation of stores, documentation & evaluation of stores

Unit 5(10 hours)

Equipment Management

- Classification of Hospital equipment
- Planning and selection of equipment
- Factors affecting utilization of equipment
- Equipment failure, documentation, equipment maintenance and its types and Equipment audit.

Unit 6(5 hours)

Future Trends/Sustainability in Material Management

- Emerging technologies and innovations in healthcare material management
- Predictive analytics and artificial intelligence applications in material management
- Green procurement and eco-friendly materials
- Waste management and disposal considerations in healthcare
- Sustainable practices in material management

Practical component (if any) –

N/A

Essential/recommended readings

1. Production (Operation) Management, L.C Jhamp-Everest

2. Production and materials management, K. Sridhara Bhatt-Himalaya
3. Hospital stores management an integral approach, Shakti Gupta-JAYPEE
4. Hospital Stores Management, Shakti Gupta, Sunilkanth – Jaypee Brothers
5. Materials Management, Gopalakrishna, P., Prentice Hall, New Delhi, 1997.
6. Hospital Stores Management- An Integrated Approach, by Dr. Gupta Shakti, JaypeeBrothers.
7. Material Management by Dr. PawanArora, Global India Publication Pvt Ltd
8. Procurement and Materials management for Hospitals, Rex H Gregor, Harold C. Mickey
9. Institute of Supply Chain Management. (Website: https://www.iscm.co.in/)

Discipline Specific Elective 3 :Trends & Innovations in Healthcare

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Trends & Innovations in Healthcare	4	3	1	0	Class XII pass	NA

Learning Objectives

By the end of this course, students should be able to:

1. To understand the latest trends and innovations in the healthcare industry.
2. To explore the impact of technology on healthcare delivery and patient outcomes.
3. To analyze the challenges and opportunities presented by healthcare innovations.
4. To evaluate the ethical and regulatory considerations related to healthcare advancements.
5. To develop critical thinking skills for assessing the potential of emerging healthcare trends.

Learning outcomes

Upon successful completion of this course, students will:

1. Identify and discuss the major trends and innovations in healthcare.
2. Explain the role of technology in healthcare and its impact on patient care.
3. Assess the advantages and disadvantages of various healthcare innovations.
4. Analyze the ethical implications and regulatory aspects of implementing new healthcare technologies.
5. Critically evaluate the potential of emerging trends in improving healthcare outcomes.

SYLLABUS OF DSE-3

Unit 1(5 hours)

Introduction to Healthcare Trends and Innovations

- Overview of healthcare industry advancements

- Importance of staying updated with the latest trends
- Impact of innovations on patient care and outcomes

Unit 2(15 hours)

Technology in Healthcare

- Telemedicine and remote patient monitoring
- Electronic health records (EHR) and interoperability
- Artificial intelligence and machine learning applications in healthcare

Precision Medicine

- Personalized treatment approaches
- Genomics and genetic testing in healthcare
- Challenges and opportunities in precision medicine

Unit 3(20 hours)

Internet of Medical Things (IoMT)

- Connected medical devices and wearables
- Data security and privacy concerns in IoMT
- Enhancing patient engagement through IoMT

Virtual Reality (VR) and Augmented Reality (AR) in healthcare

- Applications of VR/AR in medical training and education
- VR/AR in pain management and therapeutic interventions
- Future possibilities and limitations of VR/AR in healthcare

Robotics and Automation in Healthcare

- Surgical robots and robotic-assisted procedures
- Automation in pharmaceutical manufacturing and drug delivery
- Ethical considerations in the use of healthcare robots

Unit 4(5 hours)

Future of Healthcare Innovations

- Predicting upcoming trends in the healthcare industry
- Potential disruptions and transformative innovations
- Preparing for a career in the evolving healthcare landscape

Practical component (if any) –

N/A

Essential/recommended readings

1. Article: "The Impact of Technology on Healthcare Delivery" - Journal of Healthcare Management
2. Report: "Trends and Innovations in Precision Medicine" - World Health Organization
3. Whitepaper: "Internet of Medical Things: Transforming Healthcare" - Deloitte
4. Book: "Healthcare Robotics: Technologies and Applications" - Richard G. Marklin
5. Article: "Blockchain in Healthcare: Opportunities and Challenges" - Health Information Science and Systems Journal
6. Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again - Eric Topol
7. The Creative Destruction of Medicine: How the Digital Revolution Will Create Better Healthcare- Eric Topol
8. The Fourth Industrial Revolution - Klaus Schwab

GENERAL ELECTIVE – 5:E-Skills & Software used in healthcare

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
E-Skills & Software used in healthcare	4	3	1	0	Class XII pass	Patient Safety & Benchmarking in Healthcare

Learning Objectives

This course provides an introduction to the essential E-Skills and Software used in the healthcare industry. Students will explore various technologies and software applications that play a crucial role in modern healthcare settings, including electronic health records, telemedicine, healthcare analytics, and patient management systems. Through hands-on exercises and case studies, students will gain practical knowledge to leverage technology effectively in healthcare delivery.

Learning outcomes

Upon successful completion of this course, students will be able to:

1. Understand the significance of E-Skills and Software in healthcare and its impact on patient care and overall healthcare efficiency.
2. Identify and use various healthcare software applications for tasks like patient record management, medical billing, and telemedicine consultations.
3. Analyze healthcare data using software tools and techniques to derive meaningful insights and improve decision-making processes.
4. Demonstrate competence in navigating electronic health records and other health information systems.
5. Evaluate the potential benefits and risks of using E-Skills and Software in healthcare contexts.

SYLLABUS OF GE-5

Unit 1(5 hours)

Introduction to E-Skills in Healthcare

- Overview of E-Skills in the context of healthcare
- Importance of technology in improving patient care and outcomes
- Ethical and legal considerations related to technology use in healthcare

Unit 2(10 hours)

Introduction to Healthcare Information System

- Definition, Meaning, Scope, Importance & Challenges of HIS
- Introduction to E-Prescription, CPRS, Electronic Health Records
- Important Modules of Hospital Management System

Unit 3(15 hours)

Application of HIS in Hospitals

- Back office & Front Office
- IPD & OPD
- Patient Registration & Appointment Scheduling
- Admission Discharge Transfer (ADT)
- Computerized Physician Order Entry (CPOE)
- Roster Management
- Laboratory Information System
- Radiology Information System
- CSSD
- Pharmacy
- Operation Theatre
- Inventory Management

Unit 4(10 hours)

- Knowledge Management System
- Management Information System
- Clinical Decision Support System
- Executive Support System
- Introduction to Marketing Information System
- Telemedicine & its application
- Overview of mHealth apps and their diverse uses

Unit 5(5 hours)

Emerging Technologies in Healthcare

- Exploring AI, IoT, and other cutting-edge technologies in healthcare
- Potential applications and challenges of emerging technologies
- Discussing the future of technology in healthcare

Practical component (if any) –

N/A

Essential/recommended readings

1. Healthcare Information Technology Exam Guideby Kathleen McCormick
2. Healthcare Analytics for Quality and Performance Improvementby Trevor L. Strome
3. Telemedicine Technologies: Information Technologies in Medicine and Telehealth by Bernard Fong, et al.
4. Mobile Health: A Technology Road Mapby Robert Istepanian, et al.
5. Artificial Intelligence in Healthcareedited by Adam Bohr and Rick Lawrence
6. Hospital Information Systems by S.A Kelkar, PHI
7. Management Information System by Ashok Arora & Akshaya Bhatia, Excel Book.

SEMESTER-6
Bachelor of Vocation – Healthcare Management
Undergraduate Curriculum Framework 2022(UGCF)

DISCIPLINE SPECIFIC CORE COURSE – 16: Health Services Legal & Ethical Issues

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Health Services Legal & Ethical Issues	4	3	1	0	Class XII pass	NA

Learning Objectives

After completion of the module student should be able to describe the important Legal & Ethical Issues associated with Healthcare

Learning outcomes

- Students will understand different laws, acts, rules and regulations which the hospital have to comply to.
- Students will understand the acts pertaining to different departments in the hospital and their importance for the smooth functioning of hospital as per the legislature of the country
- Knowledge of Medical Negligence, Consent and contracts will help the students in understanding the importance of legalities with respect to the health of the patients.

SYLLABUS OF DSC-16

Unit 1(12 hours)

Introduction to Act, Law, Rules and Regulations

Medical Ethics

- Medical Ethics as per MCI-Duties of Doctors
- Ethical Dilemmas in Healthcare Industry

Unit 2(12 hours)

Laws applicable to Hospital

- Law of Contracts, Specific Performance
- Medical jurisprudence and functioning of hospitals
- Consent & its Importance

Unit 3(12 hours)

Important Acts

- Consumer Protection Act and Hospitals
- I.D. Act, W.C. Act
- West Bengal Clinical Establishment Act and Rules
- ESI Act, Trade Union Act
- Organ transplantation Act
- Pc PNDT Act
- MTP Act
- ART & Surrogacy Act

Unit 4(9 hours)

- Medico-Legal Cases
- Medico- Legal Problems in relation to health administration
- Medical Negligence and Types

Practical component (if any) –
N/A

Essential/recommended readings

1. Bhat, Sandeep (2023), Reflection on Medical Law and Ethics in India, Eastern Law House.

DISCIPLINE SPECIFIC CORE COURSE – 17: Management of Non-Clinical Departments - Support and Utility Services

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Management of Non-Clinical Departments - Support and Utility Services	**4**	**3**	**1**	**0**	**Class XII pass**	**NA**

Learning Objectives

On completion of this module the students should be familiar with the various aspects of planning, operating and evaluation of different support and utility services in hospitals

Learning outcomes

- Students will understand planning, organization, structure, location, functions, policies and quality parameters of different departments of support & utility services.
- Knowledge of functioning of all these departments will help the students to implement and manage the operations of these departments.

SYLLABUS OF DSC-17

Unit 1(9 hours)

Introduction- Support Services Departments; Planning, Organization Structure, Location and Function of support service departments.

Unit 2(14 hours)

Policies and Quality Parameters

- Methods of Sterilization CSSD- Methods of Sterilization
- Pharmacy Department
- Radiology Department
- Nuclear Medicine
- Laboratory Services
- Medical Record Department

Unit 3(9 hours)

Introduction to Utility Services Departments-Planning, Organization Structure, Location, Functions, Policies and Quality Parameters

Unit 4(13 hours)

Understanding of different utility service departments-

- Laundry services
- Security Services
- Transportation Services (External & Internal)-Ambulance Services
- Hospital Stores
- Mortuary (Preservation, transportation & religious formalities)
- Kitchen services
- House Keeping Department
- Engineering & Maintenance Department

Practical component (if any) –
N/A

Essential/recommended readings-

1. Das, Joydeep (2015), Hospital Administration and Management, Jaypee Brothers Medical Publisher.
2. Goel, Dr. Sonu (2013), Hospital Administration, Elsevier India.

DISCIPLINE SPECIFIC CORE COURSE – 18: Hospital Engineering & Bio-Medical Engineering

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Hospital Engineering & Bio-Medical Engineering	4	3	1	0	Class XII pass	NA

Learning Objectives

On completion of this module the students should be familiar with the equipment management process and its various components and their roles in hospital system

Learning outcomes

- Students will understand the different medical equipment used in hospital, they will understand in detail the requirement, procurement and functioning of all the equipment.
- Students will also get an understanding of different types of maintenance contracts required for all the biomedical equipment

SYLLABUS OF DSC-18

Unit 1(10 hours)

Introduction

List of common Medical Equipment used in Hospital

- General Requirements
- Local, National and International availability of Medical Equipment

Unit 2-(15 hours)

Purchase / Installation / Commissioning of Medical Equipment

- Equipment selection guideline, Estimation of cost and Q.C. Planning
- Justification of purchase proposal, Hospital Need Assessment
- Equipment selection guideline, Estimation of cost and Q.C. Planning

Unit -3(10 hours)

Budgeting of Biomedical Equipment

- Replacement of old equipment and Buyback Policy
- Estimation of Breakeven point and Profit – Projection in hospital budget

Unit 4(10 hours)

Medical Equipment Maintenance

- In-house, AMC and CMC
- Preventive Maintenance
- Calibration of Equipment

Practical component (if any) –
N/A

Essential/recommended readings-

1. Willson, Keith; Ison, Keith; Tabakov, Slavik (2013), Medical Equipment Management, CRC Press.

Discipline Specific Elective 4 : Healthcare Marketing

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Healthcare Marketing	4	3	1	0	Class XII pass	NA

Learning Objectives

By the end of this course, students should be able to:

1. Understand the unique challenges and opportunities in the healthcare industry regarding marketing and promotion.
2. Analyze the target audience and consumer behavior in healthcare settings.
3. Develop effective marketing strategies to promote healthcare products and services.
4. Explore ethical considerations and regulatory frameworks in healthcare marketing.
5. Utilize digital marketing techniques and technologies to enhance healthcare campaigns.
6. Measure and evaluate the success of healthcare marketing initiatives.

Learning outcomes

Upon successful completion of this course, students will:

1. Describe the key concepts and principles of healthcare marketing.
2. Conduct market research to identify healthcare consumer needs and preferences.
3. Design and implement healthcare marketing strategies that align with industry best practices.
4. Evaluate the ethical implications of various marketing tactics in the healthcare sector.
5. Apply digital marketing tools and platforms to create targeted healthcare campaigns.
6. Measure the effectiveness of healthcare marketing efforts using relevant metrics.

SYLLABUS OF DSE-4

Unit 1(10 hours)

Introduction to Healthcare Marketing

- Meaning and importance of marketing
- Role of marketing in modern organizations
- Basic concepts of marketing
- Evolution of marketing
- Scanning the marketing environment
- Marketing Mix

- Understanding Consumer Behavior-Analyzing patient decision-making processes, Factors influencing healthcare consumer choices

Unit 2(15 hours)

Marketing Research & Strategies

- Techniques for gathering healthcare market data
- Analyzing market trends and opportunities
- Competitive analysis in the healthcare sector
- Product and service positioning in healthcare
- Creating value propositions for healthcare offerings
- Developing a healthcare marketing mix

Unit 3(10 hours)

Promotion of Business in Hospitals

- Service Marketing – Patient care and communication
- Advertisement and Branding
- Marketing promotional activities
- Corporate marketing
- Marketing and medical ethics
- Ethical guidelines for healthcare marketers
- Building a strong healthcare brand identity

Unit 4(10 hours)

Digital Marketing in Healthcare

- Leveraging social media for healthcare marketing
- Search engine optimization (SEO) for healthcare websites
- Email marketing and online advertising in the healthcare industry

Practical component (if any) –

N/A

Essential/recommended readings

1. Marketing for Healthcare Organizations, Kotler, P., & Bucher, T. (2020). Pearson.
2. Stevens, R. (2018). Healthcare Marketing: A Case Study Approach, Stevens, R. (2018). CRC Press.
3. Healthcare Marketing: A Comprehensive Guide for Medical Practice, Hollander, S. C., & Pulos, E. (2015). Jones & Bartlett Learning
4. Essentials of Health Care Marketing**,** Berkowitz, E. N. (2017). Jones & Bartlett Learning
5. Marketing Management by Philip Kotler, Pearson publishers, 2003
6. Marketing Management by Rajan Saxena, TMH, 2005.
7. Marketing-the best practices by K.Douglar, Hoffman&Czinkota, Thomson, 2004
8. Basic Marketing by William D. Rerreult&Mc Carthy, TMH,2005
9. Marketing Management by V.S.Ramaswamy, Namakumari, Macmillan, 2006

Discipline Specific Elective 4: Developing Strategy in Healthcare

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Developing Strategy in Healthcare	4	3	1	0	Class XII pass	NA

Learning Objectives

1. Understand the fundamental concepts and theories of strategic management to devise short & long-term goals for healthcare
2. Analyze the external and internal factors influencing an organization's strategic decisions.
3. Develop skills in formulating and implementing effective business strategies.
4. Evaluate the role of innovation, sustainability, and ethics in strategic decision-making.
5. Assess the impact of globalization on strategic management practices.
6. Apply strategic management frameworks to real-world healthcare business scenarios.

Learning outcomes

By the end of this course, students will be able to:

1. Identify and explain the key principles and theories of strategic management.
2. Conduct a comprehensive strategic analysis of a given organization.
3. Formulate actionable business strategies that align with the organization's goals.
4. Evaluate and recommend strategic alternatives for healthcare growth and sustainability.
5. Demonstrate an understanding of the ethical and social implications of strategic decisions.
6. Communicate strategic recommendations effectively to stakeholders.

SYLLABUS OF DSE-4

Unit 1(5 hours)

Introduction to Strategic management

- Importance of Strategic management
- Strategic management process: strategy and tactics
- Strategic vision and mission, strategists in Strategic Management
- Levels of strategy: Corporate, business, and functional
- Porter’s value chain: concept and applications

Unit 2(15 hours)

Strategic analysis in Healthcare Organizations

- Introduction & need for strategic analysis

- Internal Analysis and External Environmental Analysis
- SWOT Analysis
- PESTEL Analysis
- Competitor Analysis
- Value chain analysis
- Core competencies and capabilities

Unit 3(10 hours)

Level of strategy

- Corporate Level Strategy: Grand Strategy
- Portfolio analysis: BCG Matrix
- Business level Strategy: Generic Business Strategy
- Functional strategy analysis: Plans and policies: Financial, Marketing, Operational, Personnel
- Globalization and its impact on business strategy
- Multinational and global strategies

Unit 4(15 hours)

Corporate Governance and Ethics

- Corporate governance principles and practices
- Role of the board of directors
- Ethical considerations in strategic decision-making
- Corporate social responsibility (CSR) and sustainability

Strategy Implementation

- Organizational structure and design
- Strategic control and performance measurement
- Strategy execution and managing change
- Strategic leadership and culture

Strategic Evaluation and Control

- Criteria for evaluating strategies
- Balanced Scorecard approach
- Learning from strategic failures and successes
- Making strategic adjustments

Practical component (if any) –

N/A

Essential/recommended readings

1. Kazmi, A: Business policy and Strategic management, Tata McGraw Hill.
2. Dess and Miller, Strategic Management,Tata McGraw Hill.
3. Cherunilam, F: Strategic Management, Himalaya Publishing House.
4. Budhiraja, S.B. and Athreya, M.B: Cases in Strategic Management, Tata McGraw Hill.
5. Thomson and Strickland: Strategic Management, McGraw Hill.
6. Hill, C. W., Jones, G. R., & Schilling, M. A. (or latest edition), Strategic Management: Theory & Cases: An Integrated Approach.
7. Peter. M. Ginter, Strategic Management of Healthcare Organizations

GENERAL ELECTIVE – 6: Legal System of Healthcare Industry

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Legal System of Healthcare Industry	4	3	1	0	Class XII pass	E-Skills & Software used in healthcare

Learning Objectives

This course provides an in-depth understanding of the laws and regulations that govern the healthcare industry in India. Students will explore various legal aspects related to healthcare, including licensing, medical practice, patient rights, medical malpractice, and more. The course aims to equip learners with the knowledge and skills to navigate legal challenges and ensure compliance in the healthcare sector.

Learning outcomes

Upon successful completion of this course, students will be able to:

1. Explain the key laws and regulations governing the Indian healthcare industry and their implications.
2. Apply legal principles to real-world scenarios in the healthcare sector.
3. Evaluate the legal risks and compliance requirements for healthcare organizations.
4. Analyze the legal and ethical aspects of patient care and decision-making.
5. Demonstrate proficiency in identifying and addressing legal issues in healthcare practices.

SYLLABUS OF GE-6

Unit 1(5 hours)

Introduction to Indian Healthcare Laws

- Laws pertaining to establishment of hospitals
- Legal requirements under Medical Council Acts
- West Bengal Clinical Establishment Act and rules

Unit 2(15 hours)

Acts pertaining to Hospitals

- Legal aspects relating to Organ transplantation

- MTP Act 1971
- Basics of Drugs and Cosmetic Acts
- Euthanasia
- ESI Act
- PNDT Act
- Human experimentation, Clinical trials
- Industrial dispute Act
- Central Births & Death Registration Act
- Consumer Protection Act

Unit 3(10 hours)

Legal liability of hospitals

- Criminal, civil and tortuous
- Liability for negligence
- Absolute liability and vicarious liability
- Legal remedies available to patients

Unit 4(15 hours)

Medical ethics

- Ethical Principles & rules
- Core concepts of medical ethics
- Law & ethics-a comparison
- Elements of medical malpractice
- Medical negligence and liability
- Confidentiality
- Autonomy & Informed Consent

Practical component (if any) –
N/A

Essential/recommended readings

1. Healthcare Laws in Indiaby Shailaja Chandra
2. Law and the Practice of Medicine in India by Anant Bhan and Amar Jesani
3. Medical Law and Ethics by Amitava Sengupta
4. Indian Medical Law: A Treatise on Crimes against Medical Profession by Sandeep Joshi
5. Medical negligence and legal remedies, 3rd edition, universal law Publisher, Anoop Kaushal K, New Delhi, 2004.
6. Medico-legal Aspects of Patient Care, 3rd Edition, R. C. Sharma, Peepee Publishers & Distributers2008

SEMESTER-3

Bachelor of Vocation - Retail Management & IT course

Undergraduate Curriculum Framework 2022(UGCF)

DISCIPLINE SPECIFIC CORE COURSE – DSC-7 E-Commerce

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-7 E-commerce	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Learning Objectives

The course aims to enhance skills for effective and contemporary applications of E-Commerce.

Learning outcomes

By studying this course, students will be able to:

- Describe the challenging needs of the society in the field of E-Commerce.
- Identify various applications in the context of online transactions.
- Explain the steps in designing of website.
- Describe various e-payment systems.
- Analyse security and operational issues in E-Commerce.

SYLLABUS OF DSC-7

UNIT – I (12 Hours)

Introduction to E-commerce: Meaning, nature, concepts , advantages, disadvantages and reasons for online transactions online, Electronic commerce, Types of Electronic commerce, Electronic commerce models, Challenges and barriers to E-commerce environment; E-commerce in India: Transition to E-commerce in India, Indian readiness for E-commerce, E-transition challenges for Indian corporate.

UNIT – II (12 Hours)

Electronic Payment system: Digital payment requirements, Electronic payment system, Types of Electronic payment systems, Concept of e-money, infrastructure issues and risks in EPS, Electronic fund transfer.

UNIT – III (12 Hours)

E-commerce Application: E-commerce applications in retail and other industries, Emerging trends in E-commerce, Mobile commerce; Technological and social considerations, Regulatory and ethical considerations in E-commerce

UNIT – IV (9 Hours)

E-Commerce security: Meaning, need and concepts; Electronic commerce security environment, security threats in E-commerce environment, Basics of encryption and decryption.

Essential/recommended readings

1. Arora Shivani, e-Commerce (Taxmann: New Delhi).
2. Awad, Elias M., Electronic Commerce: From Vision To Fulfillment (PHI Learning: New Delhi).

Suggestive readings

1. Bharat Bhaskar, Electronic Commerce- Framework, Technologies and Applicatonc,(Tata McGraw Hill).
2. Chhabra, T.N., Jain, H. C., and Aruna Jain, An Introduction to HTML (Dhanpat Rai & Co.: New Delhi).
3. Gupta, Pralok, ed., E-COMMERCE In India: Economic And Legal Perspectives (Sage Publications: New Delhi). Kenneth C. Laudon, Carol Guercio Traver, E-commerce, Global Edition (Pearson Education).

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE – DSC-8 Sales and Distribution Management

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-8 Sales and Distribution Management	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Learning Objectives

The course aims to enhance an in-depth understanding of sales management and personal selling.

Learning outcomes

By studying this course, students will be able to:

- Understand the compensation and supervision of salesmen besides setting sales territories and targets.
- Develop proficiency in evaluation of sales performance and sales cost analysis.
- Understand the different marketing channels.
- Develop basic understanding of distribution management and evaluation of channel performance.

SYLLABUS OF DSC-8

UNIT – I (12 Hours)

Sales Management; Objectives and Functions; Setting and Formulating Personal Selling Objectives; Recruiting and selecting Sales Personnel; Developing and conducting Sales Training Programmes. Sales organization, Sales function & policies, Personal selling - nature, scope & objectives, Formulating Personal selling strategy.

UNIT – II (12 Hours)

Designing and Administering Compensation Plans; Supervision of Salesmen; Standards and Performance; Motivating Sales Personnel; Sales Meetings and Sales contests. Planning the Sales Effort - Sales planning and Budgeting, Estimating Market Potential and Sales forecasting, Setting the sales territory & quotas, Sales and cost Analysis

UNIT – III (11 Hours)

Marketing Channels, their Structure; Channel Intermediaries-Role and Types; Wholesaling and Retailing; Logistics of Distribution; Channel Planning, Organizational Patterns in Marketing Channels: Assessing Performance of Marketing Channels; International Marketing Channels.

UNIT – IV (10 Hours)

Distribution Management - Managing marketing logistics & channels, Channel Integration - VMS, HMS, Channel Management, and Marketing channel Policies & legal issue. Channel Institutions & control, Wholesaling &- Retailing, Channel Information systems, Managing & Evaluating Channel Performance Case & future trends in sales & distribution management.

Essential/recommended readings

1. Gupta, S.L (2005) Sales and Distribution Management: Text and Cases – An Indian Perspective, Excel Books.
2. Havaldar, K. K.& Cavale, V. M. (2007) Sales and Distribution Management: Text & Cases, Tata McGraw-Hill.

Suggestive readings

1. Still, R. R., Cundiff, E. W. & Govoni, N. A. P(1998) Sales Management: Decision Strategies and Cases, Dorling Kindersley.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE – DSC-9 Customer Experience Management

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-9 Customer Experience Management	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Learning Objectives

This course aims to familiarize the students with the concept and importance of the relationship with customers and techniques to enhance customer experience.

Learning outcomes

By studying this course, students will be able to:

- Demonstrate the management of customer life-cycle, importance of trust, value and commitment in building relationship.
- Analyse the CEM techniques and strategies..
- Describe the applications of CEM tools in the retail sector.

SYLLABUS OF DSC-9

UNIT – I (12 Hours)

Introduction to the strategy of CEM and CRM and the interdisciplinary relationship, Customer Experience Innovation, Communicate effectively with stake-holders Develop individual retail service opportunities

UNIT – II (12 Hours)

Business Models and its impact on customer experience: Offline, online, B2C and B2B – social media, platforms and merging offline and online experiences

UNIT – III (12 Hours)

Mapping the customer journey: Process of interaction with a supplier – methods and tools to analyze what's right and what's wrong, Design step-by-step experiences, which enchant customers and at the same time create new opportunities and lead to sustainable competitive advantage

UNIT – IV (9 Hours)

Establish and satisfy customer needs, Monitor and solve customer service problems, Effective Stakeholder communication, Effective after sales service**,** Customer feedback Management

Essential/recommended readings

1. Sheth, J. N., & Parvatiyar, A. (2013). Handbook of Relationship Marketing. London, UK: Sage Publications Ltd.
2. S. Shanmugasundaram (2008) Customer relationship management, Prentice Hall of India Private Limted, New Delhi

Suggestive readings

1. Sheth, J. N., Parvatiyar, A., & Shainesh, G. (2017). Customer Relationship Management: Emerging Concept, Tools and Applications. India: McGraw Hill.
2. Stone, M., & Woodrock, N. (1995). Relationship Marketing. London: Kogan Page.
3. Rai Kumar Alok (2011) Customer relationship management- Concept and Cases, Prentice Hall of India Private Limted, New Delhi. 2011

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

Discipline Specific Course

Bachelor of Vocation - Retail Management & IT course

DISCIPLINE SPECIFIC ELECTIVE –DSE- 1 Retail Team organization and Dynamics

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-1 Retail Team organization and Dynamics	**4**	**3**	**1**	**0**	Class XII Pass	**NA**

Learning Objectives

Upon completion of this course, students will be able to understand the importance of effective team organization in the retail industry.Analyze the dynamics of retail teams and their impact on overall performance.

Learning outcomes

By studying this course, students will be able to:

1. Assess the effectiveness of retail team organization and propose improvements for enhanced performance.
2. Implement leadership and communication strategies to foster teamwork and collaboration.
3. Develop recruitment and training processes that align with the needs of the retail organization.
4. Design performance management systems to motivate and support retail team members.
5. Apply conflict resolution techniques to maintain a positive work environment and resolve issues.
6. Evaluate the impact of diversity and inclusion on retail team dynamics and propose inclusive practices.

SYLLABUS

UNIT – I (9 Hours)

Introduction to Retail Team Organization: Importance of effective team organization in retail, Team dynamics and their impact on retail performance, Types of retail teams (sales, customer service, merchandising, etc.); Leadership and Communication in Retail Teams: Qualities of effective retail leaders, Communication strategies for team cohesion, Team meetings and feedback mechanisms.

UNIT – II (10 Hours)

Recruitment and Training in Retail Teams: Recruitment strategies for attracting top talent, On boarding and orientation for new team members, Continuous training and skill development; Performance Management in Retail Teams, Setting performance goals and expectations, Performance evaluation and feedback, Employee recognition and incentive programs.

UNIT – III (14 Hours)

Conflict Resolution in Retail Teams: Identifying sources of conflict in retail settings, Techniques for resolving conflicts and fostering collaboration, dealing with difficult team dynamics and personalities,; Problem-Solving in Retail Teams, Analyzing retail challenges and finding solutions as a team, Decision-making processes in retail team settings, Creative problem-solving techniques; Diversity and Inclusion in Retail Team Organization, Benefits of diverse and inclusive retail teams, Promoting diversity in recruitment and hiring practices, Creating an inclusive work environment.

UNIT – IV (12 Hours)

Building Team Culture and Morale: Cultivating a positive team culture in retail settings, Employee engagement and morale-boosting activities, Team-building exercises and workshops; Managing Remote and Hybrid Retail Teams, Strategies for effectively managing remote and hybrid teams, Communication and collaboration tools for dispersed teams, Overcoming challenges of remote work in retail; Real-World Retail Case Studies.

Essential/recommended readings

1. "The 5 Dysfunctions of a Team: A Leadership Fable" by Patrick Lencioni.
2. "Crucial Conversations: Tools for Talking When Stakes Are High" by Al Switzler, Joseph Grenny, and Ron McMillan.
3. "The Retail Revival: Reimagining Business for the New Age of Consumerism" by Doug Stephens.

Suggestive readings

1. "Good to Great: Why Some Companies Make the Leap...And Others Don't" by Jim Collins.
2. "Daring Greatly: How the Courage to Be Vulnerable Transforms the Way We Live, Love, Parent, and Lead" by Brené Brown.
3. "The Culture Code: The Secrets of Highly Successful Groups" by Daniel Coyle.
4. "Team of Teams: New Rules of Engagement for a Complex World" by General Stanley McChrystal.
5. "The Five Most Important Questions You Will Ever Ask About Your Organization" by Peter F. Drucker.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE –DSE-1 Merchandise Planning

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-1 Merchandise Planning	**4**	**3**	**1**	**0**	Class XII Pass	**NA**

Learning Objectives

Upon completion of this course, students will be able to understand the concept of merchandise planning and its significance in retail operations. Analyze market trends, consumer behavior, and external factors influencing merchandise planning decisions. Develop skills in assortment planning and product selection to meet customer demands.

Learning outcomes

By studying this course, students will be able to:

1. Demonstrate a comprehensive understanding of merchandise planning principles and their application in retail settings.
2. Analyze and interpret market data, customer insights, and external factors to make informed merchandise planning decisions.
3. Create effective merchandise assortment plans based on market demands, seasonality, and target audience preferences.
4. Implement inventory management techniques to minimize stockouts and overstock situations while optimizing cash flow.

SYLLABUS

UNIT – I (12 Hours)

Introduction to Merchandise Planning, Definition and importance of merchandise planning in retail, Merchandise planning process and its components, Market Analysis and Consumer Behavior, Analyzing market trends and competitors, Understanding consumer behavior and preferences, Identifying factors influencing buying decisions.

UNIT – II (9 Hours)

Assortment Planning and Product Selection, Creating merchandise categories and subcategories, Product lifecycle management, Assortment optimization techniques

UNIT – III (12 Hours)

Inventory control methods (ABC analysis, EOQ, safety stock), Inventory forecasting and demand planning, Pricing Strategies and Promotional Planning, Pricing tactics (cost-based, value-based, and competitive-based), Promotions and discounts in merchandise planning, Seasonal and event-based promotions.

UNIT – IV (12 Hours)

Utilizing data for merchandise decision-making, Introduction to merchandise planning software and tools, Demand forecasting techniques, Performance Evaluation and Adjustment, Key performance indicators (KPIs) for merchandise planning, Evaluating merchandise plan effectiveness.

Essential/recommended readings

1. "Retail Management: A Strategic Approach" by B. Pattnaik and P. R. Kumar
2. "Merchandising Mathematics for Retailing" by Cynthia R. Easterling and Ellen L. Flottman
3. "Retailing Management: Text and Cases" by Swapna Pradhan

Suggestive readings

1. "Merchandising Mathematics for Retailing" by Cynthia R. Easterling and Ellen L. Flottman
2. "Fashion Buying: From Trend Forecasting to Shop Floor" by Dimitri Koumbis
3. "The New Rules of Retail: Competing in the World's Toughest Marketplace" by Robin Lewis and Michael Dart

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

GENERAL ELECTIVE –GE-3 Retail Brand Management and CRM

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
GE-3 Retail Brand Management and CRM	**4**	**3**	**1**	**0**	Class XII Pass	**Should have studied GE -2 B.Voc-RM&IT**

Learning Objectives

Upon completion of this course, students will be able to understand the significance of retail brand management and its impact on consumer perceptions and loyalty.Analyze the elements of successful retail branding strategies and their alignment with overall business objectives.

Learning outcomes

By studying this course, students will be able to:

1. Articulate the importance of retail brand management and its influence on customer loyalty and preference.
2. Develop and execute retail branding strategies that align with the overall brand identity and target audience.
3. Utilize CRM tools and techniques to personalize customer interactions and enhance the customer journey.
4. Implement effective customer segmentation strategies to tailor marketing efforts and improve customer satisfaction.
5. Measure brand equity and CRM performance using relevant metrics and data analytics.
6. Apply ethical principles to retail brand management and CRM practices to build trust with customers.

SYLLABUS

UNIT – I (9 Hours)

Introduction to Retail Brand Management: Understanding retail branding and its significance, Brand equity and its impact on customer behavior, Building a strong brand identity and positioning, Elements of Retail Brand Strategy, Brand vision, mission, and values, Brand personality and brand storytelling, Brand extension and co-branding.

UNIT – II (12 Hours)

Customer Relationship Management (CRM) in Retail: Importance of CRM in retail business, CRM vs. traditional marketing approaches, CRM technologies and tools, Customer Segmentation and Personalization, Types of customer segmentation, Personalization techniques in retail marketing, Customizing the customer experience.

UNIT – III (12 Hours)

CRM Data Analytics and Insights: Collecting and analyzing customer data, Using data to drive CRM decisions, Implementing CRM Strategies, Designing CRM programs and initiatives, CRM communication and touch points; Measuring CRM effectiveness, Managing Customer Loyalty and Retention, Building customer loyalty through CRM, Customer retention strategies and tactics.

UNIT – IV (12 Hours)

Measuring Brand Equity and Customer Satisfaction: Metrics for measuring brand equity, Customer satisfaction surveys and feedback, Net Promoter Score (NPS) and other customer loyalty metrics; Ethical Considerations in Retail Brand Management and CRM, Privacy and data protection in CRM, Transparency and trust in brand communications, Sustainable and socially responsible brand practices.

Essential/recommended readings

1. "Building Strong Brands" by David A. Aaker.
2. "Strategic Brand Management: Building, Measuring, and Managing Brand Equity" by Kevin Lane Keller.
3. "CRM at the Speed of Light: Capturing and Keeping Customers in Internet Real Time" by Paul Greenberg.

Suggestive readings

1. Customer Relationship Management: Concepts and Technologies" by Francis Buttle.
2. "Customer Data Platforms: Use People Data to Transform the Future of Marketing Engagement" by David M. Raab.
3. "The Loyalty Leap: Turning Customer Information into Customer Intimacy" by Bryan Pearson.
4. "The Brand Gap: How to Bridge the Distance Between Business Strategy and Design" by Marty Neumeier.
5. "The CRM Handbook: A Business Guide to Customer Relationship Management" by Jill Dyché.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

SEMESTER-4

Bachelor of Vocation - Retail Management & IT course

DISCIPLINE SPECIFIC CORE COURSE – DSC-10 Material Planning and Control

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-10 Material Planning and Control	4	3	1	0	Class XII	Nil

Learning Objectives

The course aims to enhance the understanding of the basic concept of material planning and evaluating various costs in material management.

Learning outcomes

By studying this course, the students will be able to:

- Have basic understanding of costing for decision making.
- Have knowledge of standard costing.
- Develop in-depth understanding of budgeting and budgetary control.
- Understand the usage of computers in materials management.
- Develop skill to evaluate the Material Management Function

SYLLABUS OF DSC-10

UNIT–I: (15 Hours)

Costing for Decision making: Marginal Cost, Fixed and Variable Costs (Period and Product Costs), Marginal Costing System, Marginal Cost Equation, Profit -Volume Ratio, Break Even Analysis, Margin of Safety, Cost-Volume Profit Analysis and its Uses, Concept of Relevant Costs in Decision Making.

UNIT – II: (15 Hours)

Budgeting &Budgetary Control: Meaning of Budget, Types of Budgets, Budgetary Control System, Material Requirement Planning, Principal Budget Factor, Budget Manual, Preparation of Different Types of Budgets Like Sales, Production, Material Consumption, Purchase Budget etc. Fixed and Flexible Budget.

UNIT – III: (9 Hours)

Standard Costing: Meaning of standard cost, Standard Costing System, Material Cost Variance Analysis.

UNIT – IV: (6 Hours)

Evaluation of Material Management Function: Meaning and Procedure. Evaluation Tools and Techniques.

Essential/recommended readings

1. Dutta A.K. (1998) Materials Management: Procedures, Text and cases 2nd edition, Prentice Hall of India Pvt. Ltd., New Delhi.
2. Gopalakrishnan, P. and Sundarson, M. (2007) Materials Management: An Integrated Approach, Prentice Hall of India Pvt. Ltd., New Delhi.

Suggestive readings

1. Maheshwari• & Mittal (2010) Management Accounting 3rd edition, Shree Mahavir Book, Depot, New Delhi.
2. Saxena, V.K. and Vashist CD (2015) Cost and Management Accounting, 7th edition• Sultan Chand and Sons, New Delhi.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE – DSC-11 Retail Branding and Strategy

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-11 Retail Branding and Strategy	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Learning Objectives

The course aims to provide a basic understanding of strategic approaches to management of retail.

Learning outcomes

By studying this course, students will be able to:

- Develop preliminary understanding of the meaning of brand
- Understand the consumers perspective about the brand
- Develop proficiency in managing the brand portfolio
- Have comprehensive understanding of retailing organizations and their growth

SYLLABUS OF DSC-11

UNIT – I (12 Hours)

Brand: Meaning, Definition, Role of Brand, Brand Positioning & Personality of a Brand, Consumer's concept of 'Self-Image', Brand Proposition, Brand Name & Brand Awareness.

UNIT – II (12 Hours)

Managing Brand Portfolio, Contemporary view of the role of Brand Management, Various issues related to Brand Management, Process involve in Building & Managing Brand in retail management.

UNIT – III (12 Hours)

Retailing organizations, Formulation and evaluation of strategic options within retailing organizations, Mergers, Acquisition and strategic alliances involving retailers, Analysis of organization structure and design among retail organizations.

UNIT – IV (9 Hours)

Strategic Management: Approaches to Strategic Analysis of the retailing environment, Approaches to the analysis of resources, Competence and Strategic capability, Application of technique such as Value Chain Analysis & Bench Marking.

Essential/recommended readings

1. Siva Kumar (2007) Retail Marketing, Excel Books.
2. B.R. Londhe (2006) Retail and Distribution Management, Nirali Prakashan, Mumbai.
3. Bajaj, Tuli & Srivastava (2010) Retail Management, Oxford University Press, New Delhi.

Suggestive readings

1. R.K Srivastava (2011) Cases in Retail management, WILEY; First Edition.
2. Wayne D. Hoyer & J. Maclnnis (2012) Consumer Behaviour, Cengage Learning; 6th edition.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE – DSC-12 Basics of Consumer Protection

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-12 Basics of Consumer Protection	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Learning Objectives

This course seeks to familiarize the learners with their rights and responsibilities of a consumer and the procedure to redress their complaints. The learner should be able to comprehend the business firm's interface with consumers and the related regulatory and business environment.

Learning outcomes

By studying this course, the students will be able to:

- Describe the concept of consumer and post-purchase voicing of consumer grievances.
- Demonstrate how to exercise the consumer rights provided under Consumer Protection Act, 2019.
- Comprehend the filing, hearings, and appeal provisions.
- Identify the role of industry regulators in consumer protection.
- Demonstrate the impact of standards on quality of products.

SYLLABUS OF DSC-12

UNIT–I: (12 Hours)

Nature of markets: Liberalization and Globalisation of the Indian Consumer Market, online and offline markets; Organized and unorganized market, Grey market Concept of price in retail and wholesale, MRP, Fair price, labelling and packaging: legal aspects.

UNIT – II: (9 Hours)

The Consumer Protection Act, 2019- Genesis of the Consumer Protection law in India; Basic concepts: Consumer, goods, service, defect in goods, deficiency in service, spurious goods, unfair trade practice, restrictive trade practice, unfair contract, product liability, consumer rights.

UNIT – III: (12 Hours)

Grievance Redress Mechanism under the CPA, 2019- Who can File a Complaint? Grounds of Filing a Complaint, Limitation Period, Procedure for Filing and Hearing of Complaint, Reliefs provided, Appeal, Enforcement of Order, Offences and Penalties.

UNIT – IV: (12 Hours)

Consumer Movement in India; Voluntary Consumer Organisations (VCOs); National Consumer Helpline, GAMA, CONFONET, e-daakhil, Quality and Standardisation: AGMARK, ISI mark, Hallmarking, Consumer Grievance Redressal under the BIS Act, 2016.

Essential/recommended readings

1. Aggarwal, V. K., Law of Consumer Protection, 4th ed. (Bharat Law House, Delhi, 2021)
2. Khanna, Sri Ram and Hanspal, Savita, Consumer Affairs & Customer Care, 1 st ed. (VOICE Society Regd., 2020)
3. Kapoor, Sheetal, Consumer Affairs and Customer Care, 1st ed. (Scholar Tech Press, Delhi, 2021)

Suggestive readings

1. Rao, Rajyalakshami, Consumer is King (Universal Law Publishing Company, 2022)
2. The Consumer Protection Act, 2019.
3. The Bureau of Indian Standards, 2016.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE –DSE-2 Warehouse Management in Retail

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-2 Warehouse Management in Retail	**4**	**3**	**1**	**0**	Class XII Pass	**NA**

Learning Objectives

Upon completion of this course, students will be able to understand the role and significance of efficient warehouse management in the retail supply chain.Analyze the key components and processes involved in warehouse operations. Comprehend the principles of inventory management and control in a retail warehouse setting.

Learning outcomes

By studying this course, students will be able to:

1. Assess the efficiency of retail warehouse management practices and propose enhancements.
2. Implement inventory management techniques to ensure accurate stock levels and minimize stockouts.
3. Optimize warehouse layout and space utilization for improved productivity.
4. Design and execute effective order picking and packing processes to meet customer demands.
5. Utilize technology-driven warehouse management solutions for enhanced efficiency and accuracy.
6. Implement safety protocols and compliance measures to create a secure warehouse environment.

SYLLABUS

UNIT – I (12 Hours)

Introduction to Warehouse Management in Retail: Importance of efficient warehouse management in retail operations, Role of the warehouse in the retail supply chain, Warehouse management challenges and trends: Key Components of Warehouse Operations, Receiving and checking inbound shipments, Storage and shelving systems in retail warehouses, Order processing and outbound logistics: Inventory Management and Control, Inventory tracking and stock rotation methods, Demand forecasting and replenishment strategies, Minimizing stock outs and excess inventory.

UNIT – II (12 Hours)

Warehouse Layout and Space Utilization: Principles of efficient warehouse layout design, Racking systems and material handling equipment, Maximizing space utilization in a retail warehouse, Order Picking and Packing Strategies, Order picking methods (batch picking, zone picking, etc.), Packing techniques for different types of products, Order verification and accuracy checks.

UNIT – III (9 Hours)

Technology Applications in Warehouse Management: Warehouse management systems (WMS) and their features, Barcode scanning and RFID technology in retail warehouses, Automation and robotics in warehouse operations, Safety and Compliance in Retail Warehouses, Warehouse safety guidelines and best practices, Occupational health and safety considerations.

UNIT – IV (12 Hours)

Returns Management and Reverse Logistics: Handling customer returns and reverse logistics processes, Reworking and restocking returned products, Managing the environmental impact of returns; Warehouse Performance Metrics and Analysis, Key performance indicators (KPIs) for retail warehouse management, Data analytics for warehouse performance evaluation, Continuous improvement in warehouse operations.

Essential/recommended readings

1. "Warehouse Management: A Complete Guide to Improving Efficiency and Minimizing Costs in the Modern Warehouse" by Gwynne Richards.
2. "Essentials of Inventory Management" by Max Muller.
3. "Warehouse Management and Inventory Control" by G. Don Taylor.

Suggestive readings

1. "Warehousing and Fulfillment: A Comprehensive Guide to Distribution Logistics" by Kenneth B. Ackerman.
2. "Lean Warehousing: The Comprehensive Guide to Lean Warehousing Principles" by Tim McMahon.
3. "The Distribution Management Handbook" by James L. Ginter, Douglas M. Lambert, and J. Paul Dittmann.
4. "Warehouse Management Using Microsoft Dynamics AX: 2018 Edition" by Scott Hamilton.
5. "Warehouse Management with SAP ERP: Functionality and Technical Configuration" by Martin Murray and Sanil Kimmatkar.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE –DSE-2 Retail Technology and Innovation

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-2 Retail Technology and Innovation	**4**	**3**	**1**	**0**	Class XII Pass	**NA**

Learning Objectives

Upon completion of this course, students will be able to understand the significance of retail technology and innovation in modern business environments. Analyze the impact of retail technology on consumer shopping behavior. Evaluate the various technologies and tools used in retail. Explore the challenges and opportunities of implementing retail technology in different retail formats.

Learning outcomes

By studying this course, students will be able to:

1. Articulate the role of technology and innovation in shaping the retail industry.
2. Critically analyze the influence of retail technology on consumer behavior and preferences.
3. Identify and apply appropriate retail technologies for specific retail formats and business models.
4. Evaluate the impact of digitalization on the supply chain and inventory management in retail.
5. Develop effective strategies to address ethical and privacy challenges associated with retail technology.

SYLLABUS

UNIT – I (12 Hours)

Introduction to Retail Technology and Innovation: Definition and scope of retail technology, The role of innovation in the retail industry, Historical overview of retail technology adoption, Online shopping trends and preferences, The psychology of online buying decisions, Impact of mobile technology on consumer behavior.

UNIT – II (10 Hours)

Key Technologies Shaping Retail: Artificial Intelligence and machine learning applications in retail, Internet of Things (IoT) and smart retail solutions, Augmented Reality (AR) and Virtual Reality (VR) in retail.

UNIT – III (11 Hours)

RFID and inventory tracking systems, Demand forecasting and supply chain optimization, Automation in warehousing and fulfilment centres, Retail Data Analytics and Personalization: Customer data collection and privacy concerns, Utilizing data analytics for personalized marketing, Customer segmentation and targeting strategies.

UNIT – IV (12 Hours)

Ethical Considerations in Retail Technology: Data privacy and security issues, The impact of technology on employment in the retail sector, Sustainable and responsible retail practices, Integrating Technology for Enhanced Customer Experience, Mobile apps and in-store technology, Virtual shopping experiences and interactive displays, Loyalty programs.

Essential/recommended readings

1. "The Tech Whisperer: On Technology and Retail" by Alok Bardiya
2. "Digital Retailing in India: Evolution or Revolution" by Abhay Kumar

Suggestive readings

1. "The Retail Revival: Reimagining Business for the New Age of Consumerism" by Doug Stephens
2. "The Everything Store: Jeff Bezos and the Age of Amazon" by Brad Stone

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

GENERAL ELECTIVE –GE-4 Visual Merchandising and Space Planning

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
GE-4 Visual Merchandising and Space Planning	**4**	**3**	**1**	**0**	Class XII Pass	**Should have studied GE -3 B.Voc-RM&IT**

Learning Objectives

Upon completion of this course, students will be able to understand the principles and importance of visual merchandising in retail environments. Analyze the elements of effective visual merchandising and their impact on consumer behavior.

Learning outcomes

By studying this course, students will be able to:

1. Apply the principles of visual merchandising to create captivating and engaging retail displays.
2. Design and execute effective window displays that attract customers and communicate brand messages.
3. Utilize space planning techniques to optimize the use of retail floor space and enhance the shopping journey.
4. Analyze consumer behavior in the context of visual merchandising and space planning.
5. Implement technology-driven visual merchandising solutions to enhance customer engagement.
6. Assess store layout designs and propose improvements to maximize sales and foot traffic.

SYLLABUS

UNIT – I (9 Hours)

Introduction to Visual Merchandising and Space Planning: Definition and importance of visual merchandising, Role of space planning in retail environments, Relationship between visual merchandising and store layout; Elements of Effective Visual Merchandising: Colour, lighting, and visual composition, Merchandise presentation and styling, Signage and branding in visual displays, Window Displays and Storefronts.

UNIT – II (12 Hours)

Psychology of Visual Merchandising: Understanding consumer behavior in retail settings, Visual merchandising and buying impulses, creating emotional connections through displays, Space Planning and Store Layout, Store layout design principles, Traffic flow management and customer navigation, Maximizing retail floor space for optimal product placement.

UNIT – III (12 Hours)

Technology in Visual Merchandising: Augmented reality (AR) and virtual reality (VR) applications, Digital signage and interactive displays, Incorporating technology into visual displays, Visual Merchandising for Different Retail Formats, Visual merchandising in department stores, Visual presentation in boutique and specialty stores, Visual strategies for pop-up shops and temporary spaces.

UNIT – IV (12 Hours)

Retail Fixture and Display Design: Selecting and arranging retail fixtures, Creating flexible and adaptable display systems, Sustainability and eco-friendly fixture design, Promotional Visual Merchandising, Promotional strategies and seasonal displays, Visual merchandising for sales and special events, Coordinating promotional campaigns with visual displays; Real-World Retail Case Studies: Analyzing successful visual merchandising and space planning examples, Identifying challenges and proposing innovative solutions.

Essential/recommended readings

1. "The Art of Visual Merchandising: Display and Decoration in the Retail Store" by Martin M. Pegler.
2. "Visual Merchandising: Display and Design of Retail Stores" by Tony Morgan.
3. "New Retail Space" by Raul A. Barreneche.

Suggestive readings

1. Space Planning for Commercial and Residential Interiors" by Sam Kubba.
2. "Window and Interior Display: The Principles of Visual Merchandising" by Tony Morgan.
3. "Visual Merchandising and Display" by Martin M. Pegler.
4. "Store Design and Visual Merchandising: Creating Store Space That Encourages Buying" by Claus Ebster and Marion Garaus.
5. "Retail Design: Theoretical Perspectives" edited by Lynne C. Lancaster and David G. Duman.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

(Semester-5)

Bachelor of Vocation - Retail Management & IT course

DISCIPLINE SPECIFIC CORE COURSE – DSC-13 Introduction to Logistic Management

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-13 Introduction to Logistic Management	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Learning Objectives

The course aims to provide an understanding Integrated Logistics & Quality Customer Service.

Learning outcomes

By studying this course, students will be able to:

- Have basic understanding of the concept of logistics
- Understand the logistics management
- Develop proficiency in understanding logistics strategies
- Develop the skill of effectively outsourcing logistics

SYLLABUS OF DSC-13

UNIT – I (10 Hours)

Logistics Framework: Concept, Objective and Scope, Transportation, Warehousing, Inventory Management, Packing and Unitization, Control and Communication.

UNIT – II (10 Hours)

Role of Information Technology in Logistics, Logistics Service Firms and Third Party Logistics outsourcing- challenges and future directions.

UNIT – III (14 Hours)

Retail Logistics Network Design for Global Operations: Global Logistics Network Configuration, Orienting International Facilities, Considerations and Framework, Trade-offs Associated with each Approach, Mapping the Different Approaches, Capacity Expansion Issues, Information Management for Global Logistics

UNIT – IV (11 Hours)

Role and importance, Factors influencing transportation and warehousing decision, Importance of Multimodal Transport and containerization, Cost effectiveness of various modes of transport and types of warehouses.

Essential/recommended readings

1. Chopra, S. & Meindl, P. (2007). Supply Chain Management: Strategy, Planning and Operation, Pearson Education.
2. David J Bloomberg, Stephen Lemay, (2015) Logistics 8th edition, Pearson Education.
3. Hult, M. G., Closs, D., Frayer, D. Global (2014). Supply Chain Management: Leveraging Processes, Measurements, and Tools for Strategic Corporate Advantage. Mc Graw Hill Ltd.

Suggestive readings

4. Shapiro, J.F. (2007). Modelling the Supply Chain, Cengage Learning.
5. Simchi-Levi, D., Kaminsky, P., Simchi-Levi, E. & Ravi, Shankar (2008). Designing and Managing the Supply

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE –DSC-14 Supply Chain Management

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSC- 14 Supply Chain Management	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Learning Objectives

The course aims to provide basic understanding of supply chain management.

Learning outcomes

By studying this course, students will be able to:

- Have knowledge of supply management systems
- Have in-depth understanding of cross functional teams and supply management, information sharing
- Develop proficiency in quality management concepts
- Understand the importance of supply chain in retail.

SYLLABUS OF DSC-14

UNIT – I (14 Hours)

Introduction to supply chain management; global optimization; future trends in supply chain management; increasing supply chain responsiveness, Procurement Process and sourcing decision; procurement process perspective, strategies & trends in procurement, The sourcing decision and strategies, E- Procurement, risk and benefits of outsourcing.

UNIT – II (12 Hours)

Supply management systems: B2B, Strategic Supply Management. Enabling Concepts in Supply: Buyer-supplier relationship: Developing and Managing collaboration and Alliance relationship, Social issues & Relationship development in S.C.M.

UNIT – III (10 Hours)

Cross-functional teams and supply-Management Activities. Challenges and problems with cross functional approach, ERP Systems, Negotiations and Bidding, Information sharing.

UNIT – IV (9 Hours)

Quality Management Concepts: ISO Certification. Methods of Control: Product, Process, Risk, Evolution, Management Approaches, Quality Management Support System.

Essential/recommended readings

1. Chopra S, Meinde P & Kalra D.V. (2009) SCM-Strategy Planning & Operation, 3rd Edition, Pearson Education.
2. Fawcelt, Ellram & Ogden (2007) Supply Chain Management, From Vision to Implementation, Pearson education.

Suggestive readings

1. Render Barry, Stair, Hanna & Badri (2008) Quantative Analysis for Management, 10th Edition, Prentice Hall.
2. Saxena Anurag & Kaushik Sircar (2008) Logistics and SCM, Jaico Publishing House, 2008
3. Vohra N.D. (2006) Quantitative Techniques in Management, 3rd edition, McGraw Hill 2006

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE –DSC-15 Packing and Packaging Management

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-15 Packing and Packaging Management	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Learning Objectives

The course aims to provide knowledge to differentiate packaging and packing.

Learning outcomes

By studying this course, students will be able to:

- Get an overview of types of packaging
- Develop basic understanding of packing considerations
- Have an understanding of different materials used for packing
- Develop proficiency in managing the economics of packaging

SYLLABUS OF DSC-15

UNIT – I (12 Hours)

Packing and Packaging: Meaning, Functions and Essentials of Packing and Packaging. Difference, Types of packing: for Storage, Overseas Shipment, Inland Transportation, Packaging for Product content Protection, Test of packaging: Mechanical, Climatic & Lab test, International Care labeling code, Packaging cost.

UNIT – II (12 Hours)

Packaging Types, Requirements of Consumer Packaging, Channel Member Packaging and Transport Packaging, Shrink packaging, Identification codes, bar codes, and electronic data interchange (EDI), Universal Product Code, GSI Standards.

UNIT – III (12 Hours)

Packaging/Packing Materials & Components: Various Materials/Metals, Packaging Demands of Consumer goods Industry, Packaging Demands of Industrial Users, Technology Trends in Packaging Industry, Aseptic processing, Authentication, Automatic identification and data capture.

UNIT – IV (9 Hours)

Packaging Economics: Packaging Cost Vs Product cost, Cost Reduction in Packaging, Packing for Inventory Control, Value Analysis, Packing and Value Engineering, Standardization in Packaging, Quality assurance, Radio- frequency identification, Track and trace.

Essential/recommended readings

1. Calver, G. (2003) 'What Is Packaging Design', Rot vision.
2. Dean, D. A. (2000) 'Pharmaceutical Packaging Technology' Taylor & Francis.
3. McKinley, A. H. (2004) 'Transport Packaging', IoPP.

Suggestive readings

1. Scott Boylston (2009) Designing Sustainable Packaging, Lawrence King.
2. Soroka, W (1995) 'Fundamentals of Packaging Technology', IPP.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE –DSE-3 Retail Store Operations

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-3 Retail Store Operations	**4**	**3**	**1**	**0**	Class XII Pass	**NA**

Learning Objectives

By the end of this course, students will be able to understand the fundamental concepts and theories related to retail store operations management.Evaluate and design an effective retail store layout to enhance the overall shopping experience. Implement inventory management techniques to optimize stock levels and minimize carrying costs. Develop strategies to improve customer service and handle customer complaints and inquiries.

Learning outcomes

By studying this course, students will be able to:

1. Demonstrate a comprehensive understanding of retail store operations management principles.
2. Compare and contrast different retail formats and their respective advantages and limitations.
3. Create and justify a well-designed retail store layout to enhance customer engagement and sales.
4. Propose an efficient inventory management plan based on demand forecasting and stock analysis.

SYLLABUS

UNIT – I (12 Hours)

Overview of Retail Industry and its significance, Retail Management Process and Functions, Retail Store Formats and Types, Retail Store Operations, Store Planning and Design, Inventory Management and Control, Supply Chain and Logistics Management in Retail.

UNIT – II (12 Hours)

Visual Merchandising Strategies and Techniques, Store Layout and Space Management, Customer Experience and Service Management, Understanding Customer Behavior and Preferences, Building Customer Loyalty and Retention, Customer Feedback and Satisfaction Measurement.

UNIT – III (12 Hours)

Retail Analytics and Data-Driven Decision Making, Importance of Retail Analytics, Collecting and Analyzing Retail Data, Using Data for Business Decision Making; Leadership and Team Management in Retail, Retail Store Team Structure and Roles, Effective Leadership and Communication Skills, Motivating and Managing Retail Store Teams.

UNIT – IV (9 Hours)

Compliance, Ethics, and Sustainability in Retail, Legal and Regulatory Compliance in Retail, Ethical Practices in Retail Operations, Sustainable Retailing and Corporate Social Responsibility.

Essential/recommended readings

1. "Retail Management: A Strategic Approach" by B. Rajagopal.
2. "Indian Retail: Evolving Growth Strategies and Future Prospects" by Shoppers' Stop and R. Srinivasan.

Suggestive readings

1. "Retailing Management" by Swapna Pradhan.
2. "Retail Marketing Management" by Nisha and Swapna Pradhan.
3. "Strategic Retail Management: Text and International Cases" by Amitabh Mishra and Piyush Kumar Sinha.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE –DSE-3 Multichannel Retail Marketing

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-3 Multichannel Retail Marketing	**4**	**3**	**1**	**0**	Class XII Pass	**NA**

Learning Objectives

Upon completion of this course, students will be able to understand the concept of multichannel retail marketing and its importance in the modern business landscape. Analyze and compare different multichannel retail strategies used by Indian and international retailers. Identify the key challenges and opportunities in multichannel retail marketing.

Learning outcomes

By studying this course, students will be able to:

1. Explain the concept and significance of multichannel retail marketing and its role in enhancing customer experience and loyalty.
2. Critically evaluate and compare various multichannel retail strategies used by both Indian and international retailers.
3. Identify and analyze the challenges and opportunities specific to multichannel retail marketing.
4. Apply multichannel marketing techniques to address the needs and preferences of target customers effectively.

SYLLABUS

UNIT – I (12 Hours)

Introduction to Multichannel Retail Marketing: Definition and evolution of multichannel retailing, Advantages and disadvantages of multichannel retail strategies, The impact of customer behavior on multichannel marketing, Multichannel Retailing Strategies, Offline vs. online vs. hybrid retail models, The role of mobile commerce and apps in multichannel retailing.

UNIT – II (10 Hours)

Digital Marketing in Multichannel Retailing: Search engine optimization (SEO) and search engine marketing (SEM), Social media marketing and influencer strategies, Email marketing and personalized communications.

UNIT – III (12 Hours)

Importance of data analytics in multichannel retailing, Key metrics and KPIs for evaluating multichannel marketing effectiveness, Data privacy and ethical considerations in data collection and analysis Integrating Offline and Online Channels; Creating seamless customer experiences across channels, Click-and-collect and ship-from-store strategies, Show rooming and web rooming in multichannel retailing.

UNIT – IV (11 Hours)

Building customer loyalty through rewards and incentives, Strategies to reduce churn and increase customer lifetime value, Voice commerce and conversational AI in retail, Sustainability and ethical considerations in multichannel marketing.

Essential/recommended readings

1. "The New Rules of Retail: Competing in the World's Toughest Marketplace" by Robin Lewis and Michael Dart
2. "Omnichannel Retail: How to Build Winning Stores in a Digital World" by Tim Mason
3. "Retail Marketing Management: Principles and Practice" by Chetan Bajaj and Rajnish Tuli

Suggestive readings

1. Customer Centricity: Focus on the Right Customers for Strategic Advantage" by Peter Fader
2. "The Long Tail: Why the Future of Business is Selling Less of More" by Chris Anderson
3. "Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking" by Foster Provost and Tom Fawcett
4. "Retailing Management" by Michael Levy and Barton A. Weitz

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

GENERAL ELECTIVE –GE-5 Sourcing and Vendor Management

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
GE-5 Sourcing and Vendor Management	**4**	**3**	**1**	**0**	Class XII Pass	**Should have studied GE-4B.Voc-RM&IT**

Learning Objectives

Upon completion of this course, students will be able tounderstand the importance of sourcing and vendor management in the retail industry.Analyze the sourcing needs and requirements of a retail business.Evaluate and select appropriate vendors to meet the retail business's needs.Develop effective vendor management strategies to enhance collaboration and performance.

Learning outcomes

By studying this course, students will be able to:

1. Assess the sourcing and vendor management practices of a retail business and recommend improvements.
2. Formulate effective sourcing strategies tailored to the specific needs of a retail organization.
3. Develop a vendor selection process and criteria to align with the retail business's objectives.
4. Design a vendor management framework to foster better collaboration and mutual success.
5. Analyze and negotiate contractual agreements with vendors to maximize value and minimize risk.
6. Implement risk management techniques to mitigate potential disruptions in the supply chain.

SYLLABUS

UNIT – I (12 Hours)

Introduction to Sourcing and Vendor Management in Retail, Overview of sourcing and vendor management concepts in the retail industry, Importance of effective sourcing strategies for retail businesses; Sourcing Needs Analysis: Identifying and understanding the sourcing needs of a retail business, Conducting market research and supplier assessment.

UNIT – II (9 Hours)

Vendor Selection and Evaluation, Vendor selection criteria and processes in retail, Performance evaluation and supplier scorecards;Vendor Management Strategies: Building strong vendor relationships and effective communication, Collaborative planning, forecasting, and replenishment (CPFR).

UNIT – III (12 Hours)

Contract Negotiation and Management, Contracting methods and negotiation techniques in retail sourcing, Key contract clauses and legal considerations; Risk Management in Vendor Relationships: Identifying and assessing risks in the retail supply chain, Developing risk mitigation strategies and contingency plans.

UNIT – IV (12 Hours)

Sourcing and Vendor Management's Impact on the Bottom Line, Financial analysis and cost optimization in sourcing decisions, Measuring vendor performance and its effect on profitability; Ethical and Sustainable Sourcing in Retail: Ethical considerations in sourcing decisions, Implementing sustainability initiatives in the supply chain.

Essential/recommended readings

1. "Strategic Sourcing in the Retail Industry" by Michael Hugo and Judith Lynch
2. "Vendor Management Best Practices: Optimizing Supply Chain Collaboration" by Eric Evans
3. "The Procurement Game Plan: Winning Strategies and Techniques for Supply Management Professionals" by Charles Dominick and Soheila R. Lunney

Suggestive readings

1. Supplier Relationship Management: How to Maximize Vendor Value and Opportunity" by Christian Schuh, Michael F. Strohmer, and Stephen Easton
2. "The Sustainable Supply Chain: How to Create a Green Infrastructure with a Competitive Advantage" by Robert Sroufe and Steven Melnyk
3. "Negotiation Genius: How to Overcome Obstacles and Achieve Brilliant Results at the Bargaining Table and Beyond" by Deepak Malhotra and Max Bazerman
4. "Supply Chain Risk Management: An Emerging Discipline" by Gregory L. Schlegel and Robert J. Trent

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

SEMESTER-6

Bachelor of Vocation - Retail Management & IT course

DISCIPLINE SPECIFIC CORE COURSE –DSC-16 Retail Planning and Legal Framework

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-16 Retail Planning and Legal Framework	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Learning Objectives

The course aims to provide fundamental understanding of strategic management of retail in India.

Learning outcomes

By studying this course, students will be able to:

1. Get holistic knowledge of retail operations.
2. Develop ability to manage the various aspects of human resources involved in retailing.
3. Develop proficiency in legal framework documentation involved in retailing.
4. Have comprehensive knowledge of mall management.

SYLLABUS OF DSC-16

UNIT – I (10 Hours)

Introduction to Strategic Management : Retailing, Role, Relevance & Trends, Retail Customer, Retail Market Segmentation & franchising, Relationship marketing in Retailing.

UNIT – II (10 Hours)

Social Marketing in Retail Management Strategic Management, Retail in India, Services Marketing and Management, Brand Management, International / Strategies, Pricing, Advertising & sales promotion.

UNIT – III (12 Hours)

Operations in Retailing: Retails location strategy, Product and Merchandise Management, TQM, EDP / MIS Logistics & SCM Security Measures, Footfalls / computerized methods non-computerized methods, Visual / Display methods, Merchandising & Management.

UNIT – IV (13Hours)

Legal framework for Retailing: License, Contracts & Recovery, Legal Process, PF/ESIC & Exemptions, PPF, IR Law: Shops & establishments, IPR Patents, Copy right & Trademarks, Procedural Compliance for Establishing an Retail Store, Customer Rights, Consumer Protection Acts, Unfair Trade Practices, Holding of Contests and Schemes, The Standards of Weights and Measures Act, Procedures applicable for a Retail Store.

Essential/recommended readings

1. Mathur U.C. (2010) Retail Management, I.K. International Publishing House Pvt. Ltd. New Delhi.
2. Nair Suja (2006) Retail Management, Himalya Publishing House, New Delhi.
3. Pradhan Swapna (2009) Retailing Management, Tata McGraw-Hill, New Delhi.

Suggestive readings

1. Varley Rosemary (2001) Retail Product Management, Routledge, New York.

V.S.Ramaswamy and S.Namakumari (2017) Marketing Management, Macmillan• Publishers India Ltd. New Delhi.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE –DSC-17 Enterprise Resource Planning

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-17 Enterprise Resource Planning	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Learning Objectives

The course aims to provide an overview of enterprise resource planning (ERP).

Learning outcomes

By studying this course, students will be able to:

1. Get the knowledge of selection and implementation of ERP and business process re-engineering
2. Develop basic understanding of ERP packages and framework
3. Develop the knowledge of technical architecture of ERP systems
4. Get understanding of ERP, supply chain management and SAP

SYLLABUS OF DSC-17

UNIT – I (12 Hours)

Enterprise Resource Planning: Evolution of ERP, difference between integrated and traditional information systems, early and new ERP packages, overview of ERP packages, ERP products and markets, players and characteristics, benefits of ERP implementations, critical success factors, pitfalls.

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UNIT – II (12 Hours)

Opportunities and problems in ERP selection and implementation, ERP implementation, identifying ERP benefits, team formation-consultant intervention, Business Process

Reengineering (BPR) concepts: emergence of reengineering, business process, rethinking of processes, identification of reengineering

UNIT – III (12 Hours)

Retailing organizations, Formulation and evaluation of strategic options within retailing organizations, Mergers, Acquisition and strategic alliances involving retailers, Analysis of organization structure and design among retail organizations.

UNIT – IV (9 Hours)

Technical Architecture of ERP Systems: Communication and networking facilities, distributed computing, client server systems, concepts of business objects, distributed object, computing architecture, support for data mining and warehousing, EDI, internet and related technologies, Net technologies.

Essential/recommended readings

1. Jyothindra Zaveri (2012) Enterprise Resource Planning Himalaya Publishing House Pvt. Ltd.
2. Motiwalla F. Luvai (2011) Enterprise Systems for Management 2 edition, Pearson.

Suggestive readings

1. Ptak, Carol A. & Eli Schragenheim (2000) Enterprise Systems for Management, St. Lucie Press NY.
2. D.P. Goyal, Enterprise Resource Planning.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE –DSC-18 Crisis Management in Retail

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-18 Crisis Management in Retail	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Learning Objectives

To provide students with the ability to understand the principles, strategies and techniques for incident response and crisis management.

Learning outcomes

By studying this course, students will be able to:

1. Develop the knowledge and skills necessary for implementing an effective structure and processes for responding to and managing incidents and crises.
2. Get the knowledge of different types of crisis in retail.
3. Get the understanding of disaster management in retail.
4. Develop proficiency in designing crisis management strategies.

SYLLABUS OF DSC-18

UNIT – I (10 Hours)

Introduction to Crisis Management and Incident Management- Different Types of Crisis in retail, Crisis Leadership and Team Building, Crisis Management Centres - design and operation

.

UNIT – II (10 Hours)

Information Management - situational awareness & decision making under pressure, Media and Crisis Communications, Media Interview Training, Using Social Media in a Crisis

UNIT – III (12 Hours)

Exercise Excellence - design, delivery, review, Preparing for Epidemics, Pandemics and Disasters in the Workplace, Supporting People after Traumatic Incidents.

UNIT – IV (13 Hours)

Disaster Management **-** Basics of disaster management and Mass casualties**,** Components of disaster plan- pre and post, Disaster alertness, Disaster management planning and implementation, Severity of illness amongst disaster victims and risk assessment **,** Mock exercise on disaster management in Retail.

Essential/recommended readings

1. Marchesani Ph D V J, "The Fundamental of Crisis Management", Page Publishing, Inc.
2. Yunus D Saleh, "Crisis Management", Mill City Press Inc**.**

Suggestive readings

1. Bernstein Jonathan, "Manager's Guide to Crisis Management", Briefcase Books Series.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE –DSE-4 Personnel Management in Retail

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-4 Personnel Management in Retail	**4**	**3**	**1**	**0**	Class XII Pass	**NA**

Learning Objectives

By the end of this course, students will be able to understand the importance of personnel management in the retail industry and its impact on organizational success.Identify the key functions and responsibilities of personnel managers in a retail setting. Apply effective recruitment and selection techniques to hire the right talent for retail positions. Develop strategies for employee training, development, and performance improvement in a retail environment.

Learning outcomes

By studying this course, students will be able to:

1. Demonstrate a comprehensive understanding of personnel management principles and their applications in the retail sector.
2. Apply various recruitment and selection techniques to attract and hire suitable candidates for retail positions.
3. Design and implement effective employee training programs to enhance their skills and knowledge in a retail environment.
4. Asses and manage employee performance, providing constructive feedback and support for improvement.
5. Formulate employee engagement strategies to boost morale and reduce turnover in a retail setting.

SYLLABUS

UNIT – I (12 Hours)

Introduction to Retail Personnel Management: Definition and significance of personnel management in the retail sector, Evolution of personnel management practices in retail, Role of personnel managers in retail organizations; Recruitment and Selection in Retail: Job analysis and job descriptions for retail

positions, Effective recruitment strategies: internal and external sources, Selection techniques and conducting interviews for retail positions.

UNIT – II (12 Hours)

Training and Development in Retail, Identifying training needs in the retail workforce, Designing and implementing retail-specific training programs, Evaluating the effectiveness of training initiatives, Performance Management in Retail, Setting performance standards and expectations in retail jobs, Performance appraisal methods and their relevance in retail, Providing feedback and coaching for improved performance.

UNIT – III (12 Hours)

Employee Engagement in Retail: Understanding employee motivation and engagement in the retail context, Designing employee recognition and reward programs in retail, Promoting work-life balance and employee well-being, Employee Relations and Conflict Management, Addressing employee grievances and resolving conflicts in retail, Implementing disciplinary actions and maintaining a positive work environment, Dealing with employee turnover and retention strategies.

UNIT – IV (9 Hours)

Ensuring fairness, diversity, and inclusivity in retail HR practices, Ethical challenges and best practices in retail HR management, Emerging Trends in Retail Personnel Management, Technology's impact on HR practices in the retail industry, Adapting to remote work and virtual teams in retail, Sustainable HR practices in the retail sector.

Essential/recommended readings

1. "Retail Management: A Strategic Approach" by Swapna Pradhan
2. "Human Resource Management in Retail" by S. Venkata Subbaiah
3. "Retail Marketing Management: Principles and Practice" by Chetan Bajaj and Ricky W. Griffin

Suggestive readings

1. "Retail Human Resource Management: Contemporary Issues and Cases" by Barry J. Babin and Brian D. Tietje
2. "Strategic Human Resource Management in Retailing" by Janet H. Marler and Shad S. Morris
3. "Human Resource Management in Retail: A Research Agenda" by Mike Noon and Stephen Bach

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE –DSE-4 Retailing in India- Growth & Challenges

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-4 Retailing in India- Growth & Challenges	**4**	**3**	**1**	**0**	Class XII Pass	**NA**

Learning Objectives

Upon completion of this course, students will be able to understand the evolution and current status of the retail sector in India. Identify the factors contributing to the growth of the Indian retail industry. Analyze the challenges faced by retailers and the broader retail ecosystem. Evaluate the impact of technology and digitalization on retailing in India.

Learning outcomes

By studying this course, students will be able to:

1. Describe the historical development and transformation of the retail industry in India.
2. Analyze the key drivers that have led to the growth of organized and unorganized retail in the country.
3. Identify the major challenges faced by retailers, including supply chain issues, competition, and changing consumer behavior.
4. Discuss the impact of e-commerce and digital disruption on traditional retail models.

SYLLABUS

UNIT – I (10 Hours)

Growth Drivers of Indian Retail, Rise of the middle class and increasing disposable income, Urbanization and changing consumer lifestyles, Demographic dividend and youth population, Technological advancements and digitalization.

UNIT – II (11 Hours)

E-commerce and its impact on traditional retail, Challenges Faced by Indian Retailers, Supply chain and logistics issues, Intense competition and pricing pressures, Regulatory hurdles and licensing requirements, Consumer preferences and brand loyalty.

UNIT – III (12 Hours)

Role of Government Policies in Retail Growth, FDI regulations and its impact on the sector, Goods and Services Tax (GST) and its implications, Retail trade reforms and liberalization, Technology and Digital Transformation in Retail, Data analytics and personalized marketing, Inventory management and AI-driven solutions.

UNIT – IV (12 Hours)

Future Trends and Opportunities, Emerging retail trends in India and globally, Opportunities in niche markets and regional retailing, Sustainable and socially responsible retail practices, Social and Economic Impact of Retail Growth, Employment generation, Impact on traditional mom-and-pop stores, Effects on local economies and small-scale industries.

Essential/recommended readings

1. "The Retail Revolution in India" by Rajiv Lal and Arar Han
2. "Indian Retail Industry: Past, Present & Future" by Dr. C.S. Mukundan
3. "The New Rules of Retail: Competing in the World's Toughest Marketplace" by Robin Lewis and Michael Dart

Suggestive readings

1. "Retail Management: A Strategic Approach" by Barry Berman and Joel R. Evans
2. "Retail Marketing Management" by David Gilbert
3. Retailing Management" by Michael Levy and Barton A. Weitz

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

GENERAL ELECTIVE –GE-6 Sales and Service excellence

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
GE-6 Sales and Service excellence	**4**	**3**	**1**	**0**	Class XII Pass	**Should have studied GE - 5B.Voc-RM&IT**

Learning Objectives

By the end of this course, students should be able to understand the fundamental concepts of sales and service excellence.Identify and analyze customer needs to tailor sales strategies accordingly. Develop effective sales communication and negotiation skills. Implement relationship-building techniques to foster long-term customer loyalty.

Learning outcomes

By studying this course, students will be able to:

1. Demonstrate an understanding of the key principles and theories related to sales and service excellence.
2. Evaluate customer needs and preferences to design customized sales approaches.
3. Employ effective communication and persuasion techniques to close sales successfully.
4. Apply relationship-building strategies to retain existing customers and attract new ones.
5. Address customer complaints and conflicts with empathy and professionalism.
6. Utilize data-driven insights to optimize sales strategies and performance.
7. Exhibit ethical behavior and integrity in all sales and service interactions.

SYLLABUS

UNIT – I (12 Hours)

Introduction to Sales and Service Excellence: Definition and importance of sales and service excellence, Historical perspectives and current trends in sales and customer service, Understanding Customer Behavior, Customer psychology and decision-making processes, Customer segmentation and targeting strategies.

UNIT – II (9 Hours)

Sales Communication and Negotiation Skills: Effective communication techniques in sales, Negotiation strategies to reach win-win outcomes, Customer Relationship Management (CRM), Building and maintaining customer relationships, CRM tools and technology.

UNIT – III (12 Hours)

Handling Customer Complaints and Challenging Situations: Dealing with difficult customers, Conflict resolution and problem-solving techniques, Data Analytics in Sales and Service, Utilizing data to make informed sales decisions, Customer analytics and predictive modelling.

UNIT – IV (12 Hours)

Upselling and Cross-selling Strategies: Identifying upselling and cross-selling opportunities, Techniques for suggestive selling, Ethics and Integrity in Sales and Service, Importance of ethical behavior in sales and customer service, Ethical dilemmas and their resolutions.

Essential/recommended readings

1. "The Psychology of Selling" by Brian Tracy
2. "Customer Satisfaction Is Worthless, Customer Loyalty Is Priceless" by Jeffrey Gitomer
3. "To Sell Is Human: The Surprising Truth About Moving Others" by Daniel H. Pink

Suggestive readings

1. "The Challenger Sale: Taking Control of the Customer Conversation" by Matthew Dixon and Brent Adamson
2. "Customer Success: How Innovative Companies Are Reducing Churn and Growing Recurring Revenue" by Nick Mehta, Dan Steinman, and Lincoln Murphy
3. "Customer Relationship Management: Concept, Strategy, and Tools" by V. Kumar and Werner Reinartz
4. "Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die" by Eric Siegel

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

SEMESTER-III
B.Voc Software Development
Ramanujan College
Detailed Syllabus – Discipline Specific Core

DISCIPLINE SPECIFIC CORE COURSE – DSC-07: DATA STRUCTURES

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Data Structures	4	3	0	1	Class XII pass with Mathematics	DSC-01

Learning Objectives:

1. *To introduce the fundamentals of data structures*
2. *To get familiar with programming*

Learning Outcomes:

1. *Develop the ability to use basic data structures like array, stacks, queues, lists, trees and hash tables to solve problems.*
2. *Use well-organized data structures in solving various problems.*
3. *Differentiate the usage of various structures in problem solutions.*
4. *Implement algorithms to solve problems using appropriate data structures.*

Unit I **(5 hours)**

Arrays: Single and multi-dimensional arrays, analysis of insert, delete and search operations in arrays (both linear search and binary search), implementing sparse matrices, applications of arrays to sorting: selection sort, insertion sort, bubble sort, comparison of sorting techniques via empirical studies.

Unit II **(5 hours)**

Linked Lists: Singly- linked, doubly-linked and circular lists, analysis of insert, delete and search operations in all the three types, implementing sparse matrices.

Unit III **(10 hours)**

Queues: Array and linked representation of queue, de-queue, comparison of the operations on queues in the two representations. Applications of queues.

Unit IV **(15 hours)**

Stacks: Array and linked representation of stacks, comparison of the operations on stacks in the two representations, implementing multiple stacks in an array; applications of stacks: prefix, infix and postfix expressions, utility and conversion of these expressions from one to another;

applications of stacks to recursion: developing recursive solutions to simple problems, advantages and limitations of recursion.

Unit V **(10 hours)**

Trees and Heaps: Introduction to tree as a data structure; binary trees, binary search trees, analysis of insert, delete, search operations, recursive and iterative traversals in binary search trees. Height-balanced trees (AVL), B trees, analysis of insert, delete, search operations on AVL and B trees. Introduction to heap as a data structure. Analysis of insert, extract-min/max and delete-min/ max operations, applications to priority queues.

Hash Tables: Introduction to hashing, hash tables and hashing functions -insertion, resolving collision by open addressing, deletion, searching and their analysis, properties of a goodhash function.

References

1. *Michael T. Goodrich, Roberto Tamassia and Michael H. Goldwasser (2013), Data Structures and Algorithms in Python, Wiley.*
2. *Rance D. Necaise, Data Structures and Algorithms Using Python, John Wiley & Sons, Inc.*
3. *Introduction to Algorithms, by Cormen, Leiserson, Rivest, and Stein, MIT Press, Third Edition, 2009.*

List of Practical **(30 hours)**

A practical implementation of various data structure such as Array, Queues, Stacks, Linked List and Trees.

DISCIPLINE SPECIFIC CORE COURSE – DSC-08: Web Design and Development

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Web design and development	**4**	**3**	**0**	**1**	**Class XII**	**NIL**

***Learning objectives*:**

1. To introduce the fundamentals of Internet, and the principles of web design.
2. To construct basic websites using HTML and Cascading Style Sheets.
3. To build dynamic web pages with validation using Java Script objects and by applying different event handling mechanisms.
4. To develop modern interactive web applications using PHP, XML and MySQL

Learning Outcomes:

1. *Structure and implement HTML/CSS.*
2. *Implement basic JavaScript.*
3. *Learn server side scripting language PHP and integration with database using MYSQL.*

UNIT-I **(5 Hours)**

Introduction to HTML & CSS:

HTML Basics, HTML Responsive, HTML Entities, HTML Forms, HTML5 Canvas, HTML5 SVG, HTML5 Data Storage, HTML5 Audio and Video , CSS Introduction, CSS Syntax, CSS Text, CSS Backgrounds, CSS Fonts, CSS Links, CSS Lists, CSS Tables, CSS Box Model, CSS Margins, Dimensions, Display, CSS Navigation Bar, CSS Attribute Selectors, CSS Rounded Corners, CSS Border Images, CSS Backgrounds, CSS Colors, CSS Animations.

UNIT-II **(10 Hours)**

Introduction to JavaScript:

JavaScript Introduction, JavaScript Output, JavaScript Variables, JavaScript Operators, JavaScript Arithmetic, JavaScript Data Types, JavaScript Assignment, JavaScript Functions, JavaScript Objects, JavaScript Scope, JavaScript Events, JavaScript Strings and String Methods, JavaScript Numbers and Number Methods, JavaScript Math, JavaScript Dates: Formats and Methods, JavaScript Booleans , JavaScript Comparisons, JavaScript Conditions, JavaScript Switch, JavaScript Loops, JavaScript Break, JavaScript Type, JavaScript Forms (API and Validation), JavaScript Objects, JavaScript Functions, JavaScript DOM, JavaScript Browser BOM, JavaScript Frameworks

UNIT-III **(15 Hours)**

Introduction to Bootstrap: Bootstrap Introduction, Bootstrap Components, Bootstrap Plugins, Bootstrap Grids, Bootstrap JS , PHP Introduction-Installing PHP, PHP Syntax, PHP Variables, PHP Data Types, PHP Strings, PHP Constants, PHP Operators, PHP Programming Loops, PHP Functions, PHP Arrays, PHP Super-global, PHP Forms and XML- PHP Form Handling, PHP Form Validation (Server side).

UNIT-IV **(15 Hours)**

PHP with MySQL: PHP MySQL Database, PHP Connecting to Database, PHP Creating Records, PHP Selecting Records, PHP Deleting Records, PHP Updating Records, PHP Limit Data, PHP Insert Multiple.

References

1. Learning PHP, MySQL & JavaScript: With JQuery, CSS & HTML5 by Robin Nixon , O'Reilly Media, Inc.

2. PHP and MySQL for Dynamic Web Sites: Visual QuickPro Guide by Larry Ullman , Fifth Edition.

List of Practicals (30 hours)

1. Design a home page which displays information about your college department using headings, HTML entities and paragraphs.
2. Implement different types of list tags, hyperlinks, marquee tag and HTML formatting tags in the college department homepage.
3. Create a web page having two frames, Frame 1 containing links and another with contents of the link. When a link is clicked appropriate contents should be displayed on Frame 2. Also, insert an iframe in the same page.
4. Design your course timetable and display it in tabular format.
5. Design an admission form for any course in your college with text, password fields, drop-down list, check-boxes, and radio buttons, submit and reset button etc. with proper CSS formatting.
6. Create a website for online book stores with Home, Login, Catalogue, Registration page with links to all these pages in a menu on top of every page. Embed heading, paragraph, images, video, .iframe, form controls, table, and list in this website. Use both Internal and external CSS in this.
7. Write a JavaScript program to display the current day and time.
8. Write a JavaScript program to
   a) Remove a character at the specified position of a given string and return the new string.
   b) Change the case of a string. (I.e. upper case to lower case and vice-versa).
9. Write a JavaScript program to compute the sum of elements of a given array of integers.
10. Develop and demonstrate a HTML file that includes JavaScript script for taking full name in a text field and display first, middle, last name *in 3 different labels. Middle and last name may be optional, thus messages like "NA" should be displayed in corresponding labels. If input contains 2 words, then they should be considered as first and last names.
11. Design HTML form for keeping student record, apply JavaScript validation for restriction of mandatory fields, numeric field, email-address field, specific value in a field etc.
12. Write a JavaScript code that displays text "Bigger Text" with increasing font size in the interval of 10ms in red color, when the font size reaches 50 pt. it displays "Smaller Text" in green color. Then the font size should decrease to 5pt and then stop.
13. Write a PHP script that removes the whitespaces from a string.
14. Create a login page having user name and password. On clicking submit, a welcome message should be displayed if the user is already registered (i.e.name is present in the database) otherwise error message should be displayed.
15. Create a simple 'birthday countdown' script, the script will count the number of days between current day and birth day.

DISCIPLINE SPECIFIC CORE COURSE – DSC-09: Operating Systems

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Operating Systems	**4**	**3**	**0**	**1**	**Class XII**	**NIL**

***Learning objectives*:**

1. *Learn fundamental operating system abstractions such as processes, threads, files, semaphores, IPC abstractions, shared memory regions, etc.,*
2. *Learn how the operating system abstractions can be used in the development of application programs, or to build higher level abstractions,*
3. *Learn how the operating system abstractions can be implemented,*
4. *Learn the principles of concurrency and synchronization, and apply them to write correct concurrent programs/software,*
5. *Learn basic resource management techniques (scheduling, time management, space management) and principles and how they can be implemented. These also include issues of performance and fairness objectives, avoiding deadlocks, as well as security and protection.*

Learning Outcomes:

1. *Understand the need of an Operating System & Define Multiprogramming and multithreading concepts.*
2. *Implement Process Synchronization service (Critical Section, Semaphores), CPU scheduling service with various algorithms.*
3. *Learn Main memory Management (Paging, Segmentation) algorithms, Handling of Deadlocks*
4. *Identify and appreciate the File systems Services, Disk Scheduling service*

UNIT - I **(5 hours)**

Introduction: Operating Systems (OS) definition and its purpose, Multi-programmed and Time Sharing Systems, OS Structure, OS Operations: Dual and Multi-mode, OS as resource manager.

UNIT – II **(5 hours)**

Operating System Structures: OS Services, System Calls: Process Control, File Management, Device Management, and Information Maintenance, Inter-process Communication, and Protection, System programs, OS structure- Simple, Layered, Microkernel, and Modular.

UNIT - III **(10 hours)**

Process Management : Process Concept, States, Process Control Block, Process Scheduling, Schedulers, Context Switch, Operation on processes, Threads, Multicore Programming, Multithreading Models, Threads, Process Scheduling Algorithms: First Come First Served, Shortest-Job-First, Priority & Round-Robin, Process Synchronization: The critical-section problem and Peterson's Solution, Deadlock characterization, Deadlock handling.

UNIT – IV **(10 hours)**

Memory Management: Physical and Logical address space, Swapping, Contiguous memory allocation strategies - fixed and variable partitions, Segmentation, Paging.

Virtual Memory Management: Demand Paging and Page Replacement algorithms: FIFO Page Replacement, Optimal Page replacement, and LRU page replacement.

UNIT – V **(15 hours)**

File System: File Concepts, File Attributes, File Access Methods, Directory Structure: Single-Level, Two-Level, Tree-Structured, and Acyclic-Graph Directories.

Mass Storage Structure: Magnetic Disks, Solid-State Disks, And Magnetic Tapes, Disk Scheduling algorithms: FCFS, SSTF, SCAN, C-SCAN, LOOK, and C-Look Scheduling.

References

1. *Silberschatz, A., Galvin, P. B., Gagne G. Operating System Concepts, 9th edition, John Wiley Publications, 2016*
2. *Dhamdhere, D. M. Operating Systems: A Concept-based Approach. 2nd edition, Tata McGraw-Hill Education, 2017*
3. *Kernighan, B. W., Rob Pike, R. The UNIX Programming Environment. Englewood Cliffs, NJ: Prentice-Hall, 1984*
4. *Stallings, W. Operating Systems: Internals and Design Principles. 9th edition, Pearson Education, 2018*
5. *Tanenbaum, A. S. Modern Operating Systems. 3rd edition, Pearson Education, 2007*

List of Practicals :(30 hours)

1. Write a program (using fork() and/or exec() commands) where parent and child execute:
   a) Same program, same code.
   b) Same program, different code.
   c) Before terminating, the parent waits for the child to finish its task.
2. Write a program to report behavior of Linux kernel including kernel version, CPU type and model. (CPU information)
3. Write a program to report behavior of Linux kernel including information on configured memory, amount of free and used memory. (Memory information)
4. Write a program to print file details including owner access permissions, file access time, where file name is given as argument.
5. Write a program to copy files using system calls.
6. Write a program to implement FCFS scheduling algorithm.
7. Write a program to implement Optimal scheduling algorithm.
8. Write a program to implement the SJF scheduling algorithm.
9. Write a program to implement a non-preemptive priority based scheduling algorithm.
10. Write a program to implement SRJF scheduling algorithm.
11. Write a program to calculate sum of n numbers using thread library.
12. Write a program to implement first-fit, best-fit and worst-fit allocation strategies.

DSE-01(a): Programming Using R

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Programming using R	4	2	0	2	Class XII with Mathematics	NIL

***Learning objectives*:**

1. *Master the use of the R and RStudio interactive environment.*
2. *Expand R by installing R packages.*
3. *Explore and understand how to use the R documentation.*
4. *Read Structured Data into R from various sources.*
5. *Understand the different data types in R.*
6. *Understand the different data structures in R.*

Learning Outcomes:

1. *Develop an R script and execute it*
2. *Install, load and deploy the required packages, and build new packages for sharing and reusability*
3. *Extract data from different sources using API and use it for data analysis*
4. *Visualize and summarize the data*
5. *Design application with database connectivity for data analysis*

UNIT-I **(5 hours)**

Introduction: R interpreter, Introduction to major R data structures like vectors, matrices, arrays, list and data frames, Control Structures, vectorized if and multiple selection, functions.

UNIT-II **(10 hours)**

Installing, loading and using packages: Read/write data from/in files, extracting data from web-sites, Clean data, Transform data by sorting, adding/removing new/existing columns, centering, scaling and normalizing the data values, converting types of values, using string in-built functions, Statistical analysis of data for summarizing and understanding data, Visualizing data using scatter plot, line plot, bar chart, histogram and box plot

UNIT-III **(10 hours)**

Designing GUI: Building interactive application and connecting it with database.

UNIT-IV **(5 hours)**

Building Packages.

References:

1. Cotton, R., Learning R: a step by step function guide to data analysis. 1st edition. O'reilly Media Inc.
2. Gardener, M.(2017). Beginning R: The statistical programming language, WILEY.
3. Lawrence, M., & Verzani, J. (2016). Programming Graphical User Interfaces in R. CRC press. (ebook)

List of Practical :(60 hours)

Q1. Write an R script to do the following:

a) Simulate a sample of 100 random data points from a normal distribution with mean 100 and standard deviation 5 and store the result in a vector.
b) Visualize the vector created above using different plots.
c) Test the hypothesis that the mean equals 100.
d) Use Wilcox test to test the hypothesis that mean equals 90.

Q2. Using the Algae data set from package DMwR to complete the following tasks.

a) Create a graph that you find adequate to show the distribution of the values of algae a6.
b) Show the distribution of the values of size 3.
c) Check visually if oPO4 follows a normal distribution.
d) Produce a graph that allows you to understand how the values of NO3 are distributed across the sizes of river.
e) Using a graph check if the distribution of algae a1 varies with the speed of the river.
f) Visualize the relationship between the frequencies of algae a1 and a6. Give the appropriate graph title, x-axis and y-axis title.

Q3. Read the file Coweeta.CSV and write an R script to do the following:

a) Count the number of observations per species.
b) Take a subset of the data including only those species with at least 10 observations.
c) Make a scatter plot of biomass versus height, with the symbol color varying by species, and use filled squares for the symbols. Also add a title to the plot, in italics.
d) Log-transform biomass, and redraw the plot.

Q4. The built-in data set mammals contain data on body weight versus brain weight. Write R commands to:

a) Find the Pearson and Spearman correlation coefficients. Are they similar?
b) Plot the data using the plot command.
c) Plot the logarithm (log) of each variable and see if that makes a difference.

Q5. In the library MASS is a dataset UScereal which contains information about popular breakfast cereals. Attach the data set and use different kinds of plots to investigate the following relationships:

a) relationship between manufacturer and shelf
b) relationship between fat and vitamins
c) relationship between fat and shelf
d) relationship between carbohydrates and sugars
e) relationship between fiber and manufacturer
f) relationship between sodium and sugars

Q6. Write R script to:

Do two simulations of a binomial number with n = 100 and p = .5. Do you get the same results each time? What is different? What is similar?

Do a simulation of the normal two times. Once with n = 10, $\mu = 10$ and $\sigma = 10$, the other with n = 10, $\mu = 100$ and $\sigma = 100$. How are they different? How are they similar? Are both approximately normal?

Q.7 Create a database medicines that contains the details about medicines such as {manufacturer, composition, price}. Create an interactive application using which the user can find an alternative to a given medicine with the same composition.
Q.8 Create a database songs that contains the fields {song_name, mood, online_link_play_song}. Create an application where the mood of the user is given as input and the list of songs corresponding to that mood appears as the output. The user can listen to any song form the list via the online link given
Q.9 Create a package in R to perform certain basic statistics functions.

DSE-01 (b): Discrete Structures

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Discrete Structures	4	3	0	1	Class XII with Mathematics	NIL

***Learning objectives*:**

1. To teach students how to think logically and mathematically.
2. To stress on mathematical reasoning and describe different ways in which mathematical problems could be solved.
3. To cover four thematic areas: mathematical reasoning, combinatorial analysis, discrete structures, and mathematical modelling.
4. To touch upon topics like logic, proofs, set theory, counting, probability theory (the discrete part of the subject), graph theory, trees, Boolean algebra, and modelling computation.

Learning Outcomes:

1. *Relate mathematical concepts and terminology to examples in the domain of Computer Science.*
2. *Model real world problems using various mathematical constructs.*
3. *Use different proofing techniques; construct simple mathematical proofs using logical arguments.*
4. *Divide a problem or a proof into smaller cases.*
5. *Formulate mathematical claims and construct counterexamples.*

UNIT-I **(7 hours)**

Sets, Functions, Sequences and Summations, Relations. Sets: Set Operations, Computer Representation of Sets, Countable and Uncountable Set, Principle of Inclusion and Exclusion, Multi-sets; Functions: One-to-one and Onto Functions, Inverse Functions and Compositions of Functions, Graphs of Functions Sequences and Summations: Sequences, Special Integer Sequences, Summations; Relations: Properties of Binary Relations, Equivalence relations and Partitions, Partial Ordering Relations and Lattices.

UNIT-II **(8 hours)**

Logic and Proofs. Propositional Logic, Propositional Equivalences, Use of first-order logic to express natural language predicates, Quantifiers, Nested Quantifiers, Rules of Inference, Introduction to Proofs, Proof Methods and Strategies, Mathematical Induction.

UNIT-III **(7 hours)**

Number Theory. Division and Integers, Primes and Greatest Common Divisors, Representation of Integers, Algorithms for Integer Operations, Modular Exponentiation, Applications of Number

Theory.

UNIT-IV **(8 hours)**

Combinatorics/Counting. The Pigeonhole Principle, Permutations and Combinations, Binomial Coefficients, Generalized Permutations and Combinations, Generating Permutations and Combinations.

UNIT-V **(10 hours)**

Graphs and Trees. Graphs: Basic Terminology, Multigraphs and Weighted Graphs, Paths and Circuits, Eulerian Paths and Circuits, Hamiltonian paths and Circuits, Shortest Paths, Spanning Trees, Graph Isomorphism, Planar Graphs; Trees: Trees, Rooted Trees, Path Lengths in Rooted Trees.

UNIT-VI **(5 hours)**

Recurrence. Recurrence Relations, Generating Functions, Linear Recurrence Relations with Constant Coefficients and their solution.

References

1. *C.L. Liu & Mahopatra, Elements of Discrete mathematics. 3rd edition. Tata McGraw Hill. 2008.*
2. *Kenneth R., Discrete Mathematics and Its Applications. 6th edition. Mc Graw Hill. 2006.*

List of practicals (30 Hours)

1. Write a Program to create a SET A and determine the cardinality of SET for an input array of elements (repetition allowed) and perform the following operations on the SET:
a) ismember (a, A): check whether an element belongs to set or not and return value as true/false.
b) powerset(A): list all the elements of power set of A.

2. Create a class SET and take two sets as input from user to perform following SET Operations:
a) Subset: Check whether one set is a subset of other or not.
b) Union and Intersection of two Sets.
c) Complement: Assume Universal Set as per the input elements from the user.
d) Set Difference and Symmetric Difference between two SETS
e) Cartesian Product of Sets.

3. Create a class RELATION, use Matrix notation to represent a relation. Include functions to check if the relation is Reflexive, Symmetric, Anti-symmetric and Transitive. Write a Program to use this class.

4. Use the functions defined in Ques 3 to check whether the given relation is:
a) Equivalent, or
b) Partial Order relation, or
c) None

5. Write a Program to implement Bubble Sort. Find the number of comparisons during each pass and display the intermediate result. Use the observed values to plot a graph to analyse the complexity of algorithm.

6. Write a Program to implement Insertion Sort. Find the number of comparisons during each pass and display the intermediate result. Use the observed values to plot a graph to analyse the complexity of algorithm.

7. Write a Program that generates all the permutations of a given set of digits, with or without repetition. (For example, if the given set is {1,2}, the permutations are 12 and 21). (One method is given in Liu)

8. Write a Program to accept the truth values of variables x and y, and print the truth table of the following logical operations:
a) Conjunction f) Exclusive NOR
b) Disjunction g) Negation
c) Exclusive OR h) NAND
d) Conditional i) NOR
e) Bi-conditional

9. Write a Program to store a function (polynomial/exponential), and then evaluate the polynomial. (For example store f(x) = 4n3 + 2n + 9 in an array and for a given value of n, say n = 5, evaluate (i.e. compute the value of f(5)).

10. Write a Program to represent Graphs using the Adjacency Matrices and check if it is a complete graph.

11. Write a Program to accept a directed graph G and compute the in-degree and out-degree of each vertex.

DSE-01 (c): Digital Image Processing

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Digital Image Processing	**4**	**3**	**0**	**1**	**Class XII with Mathematics**	**NIL**

***Learning objectives*:**

1. *To understand the sensing, acquisition and storage of digital images.*
2. *To study the image fundamentals and mathematical transforms necessary for image processing.*
3. *To understand the digital processing systems and corresponding terminology.*
4. *To understand the base image transformation domains and methods.*

Learning Outcomes:

1. *Understand the fundamentals of Image Processing and its role and importance in avariety of applications.*
2. *Write programs to read/write and manipulate images for the purpose of enhancement.*
3. *Understand the need for image transforms and their properties.*
4. *Understand different causes for image degradation and use various techniques to restore images.*

UNIT-I **(8 hours)**

Introduction: Digital Image Fundamentals, Brightness, Adaptation and Discrimination, Light and Electromagnetic Spectrum, Image Sampling and Quantization, Some Basic Relationships between Pixels Types of images.

UNIT-II **(7 hours)**

Spatial Domain Filtering: Some Basic Intensity Transformation Functions, Histogram Equalization, Spatial Correlation and Convolution, Smoothening Spatial Filters-Low pass filters, Order Statistics filters; Sharpening Spatial Filters- Laplacian filter.

UNIT-III **(8 hours)**

Filtering in Frequency Domain: The Discrete Fourier Transformation (DFT), Frequency Domain Filtering:-Ideal and Butterworth Low pass and high pass filters

UNIT-IV **(7 hours)**

Image Degradation and Compression: Noise models, Noise Restoration Filters, Fundamentals of Image Compression, Huffman Coding, Run Length Coding

UNIT-V **(10 hours)**

Morphological Image Processing: Erosion, Dilation, Opening, Closing, Hit-or-Miss Transformation, Basic Morphological Algorithms.

UNIT VI **(5 hours)**

Image Segmentation: Point, Line and Edge Detection, Thresholding.

References:

1. *Gonzalez, R. C., & Woods, R. E. Digital Image Processing. 4th edition. Pearson Education, 2017*
2. *Castleman, K. R. Digital Image Processing. 1st edition. Pearson Education,2007*
3. *Gonzalez, R. C., Woods, R. E., & Eddins, S. Digital Image Processing using MATLAB. Pearson Education Inc., 2004*
4. *Jain, A. K. Fundamentals of Digital Image Processing. 1st edition Prentice Hall of India, 1988.*

List of practicals (30 Hours)

1. Write program to read and display digital image using MATLAB or SCILAB
a. Become familiar with SCILAB/MATLAB Basic commands
b. Read and display image in SCILAB/MATLAB
c. Resize given image
d. Convert given color image into gray-scale image
e. Convert given color/gray-scale image into black & white image
f. Draw image profile
g. Separate color image in three R G & B planes
h. Create color image using R, G and B three separate planes
i. Flow control and LOOP in SCILA
j. Write given 2-D data in image file

2. To write and execute image processing programs using point processing method
a. Obtain Negative image
b. Obtain Flip image
c. Thresholding
d. Contrast stretching

3. To write and execute programs for image arithmetic operations
a. Addition of two images
b. Subtract one image from other image
c. Calculate mean value of image
d. Different Brightness by changing mean value

4. To write and execute programs for image logical operations
a. AND operation between two images
b. OR operation between two images
c. Calculate intersection of two images
d. Water Marking using EX-OR operation
e. NOT operation (Negative image)

5. To write a program for histogram calculation and equalization using
a. Standard MATLAB function
b. Program without using standard MATLAB functions
c. C Program

6. To write and execute program for geometric transformation of image
a. Translation
b. Scaling
c. Rotation
d. Shrinking
e. Zooming

7. To understand various image noise models and to write programs for
a. image restoration
b. Remove Salt and Pepper Noise
c. Minimize Gaussian noise
d. Median filter and Weiner filter

8. Write and execute programs to remove noise using spatial filters
a. Understand 1-D and 2-D convolution process
b. Use 3x3 Mask for low pass filter and high pass filter

9. Write and execute programs for image frequency domain filtering
a. Apply FFT on given image
b. Perform low pass and high pass filtering in frequency domain
c. Apply IFFT to reconstruct image

10. Write a program in C and MATLAB/SCILAB for edge detection using different edge detection mask

11. Write and execute program for image morphological operations erosion and dilation.

SEMESTER-4
B.Voc - Software Development

DISCIPLINE SPECIFIC CORE COURSE – DSC-10: Software Modelling

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Software Modelling	4	3	0	1	Class XII	NIL

***Learning objectives*:**

1. *Design and develop software systems (including analysis, design, construction, maintenance, quality assurance and project management) using the appropriate theory, principles, tools and processes.*
2. *Use appropriate computer science and mathematics principles in the development of software systems.*
3. *Solve problems in a team environment through effective using various tools, techniques and processes.*
4. *Introduce the current issues presently involved in effectively performing duties as a software practitioner in an ethical and professional manner for the benefit of society.*
5. *Practice the lifelong learning needed in order to keep current as well as new challenging issues in real life scenario.*
6. *Develop software in at least one application domains like Healthcare, safety, Society, Legal, Environment, Communication etc.*

Learning Outcomes:

1. *Illustrate the strengths and weaknesses of certain models and logics including state machines, algebraic and process models, and temporal logic;*
2. *Describe appropriate abstract formal models for certain classes of systems, describe abstraction relations between different levels of description, and reason about the correctness of refinements;*
3. *Prove elementary properties about systems described by the models introduced in the course.*

Unit-I **(10 hours)**

Introduction: The Evolving Role of Software, Software Characteristics, Changing Nature of Software, Software Engineering as a Layered Technology, Software Process Framework, Framework and Umbrella activities, process models, Capability Maturity Model Integration (CMMI). Software Requirement Analysis, Initiating Requirement Engineering Process, Requirement Analysis and Modeling Techniques, Flow Oriented Modeling, Need for SRS, Characteristics and Components of SRS.

Unit-II **(7 hours)**

Software Project Management: Estimation in Project Planning Process, Project Scheduling. Software Risks, Risk Identification, Risk Projection and Risk Refinement, RMMM Plan.

Unit-III **(8 hours)**

Quality Management Quality Concepts, Software Quality Assurance, Software Reviews, Metrics for Process and Projects.

Unit-IV **(10 hours)**

Design Engineering Design Concepts, Architectural Design Elements, Software Architecture, Data Design at the Architectural Level and Component Level, Mapping of Data Flow into Software Architecture, Modeling Component Level Design.

Unit-V **(10 hours)**

Testing Strategies & Tactics: Software Testing Fundamentals, Strategic Approach to Software Testing, Test Strategies for Conventional Software, Validation Testing, System Testing, Black-Box Testing, White-Box Testing and their type, Basis Path Testing.

***Referenced Books**:*

1. R.S. Pressman, Software Engineering: A Practitioner's Approach (7th Edition), McGraw-Hill, 2009.

2. P. Jalote, An Integrated Approach to Software Engineering (2nd Edition), Narosa Publishing House, 2003.

3. K.K. Aggarwal and Y. Singh, Software engineering (revised 2nd Edition), New Age International Publishers, 2008.

4. R. Mall, Fundamentals of Software Engineering (2nd Edition), Prentice-Hall of India, 2004.

List of Practicals :(30 hours)

A project report needs to be submitted which includes the following:

1. Problem Statement and Process Model
2. Requirement Analysis:
    a. Creating a Data Flow
    b. Data Dictionary, Use Cases
3. Project Management:
    a. Computing FP
    b. Effort
    c. Schedule, Risk Table, Timeline chart
4. Design Engineering:
    a. Architectural Design
    b. Data Design, Component Level Design

DISCIPLINE SPECIFIC CORE COURSE – DSC-11:
FULL STACK WEB DEVELOPMENT -1

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
FULL STACK WEB DEVELOPMENT -1	4	3	0	1	Class XII	DSC-08

***Learning objectives*:**

1. To introduce the fundamentals of Internet, and the principles of web design.
2. To construct basic websites using JQuery and AJAX.

Learning Outcomes:

1. *Assimilate and master latest framework like frameworks like js, Node.js, and Mongo DB.*
2. *Build Responsive Web application using Angular Typescript*
3. *Learn Angular Binding and events with templates*
4. *Use Mongo DB queries, tools and apply CRUD operations.*

UNIT I **(10 hours)**

Introduction to JQuery: JQuery Introduction, JQuery Syntax, JQuery Selectors, JQuery Events, JQuery Effects- JQuery Hide/Show, JQuery Fade, JQuery Slide(), JQuery Animate, JQuery Stop(), JQuery Callback, JQuery Chaining, JQuery AJAX- JQuery AJAX Introduction, JQuery Load, JQuery Get/Post, JQuery HTML, JQuery Get, JQuery Set, JQuery Add, JQuery Remove, JQuery CSS Classes, JQuery CSS(), JQuery forms.

UNIT II **(5 hours)**

Introduction to Angular JS: Angular Architecture, Building blocks of Angular, Angular CLI and commands, Angular Modules, Understanding files in Angular, Angular forms.

UNIT III **(10 hours)**

Working of Angular Applications: Angular App Bootstrapping ,Angular Components, Creating A Component Through Angular CLI , Ways to specify selectors , Template and styles , Installing bootstrap to design application , Data Binding , Types of Data Binding , Component Interaction using @Input and @Output decorator , Angular Animations , Component Life-cycle Hooks , Angular Directives.

UNIT IV **(10 hours)**

Introduction of Mongo DB: Overview , Design Goals for Mongo DB Server and Database, Mongo DB Tools , How to modularize code by separating routes , Usage of various Mongo DB Tools available with Mongo DB Package , Mongo DB Development Architecture.

UNIT V **(10 hours)**

Crud Operations : Mongo DB CRUD Introduction, Mongo DB Datatypes , Analogy between RDBMS & Mongo DB Data Model, Mongo DB Data Model (Embedding & Linking), Challenges for Data Modelling in Mongo DB.

References

1. Node.js, Mongo DB and Angular Web Development: The definitive guide to using the MEAN stack to build web applications (Developer's Library) - by Brad Dayley , Addison-Wesley; 2nd edition

2. JQuery Cookbook by Cody Lindley, O'Reilly Media, Inc.

List of Practicals: (30 hours)

A web development project implementing following technologies:

- JQuery
- JavaScript
- Angular JS
- Mongo DB

DISCIPLINE SPECIFIC CORE COURSE – DSC-12:
Data communication and Networks

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Data Communication and Networks	4	3	0	1	Class XII	NIL

***Learning objectives*:**

1. *The objective of the course is to equip the students with a general overview of the concepts and fundamentals of computer networks.*
2. *Familiarize the students with the standard models for the layered approach to communication between machines in a network and the protocols of the various layers*

Learning Outcomes:

1. *Understand the basics of data communication, networking, internet and their importance*
2. *Analyze the services and features of various protocol layers in data networks.*
3. *Differentiate wired and wireless computer networks*
4. *Analyze TCP/IP and their protocols.*
5. *Recognize the different internet devices and their functions.*
6. *Identify the basic security threats of a network.*

UNIT-I **(8 hours)**

Basics of Networking: Network Concept, Benefits of Network, Network classification (PAN, LAN, MAN, WAN), Peer to Peer, Client Server architecture,

Transmission media: Guided & Unguided, Network Topologies.

Networking terms: DNS, URL, client server architecture, TCP/IP, FTP, HTTP, HTTPS, SMTP, Telnet

OSI and TCP/IP Models: Layers and their basic functions and Protocols, Comparison of OSI and TCP/IP. Networking Devices: Hubs, Switches, Routers, Bridges, Repeaters, Gateways and Modems, ADSL.

UNIT-II **(7 hours)**

Ethernet Networking: Half and Full-Duplex Ethernet, Ethernet at the Data Link Layer, Ethernet at the Physical Layer.

Switching Technologies: layer-2 switching, address learning in layer-2 switches, network loop problems in layer-2 switched networks, Spanning-Tree Protocol, LAN switch types and working with layer-2 switches, Wireless LAN

UNIT- III **(15 hours)**

Internet layer Protocol: Internet Protocol, ICMP, ARP, RARP.

IP Addressing: Different classes of IP addresses, Sub-netting for an internet work, Classless Addressing. Comparative study of IPv4 & IPv6.

Introduction to Router Configuration. Introduction to Virtual LAN.

UNIT- IV **(15 hours)**

Transport Layer: Functions of transport layer, Difference between working of TCP and UDP.
Application Layer: Domain Name System (DNS), Remote logging, Telnet, FTP, HTTP, HTTPS.

References:

1. *Tananbaum A.S, "Computer Networks" 3rd Ed. PHI, 1999*
2. *Dr. Sanjay Sharma, "A Course in Computer Network" S. K. Kataria & Sons*
3. *Todd Lammle, "CCNA Cisco Certified Network Associate Study Guide", SYBEX.*
4. *A Forouzan, "Data Communications & Networking",4th Ed, Tata McGraw Hill, 2007*

List of Practicals: (30 hours)

Introduce students to any network simulator tool and do the following:

1. To Study basic network command and Network configuration commands.
2. To study and perform PC to PC communication.
3. Create a Network Using Bluetooth-(Piconet/Scatternet)
3. To create Star topology using Hub and Switch.
4. To create Bus, Ring, Tree, Hybrid, Mesh topologies.
5. Perform an initial Switch configuration.
6. Perform an initial Router configuration.
7. To implement Client Server Network.
8. To implement connection between devices using router.
9. To perform remote desktop sharing within LAN connection.

DSE-02 (a): Big Data

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Big Data	4	2	0	2	Class XII	DSC-04

***Learning objectives*:**

This course gives an overview of Big Data, i.e. storage, retrieval and processing of big data. In addition, it also focuses on the "technologies", i.e., the tools/algorithms that are available for storage, processing of Big Data. It also helps a student to perform a variety of "analytics" on different data sets and to arrive at positive conclusions.

Learning Outcomes:

1. *Perform data gathering of large data from a range of data sources.*
2. *Critically analyze existing Big Data datasets and implementations, taking practicality, and usefulness metrics into consideration.*
3. *Understand and demonstrate the role of statistics in the analysis of large of datasets*
4. *Select and apply suitable statistical measures and analyses techniques for data of various structure and content and present summary statistics*
5. *Understand and demonstrate advanced knowledge of statistical data analytics as applied to large data sets*
6. *Employ advanced statistical analytical skills to test assumptions, and to generate and present new information and insights from large datasets*

Unit-I **(5 hours)**

Introduction to big data: Introduction to Big Data Platform – Challenges of Conventional Systems - Intelligent data analysis – Nature of Data - Analytic Processes and Tools - Analysis vs. Reporting.

Unit-II **(5 hours)**

Mining data streams: Introduction to Streams Concepts – Stream Data Model and Architecture - Stream Computing - Sampling Data in a Stream – Filtering Streams – Counting Distinct Elements in a Stream – Estimating Moments – Counting Oneness in a Window – Decaying Window - Real time Analytics Platform (RTAP) Applications - Case Studies – Real Time Sentiment Analysis- Stock Market Predictions.

Unit-III **(5 hours)**

Hadoop: History of Hadoop- the Hadoop Distributed File System – Components of Hadoop

Analyzing the Data with Hadoop - Scaling Out- Hadoop Streaming- Design of HDFS- Java interfaces to HDFS Basics- Developing a Map Reduce Application-How Map Reduce Works-Anatomy of a Map Reduce Job Run-Failures-Job Scheduling-Shuffle and Sort – Task execution - Map Reduce Types and Formats- Map Reduce Features Hadoop environment.

Unit-IV **(5 hours)**

Frameworks: Applications on Big Data Using Pig and Hive – Data processing operators in Pig – Hive services – HiveQL – Querying Data in Hive - fundamentals of HBase and Zoo Keeper - IBM Info Sphere Big Insights and Streams.

Unit-V **(10 hours)**

Predictive Analytics: Simple linear regression- Multiple linear regression- Interpretation of regression coefficients. Visualizations - Visual data analysis techniques- interaction techniques - Systems and applications.

References:

1. Michael Berthold, David J. Hand, "Intelligent Data Analysis", Springer, 2007.
2. Tom White "Hadoop: The Definitive Guide" Third Edition, O'reilly Media, 2012.
3. Chris Eaton, Dirk DeRoos, Tom Deutsch, George Lapis, Paul Zikopoulos, "Understanding Big Data: Analytics for Enterprise Class Hadoop and Streaming Data", McGraw Hill Publishing, 2012.
4. Anand Rajaraman and Jeffrey David Ullman, "Mining of Massive Datasets", CUP, 2012.
5. Bill Franks, "Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics", John Wiley& sons, 2012.

***List of Practicals*:** **(60 hours)**

1. (i) Perform setting up and Installing Hadoop in its two operating modes:
a) Pseudo distributed,
b) Fully distributed.
(ii) Use web-based tools to monitor your Hadoop setup.
2. (i) Implement the following file management tasks in Hadoop:
a) Adding files and directories
b) Retrieving files
c) Deleting files
3. Run a basic Word Count Map Reduce program to understand Map Reduce Paradigm.
a) Find the number of occurrences of each word appearing in the input file(s).
b) Performing a Map Reduce Job for word search count (look for specific keywords in a file).
4. Install and Run Pig then write Pig Latin scripts to sort, group, join, project, and filter your data.
5. Write a Pig Latin script for finding TF-IDF value for book dataset (A corpus of eBooks available at: Project Gutenberg).
6. Install and Run Hive then use Hive to create, alter, and drop databases, tables, views, functions.

DSE-02 (b): Advance DBMS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Advance DBMS	**4**	**2**	**0**	**2**	**Class XII**	**DSC-04**

***Learning objectives*:**

1. *Explain and evaluate the fundamental theories for advanced database architectures and query operators.*
2. *Design and implement parallel database systems with evaluating different methods of storing, managing of parallel database.*
3. *Assess and apply database functions of distributed database.*

Learning Outcomes:

1. *Identify advance database concepts and database models.*
2. *Apply and analyze various terms related to transaction management in centralized and distributed database.*
3. *Learn concept of transactional processing and its commands.*
4. *Improve the database design by normalization.*
5. *Administer and analyze database with query optimization technique*

UNIT-I **(5 hours)**

Introduction: Formal review of relational database and FDs Implication, Closure, its correctness.

UNIT-II **(5 hours)**

Normalization: 3NF and BCNF, Decomposition and synthesis approaches, Review of SQL Queries, Basics of query processing, Query optimization, external sorting, file scans.

UNIT-III **(5 hours)**

Transactional Control: Commit, Save point, Rollback, DCL Commands: Grant and Revoke, Types of locks: Row level locks, Table level locks, Shared lock, Exclusive lock, Deadlock.

UNIT-IV **(5 hours)**

Creating and altering Views: Fundamentals of Database Triggers, Creating Triggers, Types of Triggers: Before, after for each row, for each statement, Basics of PL/SQL.

UNIT-V **(10 hours)**

T/O based techniques: Multiversion approaches, Comparison of CC methods, dynamic databases, Failure classification, recovery algorithm, XML and relational databases.

***References*:**

1. R. Ramakrishnan, J. Gehrke, Database Management Systems, McGraw Hill, 2004
2. A. Silberschatz, H. Korth, S. Sudarshan, Database system concepts, 5/e, McGraw Hill, 2008.
3. R. Elmasri, S.B. Navathe Database Systems Models, Languages, Design and application Programming, 6th Edition, Pearson Education, 2013.

***List of Practicals :*(60 hours)**

1. Perform queries for DCL Commands and Locks.
2. Implement authorization, authentication, and privileges on database.
3. Perform queries to Create synonyms, sequence and index.
4. Perform queries to Create, alter and update views.
5. Implement PL/SQL programmes using control structures.
6. Implement PL/SQL programmes using Cursors.
7. Implement PL/SQL programmes using exception handling.
8. Implement user defined procedures and functions using PL/SQL blocks.
9. Perform various operations on packages.
10. Implement various triggers.
11. Practice on functional dependencies
12. Practice on Normalization – using any database perform various normal forms.
13. Practice on transaction processing.

DSE-02 (c): Android Programming

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Android Programming	**4**	**2**	**0**	**2**	**Class XII**	**DSC-05**

***Learning objectives*:**

1. *Creating robust mobile applications and learn how to integrate them with other services.*

Learning Outcomes:

1. *Describe characteristics of Android operating system.*
2. *Describe components of an android applications.*
3. *Design user interfaces using various widgets, dialog boxes, menus.*
4. *Define interaction among various activities/applications using intents, broadcasting, and service.*
5. *Develop Android applications that require database handling.*

UNIT-I **(10 hours)**

Introduction: Review to JAVA & OOPS Concepts, History of Android, Introduction to Android Operating Systems, Android Development Tools, and Android Architecture, Android components including activities, view and view group, services, content providers, broadcast receivers, intents, parcels, instance state.

UNIT-II **(12 hours)**

User Interface Architecture: Application context, intents: explicit intents, returning results from activities, implicit intents, intent filter and intent resolution, and applications of implicit intents, activity life cycle, activity stack, application's priority and its process' states, fragments and its life cycle.

UNIT-III **(12 hours)**

User Interface Design: Layouts, optimizing layout hierarchies, form widgets, text fields, button control, toggle buttons, spinners, images, menu, dialog.

UNIT-IV **(11 hours)**

Broadcast receivers and Database: Broadcast sender, receiver, broadcasting events with intents, notifications and services.

SQLite, Content Values and Cursors, creating SQLite databases, querying a database.

References

1. *Griffiths, D., & Griffiths, D., (2015). Head First Android Development, O'reilly Media.*
2. *Meier, R., (2012). Professional Android™ 4 Application Development. John Wiley & Sons, Inc.*

List of Practicals: **(60 hours)**

1. Create "Hello World" application. That will display "Hello World" in the middle of the screen in the emulator. Also display "Hello World" in the middle of the screen in the Android Phone.
2. Create an application with three buttons (increment, decrement and reset) and a textView aligned vertically. On clicking, increment/decrement button, the value of the textview should increment/decrement by 1while selecting reset button, the value of textview should become zero.
3. Create an application with login module. (Check username and password).
4. Create spinner with strings taken from resource folder (res >> value folder) and on changing the spinner value, Image will change.
5. Create a menu with 5 options and selected option should appear in text box.
6. Create a list of all courses in your college and on selecting a particular course teacher-incharge of that course should appear at the bottom of the screen.
7. Create an application with three option buttons, on selecting a button colour of the screen will change.
8. Create an application to display various activity life cycle and fragment life cycle methods.
9. Create an application with 2 fragments, one to set the background and other to set the fore-color of the text.
10. Create an application with an activity having EditText and a button (with name "Send"). On clicking Send button, make use of implicit intent that uses a Send Action and let user select app from app chooser and navigate to that application.
11. Create a Login application. On successful login, use explicit intent to second activity displaying welcome message (Welcome Username) to the user and a logout button. When user presses logout button, a dialog box with a message ("Are you sure you want to exit?") and two buttons ("Yes" and "No") should appear to confirm logout. On "Yes" button click, go to login activity and on "No", stay on the same activity.
12. Create an application for Broadcast sender and receivers.
13. Create an application to create notification having icon, text and title.
14. Create an application to create services.
15. Create an application to Create, Insert, update, Delete and retrieve operation on database

SEMESTER-V
B.Voc Software Development

DISCIPLINE SPECIFIC CORE COURSE – DSC-13: Machine Learning

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Machine Learning	4	3	0	1	Class XII	DSC-01

Learning Objectives:

1. *To understand the basic theory underlying machine learning.*
2. *To be able to formulate machine learning problems corresponding to different applications.*
3. *To understand a range of machine learning algorithms along with their strengths and weaknesses.*
4. *To be able to apply machine learning algorithms to solve problems of moderate complexity.*
5. *To apply the algorithms to a real-world problem, optimize the models learned and report on the expected accuracy that can be achieved by applying the models.*

Learning Outcomes:

1. *Differentiate between supervised and unsupervised learning tasks.*
2. *Appreciate the need of preprocessing, feature scaling and feature selection.*
3. *Understand the fundamentals of classification, regression and clustering*
4. *Implement various machine learning algorithms learnt in the course.*

Unit I **(9 Hours)**

Introduction: Basic definitions and concepts, key elements, supervised and unsupervised learning, introduction to reinforcement learning, applications of ML.

Unit II **(9 Hours)**

Preprocessing: Feature scaling, feature selection methods. Dimensionality reduction (Principal Component Analysis).

Unit III **(9 Hours)**

Regression: Linear regression with one variable, linear regression with multiple variables,gradient descent, over-fitting, regularization. Regression evaluation metrics.

Unit IV **(9 Hours)**

Classification: Decision trees, Naive Bayes classifier, logistic regression, k-nearest neighbor classifier, perceptron, multilayer perceptron, neural networks, back-propagation algorithm, Support Vector Machine (SVM). Classification evaluation metrics.

Unit V **(9 Hours)**

Clustering: Approaches for clustering, distance metrics, K-means clustering, hierarchical clustering.

References

1. Mitchell, T.M. Machine Learning, McGraw Hill Education, 2017.
2. James, G., Witten. D., Hastie. T., Tibshirani., R. An Introduction to Statistical Learning with Applications in R, Springer, 2014.
3. Alpaydin, E. Introduction to Machine Learning, MIT press, 2009.

Practical List: (30 Hours)

Use Python for practical labs for Machine Learning. Utilize publically available datasets from online repositories like https://data.gov.in/ and
https://archive.ics.uci.edu/ml/datasets.php
For evaluation of the regression/classification models, perform experiments as follows:

- Scale/Normalize the data
- Reduce dimension of the data with different feature selection techniques
- Split datasets into training and test sets and evaluate the decision models
- Perform k-cross-validation on datasets for evaluation

Report the efficacy of the machine learning models as follows:

- MSE and R2 score for regression models
- Accuracy, TP, TN, FP, TN, error, Recall, Specificity, F1-score, AUC for classification models.

DISCIPLINE SPECIFIC CORE COURSE – DSC 14: FULL STACK WEB DEVELOPMENT -2

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
FULL STACK WEB DEVELOPMENT -2	4	3	0	1	Class XII	DSC-11

***Learning objectives*:**

1. *Assimilate and master latest framework like frameworks like js, Node.js, and Mongo DB.*

***Learning outcomes*:**

1. *Able to use basic to advanced Node js.*
2. *Integrate Node js with mongo database*
3. *Install and use different tools like Github, Maven and Jenkins.*
4. *Develop a fully functioning website and deploy on a web server.*

UNIT I **(5 hours)**

Introduction to Node JS: What is Node.js, Why Node.js, Node in-built packages (buffer, fs, http, os, path, util, url), Node.js Modules, Import your own Package, Node Package Manager (NPM), Local and Global Packages, File System: Get Input from Users, Pass Multiple Arguments with Yargs, File System Module.

UNIT II **(10 hours)**

Advanced Node JS : Express Framework, Run a Web Server using Express Framework, Routes, Deploy application using PM2 and Nginx, Asynchronous Programming- Call Stack, Callbacks, Callback Queue and Event Loop , Callback Abstraction , Callback Chaining

UNIT III **(10 hours)**

Integration of Node.js with Mongo DB: Inserting Documents, Querying, Updating and Deleting Documents, Connect Mongo DB and Node.js Application, REST API

UNIT IV **(10 hours)**

Overview of Git, Jenkins and Maven: Git- Understand the differences between Git, Github and Gitlab, Install and configure Git for use, Use Git to manage files using CLI commands, Create, Clone and manage repositories.

Jenkins- Jenkins and its architecture, Jenkins tools management, user management in Jenkins

Maven - Maven project structure, maven plugins, Project object model (POM), maven build lifecycle, adding external dependencies to maven pom.xml, maven build and test project

UNIT V **(10 hours)**

Introduction to Docker: Comparing VM and Docker, Docker- an Architectural overview, The Docker Hub A brief Introduction, Preparing docker - machine- Installation and configuration, Start containerizing, Play with docker images, Customizing container on your own, Running Container with Docker - commands, Port forwarding with docker container.

References:

1. Node.js, Mongo DB and Angular Web Development: The definitive guide to using the MEAN stack to build web applications (Developer's Library) - by Brad Dayley , Addison-Wesley; 2nd edition

2. DevOps. Building CI/CD Pipelines with Jenkins, Docker Container, AWS ECS, JDK 11, Git and Maven by John Edward Cooper Berg , Kindle Edition

List of Practicals **(30 hours)**

A web development project implementing technologies such as Node JS, Mongo DB, Angular JS, JQuery, JavaScript, Git, Jenkins and Maven.

DISCIPLINE SPECIFIC CORE COURSE – DSC 15: Minor Project-1

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Minor Project-1	4	0	0	4	Class XII	NIL

Learning Objectives:

The students will undergo one semester of project work based on the concepts studied in a subject of their choice. The objective is to train the students for the industry by exposing them to prototype development of real life software.

Learning Outcomes:

On successful completion of this course, a student will be able to:

1. *Develop a project plan based on informal description of the project.*
2. *Implement the project as a team.*
3. *Write a report on the project work carried out by the team and defend the work done by the team collectively.*
4. *Present the work done by the team to the evaluation committee.*

Each student shall carry out a minor project in the fifth semester. The students will work on any project based on the concepts studied in core/elective/ skill based elective courses. Specifically, the project could be a research study, or a software development project.

In case the student is opting for research project, students are required to select a relevant topic, carryout a detailed literature review followed by a critical analysis or implementation. The conclusions drawn from the analysis/ implementation must also be brought out in the form of a research paper.

PROJECT GROUP ORGANIZATION/PLAN

- Students will initially prepare a synopsis (500 words) and submit it to their respective department/supervisor. Only after obtaining the approval of supervisor the student can initiate the Project work.
- For a given project, the group size could be a maximum of four (04) students.
- Each group will be assigned a teacher as a supervisor who will be responsible for their lab classes.
- A maximum of four (04) projects would be assigned to one teacher.

PROJECT EVALUATION

The project will be evaluated as follows:

(a) Mid-semester evaluation 25% weightage

(b) End-semester evaluation

(i) External Examination 50% weightage

Thesis/Project report - 25% of total marks.

Software Coding

i) Documentation - 10% of total marks.

ii) Software - 15% of total marks.

(ii) Viva-voce **25% weightage**

- Practical/discussion sessions based on the area of the project. Work carried out in each lab session will be assessed out of five marks (zero for being absent). Finally, the marks obtained will be scaled out of a maximum marks of mid-semester evaluation (i.e. 25% of total marks).
- The end-**semester evaluation marks** to be awarded jointly by the examiner and supervisor / mentor.
- The **Mid-semester evaluation** to be awarded by the supervisor/mentor. Work carried out in each lab session will be assessed.
- The students will submit both the soft copy and the hard copy of the report.
- The reports may be retained by the examiners.

PROJECT REPORT

Two copies of the Project Report certified by the supervisor shall be submitted to the Department. The format of report can be downloaded from the website/guide/ coordinator.

DSE-03 (a): Distributed Systems

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Distributed Systems	4	4	0	0	Class XII	DSC-09

***Learning objectives*:**

1. *To provide hardware and software issues in modern distributed systems.*
2. *To get knowledge in distributed architecture, naming, synchronization, consistency and replication, fault tolerance, security, and distributed file systems.*
3. *To analyze the current popular distributed systems such as peer-to-peer (P2P) systems will also be analyze*

Learning Outcomes:

1. *To understand the foundations of distributed systems.*
2. *To learn issues related to clock Synchronization and the need for global state in distributed systems.*
3. *To learn distributed mutual exclusion and deadlock detection algorithms.*

UNIT-I **(15 hours)**

Characterization of Distributed Systems: Introduction, Examples of distributed Systems, Resource sharing and the Web Challenges. Architectural models, Fundamental Models. Theoretical Foundation for Distributed System: Limitation of Distributed system, absence of global clock, shared memory, Logical clocks, Lamport's & vectors logical clocks. Concepts in Message Passing Systems: causal order, total order, total causal order, Techniques for Message Ordering, Causal ordering of messages, global state, and termination detection.

UNIT-II **(15 hours)**

Distributed Mutual Exclusion: Classification of distributed mutual exclusion, requirement of mutual exclusion theorem, Token based and non-token based algorithms, performance metric for distributed mutual exclusion algorithms. Distributed Deadlock Detection: system model, resource Vs communication deadlocks, deadlock prevention, avoidance, detection & resolution, centralized dead lock detection, distributed dead lock detection, path pushing algorithms, edge chasing algorithms.

UNIT -III **(15 hours)**

Agreement Protocols: Introduction, System models, classification of Agreement Problem, Byzantine agreement problem, Consensus problem, Interactive consistency Problem, Solution to Byzantine Agreement problem, Application of Agreement problem, Atomic Commit in Distributed Database system. Distributed Resource Management: Issues in distributed File Systems, Mechanism for building distributed file systems, Design issues in Distributed Shared Memory, Algorithm for Implementation of Distributed Shared Memory.

UNIT-IV **(15 hours)**

Failure Recovery in Distributed Systems: Concepts in Backward and Forward recovery, Recovery in Concurrent systems, obtaining consistent Checkpoints, Recovery in Distributed Database Systems. Fault Tolerance: Issues in Fault Tolerance, Commit Protocols, Voting protocols, Dynamic voting protocols

References

1. Singhal&Shivaratri, "Advanced Concept in Operating Systems", McGraw Hill
2. Ramakrishna,Gehrke," Database Management Systems", McGraw Hill
3. Vijay K.Garg Elements of Distributed Computing, Wiley
4. Coulouris, Dollimore, Kindberg, "Distributed System: Concepts and Design", Pearson Education
5. Tenanuanbaum, Steen," Distributed Systems", PHI.

DSE-03 (b): Artificial Intelligence

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Artificial Intelligence	4	3	0	1	Class XII	DSC-03 DSC-06

Learning Objectives:

1. Study the concepts of Artificial Intelligence.
2. Learn the methods of solving problems using Artificial Intelligence.
3. Learn the knowledge representation techniques, reasoning techniques and planning
4. Introduce the concepts of Expert Systems and machine learning.

Learning Outcomes:

1. Identify problems that are amenable to solutions by specific AI methods.
2. Appreciate the utility of different types of AI agents.
3. Apply different informed search techniques for solving real world problems.
4. Use knowledge representation techniques for AI systems..
5. Understand human level, data driven and end to end approaches to AI.

UNIT-I **(10 Hours)**

Introduction to Artificial Intelligence: background and applications, Turing test, Weak AI, Strong AI, Narrow AI, Artificial General Intelligence, Super AI, rational agent approaches to AI, introduction to intelligent agents, their structure, behavior and task environment , the Present and the Future of AI.

UNIT-II **(12 Hours)**

Problem Solving and Searching Techniques: Problem characteristics, production systems, control strategies, breadth-first search, depth-first search, hill climbing and its variations, heuristics search techniques: best-first search, A* algorithm, constraint satisfaction problem, means-end analysis, introduction to game playing, min-max and alpha-beta pruning algorithms.

UNIT-III **(12 Hours)**

Knowledge Representation: Propositional logic, First-Order Predicate logic, resolution principle, unification, semantic nets, conceptual dependencies, frames, and scripts, production rules, Introduction to Programming in Logic (PROLOG).

UNIT-IV **(11 Hours)**

Understanding Natural Languages: Components and steps of communication, the contrast between formal and natural languages in the context of grammar, Chomsky hierarchy of grammars, parsing, and semantics, Parsing Techniques, Context-Free and Transformational

Grammars, Recursive and Augmented transition nets.

References:

1. Stuart J. Russell and Peter Norvig, Artificial Intelligence - A Modern Approach, Pearson, 4th edition, 2020.
2. Elaine Rich and Kelvin Knight, Artificial Intelligence, 3 rd edition, Tata McGraw Hill, 2010.
3. Ivan Bratko, Prolog Programming for Artificial Intelligence, Addison-Wesley, Pearson Education, 4th edition, 2012.

List of Practicals: (30 hours)

1. Write a prolog program to calculate the sum of two numbers.
2. Write a Prolog program to implement max(X, Y, M) so that M is the maximum of two numbers X and Y.
3. Write a program in PROLOG to implement factorial (N, F) where F represents the factorial of a number N. 60
4. Write a program in PROLOG to implement generate_fib(N,T) where T represents the Nth term of the fibonacci series.
5. Write a Prolog program to implement GCD of two numbers.
6. Write a Prolog program to implement power (Num,Pow, Ans) : where Num is raised to the power Pow to get Ans.
7. Prolog program to implement multi (N1, N2, R) : where N1 and N2 denotes the numbers to be multiplied and R represents the result.
8. Write a Prolog program to implement memb(X, L): to check whether X is a member of L or not.
9. Write a Prolog program to implement conc (L1, L2, L3) where L2 is the list to be appended with L1 to get the resulted list L3.
10. Write a Prolog program to implement reverse (L, R) where List L is original and List R is reversed list.
11. Write a program in PROLOG to implement palindrome (L) which checks whether a list L is a palindrome or not.
12. Write a Prolog program to implement sumlist(L, S) so that S is the sum of a given list L.
13. Write a Prolog program to implement two predicates evenlength(List) and oddlength(List) so that they are true if their argument is a list of even or odd length respectively.
14. Write a Prolog program to implement nth_element (N, L, X) where N is the desired position, L is a list and X represents the Nth element of L.
15. Write a Prolog program to implement maxlist(L, M) so that M is the maximum number in the list.
16. Write a prolog program to implement insert_nth (I, N, L, R) that inserts an item I into Nth position of list L to generate a list R.
17. Write a Prolog program to implement delete_nth (N, L, R) that removes the element on Nth position from a list L to generate a list R.
18. Write a program in PROLOG to implement merge (L1, L2, L3) where L1 is first ordered list and L2 is second ordered list and L3 represents the merged list.

DSE-03 (c): Design and Analysis of Algorithms

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Design and Analysis of Algorithms	**4**	**3**	**0**	**1**	**Class XII**	**DSE-07**

***Learning objectives*:**

1. *Introduces the recurrence relations for analyzing the algorithms.*
2. *Introduces the graphs and their traversals.*
3. *Describes major algorithmic techniques (divide-and-conquer, greedy, dynamic programming, Brute Force, Transform and Conquer approaches) and mention problems for which each technique is appropriate.*
4. *Describes how to evaluate and compare different algorithms using worst-case, average-case and best-case analysis.*

Learning Outcomes:

1. *Compute the asymptotic time complexity of algorithms*
2. *Prove correctness of algorithms*
3. *Use appropriate algorithm design technique(s) for solving a given problem*
4. *Appreciate the difference between tractable and intractable problems*

UNIT-1 **(10 hours)**

Sorting: Selection. Insertion Sort, Selection Sort, Bubble Sort, Heap sort, Linear Time Sorting, Selection Problem, running time analysis and correctness.

UNIT-II **(10 hours)**

Graphs: Review of graph traversals, graph connectivity, testing bi-partiteness, Directed Acyclic Graphs and Topological Ordering.

UNIT-III **(13 hours)**

Divide and Conquer. Introduction to divide and conquer technique, Merge Sort, Quicksort, Maximum-subarray problem.

Intractability: Decision vs optimization problems, NP as a class of problems, NP-hardness, NP-completeness with examples.

UNIT-IV **(12 hours)**

Greedy and dynamic Algorithms: Introduction to the Greedy algorithm design approach, application to minimum spanning trees, fractional knapsack problem.

Introduction to the Dynamic Programming approach, application to subset sum, integer knapsack problem.

References

1. Cormen, T. H., Leiserson, C. E., Rivest, R. L., Stein C., Introduction to Algorithms. 3rd edition. Prentice Hall of India. 2010.
2. Kleinberg, J., Tardos, E. Algorithm Design. 1st edition. Pearson. 2013.

List of Practicals **(30 hours)**

A practical implementation of various algorithmic techniques such as sorting, graphs,greedy and dynamic programming.

SEMESTER-VI
B.Voc - Software Development

DISCIPLINE SPECIFIC CORE COURSE – 16: Cloud Computing

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Cloud Computing	**4**	**3**	**0**	**1**	**Class XII pass with Mathematics**	**NIL**

Learning Objectives:

1. *To provide the students basic understanding about cloud and virtualization along with it how one can migrate over it.*
2. *To provide students concepts of security and privacy in a cloud.*

Learning Outcome:

1. *The fundamental ideas behind Cloud Computing, the evolution of the paradigm, its applicability; benefits, as well as current and future challenges;*
2. *The basic ideas and principles in data center design; cloud management techniques and cloud software deployment considerations;*
3. *Different CPU, memory and I/O virtualization techniques that serve in offering software, computation and storage services on the cloud; Software Defined Networks (SDN) and Software Defined Storage (SDS);*
4. *Could storage technologies and relevant distributed file systems, NoSQL databases and object storage;*
5. *The variety of programming models and develop working experience in several of them.*

Unit I **(7 Hours)**

Evolution of Cloud Computing: Trends of computing, Introduction to distributed computing, cloud computing, Cloud Based Application Development Approach Vs. Traditional Application Development Approach, What's cloud computing, Properties & Characteristics, Service models, Deployment models, SLA(Service Level Agreements), SLA at various levels, SOA(Service oriented Architecture), SOA characteristics

Unit II **(8 Hours)**

Cloud Computing Architectural Framework: Infrastructure as a Service (IAAS), Platform as a Service (PAAS), Software as a Service (SAAS), cloud computing vendors, Cloud Computing threats, Cloud Reference Model, The Cloud Cube Model, issues in Cloud Computing ,Managing and administrating the cloud services and cloud resources, Virtualization -Hypervisor Architecture, Hardware Virtualization, Software Virtualization, Memory Virtualization, Storage Virtualization, Data Virtualization, Network Virtualization,
Virtualization Security Recommendations

Unit III **(8 Hours)**

Security in Cloud: Infrastructure security: Network Level, Host Level and Application Level

Security and Storage: Aspects of Data Security, Data control, Network Security, Host Security, Data Security Mitigation, Encryption, storage- confidentiality, integrity, and availability.
Security Management in the Cloud: Security Management Standards, Availability Management- PAAS, SAAS, IAAS, Access Control, Security Vulnerability, Patch and Configuration Management.

Unit IV **(7 Hours)**

Privacy in Cloud: Data Life-Cycle, Key Privacy Concerns in the Cloud, Responsibility for protecting Privacy, Risk Management and Compliance in relation to Cloud Computing, Legal and Regulatory Implications. Disaster Recovery: Disaster recovery planning, Disaster in Cloud, Disaster Management

Unit V **(15 Hours)**

Case study: Hadoop- architecture, Hadoop Distributed file system, map- reduce model, getting started with the Hadoop, Amazon EC2 / S3 and EC2 Commands. Introduction of MS Windows Azure, Google Apps / Google Docs.

Reference Books:

1. Tim Mather, Subra Kumaraswamy, Shahed Latif, "Cloud Security and Privacy," O Reilly
2. George Reese, "Cloud Application Architectures," O Reilly
3. David S. Linthicum, "Cloud Computing and SOA Convergence in your Enterprise, A Step by Step Guide, "Pearson
4. Dr. Gautam Shroff,"Enterprise Cloud Computing Technology, Architecture, Applications", Cambridge University Press.

List of practicals (30 Hours)

1. What are the fundamental differences between centralized and distributed computing?
2. How do elasticity and scalability differ in the context of cloud computing?
3. How to set up an Amazon EC2 instance?
4. Design a basic service-oriented architecture for a simple e-commerce website?
5. Explain the role of firewalls in cloud network security.
6. Launch a Linux Virtual Machine
7. Host a Static Website
8. Create an Amazon Elastic Kubernetes Service (EKS) and S3 Bucket
9. Writing IAM Policies: How to Grant Access to an Amazon S3 Bucket

DISCIPLINE SPECIFIC CORE COURSE – 17: Information Security

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Information Security	**4**	**3**	**0**	**1**	**Class XII pass with Mathematics**	DSC-12

Learning Objectives:

1. *To make a student learn basic principles of information security.*
2. *To familiarize students with cryptography, authentication and access control methods along with software security.*
3. *To touch upon the implications of security in cloud and Internet of Things (IoT).*
4. *To discuss potential security threats and vulnerabilities of systems along with their impacts and countermeasures.*

Learning Outcome:

1. *Identify the major types of threats to information security*
2. *Describe the role of cryptography in security*
3. *Discover the strengths and weaknesses of private and public key cryptosystems*
4. *Identify and apply various access control and authentication mechanisms*
5. *Discuss data and software security and, related issues*
6. *Explain network security threats and attacks*

Unit I **(5 Hours)**

Overview Computer Security Concepts, Threats, Attacks, Security Functional Requirements,Fundamental Security Design Principles, Attack Surfaces and Attack Trees.

Unit II **(10 Hours)**

Cryptographic tools Confidentiality with Symmetric Encryption, Message Authentication and Hash Functions, Public-Key Encryption, Digital Signatures and Key Management, Random and Pseudorandom Numbers, DES (Data Encryption Standard), RSA , Diffie-Hellman key exchange, Post quantum cryptography.

Unit III **(5 Hours)**

Data Security User authentication and Access Control, Database and Data Center Security

Unit IV **(12 Hours)**

Software Security Types of Malicious Software, Threats, Viruses, Worms, SPAM E-Mail, Trojans, Payload, System Corruption, Payload, Attack Agent, Zombie, Bots, Payload, Information Theft, Key-loggers, Phishing, Spyware, Payload Stealthing Backdoors, Rootkits, Countermeasures. Overflow Attacks - Stack Overflows, Buffer Overflows. Handling Program Input, Writing Safe Program Code, Interacting with the Operating System and Other Programs.

Unit V **(13 Hours)**

Network Security Denial-of-Service Attacks, Flooding Attacks, Distributed Denial-of-Service Attacks, Overview of Intrusion Detection, Honeypots, Firewalls, Secure Email and S/MIME, Secure Sockets Layer (SSL) and Transport Layer Security (TLS), HTTPS, IPv4 and IPv6 Security, Public-Key Infrastructure.

References:

1. Stallings, W. and Brown L. (2018) Computer Security: Principles and Practice, Fourth edition, Pearson Education.

2. Pfleeger, C.P., Pfleeger, S.L., & Margulies, J. (2015). Security in Computing. 5th edition. Prentice Hall

3. Lin, S. & Costello, D. J. (2004). Error Control Coding: Fundamentals and applications. 2nd edition. Pearson Education

List of Practicals **(30 hours)**

1. Demonstrate the use of Network tools: ping, ipconfig, ifconfig, tracert, arp, netstat,whois
2. Use of Password cracking tools : John the Ripper, Ophcrack. Verify the strength of passwords using these tools.
3. Use nmap/zenmap to analyse a remote machine.
4. Use Burp proxy to capture and modify the message.
5. Demonstrate sending of a protected word document.
6. Demonstrate sending of a digitally signed document.
7. Demonstrate sending of a protected worksheet.
8. Demonstrate use of gpg utility for signing and encrypting purposes.

DISCIPLINE SPECIFIC CORE COURSE – 18: MINOR PROJECT-2

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
MINOR PROJECT-2	**4**	**0**	**0**	**4**	**Class XII pass with Mathematics**	**DSC-15**

Learning Objectives:

The students will undergo one semester of project work based on the concepts studied in a subject of their choice. The objective is to train the students for the industry by exposing them to prototype development of real life software.

Learning Outcomes:

On successful completion of this course, a student will be able to:

1. *Develop a project plan based on informal description of the project.*
2. *Implement the project as a team.*
3. *Write a report on the project work carried out by the team and defend the work done by the team collectively.*
4. *Present the work done by the team to the evaluation committee.*

Each student shall carry out a minor project in the sixth semester that can be a continuation of advancement in Minor Project-1 or can be done from scratch. The students will work on any project based on the concepts studied in core/elective/ skill based elective courses. Specifically, the project could be a research study, or a software development project.

In case the student is opting for research project, students are required to select a relevant topic, carryout a detailed literature review followed by a critical analysis or implementation. The conclusions drawn from the analysis/ implementation must also be brought out in the form of a research paper.

PROJECT GROUP ORGANIZATION/PLAN

- Students will initially prepare a synopsis (500 words) and submit it to their respective department/supervisor. Only after obtaining the approval of supervisor the student can initiate the Project work.
- For a given project, the group size could be a maximum of four (04) students.
- Each group will be assigned a teacher as a supervisor who will be responsible for their lab classes.
- A maximum of four (04) projects would be assigned to one teacher.

PROJECT EVALUATION

The project will be evaluated as follows:

(a) Mid-semester evaluation 25% weightage

(b) End-semester evaluation

(i) External Examination 50% weightage

Thesis/Project report - 25% of total marks.

Software Coding

i) Documentation - 10% of total marks.

ii) Software - 15% of total marks.

(ii) Viva-voce **25% weightage**

- Practical/discussion sessions based on the area of the project. Work carried out in each lab session will be assessed out of five marks (zero for being absent). Finally, the marks obtained will be scaled out of a maximum marks of mid-semester evaluation (i.e. 25% of total marks).
- The end-**semester evaluation marks** to be awarded jointly by the examiner and supervisor / mentor.
- The **Mid-semester evaluation** to be awarded by the supervisor/mentor. Work carried out in each lab session will be assessed.
- The students will submit both the soft copy and the hard copy of the report.
- The reports may be retained by the examiners.

PROJECT REPORT

Two copies of the Project Report certified by the supervisor shall be submitted to the Department. The format of report can be downloaded from the website/guide/ coordinator.

DSE – 04 (a): Deep Learning

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Deep Learning	**4**	**2**	**0**	**2**	**Class XII pass**	DSC-03 DSC-13

Learning Objectives:

To introduce students to deep learning algorithms and their applications in order to solve real problems.

Learning Outcomes:

1. *Describe the feed-forward and deep networks.*
2. *Design single and multi-layer feed-forward deep networks and tune various hyper parameters.*
3. *Implement deep neural networks to solve a problem*
4. *Analyze performance of deep networks.*
5. *Use pre-trained models to solve a problem*

UNIT-I **(6 hours)**

Introduction to neural networks: Artificial neurons, perceptron, computational models of neurons, Structure of neural networks, Multilayer feed-forward neural networks (MLFFNN), Back-propagation learning, Empirical risk minimization, bias-variance tradeoff, Regularization, output units: linear, softmax , hidden units:tanh, RELU

UNIT-II **(6 hours)**

Deep neural networks: Difficulty of training DNNs, Greedy layerwise training, Optimization for training DNN's, Newer optimization methods for neural networks (AdaGrad, RMSProp, Adam), Regularization methods (dropout, drop connect, batch normalization).

UNIT-III **(6 hours)**

Convolution neural networks (CNNs): Introduction to CNN - convolution, pooling, Deep CNNs - LeNet, AlexNet. Training CNNs, weights initialization, batch normalization, hyper parameter optimization, Understanding and visualizing CNNs, Using a pre trained convnet

UNIT-IV **(6 hours)**

Recurrent neural networks (RNNs): Sequence modeling using RNNs, Back propagation through time, Longshot Term Memory (LSTM), Bidirectional RNN, Bidirectional LSTM

UNIT-V **(6 hours)**

Unsupervised deep learning: Auto-encoders, Generative Adversarial Networks. Applications of Deep learning - Computer vision, Speech recognition and NLP.

References:

1. *Ian Goodfellow, Yodhua Bengio and Aaron Courville, Deep Learning, MITPress Book*
2. *Francois Chollet, Deep Learning with python second edition, Meaning Publications Co.*
3. *Bunduma, N. (2017). Fundamentals of Deep Learning. O'reilly Books.*
4. *Heaton, J. (2015). Deep Learning and Neural Networks, Heaton Research Inc.*

***List of Practicals*: (60 Hours)**

1. Implement a feed-forward neural networks for classifying movie reviews as positive or negative(using IMDB dataset)
2. Implement a deep-neural feed-forward network for estimating the price of house, given real-estate data(Boston Housing Price)
3. Implement a deep-neural network for classifying news wires by topic (Reuter's dataset).
4. Implement CNN for classifying MNIST dataset
5. Create a model for time-series forecasting using RNN/LSTM
6. Implement an auto-encoder

DSE – 04 (b): Internet of Things (IoT)

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Internet of Things(IoT)	**4**	**2**	**0**	**2**	**Class XII pass**	**DSC-01**

Learning Objectives

1. *To make students understand what IoT is and how it works today*
2. *To make students aware of different applications of IoT.*
3. *To introduce students to technologies and smart systems under IoT*

Learning Outcomes:

1. *Able to understand the application areas of IOT ·*
2. *Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks*
3. *Able to understand building blocks of Internet of Things and characteristics.*

UNIT-I **(5 Hours)**

Introduction to IoT: Definition and Characteristics, Physical Design Things- Protocols, Logical Design- Functional Blocks, Communication Models- Communication APIs- Introduction to measure the physical quantities.

UNIT-II **(5 Hours)**

IoT Enabling Technologies - Wireless Sensor Networks, Cloud Computing Big Data Analytics, Communication Protocols- Embedded System- IoT Levels and Deployment Templates.

UNIT-III **(10 Hours)**

Introduction to Smart Systems using IoT: IoT Design Methodology- IoT Boards (Raspberry Pi, Arduino) and IDE - Case Study: Weather Monitoring- Logical Design using Python, Data types & Data Structures- Control Flow, Functions- Modules- Packages, File Handling - Date/Time Operations, Classes- Python Packages of Interest for IoT.

UNIT-IV **(5 Hours)**

Sensing and Sensors: Wireless Sensor Networks, Challenges and Constraints, Introduction – Fundamentals of MAC Protocols – MAC protocols for WSN – Sensor MAC Case Study.

UNIT-V **(5 Hours)**

Applications: Home Automation, Smart Cities, Environment, Energy, Retail, Logistics, Agriculture, Industry, Health and Lifestyle, IoT and M2M

References:

1. Michael Miller, The Internet of Things, Pearson Education, 2015.
2. Arshdeep Bahga and Vijay Madisetti, Internet of Things: Hands-on Approach, Hyderabad University Press, 2015.
3. Greengard, Samuel. The internet of things. MIT press, 2015.

List of Practicals: (60 Hours)

1. Familiarization with Arduino/Raspberry Pi and perform necessary software installation.
2. To interface LED/Buzzer with Arduino/Raspberry Pi and write a program to turn ON LED for 1 sec after every 2 seconds.
3. To interface Push button/Digital sensor (IR/LDR) with Arduino/Raspberry Pi and write a program to turn ON LED when push button is pressed or at sensor detection.
4. To interface DHT11 sensor with Arduino/Raspberry Pi and write a program to print temperature and humidity readings.
5. To interface motor using relay with Arduino/Raspberry Pi and write a program to turn ON motor when push button is pressed.
6. To interface OLED with Arduino/Raspberry Pi and write a program to print temperature and humidity readings on it.
7. To interface Bluetooth with Arduino/Raspberry Pi and write a program to send sensor data to smartphone using Bluetooth.
8. To interface Bluetooth with Arduino/Raspberry Pi and write a program to turn LED ON/OFF when '1'/'0' is received from smartphone using Bluetooth.
9. Write a program on Arduino/Raspberry Pi to upload temperature and humidity data to thingspeak cloud.
10. Write a program on Arduino/Raspberry Pi to retrieve temperature and humidity data from thing speak cloud.
11. To install MySQL database on Raspberry Pi and perform basic SQL queries.
12. Write a program on Arduino/Raspberry Pi to publish temperature data to MQTT broker.
13. Write a program on Arduino/Raspberry Pi to subscribe to MQTT broker for temperature data and print it.
14. Write a program to create TCP server on Arduino/Raspberry Pi and respond with humidity data to TCP client when requested.
15. Write a program to create UDP server on Arduino/Raspberry Pi and respond with humidity data to UDP client when requested.

DSE – 04 (c): SOFTWARE TESTING

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Software Testing	**4**	**3**	**0**	**1**	**Class XII pass**	**NIL**

Learning Objectives

1. To study fundamental concepts in software testing
2. To discuss various software testing issues and solutions in software unit test, integration and system testing.
3. To expose the advanced software testing topics, such as object-oriented software testing methods.

Learning Outcomes:

1. List a range of different software testing techniques and strategies and be able to apply.
2. Distinguish characteristics of structural testing methods.
3. Demonstrate the integration testing which aims to uncover interaction and compatibility problems as early as possible.
4. Discuss about the functional and system testing methods.
5. Demonstrate various issues for object oriented testing.

UNIT-I **(12 Hours)**

Review of Software Engineering: Overview of Software Evolution, SDLC, Testing Process, Terminologies in Testing: Error, Fault, Failure, Verification, Validation, Difference between Verification and Validation, Test Cases, Testing Suite, Test, Oracles, Impracticality of Testing All Data; Impracticality of Testing All Paths. Verification: Verification Methods, SRS Verification, Source Code Reviews, User Documentation Verification, Software, Project Audit, Tailoring Software Quality Assurance Program by Reviews, Walkthrough, Inspection and Configuration Audits.

UNIT-II **(13 Hours)**

Functional Testing: Boundary Value Analysis, Equivalence Class Testing, Decision Table Based Testing, Cause Effect Graphing Technique. Structural Testing: Control Flow Testing, Path Testing, Independent Paths, Generation of Graph from Program, Identification of Independent Paths, Cyclomatic Complexity, Data Flow Testing, Mutation Testing.

UNIT-III **(8 Hours)**

Regression Testing: What is Regression Testing? Regression Test cases selection, reducing the number of test cases, Code coverage prioritization technique. Reducing the number of test cases: Prioritization guidelines, Priority category, Scheme, Risk Analysis.

UNIT-IV **(7 Hours)**

Software Testing Activities: Levels of Testing, Debugging, Testing techniques and their applicability, Exploratory Testing Automated Test Data Generation: Test Data, Approaches to test data generation, test data generation using genetic algorithm, Test Data Generation Tools, Software Testing Tools, and Software test Plan

UNIT-V **(5 Hours)**

Object Oriented Testing: Definition, Issues, Class Testing, Object Oriented Integration and System Testing. Testing Web Applications: Web Testing, User Interface Testing, Usability Testing, Security Testing, Performance Testing, Database testing, Post Deployment Testing.

References:

1. *Yogesh Singh, "Software Testing", Cambridge University Press, New York, 2012*
2. *K.K. Aggarwal & Yogesh Singh, "Software Engineering", New Age International Publishers, New Delhi, 2003.*
3. *Roger S. Pressman, "Software Engineering – A Practitioner's Approach", Fifth Edition, McGraw-Hill International Edition, New Delhi, 2001.*
4. *Marc Roper, "Software Testing", McGraw-Hill Book Co., London, 1994.*
5. *M.C. Trivedi, Software Testing & Audit, Khanna Publishing House*
6. *Boris Beizer, "Software System Testing and Quality Assurance", Van Nostrand Reinhold, New York, 1984.*

Practicals (30 Hours)

Practicals related to basic path testing and other testing techniques.

SEMESTER- III
B.Voc. - Banking, Financial Services & Insurance

DISCIPLINE SPECIFIC CORE COURSE – 7
FINANCIAL SERVICES

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
FINANCIAL SERVICES	4	3	1	0	Class XII	Nil

Learning Objective:

This paper equips students with the basic structure of the Financial Services Sector and enables them to make a career in the financial services sector.

Learning Outcomes:

After completion of the course, learners will be able to:

1. Analyse the development in housing finance
2. Understand the regulatory framework in financial services.
3. Understand the concepts of Leasing and Hire Purchase system.
4. Develop understanding of Venture Capital, Insurance and Credit Ratings.
5. Learn about the recent developments in Retail Financing.

UNIT—I: Introduction to Housing finance (12 hours)

Concept of financial services, difference between financial and non-financial services, financial service providers in India, latest development in financial services, Regulatory frameworks related to different financial services like leasing, HP, NBFCs, Insurance Cos, HFCs. Significance of housing finance in economic development, NHB- as a regulator and refinancer, modus operandi of HFCs; Securitization - concept, types, process of securitization, securitization in India.

Unit—II: Leasing and Hire Purchase (12 Hours)

Concepts of leasing, types of leasing - financial & operating lease, direct lease and sales & lease back, single investor lease and leveraged lease, Domestic lease and International lease,

advantages and limitations of leasing, legal aspects of leasing, determination of lease rental; lease evaluation- the lessee's angle, determination of breakeven lease rental. Hire-Purchase: concept, mathematics of HP, legal aspects of HP, financial evaluation the hirer's view.

Unit—III: Venture Capital, Insurance and Credit Ratings (12 Hours)

Concept, history and evolution of VC, the venture investment process, various steps in venture financing, incubation financing. Concept, classification, principles of insurance, IRDA and different regulatory norms, operation of General Insurance. Health Insurance, Life Insurance. Introduction, types of credit rating, advantages and disadvantages of credit ratings, Credit rating agencies and their methodology, International credit rating practices.

Unit—IV: Retail Finance (9 Hours)

Introduction to retail finance, benefits and objective, different models/channels of retail finance, methods of determining profit for retail financer, opportunities and challenges of retail finance, Global retail finance scenario, overview of retail finance in India, customer perception and expectation about retail finance.

Essential/recommended readings

1. Khan, M. Y. (2015). *Financial Services (8th ed.).* Tata Mc Graw Hill Education Private Limited.
2. Pond, K. (2017). *Retail banking*. Global Professional Publishing Ltd.
3. Gupta, N. K., & Chopra, M. (2010). *Financial Markets, Institutions & Services*. Ane Books Pvt Ltd.
4. Sriram, K. (1992). *Hand Book of Leasing, Hire Purchase & Factoring, ICFAI, Hyderabad*.

Suggestive readings

1. Kataria, K., & Rajni. (2017). *Financial Markets, Institutions and Financial Services*. Galgotia Publishing Company.
2. Irani, F. (1994). *Inside Leasing*. Tata McGraw Hill
3. Gurusamy, S. (2017). *Essentials of Financial Services*.
4. *SEBI Guidelines.* Nabhi Publications

DISCIPLINE SPECIFIC CORE COURSE – 8
BUSINESS STATISTICS AND FINANCIAL MATHEMATICS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Business Statistics and Financial Mathematics	**4**	**2**	**0**	**2**	Class XII Pass	NIL

Learning Objectives:

To familiarize students with various statistical and mathematical data analysis tools that can be used for effective decision making. Emphasis will be on the application of the concepts learned to be employed in various financial and managerial situations.

Learning Outcomes:

After the end of the course, students should be able to:

1. Summarize data sets using descriptive statistics.
2. Explain mathematical formulation and solution to problems related to finance including different methods of interest calculation, future, and present value of money.
3. Analyse the relationship between two variables of various managerial situations.
4. Geometrically interpret Correlation and Regression.
5. Develop managerial decision problems using Probability Density Functions and Cumulative Density Functions.

Unit1: Descriptive Analysis and Mathematics of Finance (9 Hours)

a. Descriptive Analysis

Measures of Central Value - Mean, Median, Mode; Measures of Dispersion - Absolute and Relative: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variance.

b. Mathematics of Finance

Rates of interest - nominal, effective and their inter-relationships in different compounding situations, compounding a sum using different types of rates, Types of annuities: ordinary, due

and deferred - Discrete and continuous, Perpetuity, Determination of future and present values using different types of rates of interest, Applications relating to a loan, mortgage, sinking fund etc.

Unit2: Correlation and Regression Analysis (8 Hours)

Correlation Analysis - Meaning and significance; Correlation and Causation, Types of Correlation, Methods of studying simple correlation: Scatter diagram, Karl Pearson's coefficient of correlation, Spearman's Rank correlation coefficient.
Regression Analysis - Meaning and significance, Regression vs. Correlation, Simple Regression model: Linear Regression, R-square and MSE in Regression, Geometric interpretation of Regression.

Unit3: Random Variable Analysis (7 Hours)

Probability - Meaning and need, Conditional probability, Bayes' theorem, Random Variable: discrete and continuous; Probability Distribution: Meaning, characteristics (Expectation and variance) of Binomial, Poisson, Exponential and Normal distribution, z-score, Chebyshev and empirical rule, Central limit theorem.

Unit4: Introduction to Estimation and Hypothesis Testing (6 Hours)

Estimation - Point and Interval estimation of population mean, Confidence intervals for the parameters of a normal distribution (one sample only), Hypothesis Testing: Null and Alternate Hypothesis, One Tail and Two tail tests, Level of Significance, Type I and Type II error, Test of hypothesis concerning Mean: z-test & t-test.

Practical component (60 Hours)

Students will perform practical problems based upon the concepts such as descriptive statistics, financial functions, correlation, regression analysis, finding z-score, t-test and z-test on excel & relevant software.

Also a detailed case study showcasing the use of Business statistics in the operations of the company, some practical application of use of statistics in demand estimation in real life business.

Essential Readings:

1. 1.Keller, G. (2022). *Statistics for management and economics*. Cengage Learning.
2. 2.Levin, R. I., & Rubin, D. S. (2021). *Statistics for management*.
3. 3.Stine, R., & Foster, D. (2017). *Statistics for Business: Decision Making and Analysis* (3rd ed.). Pearson.
4. Gupta, S. P. (2012). *Statistical Methods.* Sultan Chand & Sons .

Additional Readings:

1. Vohra, N. D. (latest edition). *Business Statistics.* McGraw Hill Education.
2. Thukral, J. K. (latest edition). *Fundamentals of Business Statistics.* Taxmann.

Note: Latest edition of the readings may be used.

DISCIPLINE SPECIFIC CORE COURSE – 9
FUNDAMENTALS OF INSURANCE

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Fundamentals of Insurance	**4**	**3**	**1**		Class XII Pass	NIL

Learning Objectives:

The objective of the course is to make learners understand the concepts of Insurance, basic operations and technical components involved.

Learning Outcomes:

1. Identify the concept and components involved in Insurance.
2. Make learners familiar with practical usage of Insurance and its implications at the time of adversities.

3. Make them understand how digitisation has changed the face of Insurance.

Unit I: Insurance and its function (9 hours)

Introduction to Insurance - Growth, Origin and History of Insurance, Purpose and Need, Meaning and Definition of Insurance, Characteristics of Insurance, nature, Benefits of insurance, Functions of Insurance, Societal perspective of Insurance, Economic development and Insurance. Insurance as a social security tool.

Unit II: Principle of Insurance (12 hours)

Principles of Insurance, Principle of Utmost good faith (Uberrimae Fidei), Principal of Indemnity, Principle of Contribution, Principle of Mitigation of Loss, Principle of Subrogation, Principle of Proximate Cause, Principle of Insurable Interest. Premium- basic definition and concept of Premium.

Unit III: Risk and Management (12 hours)

Risk and Uncertainty- Concepts, causes, degree, classification of risks, and cost, Insurable risk. Psychology and attitude towards risk. Managing risk and uncertainty. Cash flow at risk, risk assessment, risk transfer & mitigation method. Risk management-concept, evolution, purpose, scope, importance and its future. Role of risk management in economic growth. Risk management function. Managerial Aspects- goals, identification, evaluation, risk response, and plan administration.

Unit IV: Insurance contract and its regulatory bodies (12 hours)

Insurance Documents and policy terms and conditions, Insurance policy Contract-nature-subject- matter of insurance and subject-matter of contract of insurance, features-as per Contract Act, special features, evidence and documents. Types of insurance contract – Personal, Property, Liability, and Guarantee Insurance, Insurance contract vs. Wagering agreement, Assurance vs. Insurance, Gambling vs. Insurance. Payment of premium. E-insurance policy and Insurance Repositories. KYC norms and anti-money laundering guidelines for insurers. Reinsurance Contract- meaning and purpose. IRDA guidelines related to detection and monitoring of Insurance Frauds.

References:

1. Principles of Insurance (IC-01), Insurance Institute of India, Mumbai.
2. Practice of Life Insurance (IC-02), Insurance Institute of India, Mumbai

3. Practice of General Insurance (IC-11), Insurance Institute of India, Mumbai
4. Corporate Agent (IC-38), Insurance Institute of India, Mumbai

Text Books:

1. C. Arthur Williams, Jr. Peter Young, Michael Smith, Risk Management and Insurance, Tata Mc Graw Hill
2. Gulati Neelam C., Principles of Risk Management and Insurance, Excel Publishing Gupta
3. P.K., Insurance and Risk Management, Himalaya Publishing House.
4. Kakkar D.N. & Srivastava S.N., Insurance & Risk Management, New Age Publication.
5. Scott E. Harrington, Gregory R Niehaus, Risk Management and Insurance, Tata McGraw Hill.

DISCIPLINE SPECIFIC ELECTIVE COURSE – 1
FUNDAMENTALS OF MANAGEMENT & ORGANIZATIONAL BEHAVIOUR

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Fundamentals of Management and Organizational Behaviour	**4**	**3**	**1**	**0**	Class XII Pass	NIL

Learning Objectives:
To acquaint the students with the fundamentals of managing business and to understand Individual and group behavior at work place so as to improve the effectiveness of an Organization. The course will use and focus on Indian experiences, approaches and cases.

Learning Outcomes:

At the end of the course, students should be able to:
i. Understand the nature of management and describe the functions of management.
ii. Develop understanding of different approaches to designing organizational structures.
iii. Understand the role of personality, learning and emotions at work.
iv. Discover and understand the concept of motivation, leadership, power and conflict.
v. Understand the foundations of group behavior and the framework for organizational change and development.

Unit I **(10 Hours)**

Introduction to management; Evolution of management thought: Scientific, Administrative, Human Relations and Systems approach to management; Management functions and Managerial roles.

References:
Stephen P. Robbins & Mary Coulter, Management. 13th Ed. Pearson[Chapter 1]
Kaul Vijay Kumar, Business Organization & Management - Text and Cases, Pearson[Chapter 23]

Unit II **(10 Hours)**

Planning: Importance and types of plans, planning process, MBO; Decision making: process, types, concept of bounded rationality; Control: process and types; Principles of organizing: common organizational structures, Departmentalization: types of departmentalization,

Delegation & Decentralization: Factors affecting the extent of decentralization, Process and Principles of delegation.

References:
Stephen P. Robbins & Mary Coulter, Management. 13th Ed. Pearson[Chapter 2,8,10,18]

Unit III **(10 Hours)**

Meaning & concept of organizational behaviour; Personality: meaning, factors affecting personality, Big five model of personality; Learning: concept and theories of learning (Classical conditioning, operant conditioning and social learning theory), concept of reinforcement; Perception: concept, factors affecting perception, process of perception, perceptual errors. Motivation: Concept, importance, Content theories (Maslow's need theory, Alderfers' ERG theory, Mc Cllelands' theory of needs, Herzberg's two factor theory) & Process theories (Adams equity theory, Vrooms expectancy theory).

References:
Robbins Stephen P and Judge T.A., Vohra, Organisational Behaviour, 16th Ed. Pearson.[Chapter 5,6,7]
Kaul Vijay Kumar, Business Organization & Management - Text and Cases, Pearson[Chapter 28]

Unit IV **(15 Hours)**

Leadership: Concept, Theories (Trait, Behavioural, Contingency, Charismatic, Transactional and Transformational Leadership; Emotional Intelligence: Concept, Importance, Dimensions. Groups: Definition, Stages of Group Development, Group Cohesiveness; Analysis of Interpersonal Relationship: Transactional Analysis, Johari Window; Conflict: Concept, Sources, Types, Stages of Conflict, Management of Conflict; Organisational Power: Sources of Power and Dysfunctional uses of Power; Organizational Change: Concept, Resistance to change, Managing resistance to change, Kurt Lewin , Theory of Change; Organizational Development(OD): Meaning and types of OD Interventions.

References:
Robbins Stephen P and Judge T.A., Vohra, Organisational Behaviour, 16th Ed. Pearson.[Chapter 9,12,13,14,17]

Essential Readings:
1. Robbins Stephen P and Judge T.A. (2017) Organisational Behaviour, 17th Ed. Pearson.
2. Stephen P. Robbins & Mary Coulter (2017) Management. 13th Ed. Pearson.
3. Kaul Vijay Kumar (2012). Business Organization & Management - Text and Cases, Pearson.

Additional Readings:
1. Kavita Singh: Organisational Behaviour 3rd Ed. Vikas Publication.

2. Koontz & Heinz Weihrich, Essential of Management, McGraw Hill.
3. Kumar, P. Sachdeva A. (2012). Fundamentals of Management. S. Chand. 1ed.
Note: Latest edition of the readings may be used.

DISCIPLINE SPECIFIC ELECTIVE COURSE – 2
COMMERCIAL BANKING FOR BUSINESS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Commercial Banking for Business	**4**	**3**	**1**	**0**	Class XII Pass	NIL

Learning Objectives:

The course aims to provide the students with a theoretical and structural understanding of the commercial banking system and its working. It also focuses upon the developments in commercial banking market.

Learning Outcomes:

After completing the course, the student shall be able to:

1. Understand the evolution and growth of Commercial Banking in India.
2. Learn about commercial banking structure in India.
3. Understand the basic functions of banks with respect to business.
4. Analyze the recent developments in banking system.

Unit I: Commercial banking and its structure (12 hours)

Evolution of banking in India, Functions of Banks – Traditional and Modern. Role & contribution of banks in India. Overview of banking sector reforms.

Commercial banking – concept, Structure and Composition of Commercial Banks; Types of Banks – Public, Private, Cooperative, Regional Rural Banks (RRBs), Foreign, National Housing Bank, Small Industries Development Bank of India (SIDBI), Export-Import Bank of India (EXIM); Comparison between public and private banks; comparison between

Cooperative and Regional Rural Banks. Role of commercial banks in economy; asset liability management; financial inclusion.

Unit 2: Loans, Advances and Commercial Banks operations for business (12 hours)

Principles of sound lending; Methods of granting advances; Priority Sector Lending; Introduction to the Balance Sheet of a Commercial Bank, Concept of Non-Performing Assets (NPAs)-Reasons for Non-Performing Assets and Measures to check Non-Performing Assets. Anti-Money Laundering (AML), CIBIL.

Commercial bank services: Cash Management System, Debt Management, Factoring and Forfaiting, Trusteeship, Custodial services, Business advisory, Salary and pension, Off shore services, Trade services, Forex Management, Corporate Deposits; Corporate Finance: Seed capital, working capital, Import-Export funding. Corporate Debt Restructuring.

Unit 3: Role of Artificial Intelligence in Banking Industry (12 hours)

Artificial Intelligence: Concept, benefits, and scope. Differences between AI, Machine Learning (ML) and Deep Learning (DL). AI strategy for business enterprise - Considerations for an AI strategy. Introduction to mobile computing and Cloud computing. Redefined banking industry – the adoption of Analytics, AI-powered financial services, Fraud mitigation in banks with AI, Reorienting customer retention, Risk management with AI, AI-driven transformation in Insurance, Digital-based insurance model.

Unit 4: Regulation and developments in banking industry (9 hours)

Reserve Bank- Introduction. Emerging role of Reserve Bank of India in Indian Banking System, Banking Sector Reforms – Narasimhan Committee -I, Narasimhan Committee- II; Securitization of Standard Assets and its computation; Basel Accord: merits and weaknesses of the Basel II, Basel III and Basel IV. Introduction to various forms of Banking – Corporate Banking, Retail Banking, International Banking, Investment Banking, Development Banking, Virtual Banking, Non-Banking Financial Intermediaries.

Suggested Readings:

1. Singh, K & Dutta V., Commercial Bank Management.

2. Khan M.Y.: Indian Financial System; Tata McGraw Hill; 10th edition; 2018
3. Paul, R.R. & Mansuri, B.B. Banking and Financial Systems, Kalyani Publications, New Delhi.
4. Sethi, Jyotsna & Bhatia, Nishwan, Elements of Banking and Insurance, PHI Learning Pvt. Ltd., New Delhi.
5. Chaturvedi, D.D. & Mittal, Atul, Banking and Insurance, Scholar Tech Press, New Delhi.
6. Akerkar, R. (2018). Artificial Intelligence for Business. Basingstoke: Springer Nature.
7. Dhanrajani, S. (2018). AI & Analytics: Accelerating Business Decisions. New Jersey: Wiley.

Additional Readings:

1. Sethi, Jyotsna & Bhatia, Nishwan, Elements of Banking and Insurance, PHI Learning Pvt. Ltd., New Delhi.
2. Pathak, Bharti V., – Indian Financial System: Markets, Institutions and Services, Pearson Education, New Delhi; 5th edition 2018.
3. Russell, S. J., & Norvig, P. (2019). Artificial Intelligence: A Modern Approach, 3rd Edition. New Jersey: Prentice Hall
4. Tandon, Deepak & Tandon, Neelam, Management of Banks- Text and Cases, Taxmann Publications Pvt Ltd, New Delhi.

Note: Latest edition of readings may be used

SEMESTER-IV

Bachelor of Vocation
Banking, Financial Services & Insurance

DISCIPLINE SPECIFIC CORE COURSE – 10
FINANCIAL MARKETS AND INSTITUTIONS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Financial Markets and Institutions	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Learning Objectives:

The objective of this paper is to introduce students to the different aspects and components of financial Institutions and financial markets. This will enable them to take the rational decision in financial environment.

Learning outcomes:

After completion of the course, learners will be able to:

1. Understand the financial architecture of an economy and its key players.
2. Learn about the crucial aspects related to financial and banking structure in India.
3. Understand the concepts related to securities market and trading in secondary market.

4. Analyse the functions of different players in the financial market including Regulators like RBI and SEBI.

UNIT–I: Introduction to Financial and Banking System in India (12 Hours)

Structure of Indian Financial System: An overview of the Indian financial system, financial sector reforms: context, need and objectives, major reforms in the last decade; competition; deregulation; capital requirements; issues in financial reforms and restructuring: future agenda of reforms; Regulation of Banks, NBFCs & FIs: Salient provisions of banking regulation act and RBI Act; Role of RBI as a central banker; Products offered by Banks and FIs: Retail banking and corporate banking products. Universal Banking: need, importance, trends and RBI guidelines, Core banking solution (CBS); RTGS and internet banking, NBFCs and its types, comparison between Banks and NBFCs

Unit—II: Financial Market in India (12 Hours)

Introduction to Financial Markets in India: Role and Importance of Financial Markets, Financial Markets: Money Market; Capital Market; Factors affecting Financial Markets, Linkages Between Economy and Financial Markets, Integration of Indian Financial Markets with Global Financial Markets, Primary & secondary market, Currency Market, Debt Market-role and functions of these markets. Primary Market for Corporate Securities in India: Issue of Corporate Securities: Public Issue through Prospectus, Green shoe option, Offer for sale, Private Placement, Rights Issue, Online IPO, Book Building of Shares, Disinvestment of PSU, Employees Stock Options, Preferential Issue of Shares, Venture Capital, Private Equity, Performance of Primary Market in India, Corporate Listings Listing and Delisting of Corporate Stocks.

Unit—III: International Financial Market and Trading (12 Hours)

Secondary Market in India: Introduction to Stock Markets, Regional and Modern Stock Exchanges, International Stock Exchanges, Demutualization of exchanges, Comparison between NSE and BSE, Raising of funds in International Markets: ADRs and GDRS, FCCB and Euro Issues, Indian Stock Indices and their construction, maintenance, adjustment for corporate actions (rights, bonus and stock split;) on index with numerical, free float vs. full float methodology, Classification of Securities to be included in the Index, Bulls and Bears in Stock Markets, Factors influencing the movement of stock markets, indicators of maturity of stock markets, Major Instruments traded in stock markets: Equity Shares, Debentures, Myths

attached to Investing in Stock Markets Trading of securities on a stock exchange; Selection of broker, capital and margin requirements of a broker.

Unit—IV: Financial Market Institutions (9 Hours)

Functions and workings of Regional Rural Banks (RRBs) and National Bank for Agriculture and Rural Development (NABARD).The Objectives, Functions and Working of Small Industries Development Bank of India (SIDBI), State Financial Corporations (SFCs), State Industrial Development Corporations (SIDCs)/State Industrial Investment Corporations (SIICs), Industrial Finance Corporation of India (IFCI), Industrial Development Bank of India (IDBI), Industrial Credit & Investment Corporation of India (ICICI). International Monetary Institutions: International Monetary Fund (IMF), International Bank for Reconstruction and Development (IBRD), International Development Association (IDA) and International Finance Corporation (IFC)

Essential/recommended readings

1. Saunders, A. & Cornett, M. M. (2007). *Financial Markets and Institutions (3rd ed.)*. Tata McGraw Hill
2. Madura, J. (2008). *Financial Institutions and Markets*. Cengage Learning.
3. Kohn, M. (2004). *Financial Institutions and Markets.* Oxford University Press.

Suggestive readings

1. Pathak, B. (2018). *Indian Financial System (5th ed.)*. Pearson Publication.
2. Bhole, L. M. & Mahakund, J. (2017). *Financial Institutions and Markets (6th ed.)*. McGraw Hill Publishing
3. Kataria, K., & Rajni. (2017). *Financial Markets, Institutions and Financial Services*. Galgotia Publishing Company.
4. Khan, M. Y. (2015). *Financial Services (8th ed.).* Tata Mc Graw Hill Education Private Limited.

Note: Latest edition of the readings may be used.

DISCIPLINE SPECIFIC CORE COURSE – 11
TECHNOLOGY IN BANKING AND INSURANCE SECTOR

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Technology in Banking and Insurance Sector	**4**	**3**	**0**	**1**	**Class XII**	**Nil**

Learning Objectives:

The course aims to make the students conversant with different aspects of technology used in banking and insurance, and various issues related to security and controls with reference to India.

Learning Outcomes:

After completion of the course, learners will be able to:

1. Describe the basic concepts related to electronic banking and Insurance
2. Analyze the different electronic payment systems available.
3. Summarize the Electronic Fund Transfer System.
4. Discuss different types of security threats in Indian Banking.
5. Interpret the E-Banking and insurance Regulations and Cloud Computing.

UNIT–I: E-Banking & E-Insurance (9 Hours)

E-Banking and E-Insurance: Definition, need, types and services offered; e-banking and e-insurance versus traditional banking and insurance.

Unit—II: Electronic Payment System (12 Hours)

Overview of Electronic Payment System: Automated Teller Machine (ATM), Mobile Banking, Unified Payments Interface (UPI), GPay, Paytm, PhonePe, Amazon Pay, MobiKwik, Bharat

Interface for Money (BHIM). Payment Gateways: PayPal, PayUMoney, CCAvenue, etc. Card Technologies, MICR electronic clearing. Electronic Credit and Debit Clearing: NEFT, RTGS, DNS, ECS (Credit/Debit), IMPS, VSAT, SWIFT Code. E-money, Electronic purse, Digital Cash.

Unit—III: Security Threats (12 Hours)

Security Threats in online Environment: Viruses, Worms, Malware, Software Bombs, Phishing, Spoofing, Spamming, Denial of Service Attacks, Application-based Digital Frauds. Technology Solutions: Digital Signature, Encryption, Protection, Multiple Step Verification.

Unit—IV: E-Banking & E-Insurance Regulations and Cloud Computing (12 Hours)

Legal and regulatory issues of e-banking and e-insurance in India. Definition of Cloud Computing. Significance and Challenges of Cloud Computing.

Practical component (30 Hours)

Students will be made familiar to using all the major payment interface. Basic practical knowledge of KYC and data privacy steps will also be given.

Essential/recommended readings

1. Agarwal, O.P. (2017). *Banking & Insurance*. Himalaya Publishing House.
2. Kaptan S.S., & Choubey N.S. (2003). *Indian Banking in Electronic Era.* Sarup & Sons.
3. IIBF. (2019). *Digital Banking*. Taxmann Publisher.
4. Deva, V. (2007). *E–Banking*. Common Wealth Publishers, New Delhi.
5. Uppal, R.K. (2020). *Banking with Technology*. New Century Publications, New Delhi.

Suggestive readings

1. Khan, M.Y. (2009). *Indian Financial System*. Tata McGraw Hill Publishing Company Ltd., New Delhi.
2. Desai, V. (2017). *Banks and Institutional Management.* Himalaya Publishing House, Mumbai.

DISCIPLINE SPECIFIC CORE COURSE – 12
CORPORATE & SECURITIES LAW

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Corporate and Securities Law	4	3	1	0	Class XII Pass	NIL

Learning Objectives:

In view of increasing emphasis on adherence to norms of good corporate governance, Corporate and Securities Law assumes an added importance in the corporate legislative. It deals with structure, management, administration and conduct of affairs of various laws and to understand the application of corporate laws to practical commercial situations.

Learning outcomes:

By studying this course, the students will be able to:

1. To acquire theoretical and practical perspective on many aspects of various legal acts.
2. To understand the detailed procedure and applicability of SEBI Act, Depositories Act, Competition Act, FEMA Act, NCLT and NBFCs.
3. To develop critical thinking through the use of corporate law cases.

UNIT-I: INTRODUCTION **(12 hours)**

Characteristics of a company; lifting of corporate veil; types of companies including one person company, small company and producer company; association not for profit; illegal association; formation of company –promoters, their legal position, pre-incorporation contract and provisional contracts; online registration of a company. Memorandum of association, articles of association, doctrine of constructive notice and indoor management, prospectus-shelf and red herring prospectus, misstatement in prospectus; GDR; book building; issue, allotment and forfeiture of share, transmission of shares, buyback and provisions regarding buyback; issue of bonus shares.

UNIT-II: Depositories Act, 1996 (9 hours)

Definition of Depository Board and Beneficial Owner, Certificate of Commencement of Business; Rights and obligations of Depositories, Participants, Issuers and Beneficial Owners.

Competition Act, 2002- Applicability of the Act – Definitions, Prohibition of certain agreements, abuse of Dominant position and Regulation of combinations, Competition Commission of India- Powers, Functions, Power of Central Government to supersede Commission, Penalties, Appeals, Competition Advocacy.

National Company Law Tribunal (NCLT)- Powers and Jurisdiction, Position under the Finance Act, 2021.

UNIT-III: Management (12 hours)

Directors, Classification of directors, women directors, independent director, small shareholder's director; disqualifications, director identity number (DIN); appointment; legal positions, powers and duties; removal of directors; key managerial personnel, managing director, manager; meetings of shareholders and board; types of meeting, convening and conduct of meetings, postal ballot, meeting through video conferencing, e-voting. Books of accounts, registers; online filing of documents; dividend provisions; auditor's appointment; rotation of auditors; auditor's report; secretarial audit; concept and modes of winding up.

UNIT-IV: Non-banking Financial Companies (NBFCs) (12 hours)

Formation and regulation of NBFC's-Consumer Protection Act, 1986 - Salient Features - Definitions of complainant, Consumer, Manufacturer, Consumer Dispute, Service, Goods, Unfair Trade Practices, Liability of Companies to consumers, Basic Features of the GST Act,2021. Corporate Governance- International dimensions of Company Law.

Essential/recommended readings

1. Avtar Singh (2018) "Company Law", Eastern Book Company.
2. H.K. Saharay (2012) "Principles and Practice of Company Law in India, Prentice Hall of India Private Limited", New Delhi.
3. S.M. Shah: Lectures on Company Law, N.M. Tripathi Private Ltd.
4. Chalesworth & Cain: Company Law, Geoffrey Morse, Steven and Sons, London.

Suggestive readings

1. L.C.B. Grover “The Principles of Modern Company Law”, Steven and Sons, London.
2. Pennigton “Company Law, Butterworths, London”, Taxmann’s.
3. B.K Pahwa Law relating to Non-Banking Financial Companies

DISCIPLINE SPECIFIC ELECTIVE COURSE – 3
EMERGING BANKING AND FINANCIAL SERVICES

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Emerging Banking and Financial Services	4	3	1	0	Class XII	NIL

UNIT–I: Indian Banking System and Other Banking Reforms (12 Hours)

An overview of the Indian Banking system; Major Banking Reforms in the last decade: Payment banks, Monetary Policy Committee, MCLR Based Lending. Innovative Remittance Services, Issues in financial reforms and restructuring. Future agenda of reforms: Assessing Non-Performing Assets in Indian Banking, Previous methodologies for recovery, Impact of Gross NPAS on a bank's bottom line-burning need for bad banks, Functioning of Bad Banks, Government backing for bad banks - National Asset Reconstruction Company Ltd. (NARCL).

Unit—II: Neo- Banking, Merger and Acquisition (9 Hours)

Introduction to neo-banks, Functions of neo-banks, Operating Model of neo-banks, Regulatory requirements for setting up and running neo-banks, emerging need for neo-banks, neo-banks vs. traditional banks. Merger & Acquisition: Introduction, Benefits of mergers, Synergies accruing out of mergers, Regulatory mechanisms surrounding M&A in banking, Case-studies of recent banking mergers and related outcomes.

Unit—III: Banking Services, Cross Sell Products Investments and Loans (12 Hours)

Service channels – Branch, ATM, internet, mobile banking, Payment and collection services – cheques, electronic funds transfers, cash management, cheque clearing, Ancillary services – locker and safe custody, payment of taxes and bills, Financial services – Sale of insurance mutual

funds, gold coins, Government bonds, Depository services – DEMAT and web trade, Wealth management, Foreign exchange, Principles of lending, concepts, regulations, Retail lending – secured and unsecured, Home loan, car loan, loan against securities, Credit cards, personal loan educational loan, Business credit – working capital and term loan. Over draft cash credit, term loans, fund based and non-fund based, Priority sector lending – Agriculture credit, MSME.

Unit—IV: KYC, AML and Account Opening Process (12 Hours)

Importance of KYC and AML- Why RBI insists on KYC procedures. The role of Banks in implementing KYC, penalties for non-adherence, Different stages of money laundering, Understand the importance of AML at the time of account opening, Customer acceptance policy – low, medium and high risk customers, Customer verification procedure – KYC documents required for account opening, verification process, Account opening formalities, forms, documents, procedures, Risk management – KYC, AML – monitoring transactions and reporting of suspicious transactions.

Essential/recommended readings

1. Pathak, B. (2018). *Indian Financial System (5th ed.)*. Pearson Publication.
2. Agarwal, O. P. (2014). *International Banking and Finance (1st ed.)*. Himalaya, Publishing House.
3. IIBF. (2019). *Principles & practices of Banking*. Macmillan India Limited.

Suggestive readings

1. Khan, M.Y. (2009). *Indian Financial System*. Tata McGraw Hill Publishing Company Ltd., New Delhi.
2. Khan, M. Y. (2015). *Financial Services (8th ed.)*. Tata Mc Graw Hill Education Private Limited.
3. RBI Guidelines on Payment Banks, Monetary Policy Committee, Universal Banking, Bad bank in India and MCLR based lending.

DISCIPLINE SPECIFIC ELECTIVE COURSE – 4
CORPORATE FINANCE

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Corporate Finance	**4**	**3**	**1**	**0**	Class XII Pass	NIL

Learning Objectives:

To provide an understanding of the essential elements of the financial environment where the businesses operate. To acquaint students with the techniques of financial management and its applications for business decision making. It aims to provide and develop an understanding among students about various perspectives that the CFO (Chief Executive Officer) of a firm may hold. Additionally, it will help to develop relevant skills required for diverse strategic finance roles in modern business entities. A CFO's job is to maximize firm value through majorly four types of decisions: which projects to invest in, how to finance the selected projects by using a mix of various financing sources, how to use the surplus generated and how to manage the cash flows of the firm.

Learning Outcomes:

1. Equipped with the basic concepts of financial management.
2. Understand how to coordinate various decisions to maximize the wealth of an organization in today`s financial environment.
3. Arrive at strategic corporate finance decisions with the required accuracy aided by various excel functions.

Unit 1 **(9 Hours)**

Introduction: Nature of Financial Management: Finance and related disciplines; Scope of Financial Management; Profit Maximization, Wealth Maximization. Functions of Finance –

Finance Decision, Investment Decision, Dividend Decision; Risk-Return Trade-off in Finance Functions, Organization of Finance Function.

Time value of money: Concept of Time Value of Money – present value, future value, annuity, growing annuity, perpetuity, growing perpetuity, excel functions of time value of money.

Unit 2: Strategic Investment Decisions: (12 Hours)

Capital Budgeting: Nature and Meaning of Capital Budgeting; Principles and Process; Estimation of relevant Cash Flows and Terminal Value; Evaluation techniques– Payback Period, Accounting Rate of Return, Net Present Value, Internal Rate of Return & MIRR, NPV vs. IRR, Net Terminal Value, Profitably Index Method, Risk analysis in Capital Budgeting - Sensitivity and Scenario analysis, Certainty Equivalent Approach, RADR, Real Options, Excel functions of Capital Budgeting techniques.

Cost of Capital: Meaning and Concept, Measurement of Cost of Capital-Cost of 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 (WACC); Adjusting Cost of Capital for Risk.

Unit 3: (12 Hours)

Strategic Financing Decisions: Capital Structure, Theories and Value of the firm – Net Income Approach, Net Operating Income Approach, Traditional Approach, Modigliani Miller (MM) model, HAMADA model; Determining the Optimal Capital Structure, Checklist for Capital Structure decisions, Costs of Bankruptcy and Financial Distress, Trade off models, Pecking Order Theory.

Leverage Analysis and EBIT - EPS Analysis: Concept of leverage, Types of leverage -Operating leverage, financial leverage, combined leverage; EBIT-EPS Analysis, Guidelines for Capital Structure Planning, Link between Capital Structure and Capital Budgeting.

Dividend Decisions: Factors determining Dividend Policy, Theories of Dividend – Gordon Model, Walter Model, MM Hypothesis, Signaling Theory, Forms of Dividend – Cash Dividend, Bonus Shares, Stock Split, Dividend Policies in Practice, Patterns Observed in Payout Policies worldwide.

Unit 4: Working Capital Management (12 Hours)

Working Capital Management: Determination of Working Capital, Determining Financing mix of Working Capital, Receivables Management – Objectives; Credit Policy, Cash Discount, Debtors Outstanding and Ageing Analysis; Costs – Collection Cost, Capital Cost, Default Cost, Delinquency Cost, Management of Cash (Theory only) – Need for Cash, Cash Management

Techniques (Lock box, Concentration Banking), Inventory Management (Theory only) – ABC Analysis; Minimum Level; Maximum Level; Reorder Level; Safety Stock; EOQ (Basic Model).

Essential Readings:

1. Berk, J. B., & DeMarzo, P. M. (2007). *Corporate finance*. Pearson Education.
2. Van Horne, J. C., & Wachowicz, J. M. (2005). *Fundamentals of financial management*. Pearson Education.
3. Pandey, I. M. (2021). *Financial Management.* Pearson.

Additional Readings:

1. Gupta, K. (2011). Khan, MY and Jain, PK, Financial Management: Text, Problems and Case. *Journal of Services Research*, *11*(2).
2. Brealey, R., Myers, S., Allen, F., & Mohanty, P. (2017). *Principles of Corporate Finance* (11ed.). McGraw Hill Education.

Note: Latest edition of the readings may be used.

DISCIPLINE SPECIFIC CORE COURSE – 13
Management Information Systems

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Management Information Systems	**4**	**3**	**1**	**0**	Class XII Pass	NIL

Learning Objectives:

To provide the understanding and use of management information systems in an office and organization.

Learning Outcomes:

After completing this course, students shall be able to:

1. Relate the basic concepts and technologies used in the field of management information systems.
2. Compare the processes of developing and implementing information systems.
3. Outline the role of the ethical, social, and security issues of information systems.

Unit I: Conceptual Foundations **(10 Hours)**

Management Information Systems - Need, Purpose and Objectives - Contemporary Approaches to MIS - Information as a strategic resource - Use of information for Competitive advantage - MIS as an instrument for the organizational change. Nature and scope of MIS- Structure of MIS- Types of MIS- -Definition of system-system related concepts Information, Management and Decision Making - Models of Decision Making Classical, Administrative and Herbert Simon's Models - Types of information-Porters Five Forces Model.

Unit II: Information Technologies **(10 Hours)**

Information Technology - Definition, IT Capabilities and their organizational impact - Telecommunication and Networks - Types and Topologies of Networks - IT enabled services such as Call Centers, Geographical Information Systems etc.

Data Base Management Systems - Data Warehousing and Data Mining, Systems Analysis and Design - Systems Development Life Cycle - Prototyping -Application of DBMS using MS ACCESS.

Unit III: Business Applications of IS **(10 Hours)**

e-Commerce , e-Business and e- Governance .e-Commerce infrastructure. e-Commerce Applications and payment systems.e-Business and e-Governance. Customer Relationship Management system(CRM) System. Supply chain Management (SCM) System.

Tools - Object Oriented Systems (Only introduction to these tools & techniques), Decision Support Systems - Group Decision Support Systems - Executive Information Systems - Executive Support Systems - Expert Systems and Knowledge Based Expert Systems - Artificial Intelligence.

Unit IV: Management of IS **(10 Hours)**

Information system planning-creating an IS plan. IS development and project Management. System development life cycle- system development Models.
IS Implementation and change management

Unit V: IS Security and control and ethical and social issues of ISs **(5 Hours)**

IS Security threats -protecting information system - IS security technology- IS security level.Ethical responsibility of business professionals. Social issues of IS.

Suggested Readings:

1. Management Information Systems, Laudon and Laudon, 7th Edition, Pearson Education Asia
2. Management Information Systems, Jawadekar, Tata McGraw Hill
3. Management Information Systems, Davis and Olson, Tata McGraw Hill
4. Analysis and Design of Information Systems, Rajaraman, Prentice Hall
5. Decision Support Systems and Intelligent Systems, Turban and Aronson, Pearson Education Asia

DISCIPLINE SPECIFIC CORE COURSE – 14
CORPORATE ACCOUNTING

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Corporate Accounting	**4**	**3**	**1**	**0**	Class XII Pass	NIL

Learning Objectives:

To enable students to conceptualize the knowledge in the area of corporate accounting and understanding the techniques employed in the preparation of financial statements of the companies.

Learning Outcomes:

After completing this course, students shall be able to:

1. Understand and prepare the final accounts according to revised schedule.
2. Comprehend the concepts as well as standards intrinsic to the accounting systems utilised for measuring the performance of the businesses.

Unit 1 Final Accounts **(12 Hours)**

Preparing the statement of profit and loss account and balance sheet as per Schedule III of Companies Act 2013.

Unit 2 Banking Companies **(9 Hours)**

Differentiation between the balance sheet of banking and non-banking companies; Prudential norms; Asset structure of banks; Concept of Capital Adequacy Norms; Provisioning of NPAs (Nonperforming assets).

Unit 3 Analysis of Financial Statements of Companies **(12 Hours)**

Preparation of Cash Flow Statements (CFS) as per AS 3 (Revised): Indirect Method & AS 7 (theory only); Ratio Analysis – Profitability Ratio, Liquidity Ratio, Capital Structure Ratio, Activity Ratio, Stock Valuation.

Unit 4 Contemporary Trends in Accounting **(12 Hours)**

Forensic Accounting – Concept, History, Types of fraud, Techniques of forensic accounting; Introduction to provisions of Insolvency and Bankruptcy Code; Internal Reconstruction (practical questions).

Essential Readings:

1. Monga, J. R. (2012). *Fundamentals of Corporate Accounting.* Mayur Paper Backs.
2. Goyal, B. K. (2020). *Corporate Accounting* (7th ed.). Taxmann.
3. Agarwal, O. P. (2013). *International Banking and Finance.* Himalaya Publishing House.
4. Tulsian, P. C., & Bharat, T. (2016). *Corporate Accounting*. S. Chand Publishing.

Additional Readings:

1. Gupta, R. K. (2011). *Banking Law and Practice (3 VOLS SET).* Research publication .
2. Chadha, R., & Sumant, C. (2017). *Corporate Laws*. Scholar Tech Press.

Note: Latest edition of the readings may be used.

DISCIPLINE SPECIFIC CORE COURSE – 15
LIFE INSURANCE

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Life Insurance	**4**	**3**	**1**	**0**	Class XII Pass	-

Learning Objectives:

The objective of the course is to make learners understand the concepts of Insurance, basic operations and technical components involved.

Learning Outcomes:

1. Identify the concept and components involved in Insurance.
2. Make learners familiar with Life Insurance and its practical usage.
3. Make them understand how digitisation has changed the face of Insurance.

Unit 1: Foundation and Principles **(9 hours)**

Life Insurance- Basic definition and Concept, Purpose and Need of Life Insurance, Important Terminologies: Premium, Sum Assured Insured, Proposer, Nominee, Survivor, Assignee, Assignment, Riders etc., Essential features of Life Assurance , Principles of Life Insurance, Importance of Life Insurance.

Unit 2: Life Insurance Products **(12 hours)**

Whole-life Plans, Endowment Insurance Plans, Term Insurance Plans, Whole-life and Endowment Plans: Comparison, Couple Life Insurance Policy, Female Insurance Plans, Children Plans, Plans for Handicapped Dependents, Plans for High Worth Individuals, Money Back Plans, Micro Insurance Plans, Group Insurance Schemes, Social Security Schemes, Pension/ Annuity Plans, Unit Plans.

ULIP, health insurance plans, Property insurance policies. Post office life insurance schemes: postal life insurance and rural postal life insurance.

Unit 3: Insurance Pricing and Underwriting **(12 hours)**

Pricing Objectives, Life Insurance Pricing Elements, Insurance Rating Methods, Calculation of Premium, Payment of Premium, Classification of Expenses, Surrender Value, Sum Assured Value and Paid up Value.

Appointment, Qualification and Disqualification of Life Insurance Agents, Authority of an Agent, Procedure for Becoming an Agent as a Profession, Functions of Agent, Remuneration of Agent, Code of Conduct for Agent under IRDA Act, 1999, Agent's Liability for Protection of Interest of Life Insurance Policyholders, Insurance Ombudsman Scheme, 2006.

Unit 4: Insurance Products and Digitization **(12 hours)**

Digitization in the field of Insurance. Benefits of digitization in field of Insurance.

Regulatory Framework of Insurance in India (briefly) – Insurance Legislation and IRDA. Control of Malpractices, Negligence, Loss Assessment and Loss Control, Exclusion of perils, Regulatory Framework of Insurance: Role, Power, and Functions of IRDA, Composition of IRDA, IRDA Act 1999.

Traditional Life Insurance Products- Products of LIC, Establishment and Incorporation of Life Insurance Corporation of India, Constitution and Functions of LIC, Constitution of Tribunal, Management of LIC.

Non-Traditional Life Insurance Products (SBI and ICICI- their Introduction, Forms and Procedures), Difference between traditional and non-traditional products in Insurance.

Essential Readings

1. H. S. N. Murthy & Sharma Modern Law of Insurance in India, Fourth Ed. (2002). Universal Book Traders, Delhi.
2. Keneth Black, JR. & Harold D. Skipper JR.. Life and Health Insurance. Thirteen Fd. (2000), Pearson Education.K.C. Mishra &C. S. Kumar, Life Insurance- Principles and Practice. (2009).Cengage Learning India Pvt. Ltd.

Additional Readings

1. H. Narayanan, Indian Insurance- A Profile, (2006). jaico Publishing House.
2. Shashidharan K. Kutty. Managing Life Insurance, (2008), Prentice- Hall of India Pvt. Ltd.
3. H. Sadhak. Life Insurance in India, Response Books, New Delhi- 1.
4. Kaninika Mishra. Fundamentals of Life Insurance. (2010). PHI Learning Pvt. Ltd. Publications of Insurance Institute of India, Mumbai

Promotion: Nature and importance of promotion; Promotion Tools: Advertising, Personal Selling, Public Relations & Sales Promotion, Promotion tools and their effectiveness, determining optimal promotion mix.

Unit 4: Personal Selling (12 hours)

Introduction to Personal Selling: Nature and importance of personal selling. Difference between Personal Selling Salesmanship and Sales Management, Myths of selling, Relationship Marketing and Role of Personal Selling. Characteristics of a good salesman. Types of selling situations. Types of salespersons; Career opportunities in selling, Measures for making selling an attractive career.

Theories of Selling: Traditional and Modern, AIDAS Model of Selling Problem Solving Approach, Right Set of Circumstances Theory and Modern Sales Approaches.

Selling Process: Prospecting and qualifying, Pre-approach, Presentation and demonstration, handling of objections and complaints; Closing the sales; Customer Relations, Follow-up and Dealing customer concerns and complaints.

Essential/recommended readings:

1. Kotler, Philip; Keller, Kevin Lane; Koshy, Abraham, and Mithileshwar Jha (2019) "*Marketing Management: A South Asian Perspective"*, Pearson Education.
2. Chhabra, T.N., (2021) *Principles of Marketing*, Sun India Publication.

Suggestive readings:

1. Armstrong, Gary, and Kotler, Philip (2017) *The Essentials of Marketing*, Pearson Education, New Delhi.
2. McCarthy, E. Jerome., and William D. Perreault, *Basic Marketing*, Richard D. Irwin.

DISCIPLINE SPECIFIC ELECTIVE COURSE – 5
CUSTOMER RELATIONSHIP MANAGEMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Customer Relationship Management	4	3	1	0	Class XII Pass	NIL

Learning Objectives:

The course objective is to provide an in-depth knowledge of the concepts of Customer relationship management and its importance in organizations. Its aim to provide the understanding of Customer, its acquisition and retention through analytics of CRM.

Learning outcomes:

Upon completion of the course a learner shall be competent to

1. Understand the Customer relationship management through various Models or tools
2. Explain customer experiences and interpret various strategies of CRM
3. Identify ways to enhance Customer services.
4. Understand many ways of data management of related with customer

Unit1: Understanding customer relationships. (12 hours)

Introduction: Definition and Concept of CRM, Emergence of CRM, Components of CRM, Understanding the goal of CRM, Models of CRM, Customer Touch Points, Factors responsible for CRM growth, CRM process, framework of CRM, Benefits of CRM, Types of CRM, Scope of CRM, Customer Profitability, Features Trends in CRM, CRM and Cost-Benefit Analysis, Myths about CRM

CRM and Relationship Marketing: Understanding about relationships, Customer satisfaction, loyalty and business performance, Relationship Management Theories, Managing the customer journey: customer acquisition, Customer journey: Process, Operational CRM tools helping in customer acquisition, Customer retention and development: Definition and Strategies for customer retention.

Unit 2: Strategic CRM (9 hours)

Strategic CRM: Developing CRM Strategy; Role of CRM in Business Strategy, Understanding service Quality; Technical, Functional and Dimensions of Service Quality, Managing Customer Communications

Customer Portfolio Management: Definition, Basic disciplines for CPM, Managing customer-experienced value: Understanding customer-perceived value, Sources of Customer Value, Customization, CRM software applications influencing customer experience.

Unit 3: Operational CRM (12 hours)

Marketing Automation: What is marketing automation? Benefits of marketing automation, Software applications for marketing.

Sales Force Automation: Definition, Benefits, Sales process, Activity, Contact, Lead and knowledge Management, Field Force Automation, SFA Adoption, SFA impact on performance.

Service automation: Definition, Customer service, Modeling service quality, Customer service standards, Benefits from service automation, Software applications for service.

Unit 4: Analytical CRM **(12 hours)**

CRM Process: Introduction and Objectives of a CRM Process; an Insight into CRM and E-CRTA /online CRM, The CRM cycle i.e. Assessment Phase; Planning Phase ; The Executive Phase; Modules in CRM , 4C's (Elements) of CRM Process , CRM Process for Marketing Organization, CRM Affiliation in Retailing Sector.

Developing and managing customer-related databases: Corporate customer-related data, Structured and unstructured data, Data integration, Data warehousing, Data marts, Knowledge management, Analytics for CRM strategy and tactics, Analytics throughout the customer journey, Analytics for structured and unstructured data, Big data analytics

Essential/recommended readings:

1. Buttle, F., Maklan, S. (2019). Customer Relationship Management, 4th Edition. Routledge
2. Kumar, V., Reinartz, Werner (2014) Customer Relationship Management Concept, Strategy
   and Tools, 1st edition, Springer Texts

Suggestive readings:

1. Jagdish N. Sheth, Atul Parvatiyar & G. Shainesh, (2010) "Customer Relationship Management", Emerging Concepts, Tools and Application", TMH.
2. Dilip Soman & Sara N-Marandi (2014) "Managing Customer Value" 1st edition, Cambridge.

DISCIPLINE SPECIFIC ELECTIVE COURSE – 6
GST AND INDIRECT TAXES

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
GST and Indirect Taxes	**4**	**3**	**1**	**0**	**Class XII Pass**	**NIL**

Learning Objectives:

The objective of this course is to acquaint students with the GST & Indirect Taxation System and its implications on tax in India.

Learning Outcomes:

After successful completion of the course students will be able:

1. To understand taxation structure in India.
2. To understand basic provisions regarding two major acts contributing to Government Funds.
3. To acquire knowledge about valuation of goods under Customs Act and clarity about the concept of "One Nation One Tax". Also, the availability of Input tax credit.
4. To get acquainted with basic knowledge of registration and e-filing process under GST Act.

UNIT-I: Introduction to Indirect Taxation and GST (10 hours)

Direct Taxes and Indirect Taxes: Features of Indirect taxes, Difference, Advantages and Disadvantages, Sources and Authority of Taxes in India (Art 246 of the Indian Constitution), Genesis of GST in India, Power to tax GST (Constitutional Provisions), Meaning and Definition of GST, Benefits of GST, Conceptual Framework – CGST, IGST, SGST, UTGST, Imports of goods or services or both, Export of goods or services or both, Taxes subsumed and not subsumed under GST, Goods and Services Tax Council, Goods and Services Tax Network (GSTN).

UNIT-II: Levy & Collection of Tax and Concept of Supply (8 hours)

Charge of GST, Levy and Collection GST, Composite and Mixed Supplies under GST, Power to Grant Exemption, Negative list of GST, GST Rate Schedule for Goods and Services, Concept and Scope of Supply, Time of Supply, Place of Supply and Value of Taxable Supply.

UNIT-III: Input Tax Credit, Documentation and Computation of GST (7 hours)

Eligibility and conditions for taking Input Tax Credit, Apportionment of credit & Blocked credits, Credit in special circumstances, Computation of GST under Inter State supplies and Intra State Supplies, Tax Invoices, Credit and Debit Notes.

UNIT-IV: Registration, Payment of Tax & Refunds and GST Returns (10 hours)

Persons liable for Registration, Persons not liable for Registration, Procedure for Registration, Deemed Registration, Amendment, Cancellation and Revocation of Registration. Computation of Tax Liability, Payment of Tax, Interest and other Amounts, Interest on delayed Payment,

TDS, TCS Refund of tax, Refund in certain cases, Interest on delayed refunds, Types of Returns and Provisions relating to filing of Returns.

UNIT-V: Introduction to Customs Act, 1962 & Procedures under Customs Act (10 hours)

Introduction to customs law including Constitutional aspects, Levy of and exemptions from customs duties – All provisions including application of customs law, taxable event, charge of customs duty, exceptions to levy of customs duty, exemption from custom duty, Types of customs duties, Classification and valuation of imported and export goods. Import and Export Procedures – All import and export procedures including special procedures relating to baggage, goods imported or exported by post, stores, Provisions relating to coastal goods and vessels carrying coastal goods, Warehousing and Drawback.

Essential/recommended readings

1. V.S. Datey (2013) Indirect Taxes – Law and Practice
2. H.C Mehrotra (2018) Indirect Taxes, SahityaBhavan Publications, New Delhi
3. Vinod K Singania (2018) Indirect Taxes, Taxmann's Publications, New Delhi

Suggestive readings

1. Study materials on GST by ICAI and ICSI.
2. Rakesh Kumar (2019) Goods and Services Tax, Diamond Pocket Books Pvt Ltd.

SEMESTER - VI
Bachelor of Vocation
Banking, Financial Services & Insurance

DISCIPLINE SPECIFIC CORE COURSE – 16
REGULATORY FRAMEWORK FOR BANKING AND INSURANCE

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Regulatory Framework for Banking and Insurance	4	3	1	0	Class XII Pass	NIL

Learning Objectives:

The objective of this paper is to introduce students to role and functioning of Central Bank of India, non-performing assets and different rules applicable, Insurance act and guidelines framed by IRDA. It explains the role of RBI and IRDA. Various conceptual issues related to banking

the role of regulatory bodies, mechanism of banking, operations of insurance companies are discussed elaborately.

Learning Outcomes:

After completion of the course, learners will be able to:

1. Understand the concept of Central Bank, its role, functions, structure and working.
2. Understand the concept of Insurance, the agencies involved in Insurance.
3. Know and understand the Non-Performing Assets, its types and rules related to it.
4. Know and understand the role of Insurance Regulatory Development Agency (IRDA).

UNIT–I: Central Bank of India and its Function (12 Hours)

The Reserve Bank of India Act 1934; The Banking Regulation Act, 1949; Setting up of a new bank, Branch licensing, Branch authorization policy for commercial banks and New Bank Licensing Policy, 2013. Objectives and Functions of RBI; Tools of Monetary Control; Regulatory Restrictions on Lending, Power of RBI to Issue Directions, Regulation of Interest Rate; Regulationof Payment Systems.

Unit—II: Non Performing Assets & Regulation (9 Hours)

Banking sector reforms and NPAs, Importance of banking reforms, NPAs assets classification, NPAs accounts, management of NPAs. Internet Banking Guidelines; Regulation of Money Market Instruments; Banking Ombudsman; Reserve Funds; Maintenance of CRR, SLR; Assets in India.

Unit—III: Insurance Act and Guidelines (12 Hours)

The Insurance Act, 1938 – Insurance Regulatory and Development Act, 1999 – Life Insurance Corporation Act, 1956 – General Insurance Business (Nationalization) Act, 1972. Insurance Law-need. Indian Insurance Industry, The Insurance Regulatory and Development Authority Act, 1999 (as amended). The Regulatory Body-IRDA- functions, powers, and role. Self-regulation by insurers.

Unit—IV: Insurance and its Grievance Redressal System (12 Hours)

Regulation- regarding registration of insurers, need for capital in insurance-capital adequacy, and solvency requirements. Risk based capital for insurers. Regulation concerning investment of fundsand protection of policyholders' interest. Redressal of grievance.

Essential Readings

1. Agarwal, O. P. (2014). *International Banking and Finance (1st ed.)*. Himalaya, Publishing House.
2. IIBF. (2019). *Principles & practices of Banking*. Macmillan India Limited.
3. IIBF. (2021). *Legal & Regulatory Aspects of Banking*. Macmillan India Limited.
4. Tannan, M. L. (2012). *Tannan's Banking Law and Practice in India*. LexisNexis.
5. Cranston, R. (2002). *Principles of Banking Law.* Oxford.
6. Gomez, C. (2011). *Banking and Finance: Theory, Law and Practice*. PHI Learning Private Limited.

Additional Readings

1. IIBF. (2020). *Accounting & Finance for Bankers*. Macmillan India Limited.
2. Rao, P. M. & Hyderabad R. L. (2002). *Financial Services: Text, Cases and Strategies*. Deep & Deep Publications Pvt. Ltd.
3. IIBF. (2010). *General Bank Management*. Macmillan India Limited.
4. Kothari, V. (2022). *Tannan's Banking Law and Practice in India*. LexisNexis.

DISCIPLINE SPECIFIC CORE COURSE – 17
Non-Life Insurance I (Fire, Marine & Motor)

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Non-Life Insurance I (Fire, Marine & Motor) DSC-17	**4**	**3**	**0**	**1**	Class XII Pass	NIL

Learning Objectives:

The course has the objective of making learners familiar with the role of various non-life insurance in risk management.

Learning Outcome

1. To introduce the concept of risk and ways to mitigate it.
2. Make learners familiar with Fire, Marine and Motor Insurance.

UNIT 1: Introduction (12 hours)

Definition and Structure of Non-Life Insurance, Purpose and need of Non-Life Insurance, The Overall Market Size of Non-Life Insurance Sector in India, Major Non-Life Insurance Companies in India; Emerging Trends in Non-Life Insurance: Customer Centricity as Driver of Innovation, Increase in Adoption of the Internet Channel, Social Media to Increase Market Penetration.

UNIT 2: Fire Insurance (12 hours)

Fire Insurance - Contract- meaning and salient features, Need of Fire Insurance, Standard Fire and Special Perils Policy-recital, coverage, exclusions, conditions, and add-on-covers. Special Polices- reinstatement. Declaration. and floater. Fire Insurance - SBI and ICICI Plans - Introduction, Forms and Procedures, Standard Fire and Special Perils Policy, Tariff system and special policies.

Unit 3: Marine Insurance (9 hours)

Marine Insurance- Meaning and nature of Contract, Need of Marine Insurance, Hull Insurance, Marine (Cargo) Insurance – Inland Vessels and Sailing Vessels, Postal Consignment, Air Consignment, Types of Losses, Losses covered under Marine Insurance, Types of Marine Policies, and Specific Policy.

Unit 4: Motor Insurance (12 hours)

Motor Vehicles Act, 1988- Overview, Motor Insurance- Introduction and Need, Types of policy- Third party Liability, comprehensive-contents- schedule, own damage, third party liability, and owner- driver cover, exceptions, conditions, deductibles, no claim bonus. Pricing and discounts. Add-ons. Claim settlement for own damage.

Practical component (30 Hours)

Students need to perform a demo for online purchase of Car insurance and Two-wheeler insurance, Calculation of premium amount for Marine Insurance. A detail study of Fire Insurance policy of SBI or ICICI.

Essential Readings

1. George, E. Rejda, Principles of Risk Management and Insurance, Pearson Education.

2. Dorfman, Marks S., Introduction to Risk Management and Insurance, Pearson.
3. Gupta. P.K, Insurance and Risk Management, Himalaya Publishing House.
4. Kumar, Sunil, Essential of Insurance and Risk Management, JSR Publishers, New Delhi.
5. Mishra, M. N., Principles and Practices of Insurance, S. Chand and Sons.
6. Farooqui, A, Principles and Practices of Insurance, Wisdom Publications.

DISCIPLINE SPECIFIC CORE COURSE – 18
Non-Life Insurance II (Health, Accidents, Rural & Miscellaneous)

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Non-Life Insurance II (Health, Accidents, Rural & Miscellaneous) DSC-18	**4**	**3**	**1**	**0**	Class XII Pass	NIL

Learning Objectives:

This paper will provide knowledge to students with the various forms of non-life insurance and their practical applications in everyday life. And how these insurance help to mitigate the risk.

Learning Outcomes:

1. The student will be acquainted with Health Insurance, it's benefits and usage.
2. To understand how different risk can be mitigated using these insurance services.
3. Companies providing these Insurance and their procedures.
4. Regulatory bodies governing Insurance Sector.

UNIT 1: Health Insurance **(12 hours)**

Health Insurance- meaning and need. Salient features. Indian scenario regarding health insurance. Basic health policy- scope and renewal. Senior citizen insurance, Critical Illness cover and add-ons. Life insurers policies vs. General/ Health insurers policies. Grace Days. Claim

settlement- cashless vs. reimbursement, procedure and documentation. Role of TPA's in claim settlement. Health Insurance Regulations, 2013. Relevant companies in this field.

UNIT 2: Accident and Travel Insurance (12 hours)

Personal Accident and Travel Insurance- Introduction and need. Automobile Insurance. Personal Accident Policy- special features, accident, coverage, benefits, provisos, exclusions, conditions, bonus and extensions. Travel Insurance domestic and overseas policies. Claim procedure. Relevant companies in this field.

UNIT 3: Home Insurance (9 hours)

Home Insurance: Meaning and Importance. Coverage: Structure and contents. Perils covered and exclusions. Methods of determining sum assured. Utility of reinstatement method. Terms and conditions. Claim procedure. Relevant companies in this field.

UNIT 4: RURAL INSURANCE (12 hours)

Overview of Indian Rural Insurance Market - Need of rural Insurance, Major Types of Rural Insurance Policies; Challenges and Opportunities in Rural Insurance market, IRDA Regulations in Rural Insurance; Crop Insurance; Cattle Insurance and Insurance of other Livestock; Poultry Insurance; Claim and settlement, Companies offering Rural Insurance in India.

Essential Readings:

1. K. C. Mishra & C. S. Kumar, General Insurance- Principles and Practice, (2009), Gengage Learning India Pvt. Ltd.
2. Indian Institute of Banking & Finance, Mumbai, Insurance Product, Second Ed. (2007)
3. Murthy, K. S. N. & K. V. S. Sharma, Modern Law of Insurance in India, Fourth Ed. (2002), Butterworths.

Additional Readings:

1. Sharda Kumaraswamy & V. Kumaraswamy, Corporate Insurance, (2005), Tata McGraw- Hill Publishing Co. Ltd... New Delhi.
2. Publications of the Insurance Institute of India, Mumbai
3. IC- 34-General Insurance
4. IC- 57-Fire and Consequential Loss Insurance
5. IC- 78- Miscellaneous Insurance.

DISCIPLINE SPECIFIC ELECTIVE COURSE – 7
SECURITY ANALYSIS & PORTFOLIO MANAGEMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Security Analysis & Portfolio Management	**4**	**3**	**1**	**0**	**Class XII Pass**	**NIL**

Learning Objectives:

To familiarize students with the essential concepts and fundamentals of financial investments. The course will enable them to understand and make informed choice about the various available financial investment alternatives.

Learning Outcomes:

After completion of the course, learners will be able to:

1. Understand the fundamentals of financial investments and the investment decision process.
2. Able to compute various measures of risk and return, and understand their role for evaluating investments.
3. Understand and carry out security analysis using different approaches.
4. Learn basic approaches to valuation of securities and carry out portfolio analysis.

UNIT–I: Investments – An Overview (9 Hours)

Concept of Investment, Financial Investment Vs. Real Investment, Investment Vs. Speculation, Objectives or Features of Investment, Risk Return Trade Off, Investment Environment – Overview of Securities Market and Different Types of Financial Investment. Investment Decision Process, Direct Investing Vs. Indirect Investing, Approaches to Investing – Active Vs. Passive. Diversification, Hedging and Arbitrage.

Unit—II: Risk – Return Analysis (12 Hours)

Concepts of Return and Risk, Types of Return - their Calculation & Utility: Absolute Return, Average Return, Expected Return, Portfolio Return, Holding Period Return, Effective Annualized Return, Risk-Adjusted Return. Causes (or Sources) and Types of Risk – Systematic and Unsystematic Risk, Components of Systematic and Unsystematic Risk, Calculation of Total, Systematic and Unsystematic Risk. Impact of Taxes and Inflation on Investment – Computation of Post Tax and Real Returns.

Unit—III: Security Analysis (12 Hours)

Approaches to Security Analysis – Fundamental Analysis, Technical Analysis, and Efficient Market Hypothesis (EMH). Fundamental Analysis – EIC Framework, Economic Analysis, Industry Analysis, and Company Analysis. Technical Analysis – Basic Tenets of Technical Analysis, Tool of Technical Analysis – Charts, and Technical Indicators, Limitations of Technical Analysis. Difference between Fundamental Analysis and Technical Analysis. Efficient Market Theory (EMH) – Concept, Forms of Market Efficiency, Weak Form Hypothesis, Semi Strong Form, and Strong Form of Market Efficiency. Implications of EMH.

Unit—IV: Fundamentals of Valuation and Portfolio Analysis (12 Hours)

Valuation of Equity Shares – Peculiar features of Equity Shares, Dividend Discount Model, Earning Multiplier or Price-Earnings (P/E) Model, and Capital Asset Pricing Model (CAPM). Valuation of Fixed Income Securities – Bond Fundamentals, Types of Bonds, Bond Valuation. Portfolio Analysis – Portfolio Management Process, Portfolio Analysis – Markowitz Model, Portfolio Risk, Portfolio Return.

Essential/recommended readings

1. Tripathi, V. *Security Analysis and Portfolio Management*. Taxmann Publications.
2. Chandra, P. *Investment Analysis and Portfolio Management*. McGraw Hill Education.

Suggestive readings

1. Rustagi, R.P. *Investment Management*. Sultan Chand Publications.
2. Reilly, F. K. & Brown, K. C. *Analysis of Investments and Management of Portfolios*. Cengage India Pvt. Ltd.

DISCIPLINE SPECIFIC ELECTIVE COURSE – 8
MARKETING & PERSONAL SELLING

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
MARKETING & PERSONAL SELLING	4	3	1	0	Class XII Pass	NIL

Learning Objectives:

The objective of this course is to provide basic knowledge of concepts, principles, tools and techniques of marketing and to familiarize the students with the fundamentals of personal selling and the selling process.

Learning outcomes:

By studying this course, the students will be able to:

1. Understand the concept of marketing and related disciplines.
2. An in-depth understanding of various elements of marketing mix for effective functioning of an organization.
3. Learning some of the tools and techniques of marketing with focus on Indian experiences, approaches and cases.

Unit 1: Introduction (12 hours)

Marketing: Definition, nature, scope & importance, Evolution of Marketing Concept, Marketing Mix, Marketing Environment: Internal, External (Micro & Macro Environment), Understanding of Consumer Behavior, Purchase decision Process and influences, Marketing management process- a strategic perspective, Market Segmentation, Targeting and Positioning (STP): Segmentation Concept, Importance and Bases, Targeting Concept, Importance and Bases; Market Selection, Brand Positioning concept, importance and bases; Repositioning Concept.

Unit 2: Marketing Mix: Price & Product (9 hours)

Product: Meaning, Importance, Product Mix, Product Classification, New Product development, Levels of Product, Product Life Cycle (PLC), Branding, Packaging and Labelling, After Sales Services.

Price: Significance, Importance, Factors affecting price of a product; Methods of Pricing, Pricing Policies and Strategies.

Unit 3: Marketing Mix: Promotion & Distribution Channels (12 hours)

Distribution: Concept, Importance, Different types of distribution channels etc., Wholesaling and retailing: Factors affecting choice of distribution channel, Distribution logistics and major logistics decisions.

Promotion: Nature and importance of promotion; Promotion Tools: Advertising, Personal Selling, Public Relations & Sales Promotion, Promotion tools and their effectiveness, determining optimal promotion mix.

Unit 4: Personal Selling (12 hours)

Introduction to Personal Selling: Nature and importance of personal selling. Difference between Personal Selling Salesmanship and Sales Management, Myths of selling, Relationship Marketing and Role of Personal Selling. Characteristics of a good salesman. Types of selling situations. Types of salespersons; Career opportunities in selling, Measures for making selling an attractive career.

Theories of Selling: Traditional and Modern, AIDAS Model of Selling Problem Solving Approach, Right Set of Circumstances Theory and Modern Sales Approaches.

Selling Process: Prospecting and qualifying, Pre-approach, Presentation and demonstration, handling of objections and complaints; Closing the sales; Customer Relations, Follow-up and Dealing customer concerns and complaints.

Essential/recommended readings:

1. Kotler, Philip; Keller, Kevin Lane; Koshy, Abraham, and Mithileshwar Jha (2019) "*Marketing Management: A South Asian Perspective"*, Pearson Education.
2. Chhabra, T.N., (2021) *Principles of Marketing*, Sun India Publication.

Suggestive readings:

1. Armstrong, Gary, and Kotler, Philip (2017) *The Essentials of Marketing*, Pearson Education, New Delhi.
2. McCarthy, E. Jerome., and William D. Perreault, *Basic Marketing*, Richard D. Irwin.

KALINDI COLLEGE

SEMESTER – III

Bachelor of Vocation- Web Designing

DISCIPLINE SPECIFIC CORE COURSE 07–Data Structures

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Data Structures	4	3	0	1	Class XII Pass	NA

Learning Objectives:

1. To introduce the fundamentals of data structures
2. To get familiar with programming

Learning Outcomes:

1. Develop the ability to use basic data structures like array, stacks, queues, lists, trees andhash tables to solve problems.
2. Use well-organized data structures in solving various problems.
3. Differentiate the usage of various structures in problem solutions.
4. Implement algorithms to solve problems using appropriate data structures.

Unit I **(5 hours)**

Arrays: Single and multi-dimensional arrays, analysis of insert, delete and search operations in arrays (both linear search and binary search), implementing sparse matrices, applicationsof arrays

to sorting: selection sort, insertion sort, bubble sort, comparison of sorting techniques via empirical studies.

Unit II **(5 hours)**

Linked Lists: Singly- linked, doubly-linked and circular lists, analysis of insert, delete and search operations in all the three types, implementing sparse matrices.

Unit III **(10 hours)**

Queues: Array and linked representation of queue, de-queue, comparison of the operations on queues in the two representations. Applications of queues.

Unit IV **(15 hours)**

Stacks: Array and linked representation of stacks, comparison of the operations on stacks in the two representations, implementing multiple stacks in an array; applications of stacks: prefix, infix and postfix expressions, utility and conversion of these expressions from one to another; applications of stacks to recursion: developing recursive solutions to simple problems, advantages and limitations of recursion.

Unit V **(10 hours)**

Trees and Heaps: Introduction to tree as a data structure; binary trees, binary search trees, analysis of insert, delete, search operations, recursive and iterative traversals in binary search trees. Height-balanced trees (AVL), B trees, analysis of insert, delete, search operations on AVL and Btrees. Introduction to heap as a data structure. Analysis of insert, extract-min/max and delete-min/ max operations, applications to priority queues.

Hash Tables: Introduction to hashing, hash tables and hashing functions -insertion, resolving collision by open addressing, deletion, searching and their analysis, properties of a goodhash function.

References

1. Michael T. Goodrich, Roberto Tamassia and Michael H. Goldwasser (2013), Data Structuresand Algorithms in Python, Wiley.
2. Rance D. Necaise, Data Structures and Algorithms Using Python, John Wiley & Sons, Inc.

3. Introduction to Algorithms, by Cormen, Leiserson, Rivest, and Stein, MIT Press, Third Edition, 2009.

List of Practical (30 hours)

A practical implementation of various data structure such as Array, Queues, Stacks, Linked List and Trees.

DISCIPLINE SPECIFIC CORE COURSE 08– Programming with Java

Course title &Code	Credits	Credit distribution of the course			Eligibility criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Programming with Java	4	3	0	1	Class XII Pass	NA

Learning Objectives

This course is designed to develop understanding of object-oriented programming concepts like Classes, Objects, Inheritance and Polymorphism using Java. The course provides understanding of multithreading and exception handling in Java. It also introduces how to create Java applications with graphical user interface (GUI).

Learning Outcomes

On successful completion of the course, students will be able to:

1. Understand the object-oriented concepts – Classes, Objects, Inheritance, Polymorphism– for problem solving.
2. Create and handle multithreading.
3. Handle program exceptions.
4. Handle input/output through files.
5. Create Java applications with graphical user interface (GUI).

SYLLABUS OF DSC-08

Unit 1 Introductory Concepts: (2 weeks)

Program, identifiers, variables, constants, primitive data types, expressions, Naming Conventions, Type casting, operators, control statements, structured data types, arrays, functions.

Unit 2 Object Oriented Concepts: (4 weeks)

Abstraction, encapsulation, objects, classes, methods, constructors, inheritance, polymorphism, static and dynamic binding, Anonymous block, Static Data members, overloading and overriding, Usage of super and this keyword, Abstract classes, Interfaces and Packages, Access modifiers, Object class

Unit 3 Multithreading: (4 weeks)

Creating Threads, Thread Priority, Blocked States, Extending Thread Class, Runnable Interface, Starting Threads, Thread Synchronization, Sync Code Block, Overriding Synced Methods, Thread Communication, wait, notify and notify all.

Unit 4 Introduction to Exception handling: (3 weeks)

Exception and Error, Throw, try and catch Blocks, Exception handlers, java. Lang Exceptions, Built-In Exceptions.

Unit 5 Introduction to File Handling: (2 weeks)

Byte Stream, Character Stream, File I/O Basics, File Operations, Serialization.

Practical component

Programming exercises using Java.

Essential Readings

1. James Gosling, Bill Joy, Guy L. Steele Jr, Gilad Bracha, Alex Buckley, The Java Language Specification, Java SE 7 th edition, Addison-Wesley, 2013.
2. Herbert Schildt, Java: The Complete Reference, 10th edition, McGraw-Hill Education, 2018.
3. Cay S. Horstmann, Core Java - Vol. I – Fundamentals, 10th edition, Pearson, 2017.
4. Richard Johnson, An Introduction to Java Programming and Object-Oriented Application Development, Thomson Learning, 2006.
5. Kathy Sierra and Bert Bates, Head First Java, 3 rd edition, O'Reilly, 2022

DISCIPLINE SPECIFIC CORE COURSE 07– Data Analysis using Python

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Data Analysis using Python	4	3	0	1	Class XII Pass	NA

Learning Objectives

This course is designed to introduce the students to real-world data analysis problems, use of statistics to get a deterministic view of data and interpret results in the field of exploratory data science using Python. This course is the first in the "Data Science" pathway and builds the foundation of three subsequent courses in the pathway

Learning Outcomes

On successful completion of the course, students will be able to:

1. Apply descriptive statistics to obtain a deterministic view of data.
2. Perform data handling using Numpy arrays.
3. Load, clean, transform, merge and reshape data using Pandas.
4. Visualize data using Pandas and matplot libraries.
5. Solve real world data analysis problems

SYLLABUS OF DSC-09

Unit 1 Introduction to basic statistics and analysis: (4 weeks)

Fundamentals of Data Analysis, Statistical foundations for Data Analysis, Types of data, Descriptive Statistics, Correlation and covariance, Linear Regression, Statistical Hypothesis Generation and Testing, Python Libraries: NumPy, Pandas, Matplotlib

Unit 2 Array manipulation using NumPy: (2 weeks)

NumPy array: Creating NumPy arrays; various data types of NumPy arrays, indexing and slicing, swapping axes, transposing arrays, data processing using NumPy arrays

Unit 3 Data Manipulation using Pandas: (4 weeks)

Data Structures in Pandas: Series, Data Frame, Index objects, loading data into Pandas data frame, Working with Data Frames: Arithmetic, Statistics, Binning, Indexing, Reindexing, Filtering, Handling missing data, Hierarchical indexing, Data wrangling: Data cleaning, transforming, merging and reshaping

Unit 4 Plotting: (3 weeks)

Using Matplotlib to plot data: figures, subplots, markings, color and line styles, labels and legends, Plotting functions in Pandas: Line, bar, Scatter plots, histograms, stacked bars, Heatmap

Unit 5 Data Aggregation and Group operations: (2 weeks)

Group by Mechanics, Data aggregation, General split-apply-combine, Pivot tables and cross tabulation

Practical component

Programming exercises using Python.

Essential Readings:

1. McKinney W. Python for Data Analysis: Data Wrangling with Pandas, NumPy and IPython, 2nd edition, O'Reilly Media, 2018.
2. Molin S. Hands-On Data Analysis with Pandas, Packt Publishing, 2019.
3. Gupta S.C., Kapoor V.K. Fundamentals of Mathematical Statistics,12th edition, Sultan Chand & Sons, 2020

Suggested Readings:

(i) Chen D. Y. Pandas for Everyone: Python Data Analysis, 1 st edition, Pearson Education, 2018.

(ii) Miller J.D. Statistics for Data Science, Packt Publishing Limited, 2017.

DISCIPLINE SPECIFIC ELECTIVE 1– Cryptography

Course title &Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Cryptography	4	3	0	1	Class XII	NA

Learning Objectives

The course objectives of this paper are: to understand basics of Cryptography and Network Security, to be able to secure a message over insecure channel by various means, to learn about how to maintain the Confidentiality, Integrity and Availability of a data, to understand various protocols for network security to protect against the threats in the networks.

Learning Outcomes

On successful completion of the course, students will be able to:

1. Comprehend the fundamentals of Cryptography and Network Security
2. To be able to secure a message over an unsecured channel using a variety of methods.
3. To gain knowledge on how to preserve the Confidentiality, Integrity, and Availability of data
4. To comprehend various network security protocols for protection against network threats

SYLLABUS OF DSE 1

Unit 1 Overview of Security: (2 weeks)

Protection versus security; aspects of security–data integrity, data availability, privacy; security problems, user authentication, Orange Book.

Unit 2 Security Threats: (3 weeks)

Program threats, worms, viruses, Trojan horse, trap door, stack and buffer overflow; system threats-intruders; communication threats- tapping and piracy.

Unit 3 Cryptography: (4 weeks)

Substitution, transposition ciphers, symmetric-key algorithms-Data Encryption Standard, advanced encryption standards, public key encryption - RSA; Diffie-Hellman key exchange, ECC cryptography, Message Authentication- MAC, hash functions.

Unit 4 Public key cryptography and Authentication requirements: **(4 weeks)**

Principles of public key crypto systems - RSA algorithm - security of RSA - key management – Diffle-Hellman key exchange algorithm - introductory idea of Elliptic curve cryptography – Elgamel encryption - Message Authentication and Hash Function: Authentication requirements - authentication functions - message authentication code - hash functions - birthday attacks – security of hash functions and MACS.

Unit 5 Digital signatures: (2 weeks)

Symmetric key signatures, public key signatures, message digests, public key infrastructures.

Essential Readings

1. W. Stalling, Cryptography and Network Security Principles and Practices (4th ed.), Prentice-Hall of India, 2006
2. C. Pfleeger and SL Pfleeger, Security in Computing (3rd ed.), Prentice-Hall of India, 2007
3. D. Gollmann, Computer Security, John Wiley and Sons, NY, 2002
4. J. Piwprzyk, T. Hardjono and J. Seberry, Fundamentals of Computer Security, Springer-Verlag Berlin, 2003

Suggested Readings

(i) W. Mao, "Modern Cryptography – Theory and Practice", Pearson Education.

(ii) Charles P. Pfleeger, Shari Lawrence Pfleeger – Security in computing – Prentice Hall of India.

(iii) J.M. Kizza, Computer Network Security, Springer, 2007

(iv) M. Merkow and J. Breithaupt, Information Security: Principles and Practices, Pearson Education, 2006.

DISCIPLINE SPECIFIC ELECTIVE 2– Digital Image Processing

Course title &Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Digital Image Processing	4	3	0	1	Class XII	NA

Learning objectives:

1. To understand the sensing, acquisition and storage of digital images.
2. To study the image fundamentals and mathematical transforms necessary for image processing.
3. To understand the digital processing systems and corresponding terminology.
4. To understand the base image transformation domains and methods.

Learning Outcomes:

1. Understand the fundamentals of Image Processing and its role and importance in a variety of applications.
2. Write programs to read/write and manipulate images for the purpose of enhancement.
3. Understand the need for image transforms and their properties.
4. Understand different causes for image degradation and use various techniques to restore images.

UNIT-I **(8 hours)**

Introduction: Digital Image Fundamentals, Brightness, Adaptation and Discrimination, Light and Electromagnetic Spectrum, Image Sampling and Quantization, Some Basic Relationships between Pixels Types of images.

UNIT-II **(7 hours)**

Spatial Domain Filtering: Some Basic Intensity Transformation Functions, Histogram Equalization, Spatial Correlation and Convolution, Smoothening Spatial Filters-Low pass filters, Order Statistics

filters; Sharpening Spatial Filters- Laplacian filter.

UNIT-III **(8 hours)**

Filtering in Frequency Domain: The Discrete Fourier Transformation (DFT), Frequency Domain Filtering:-Ideal and Butterworth Low pass and high pass filters

UNIT-IV **(7 hours)**

Image Degradation and Compression: Noise models, Noise Restoration Filters, Fundamentals of Image Compression, Huffman Coding, Run Length Coding

UNIT-V **(10 hours)**

Morphological Image Processing: Erosion, Dilation, Opening, Closing, Hit-or-Miss Transformation, Basic Morphological Algorithms.

UNIT VI **(5 hours)**

Image Segmentation: Point, Line and Edge Detection, Thresholding.

References:

1. Gonzalez, R. C., & Woods, R. E. Digital Image Processing. 4th edition. PearsonEducation, 2017
2. Castleman, K. R. Digital Image Processing. 1st edition. Pearson Education,2007
3. Gonzalez, R. C., Woods, R. E., & Eddins, S. Digital Image Processing using MATLAB. Pearson Education Inc., 2004
4. Jain, A. K. Fundamentals of Digital *Image Processing. 1st edition Prentice Hall of India,1988.*

SEMESTER-III
(B.A. Honours in Multi Media and Mass Communication)

DISCIPLINE SPECIFIC CORE COURSE – 7: GRAPHIC DESIGN: TECHNOLOGY AND SOFTWARE

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-7 GRAPHIC DESIGN: TECHNOLOGY AND SOFTWARE	4	2	0	2	Class XII	Nil

Syllabus of DSC-7

Course Objectives

1. To train students to produce graphics using software for various visual mediums.
2. To develop skills to use graphics for communication.
3. To understand the function of motion graphics and significance of visualisation techniques in design.
4. To acquire comprehensive skills in designing and creating layouts using visual design software and digital platforms.

Course Learning Outcomes

1. Understanding of designing software for communication.
2. Design and graphics as communication.
3. Acquiring comprehensive skills in designing, creating layouts, photo montage, digital collage etc. using visual design software and digital platforms.
4. Capacity to use acquired skills and knowledge to produce a Photo Montage using Motion Graphics

SYLLABUS OF DSC-7

Unit 1
Software for Graphic Design **(10 Hours)**

- Adobe Photoshop
- CorelDRAW
- Adobe After Effects
- Adobe Illustrator

Unit 2 **(12 Hours)**

Visualization

- Motion Graphics
- Skills and Role of a Production Team
- The Digital Platforms and Open Sources
- Audience Identification and Needs

Unit 3

Digital Design **(10 Hours)**

- Photo Montage
- Assemblage
- Digital Collage and E-Collage
- Designing a Portfolio

Practical:

Production of a Photo Montage using Motion Graphics

References

Essential Readings

- Davis, M. (2012). *Graphic design theory*. London: Thames and Hudson. Ohio
- Joss, M., & Nelson, L. (1977). *Graphic design tricks and techniques*: North Light Books.
- Sarkar, N. N. (2012). *Art and print production*. Canada: Oxford University Press.
- Villamil, J., & Molina, L. (1999). Multimedia: *An introduction. Indianapolis*: Que Education.

Additional Resources:

Suggested Readings

- Rose, G (2016). Visual Methodologies. London: Sage.
- Rose, D. (2015). *Responsive web design with Adobe Photoshop*. Adobe Press.
- Sarkar, N. N. (1998). *Designing print communication*. New Delhi: Sagar Publications.

E-resources

- https://creativemarket.com/blog/10-basic-elements-of-design
- https://www.youtube.com/watch?v=zryY_AjHC-U
- https://www.youtube.com/watch?v=gaoBr7SzF-c

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

DISCIPLINE SPECIFIC CORE COURSE – DSC-8 MEDIA LAWS AND ETHICS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-8 Media Laws and Ethics	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Syllabus of DSC-8

Course Objectives

1. To train students to critically analyse legal and ethical issues related to different forms of media with appropriate case-studies.
2. To enhance the student's awareness of the paradigms regarding ethical responsibilities of the mass communications professional.
3. Examine the social, political, economic, legal and ethical dilemmas confronted by contemporary media practitioners in new, digital settings.

Course Learning Outcomes

1. Understanding the key legal and ethical frameworks faced by media practitioners while reporting journalistically.
2. Learning to understand and resolve ethical and media issues originating in digital technology.
3. Learning to formulate communication strategies in view of existing media law and ethical codes.

Unit 1

Freedom and The Fourth Estate **(15 Hours)**

- Historical Perspective on Mass Media Laws: Colonial Period
- Democracies and Freedom of the Press
- Provision of the Indian Constitution: Article 19
- The Emergency in India: Case Study (The Indian Express, The Statesman, Samachar etc.)

Unit 2

Media Regulations in India **(15 Hours)**

- Press Council Act 1978
- Intellectual Property Rights

- Central Board of Film Certification
- Advertising Standards Council of India
- Information Technology Act, 2000

Unit 3

Information Technology and Ethics (18 Hours)

- The Public and the Private: Definitions, Limitations, Conflation
- Cyber Security, Cyber Warfare and Cyber Citizenship
- Informational Disorder: Computational Propaganda, Trolling, Sock Puppet Networks, Spoofers
- Paid News, Fake News, Deep Fakes, Private Treaties, Post Truth

References

Essential Readings

- Assembly, U. G. (1948). Universal declaration of human rights. *UN General Assembly*, *302*(2), 14-25.
- Bhowmik, S. (2013). Film censorship in India. *Routledge handbook of Indian cinemas*. https://doi.org/10.4324/9780203556054. ch14.
- Boyd, B. M. (1972). Film censorship in India: A" reasonable restriction" on freedom of speech and expression. *Journal of the Indian law institute*, *14*(4), 501-561.
- Chowdhury, A. R. (2008). The future of copyright in India. *Journal of intellectual property law & practice*, *3*(2), 102-114.
- Gosain, D. Agarwal, A., Shekhawat, S., Acharya, H. B., & Chakravarty, S. (2017). Mending wall: On the implementation of censorship in India. *International conference on security and privacy in communication systems.* (pp. 418-437). Springer, Cham.
- Jenkins, R., & Goetz, A. M. (1999). Accounts and accountability: theoretical implications of the right-to-information movement in India. *Third world quarterly*, *20*(3), 603-622.
- Lu, S. P. (1999). Corporate codes of conduct and the FTC: Advancing human rights through deceptive advertising law. *Colum. J. Transnat'l L.*, *38*, 603.
- Nickel, J. W. (1987). *Making sense of human rights: Philosophical reflections on the universal declaration of human rights*. Univ of California Press.

Additional Resources:

Suggested Readings

- Al-Zaman, M. S. (2021). Social Media Fake News in India. *Asian journal for public opinion research*, *9*(1), 25-47.
- Ashraf, P. (2014). The role of media in good governance: Paid news culture of media and the challenges to Indian democracy. *International research journal of social sciences*, *3*(3), 41-43.
- Farooq, G. (2018). Politics of Fake News: how WhatsApp became a potent propaganda tool in India. *Media Watch*, *9*(1), 106-117.
- Fichman, P. & Rathi, M. (2021). Cross Cultural Analysis of Trolling Behaviors. *Proceedings of the association for information science and technology*, *58*(1), 716-717.

- Gudipaty, N. (2017). Gendered public spaces. Online trolling of women journalists in India. *Comunicazione politica*, *18*(2), 299-310.
- Kshetri, N. (2016). Cybercrime and cybersecurity in India: causes, consequences and implications for the future. *Crime, law and social change*, *66*(3), 313-338.
- Kumari, T. (2020). A study on growth of over the top (OTT) video services in India. *International Journal of latest research in humanities and social science (IJLRHSS)*, *3*(9), 68-73.

E-Resources

- Sansad TV (2017, March 27) "Media Ethics, Principles in Journalism,"[Video: File] Retrieved from https://www.youtube.com/watch?v=v672qS48GRA
- Saxena, A. (2019, June 28) "Media Ethics: Maintaining Ethical Standards in Broadcast Journalism,"[Video: File] Retrieved from https://www.youtube.com/watch?v=eJqFAHDpxfM

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

DISCIPLINE SPECIFIC CORE COURSE – DSC-9: RADIO PRODUCTION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-9:Radio Production	**4**	**2**	**0**	**2**	**Class XII**	**Nil**

Syllabus of DSC-9

Course Objectives

1. To familiarise students with Radio as means of communication.
2. To understand the growth and evolution of Radio as a medium of communication.
3. To learn specific skills relating to reporting and anchoring for Radio.
4. To understand the requirements for programming for Radio.
5. To produce a programme for Radio.

Course Learning Outcomes

1. Using knowledge gained in previous courses of the programme me, to specifically report for radio.
2. Understanding radio as a medium and technology.
3. Knowledge of the grammar and aesthetics of radio programming.
4. Familiarity with Radio programme formats.

Unit 1

Introduction to Radio **(10 Hours)**

- Evolution of Radio in India: Pre and Post-Independence
- Organizational Structure of the Radio Station: State-owned, Privately-owned
- Types of Radio Transmission: AM, FM, Digital Radio, Satellite Radio, Community, HAM, Amateur, FM Radio
- Radio Programme Formats: News, Talk, Feature, Drama, Live Broadcast, documentaries, Podcast

Unit 2 **(10 Hours)**

The Grammar and Aesthetics of Radio

- Writing for Radio: Idiom of the Spoken Word, Journey of Sound-Analogue and Digital.
- Sound: Properties, Recording Techniques and Microphones
- Use of Voice: Tone, Timbre, Pitch, Range, Intonation, Inflection, Fluency, Modulation
- Role of Anchor as RJ

Unit 3
Production for Radio **(12 Hours)**

- Pre-production: Idea, Research, Radio Script, Storyboard, Proposal Writing, Budget, Pilot
- Production: Creative use of Sound; Listening, Recording, Using Archived Sounds
- Post-production: Creative use of Sound Editing and Special Effects
- Software for Audio Recording: Logic Pro, Adobe Audition, Audacity

Practical:
Production of a Radio Programme

References

Essential Readings

- Chantler, P., & Stewart, P. (2013). *Basic of radio journalism*. New York: Routledge.
- Shrivastava, K. M. (1990). *Radio and TV journalism.* New Delhi: Sterling Publishers.
- Chatterji, P. C. (1998). *The adventure of Indian broadcasting: A philosopher's autobiography*. New Delhi: Konark Publishers.
- Luthra, H. R. (1986). *Indian broadcasting*. Publications Division Ministry of Information & Broadcasting.
- McLiesh, R. (2005). *Radio production,* New Delhi: Focal Press.
- Saxena, A. (2011). *Radio in new avatar –AM TO FM,* New Delhi: Kanishka Publishers.

Additional Resources:

Suggested Readings

- Aspinall, R. (2010). *Radio programme production: A manual for training*. UNESCO, Paris.
- Awasthi, G.C. (1965). *Broadcasting in India*. Allied Publishers Private Ltd.
- Hausman, C., Messere, F., O'Donnell, L. B., & Benoit, P. (2012). *Modern radio production: production programming & performance*. Cengage Learning.
- Luthra, H. (1987). *Indian broadcasting*. Publications Division, New Delhi.
- Thomson, R. (2010). *Journalists*. Routledge, New York.

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-1: DIGITAL JOURNALISM AND SOCIAL MEDIA

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE 1- Digital Journalism and Social Media	4	2	0	2	Class XII	Nil

Syllabus of DSE 1

Course Objectives

1. To understand the types of online communication and how they have revolutionized the way we interact.
2. To comprehend how digital media & ICT make it possible for anyone to create, modify and share content, using relatively simple tools that are often free or inexpensive.
3. To demonstrate how online media provides a platform for amalgamation of various mediums like text, audio, video, graphics and animation.
4. To enable the use of various writing formats for web.

Course Learning Outcomes

i. Understand the impact of new media technologies and platforms to change the nature of communication.
ii. Ability to redefine the private and the public sphere.
iii. Learn to critically evaluate new media technologies to raise ethical concerns.
iv. Utilize knowledge gained to design and manage a website as a part of practicum.

Unit 1 **(10 Hours)**

Content Creation for Digital Media

- Introduction to Digital Journalism
- Blogging, Microblogging and Live Blogging
- Publishing Articles, White Papers and E-Books
- Producing a Multimedia Story

Unit 2 **(12 Hours)**

Basics of Social Media

- Social Media: Definition, Characteristics and Scope
- Emerging Trends in Social Media Platforms: Facebook, Instagram, Twitter, Pinterest, LinkedIn and others
- Webcasting, Podcasting and Video Conferencing
- Ethical Concerns in Digital Media

Unit 3 **(10 Hours)**

Digital Media Management

- Search Engine Results Pages (SERP)
- Search Engine Optimization (SEO) and Social Media Optimization (SMO)
- Website Audience Measurement (WAM)
- Digital Marketing Tools: MeetEdgar and Biteable

Practical:

Creating and Managing a Website

References

Essential Readings:

- Heggde, G., & Shainesh, G. (Eds.). (2018). *Social media marketing: Emerging concepts and applications*. Singpore: Palgrave Macmillan.
- Lister, M. (2009). *New media: A critical introduction*. London: Routledge.
- Mishra, R.C. (2008). *Cyber crime: Impacts in the new millennium.* New Delhi: Author Press.
- Swartz, A. (2020). *See You on the Internet: Building Your Small Business with Digital Marketing*. Vancouver: Page Two Books.
- Tuten, T. L., & Solomon, M. R. (2017). *Social media marketing*. New Delhi: Sage Publications.

Additional Resources:

Suggested Readings

- Barker, M. S., Barker, D. Bormann, N. F., & Neher, K. (2013). *Social media marketing: A strategic approach.* Mason: Cangage Learning.
- Castells, M. (2005). *The network society: A cross-cultural perspective*. Cheltenham: Edward Elgar.
- Satish, D., & Kaila, R.P. (2006). *Blogs: Emerging communication media*. The ICFAI University Press

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

COMMON POOL OF GENERIC ELECTIVES (GE) COURSES OFFERED BY THE DEPARTMENTS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

GENERIC ELECTIVES (GE-3): ADVERTISEMENT AND MEDIA

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
GE-3: Advertisement And Media	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Course Objectives

1. To introduce the students to the concepts and principles of Advertising.
2. To understand the integration of various promotional tools in the present demand of the market.
3. To familiarize students with the concepts of market, audience, product and brand.
4. To familiarize the students with the structure of Advertising Agency.

Course Learning Outcomes

1. Understanding the language and grammar of Advertising.
2. Understanding the process of encoding and decoding in Advertising.
3. Familiarizing with the concepts of targeting, positioning and segmenting.
4. Understanding the models and the structure of an Advertising Agency.

Unit I **(15 Hours)**
Introduction

- Advertisement as Communication
- Consumer Culture and the Advertisement: A Critical Evaluation
- Models: AIDA, DAGMAR, Maslow's Hierarchy Model
- Marketing Mix

Unit II **(18 Hours)**
Advertising Strategies

- Types of Media, Segmentation
- Positioning and Targeting
- Media Selection, Planning and Scheduling
- Market Strategy and Branding

Unit III **(15 Hours)**

Ad Agency: Structure and Practices

- Process of Planning an Ad Campaign
- Profile of an Advertising Professional
- Structure of an Advertising Agency
- Ethical Issues: Advertising and Regulatory Bodies

References

Essential Readings

- Belch, E. G. (2020). *Advertising and promotion: An integrated marketing communications perspective*, New York: McGraw-Hill Education.
- Goffman, E. (1987). *Gender advertisements*. New York: Harper & Row.
- Halve, A. (2005). *Planning for power advertising: A user's manual for students and practitioner*s, New Delhi: SAGE Publications.
- Jethwaney, J., & Jain, S.(2011). *Advertising management, (2nd edition)*, New Delhi: Oxford University Press.
- Kumar, S. R. & Krishnamurthy, A. (2020). *Advertising, brands and consumer behaviour: The Indian context,* New Delhi: SAGE Publications.
- Marieke, De M. (2011). *Consumer behavior and culture: Consequences for global marketing & advertising*, New Delhi: SAGE Publications.
- McGuigan, J. (2014). Advertising – the magic system (1960/1969). In *Raymond Williams on culture & society: Essential writings* (pp. 57-84). SAGE Publications Ltd, https://dx.doi.org/10.4135/9781473914766.n4
- Melissa, D. (2009). *The fundamentals of branding*, New York: Ava Publications.
- Miles, Y., (2018). *Ogilvy on advertising in the digital age*, New York: Carlton Books.
- Monley, L., & Johnson, C. (2003). *Principles of advertising: A global perspective*, New York: Routledge.

Suggested Readings

- Aaker, D.(2018). *Creating signature stories: Strategic messaging that persuades, energizes and inspires*, New Delhi: Penguin Portfolio.
- Dayal, S. (2021). *Right between the ears: how to use brain science to build epic brands*, New Delhi: Penguin Portfolio.
- Dorothy & Cohen, (1988). *Advertising*, London: Scott. Forsmon and Co.
- Naomi , K. (2009). *No logo*, New York: Macmillan.
- Cudson, M. (1993). *Advertising, The uneasy persuasion*, New York: Routledge.
- Steel, J. (2009). *Truth, lies and advertising: The art of account planning*, New York: Wiley.
- Ogilvy, D. (1997). *Ogilvy on advertising*, London: Prion Books.
- Valladares, J. (2005). *The craft of copywriting*, New Delhi: SAGE Publications.
- Vilanilam, J. V., & Verghese, A.K. (2012). *Advertising basics*, New Delhi: SAGE Publications.

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

SEMESTER-IV
(B.A. Honours in Multi Media and Mass Communication)

DISCIPLINE SPECIFIC CORE COURSE – DSC – 10 PUBLIC SERVICE BROADCASTING

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC - 10 Public Service Broadcasting	4	3	1	0	Class XII	Nil

Syllabus of DSC - 10

Course Objectives

1. To know about the global overview of Public Service Broadcasting.
2. To understand the functioning and role of various government agencies like Prasar Bharati, AIR, Doordarshan, Films Division etc.
3. To know about the latest technology adopted in various Public Service Broadcasting agencies.
4. To have an understanding about the global revenue models of Public Service Broadcasting.

Course Learning Outcomes

1. Understanding the concept of Public Service Broadcasting
2. Critical evaluation of global revenue models in Public Service Broadcasting
3. Understanding of role and functions of Prasar Bharati and other agencies

Unit 1 **(15 hours)**

Introduction to Public Service Broadcasting

- Global Overview of Public Service Broadcasting
- Model Public Service Broadcasting Law, UNESCO
- Public Service Model in India: An Overview
- Early Public Service Broadcasting in India: Prasar Bharati, All India Radio, Doordarshan, Films Division

Unit 2 **(18 hours)**

Revenue Models of PSB

- Government Grants Model
- License Fee Model
- Hybrid Model

- Advertising Model

Unit 3 **(15 hours)**
Public Service Broadcasting in the Digital Age

- Radio and the Digital Age
- PSB Television and Webcasting
- Direct to Home Public Service Broadcasting
- Curriculum Broadcasting in the Digital Age: E-pathshalas

References

Essential Readings

- Chatterji, P. C. (1991). *Broadcasting in India.* New Delhi: Sage.
- Ghosal, H. R. (1962). *An outline history of the Indian people.* New Delhi: Publications Division, Ministry of Information and Broadcasting, Govt. of India.
- Saxena, A. (2011). *Radio in new avatar: AM to FM.* New Delhi: Kanishka, Distributors.

Additional Resources:

Suggested Readings

- Fleming, C. (2010). *The radio handbook.* London: Routledge.
- Luthra, H. R. (1986). *Indian broadcasting.* New Delhi: Publications Division, Ministry of Information and Broadcasting, Govt. of India.
- Natarajan, J. (1955). *History of Indian journalism.* New Delhi: Publications Division, Ministry of Information and Broadcasting.

E-resources

- http://osou.ac.in/eresources/Deveopment%20of%20Public%20Srvice%20Bradcasting%20in%20India.pdf
- https://unesdoc.unesco.org/ark:/48223/pf0000141584

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

DISCIPLINE SPECIFIC CORE COURSE – DSC-11 DEVELOPMENT COMMUNICATION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-11 Media Laws and Ethics	**4**	**2**	**0**	**2**	**Class XII**	**Nil**

Syllabus of DSC-11

Course Objectives

1. To understand development and development communication as a process of qualitative change and quantitative growth of social and economic reality.
2. To describe the participatory process of social change in society which intends to bring about both social and national advancement for the majority of people.
3. To highlight the role of media and significance of development support communication in raising awareness on issues of national importance.
4. To understand the role played by various Governmental and Non-Governmental agencies in development communication.
5. To design a multi-media development communication campaign on a social issue.

Course Learning Outcomes

1. Defining development in global and local scenarios.
2. Understanding development communication as a specific mode for defined target audiences.
3. Critical engagement with models and paradigms of development communication.
4. Ability to produce a multi-media campaign on a development issue.

Unit 1 **(10 hours)**
Social Change and Issues in Development

- Communication and Social Change
- Global Parameters of Development and India
- Regional Initiatives and India: Human Rights, Social Inclusion, Gender, Public Health, Family Welfare and Minorities
- Millennium Development Goals and Sustainable Development Goals

Unit 2
Paradigms of Development Communication **(12 hours)**

- Linear Models: Rostow's Demographic Transition, Transmission

- Non-Linear Models: World Systems Theory, Marxist Theory, Wood's Triangle
- Dependency Paradigm: Centre-periphery, Development and Under Development
- Alternative Paradigms: Participatory, Think Local-act Global/ Think Global-act Local (community radio and community video)

Unit 3 **(10 hours)**
Development Communication Approaches

- Development Support Communication: RTI, Social Audits, Grass-root Activism, Whistleblowers, NGOs and Other Agencies
- Pre-testing and KAP Gap
- Multi Media Campaigns: Print, Radio, TV and Digital Media
- Citizen Journalism

Practical:
Developing a Multi Media Campaign on a Development Issue

Essential Readings

- Joshi, U. (2001). *Understanding development communication.* New Delhi: Dominant publishers and Distributors.
- Melkote, S. R. (2015). *Communication for development in the third world: theory and practice.* New Delhi: Sage.
- Nair, K. S., & Smith, S. A. (1993). *Perspectives on development communication*. New Delhi: Sage.
- Narula, U. (2007). *Development communication: theory and practice.* New Delhi: Har Anand Publications.
- Sood, R, (1992) *Message design for development communication*. New Delhi: Sage

Suggested Readings

- Gupta, V. S. (2004). *Communication and development.* New Delhi: Concept Publications.
- Dow, B. J. (2001) Ellen, Television, and the Politics of Gay and Lesbian Visibility. *Critical studies in media communication* 18:123-140.
- Jethwaney, J. (2016). *Social sector communication in India: concepts, practices, and case studies*. New Delhi: Sage.
- Pezzullo, P.C. (2003). Resisting "National Breast Cancer Awareness Month": The Rhetoric of Counter publics and their Cultural Performances. *Quarterly journal of speech 89* (4):354-365.

  Sharma, R. (2012). *Breakout nations: In Pursuit of the next economic miracles*. New York: W.W. Norton.

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

DISCIPLINE SPECIFIC CORE COURSE – DSC-12: TELEVISION JOURNALISM

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-12: Television Journalism	4	2	0	2	Class XII	Nil

Syllabus of DSC-12

Course Objectives

1. To familiarize students with the television as a medium of journalism and mass communication.
2. To train them with skills required for news gathering process.
3. To develop understanding of on-screen presentation of content for audio-visual medium.
4. To develop understanding of on-field/ live reporting techniques.

Course Learning Outcomes

1. Understanding television as an audio-visual medium.
2. Extrapolate theories of political economy and ownership patterns acquired in previous courses on journalism, onto television.
3. Knowledge and skills involved in diverse news gathering and reporting.
4. Develop skills in the use of camera as a tool of news gathering and editing techniques.

Unit 1 **(10 hours)**

Understanding Television as a Journalism Format

- Political Economy of Television, Ownership Patterns, Revenue Models, Hierarchy and Editorial Policies
- Ethical issues in TV Journalism
- The Audio-visual Grammar: Camera, Sound, Light
- Camera movements, Camera positioning– shots, aspect ratio, resolution

Unit 2 **(10 hours)**

Television News Gathering

- Finding the Story and Sources, Packaging
- News-gathering Techniques: Electronic News Gathering (ENG) and Electronic Field Production (EFP)
- Techniques of Television Interview, Vox Pop, Piece to Camera
- Formats: TV News, Debates, Discussions, Talk Shows

Unit 3 **(12 hours)**

Presenting on the Screen

- Reporting from the Field
- Presenting a TV Report
- Skill Sets for Anchors
- Audience Segmentation: Prime Time Slots, TRPs, Research and Surveys

Practical:

Production of a News Package

References

Essential Readings

- Belavadi, V. (2013). *Video production.* New Delhi: Oxford University Press.
- Boyd, A., et al. (2008). *Broadcast journalism: Techniques of radio and TV news.* Oxford: Focal Press.
- Papper, R. A. (2017). *Broadcast news and writing stylebook.* London: Routledge.
- Shrivastava, K. M. (1990). *Radio and TV journalism*. New Delhi: Sterling Publishers.
- Zettl, H. (2005). *Television production handbook.* Massachusetts: Cengage Learning.

Additional Resources:

Suggested Readings

- Anderson, C. (2016). *TED Talks: The Official TED Guide to Public Speaking.* Iowa: Mariner Books.
- Papper, R. A. (2013). *Broadcast news and writing stylebook.* New Jearsey: Pearson Education.
- White, T. (2002). *Broadcast news writing, reporting and producing.* Boston: Focal Press. Yorke, I. (2017). *Television news.* London: Routledge.

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-2: MASS MEDIA AND REGIONAL DEVELOPMENTS IN INDIA

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE 2- Mass Media and Regional Developments in India	4	3	1	0	Class XII	Nil

Syllabus of DSE 2

Course Objectives

1. To familiarise the student with the nature and growth of mass media in the context of regional developments of society and language in India.
2. To familiarise the student with freedom movement and growth of vernacular press.
3. To create awareness about the historical perspectives of mass media and their respective growth within the framework of technological developments in the media industry.
4. Analysis of the impact of digital media on regional-specific developments as well as demographic consumption patterns.

Course Learning Outcomes

1. Understanding the political, socio-economic and technological development of mass media within regional development of the country.
2. Understanding of the impact of language-based mass media's growth and development.
3. Understanding the relationship between area-studies and languages in the context of media's development.

Unit 1

Historical Perspectives **(15 hours)**

- The National Movement and The Rise of Print Media
- The Role of Radio
- Regional Cinema
- Television: Early Years

Unit 2 **(18 hours)**

Expanding Horizons

- Overview of the Media Industry: North, South, East, West
- Print: Bhartendu, Ganesh Shankar Vidyarthi, Agyeya, Nav Bharat Times, Jansatta

- Radio: Aakashvani and BBC
- Television: Aaj Tak, Zee TV
- Digital Media: Hindi Blogging, Hindi Websites and YouTube Channels

Unit 3 **(15 hours)**

Area Studies

- Bangla
- Marathi
- Malayalam
- Punjabi

References

Essential Readings

- Apte, M. L. (1976). *Multilingualism in India and its socio-political implications: an overview.* Language and Politics, 141-164.
- Malik, K. K. (2022). *Media education and regional language journalism in India.* Media Asia, 49(2), 170-175.
- Neyazi, T. A. (2010). Cultural imperialism or vernacular modernity? Hindi newspapers in a globalizing India. *Media, Culture & Society*, 32(6), 907-924.
- Rao, S. (2008). Accountability, democracy, and globalization: A study of broadcast journalism in India. *Asian Journal of Communication*, 18(3), 193-206.
- Sridhar, K. K. (1996). Language in education: Minorities and multilingualism in India. *International review of education*, 42(4), 327-347.

Additional Resources:

Suggested Readings

- Bonea, A. (2022). *Print journalism in India: Historical perspectives and contemporary developments. An Introductory Note.*
- Mishra, V. M. (1971). *The Hindi press in India: an interpretative history.* Gazette (Leiden, Netherlands), 17(4), 243-250.
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- Paul, S., & Palmer, R. (2021). The view from the hinterland: caste, gender and press freedom in Hindi news reporting. *Asian journal of communication*, 1-18.
- Tomar, R. (2011). Gender and media: Status of women journalist in Hindi print media in India. Presented at *Rethinking development in an Age of scarcity and uncertainty* on University of York, 19-22 sep.

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

COMMON POOL OF GENERIC ELECTIVES (GE) COURSES OFFERED BY THE DEPARTMENTS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

GENERIC ELECTIVES (GE-4): REPORTING AND ANCHORING

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
GE:4 Reporting and Anchoring	4	3	1	0	Class XII	Nil

Course Objectives

1. To familiarise students with skills for on-field reporting and anchoring.
2. To understand the concepts of audience segmentation and research.
3. To familiarise students with elements of reporting and its techniques.
4. To introduce elements and techniques of anchoring.

Course Learning Outcomes

1. Knowledge and skills involved in anchoring and on-field reporting.
2. Developing presentation skills for broadcast media.
3. Learning voice modulation techniques for media.

Unit I **(15 hours)**

Introduction to Reporting and Anchoring

- Being a Reporter
- Being an Anchor
- Audience Segmentation and Research
- Ethics, Values and Responsibilities

Unit II **(18 hours)**

Types and Techniques of Reporting

- Techniques of Newsgathering
- News Reporting: Legal, Culture, Politics, Sports, Education, Entertainment
- Reporting from the Field: Vox Pop, Piece to Camera
- Television Interview

Unit III **(15 hours)**

Elements of Anchoring

- Facing the Camera: Voice, Gesture, Dress Code
- News and Talk Show; Host and Moderator
- Voice and the Microphone: Breathing, Articulation, Pitch, tone, intonation, inflection, fluency
- Discreet Anchoring, Legal pitfalls

References

Essential Readings

- White, T. (2012). *Broadcast news writing, reporting, and producing*. New York: Routledge.
- Reardon, N., Flynn, T. (2014). *On camera: How to report, anchor & interview*. New York & London: Taylor & Francis.
- Stephens, K., & Sidlow, F. M. (2022). *Broadcast news in the digital Age: A guide to reporting, producing and anchoring online and on TV*. New York and London: Taylor & Francis.
- Yorke, I. (2017). *Television news.* London: Routledge.

Additional Resources:

Suggested Readings

- Hinz, E. R. (2001). *The complete book of anchoring and mooring.* Maryland: Cornell Maritime Press.
- Schultz, B. (2005). *Broadcast news producing*. New Delhi: SAGE Publications.
- Yorke, I., Alexander, R. (2013). *Television news*. London and New York: Taylor & Francis.
- Zettl, H., (2006). *Television production handbook* (pp. 74-75). Boston: Thomas Wadsworth.

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

SEMESTER-V
(B.A. Honours in Multi Media and Mass Communication)

DISCIPLINE SPECIFIC CORE COURSE – DSC – 13 MEDIA PSYCHOLOGY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC - 13 Media Psychology	4	3	1	0	Class XII	Nil

Syllabus of DSC - 13

Course objectives

1. To acquaint students with the interface of media and psychology.
2. To understand and reflect on the human experience of media in terms of reciprocal effects and influences.
3. To illustrate the role of media, especially social media, as a tool of psychosocial cultural influence.
4. To explicate and critically reflect on the role of technology in creating the human experience of media.

Course Learning outcomes

1. Use psychological concepts, theories and research to make sense of the human experience of media.
2. Understand how media and new media constructs social reality.
3. Critically reflect on their experience of being the audience and consumers of media.
4. Identify how there exists a reciprocal influence between motivations and emotions and consumption and creation of media content

Unit 1 **(15 hours)**

Interface of Psychology and Media

- Introduction to Media Psychology: Key Concepts and Theories
- How Fantasy becomes Reality: Understanding Media Influence, Challenges and Opportunities of Living in a Media Saturated World
- Being the audience: Para-social Interaction, Celebrity and Fandom
- Being Critical Consumers of Media: Media Literacy

Unit 2 **(18 hours)**

Psychological Effects and Influences of Media

- Media Influences on Prosocial and Antisocial Behaviour
- Body Image, Eating Disorders and Media
- Media and Image Building: Representation of Social Groups in Media (Women, Ethnic Minorities, Disability etc.)
- Social Psychology of Political Coverage

Unit 3 **(15 hours)**

Human Experience of Media and Role of Technology

- Jean Baudrillard's Perspective on Impact of Media Technology
- Marshall Mc Luhan's Perspective on Impact of Media Technology
- Expressing of Self and Identity on Social Media
- Severe Dependence on Media Technology: Media Addiction

Essential Readings

- Dill, K. E. (2009). *How fantasy becomes reality: Seeing through media influence.* New York: Oxford University Press.
- Dill, K. (Ed.). (2013). *Oxford Handbook of Media Psychology.* New York: Oxford University Press.
- Giles, D. (2003). *Media psychology*. New York: Routledge.
- McLuhan, M. (2001). *Understanding media: The extensions of man.* London: Routledge.
- Merrin, W. (2005). *Baudrillard and the media: A critical introduction*. Polity. Cambridge: UK.

Additional Resources:

Suggested Readings

- Giles, D. (2010). *Psychology of the media.* Macmillan International Higher Education.
- Joinson, A. McKenna, K. Y. A.Postmes, T. & Reips, U.-D. (Eds.). (2007). *The oxford handbook of internet psychology.* Oxford: Oxford University Press.
- Mc Mahon, C. (2019). *The psychology of social media.* New York: Routledge.

E-resources

- Killing us Softly 4 (2010) by Jean Kilbourne
- The Social Dilemma (2020) by Orlowski, Davis Coombe, and Vickie Curtis

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

DISCIPLINE SPECIFIC CORE COURSE – DSC 14- ADVERTISING AND BRAND MANAGEMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-14 Advertising and Brand Management	**4**	**2**	**0**	**2**	**Class XII**	**Nil**

Syllabus of DSC-14

Course Objectives

1. To introduce the students to the concepts and principles of Advertising and Brand Management.
2. To understand the integration of various promotional tools in the present demand of the market.
3. To familiarize student with the concepts of market, audience, product and brand.
4. To enable to design seamless brand communication across various mass media platforms.

Course Learning Outcomes

1. Learning to define Advertising and Brand Communication and its components.
2. Understand the advertisement as a mode of communication.
3. Capacity to create an advertisement.
4. Capacity to plan and design an Advertising campaign.

Unit 1 **(10 hours)**

What is Brand Management?

- Brand Identity and Brand Equity
- Brand Elements and Positioning
- Building Brands Over Time
- Brand and the Digital World

Unit 2 **(10 hours)**

The Advertisement

- Role of Advertising in Brand Management
- The Advertising Agency: Structure and Role
- The Marketing Mix
- Theories and Models: AIDA Model, DAGMAR Model, Maslow's Hierarchy of Needs

Unit 3 **(12 hours)**

Strategic Planning

- The Process of Planning an Ad Campaign
- Consumer Behaviour
- Components of an Ad
- Market: Consumer Segmentation, SWOT Analysis and Positioning

Practical:

Creating an Advertising Campaign

References

Essential Readings

- Aaker, D. (2015). *Aaker on branding: 20 Principles That Drive Success*, New Delhi: SAGE publications.
- Belch, E. G. (2020). *Advertising and promotion: An integrated marketing communications perspective*, New York: McGraw-Hill Education.
- Bhatia, K.T. (2007). *Advertising and marketing in rural India,* New Delhi: Macmillan India Ltd.
- Clifton, R., & Simmons, J. (2011). *Brands and branding*, London: Profile Books Ltd.
- Goffman, E. (1987). *Gender advertisements*. New York: Harper & Row.
- Haig, M. (2008). *Brand failures*, New York: Kogan Page.
- Halve, A. (2005). *Planning for power advertising: A user's manual for students and practitioner*s, New Delhi: SAGE Publications.
- Halve, A. (2012). *Darwin's brands, adapting for success*, New Delhi: SAGE Publications.
- Isaac, C. Jacob K. Lane K. Vanitha, S. & Parameswaran, M. G. A. (2020). S*trategic brand management*, New Delhi: Pearson Education.
- Jethwaney, J., & Jain, S.(2011). *Advertising management, (2nd edition)*, New Delhi: Oxford University Press.
- Kapferer, J. N. (2009). *Strategic brand management- creating & sustaining brand equity*, New York: Kogan Page.
- Kumar, S. R. & Krishnamurthy, A. (2020). *Advertising, brands and consumer behaviour: The Indian context,* New Delhi: SAGE Publications.
- Lepla, & Joseph, F. (2002). *Integrated branding*, New York: Kogan Page.
- Loken, B., et.al. (2010). *Brands and brand management, contemporary research perspectives*, London: Psychology Press.
- Marieke, De M. (2011). *Consumer behavior and culture: Consequences for global marketing & advertising*, New Delhi: SAGE Publications.
- McGuigan, J. (2014). Advertising – the magic system (1960/1969). In *Raymond Williams on culture & society: Essential writings* (pp. 57-84). New Delhi: SAGE Publications Ltd, https://dx.doi.org/10.4135/9781473914766.n4
- Melissa, D. (2009). *The fundamentals of branding*, New York: Ava Publications.
- Miles, Y., (2018). *Ogilvy on advertising in the digital age*, New York: Carlton Books.

- Monley, L., & Johnson, C. (2003). *Principles of advertising: A global perspective*, New York: Routledge.

Additional Resources:

Suggested Readings

- Aaker, D.(2018). *Creating signature stories: Strategic messaging that persuades, energizes and inspires*, New Delhi: Penguin Portfolio.
- Dayal, S. (2021). *Right between the ears: how to use brain science to build epic brands*, New Delhi: Penguin Portfolio.
- Dorothy & Cohen, (1988). *Advertising*, London: Scott. Forsmon and Co.
- Elliott, R. (2009). *Strategic advertising managemen*t, New York: Oxford University Press.
- Kevin, L. K. (2008). *Strategic brand management, (3rd edition)*, New York: Prentice Hall Financial Times.
- Kumar, N. (2009). *India's global powerhouses*, Harvard: Harvard Business Press.
- Martin, B. (2020). *Strategic brand management*, London: ED-Tech Press UK.
- Martin, L. (2005). *Brand sense*, New York: Kogan Page.
- Klein, N. (2009). *No logo: No space*, no choice, no jobs. Knopf Canada and Picador
- Cudson, M. (1993). *Advertising, The uneasy persuasion*, New York: Routledge.
- Steel, J. (2009). *Truth, lies and advertising: The art of account planning*, Michigan: Wiley.
- Ogilvy, D. (1997). *Ogilvy on advertising*, London: Prion Books.
- Valladares, J. (2005). *The craft of copywriting*, New Delhi: SAGE publications.
- Van, S.G. (2004). *Global brand strategy*. New York: Kogan Page.
- Vilanilam, J. V., & Verghese, A.K. (2012). *Advertising basics*, New Delhi: SAGE publications.

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

DISCIPLINE SPECIFIC CORE COURSE – DSC-15: Videography and Editing

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-15: Videography and Editing	4	0	0	4	Class XII	Nil

Syllabus of DSC-15

Course Objectives

1. To train students with hands-on skills using a video camera.
2. To help student understand different techniques of on-field production.
3. To familiarize student with techniques of video editing.
4. To give hands on training for lighting and other production equipment.
5. To help develop a visual narrative for video production.

Course Learning Outcomes

1. Familiarity with the elements of a video camera and techniques of their usage.
2. Hands-on training with production equipment.
3. Skill acquisition of lighting and editing for video production.
4. Production of a Video Clip.

Unit 1 **(20 Hours)**

Video Camera

- Video Camera, Working, Types and Operating Techniques
- Types of Lenses, Focus and Resolution
- Cinematography: Camera Perspective, Angle, Composition, Continuity, Cutting and Close-Up, Shots and Movements
- Ethical Issues and Privacy Concerns

Unit 2 **(24 Hours)**

Production Techniques and Lighting

- Video Recording Formats: Analog and Digital, Broadcast Standards
- Single Camera Production: Filming Techniques, Dubbing
- Fundamental Lighting Concepts, Types of Lights
- Lighting Procedures, Lighting Objectives

Unit 3 **(20 Hours)**

Post Production

- Video Editing: Concept and Process
- Types of Video Editing: Linear, Non-Linear and Online, Offline
- Techniques of Video Editing: Continuity and Montage, Kuleshov Experiment,
- Use of Graphics, Filters and Effects

Practical:

Production of a Video Clip

References

Essential Readings

- Belavadi, V. (2013). *Video production.* New Delhi: Oxford University Press.
- Jackman, J. (2017). *Lighting for digital video and television.* Oxford: CRC Press.
- Millerson, G., & Millerson, G. (1999). *Television production*. Oxford: Focal Press,13 edition.
- Zettl, H. (2015). *Television production handbook.* Stamford: Wadsworth Cengage Learning.
- Landau, D. (2014). *Lighting for cinematography: A practical guide to the art and craft of lighting for the moving image.* United Kingdom: Bloomsbury Academic.
- Millerson, G. (2016). *Effective TV production.* United Kingdom: Taylor & Francis Group.

Additional Resources:

Suggested Readings

- Donald, R., et al. (2000). *Fundamentals of television production.* New Jersey: Wiley—Blackwell.
- Gupta, R. G. (2010). *Audio and video systems: Principles, maintenance & troubleshooting.* New Delhi: Tata McGraw-Hill.
- Mercado, G. (2022). *The filmmaker's eye: Learning (and Breaking) the Rules of Cinematic Composition.* United Kingdom: Routledge.
- Hall, B. (2015). *Understanding cinematography.* United Kingdom: Crowood Press

E-Resources

- Videomaker (2019). Video courses and educational articles retrieved from http://www.videomaker.com
- Mediacollege (2019). Video, camera and tutorials. Retrieved from www.mediacollege.com/video/camera/tutorials

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE 3- GENDER AND MEDIA

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE 3- Gender and Media	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Syllabus of DSE 3

Course Objectives

1. Acquainting students with the key concepts and debates within the paradigm of media, gender and patriarchy.
2. Understanding of the intersectional impact of sex, gender, race, class, sexuality, age, ethnicity, ability, and other complex aspects of identities and how they influence social structures and women's empowerment.
3. Understanding of the role and impact of gender on media organisations, occupational segregation, hierarchy and labour.

Course Learning Outcomes

1. Critically exploring debates around gendered-identities and intersectionality on contemporary media and digital culture.
2. Ability to examine a range of media texts, including film, TV programmes and magazines as well as digital media within the gendered performances.
3. Ability to analyse the portrayal and normalising of gender roles in popular Hindi Film Clips.

Unit 1 **(15 Hours)**

Media Organisations and Gender

- Profile of Media Organisations
- Occupational Segregation
- Gender Debate: Hierarchy, Equity, Labour, Visibility, Techno-cultures
- Sexual Harassment and Organisational Grievance Redressal

Unit 2 **(15 Hours)**

Intersectionalities

- Patriarchy, Gender and Sexuality
- Representations of women
- Representations of Masculinities
- Representations of LGBTQ+

Unit 3 **(18 Hours)**

Clips from Popular Hindi Cinema: Some Case Studies

- Dilwale Dulhania Le Jayenge
- Kuch Kuch Hota Hai
- Aligarh
- Chennai Express
- Chandigarh Kare Aashiqui

References

Suggested Readings

- Beechey, V. (1979). On patriarchy. *Feminist Review*, *3*(1), 66-82.
- Byerly, C. M., & Ross, K. (2008). *Women and media: A critical introduction*. Blackwell Publishing: John Wiley & Sons.
- Chakravarti, U. (1993). Conceptualising Brahmanical patriarchy in early India: Gender, caste, class and state. *Economic and Political Weekly*, 579-585.
- Malhotra, A., Vanneman, R., & Kishor, S. (1995). Fertility, dimensions of patriarchy, and development in India. *Population and development review*, 281-305.
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- Hamilton, J. B., Knouse, S. B., & Hill, V. (2011). Online activism for a heterogeneous time: The Pink Chaddi Campaign and the social media in India. *Building and strengthening communities and social networks*, *27*(2), 63.
- Ladner, K. L. (2009). Gendering decolonisation, decolonising gender. *Australian indigenous law review*, *13*(1), 62-77.

Additional Resources

Suggested Readings

- Bhandari, I. K. (2018). Commodification of Women body in Indian media. *International journal of research and analytical reviews (IJRAR)*, *5*(3).
- Dasgupta, S., Sinha, D., & Chakravarti, S. (2011). *Media, gender, and popular culture in India: Tracking change and continuity*. SAGE Publishing India.
- Grosu-Rădulescu, L. M. (2016). Objectification of women and violence in what the body remembers. *Rupkatha journal on interdisciplinary studies in humanities*, *8*(1), 86-96.
- Gupta, B. (2021). An Analysis of the socio-legal framework around objectification of women in India. *Journal of humanities and social sciences studies*, *3*(1), 07-23.
- Griffin, M., Viswanath, K., & Schwartz, D. (1994). Gender advertising in the US and India: Exporting cultural stereotypes. *Media, culture & society*, *16*(3), 487-507.
- Gupta, V. K., Turban, D. B., & Pareek, A. (2013). Differences between men and women in opportunity evaluation as a function of gender stereotypes and stereotype activation. *Entrepreneurship theory and practice*, *37*(4), 771-788.

- Kathpalia, S. S. (2019). Redefining gender stereotypes in Indian English TV advertising. *World englishes*, *38*(3), 486-499.
- Fatehkia, M., Kashyap, R., & Weber, I. (2018). Using Facebook ad data to track the global digital gender gap. *World development*, *107*, 189-209.
- Kuroda, R., Lopez, M., Sasaki, J., & Settecase, M. (2019). The digital gender gap. *Policy brief prepared for W20 Japan, EY-GSMA*.
- Sambaraju, R. (2020). “I would have taken this to my grave, like most women”: Reporting sexual harassment during the# MeToo movement in India. *Journal of social issues*, *76*(3), 603-631.
- Pegu, S. (2019). MeToo in India: building revolutions from solidarities. *Decision*, *46*(2), 151-168.

E-Resources

- Thomas, J (2018, May 8). "Women in Media: Power and Struggle,"Newslaundry, [Online: Web] URL:https://www.newslaundry.com/2018/05/04/women-media-gender-bias-power-indian-newsrooms-male-editors
- Yale Courses (2009, September 9) ."The Classical Feminist Tradition,"[Video File]. Retrieved from https://www.youtube.com/watch?v=wxZDA3M2lOM

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

COMMON POOL OF GENERIC ELECTIVES (GE) COURSES OFFERED BY THE DEPARTMENTS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

GENERIC ELECTIVES (GE-5): THEATRE AND COMMUNICATION

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
GE:5 Theatre and Communication	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Syllabus of GE-5

Course Objectives

1. To promote the cultural and sociological understanding of theatre as a medium of communication.
2. To situate theatre as a flourishing medium of socio-political commentary.
3. To cover ground through watershed historical moments of Western and Indian Theatre
4. To impart practical training in different aspects of production and design essential to staging a play.

Course Learning Outcomes

1. Define theatre as a tool of mass communication.
2. Understand the significance of locales and the audience.
3. Understand various theatrical tools and techniques as communication strategies.
4. Utilize the knowledge gained in conceptualising a theatrical production as communication.

Unit 1 **(15 hours)**

Theatre and the Public

- Orality and Performance: Speech, Song, Dance, Visual Effects
- Entertainment and Information: Jatra, Bahrupiya, Nautanki
- Theatre as Subversion: Colonial Rule and the Dramatic Performances Act of 1876
- Theatre as Resistance: Devising and Writing a script

Unit 2 **(15 hours)**

Locales and Spectators

- The Theatre and its Architectonics: Classical Greek, Modern
- The Making of the Stage: Theatre of the Marketplace to the Proscenium stage
- The People's Stage: Commedia dell'Arte
- The Street Corner: Nukkad Natak
- Designing a Set

Unit 3 **(18 hours)**

Theatrical Techniques as Communication

- Brecht's Alienation Effect
- Dario Fo's Act III
- The Mask in Classical Greek Drama
- Bibek in the Jatra of Bengal
- The Chorus
- The Sutradhar
- The Vidushak and Shakespeare's Clown
- Performing a Scene

References

Essential Readings

- Amodio, M. C. (2004). *Writing the oral tradition: Oral poetics and literate culture in medieval England*. Notre Dame: University of Notre Dame Press.
- Bauman, R. (1986). *Story, performance and event: Contextual studies of oral narrative*. New York: Cambridge University Press.
- Brecht, B. (2010). *A short organum for the theatre, Approaches in literary theory: Marxism.* (Ed.) Anand Prakash. New Delhi: Worldview Publications.
- Emigh, J. (1996). *Masked performance: the play of self and other in ritual and theatre*. Philadelphia: University of Pennsylvania Press.
- Graham L. (2006). *A short introduction to the ancient reek theatre*. Revised Edition. Chicago: The University of Chicago Press
- Hansen, K. (1992). *Grounds for play: The nautanki theatre of North India.* Berkeley: University of California Press.
- Leach, R. (2008). *Theatre studies*: *The basics.* London: Routledge.

Additional Resources:

Suggested Readings

- Bloom, H. (ed.). (2004) *Elizabethan drama*. New York: Chelsea House.
- Chaffee, J. & Crick, O. (ed.) (2015). *The Routledge companion to commedia dell' arte*. London: Routledge.
- Dundes, A. (ed.). (1965). *The study of folklore. Englewood Cliffs*, NJ: Prentice Hall.
- McDonald, M., & Walton, J. (ed.). (2007) *The Cambridge companion to reek and roman theatre*. New York: Cambridge University Press.
- Minchin, E. (2011). *Orality, literacy and performance in the ancient world.* Leiden: Brill Academic Publishers.
- Thorne G. (1999). *Stage design: A practical guide*. Ramsbury, Wiltshire: Crowood Press.

Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

SEMESTER -VI

(B.A. Honours in Multi Media and Mass Communication)

DISCIPLINE SPECIFIC CORE COURSE – DSC – 16 GLOBAL POLITICS AND MEDIA

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC - 16 Global Politics and Media	**4**	**3**	**1**	**0**	**Class XII**	**Nil**

Syllabus of DSC - 16

Course Objectives

1. To acquaint students with key trends and issues located at the intersection of global politics and media.
2. To offer insights into key contemporary global issues and how they are entangled with the discourse of media.
3. To enable critical insights into the interplay of globalisation and media through broader theoretical frameworks.

Course Learning Outcomes

1. Critically engage with various socio-economic and political global media issues.
2. Explain the changing trends in global information flow and concept of network society.
3. Describe the global communication system during and post-world wars, terrorism events, conflict reporting and manufacturing consent.
4. Utilize knowledge gained to analyse major global media conglomerates and trends during migration, censorship and technology growth.
5. Understand media technology in the context of case studies of global crisis and events.

Unit 1

Media, Politics, and Globalisation **(15 hours)**

- Relationship between Politics and Media
- Media and the Global Market: Media Conglomerates, Monopolies and Oligopolies
- Network Society: Information Society, Network Service Economy, Movement of Intangibles
- Media Imperialism, Globalisation and the Culture Industry

Unit 2 **(18 hours)**

Global Crises and the Media- Case Studies

- World War II
- The Gulf Wars: CNN Factor, Embedded Journalism
- Terrorism and Media: 9/11, 26/11
- Big Data Mining and Deployment in Electoral Process: Cambridge Analytica

Unit 3 **(15 hours)**

Global Media Initiatives

- Regional Initiatives: Al-Jazeera
- Panama and Pandora Papers
- Peace Journalism
- Hacktivism, Wikileaks

References

Essential Readings

- Daya K. T., & Des F. (2003). *'Introduction' in Daya Kishan Thussu and des freedman, war and the media: Reporting conflict 24/7*, New Delhi: Sage
- Francesca, O. (2015). Dil Maange More: Cultural Contexts of Hinglish in Contemporary India, *African studies*, 74(2):199-220.
- Kak, A.U. (2018). 'Cambridge Analytica and the Political Economy of Persuasion', *Economic and political weekly*, 53(21): 23-36
- Keinonen, H. (2016). Television Formats as Cultural Negotiations: Studying Format Appropriation Through A Synthesizing Approach. *Journal of European television history & culture,* 5(9):6-15
- Lukes, S. (1974) *Power: A Radial View*, London: Macmillan.
- Manfred, S. (2003) *Globalisation: A very short introduction*, Oxford: Oxford University Press
- Street, J. (2010*). Power and mass media: Mass media, politics and democrac*y. London: Macmillan.

Additional Resources:

Suggested Readings

- Coyer, K. (2007). *The alternative media handbook,* London: Routledge.
- Engstrom, E. (2008). Unravelling the Knot: Political Economy and Cultural Hegemony in Wedding Media. *Journal of communication inquiry* 32(1):60-82.
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Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

DISCIPLINE SPECIFIC CORE COURSE – DSC-17 PUBLIC RELATIONS AND CORPORATE COMMUNICATION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-17 Public Relations and Corporate Communication	**4**	**2**	**0**	**2**	**Class XII**	**Nil**

Syllabus of DSC-17

Course Objectives

1. To understand the concepts of public relations and corporate communication.
2. To take the students through the role and scope of PR in management.
3. To acquaint student with the concepts of public opinion and persuasion.
4. To look at the elements of corporate communication and its role in marketing communication.

Course Learning Outcomes

i. Learning to define public relations and its components.
ii. Understand the difference between public relations and corporate communication.
iii. Capacity to create an PR and corporation communication strategies.
iv. Capacity to plan and design a campaign.

Unit 1 **(12 hours)**

Understanding Public Relations

- Define Public Relations: Definitions and Functions
- The PR Process: Research, Strategy, Measurement, Evaluation and Impact
- Defining Publics and Stakeholders
- Laws and Ethics in PR

Unit 2 **(10 hours)**

PR Practice and Process

- Public Opinion and Persuasion as a PR Skill
- PR as a Source of News, Media Tracking
- Public Affairs, PR in Social Sector
- Modes of Public Relations

Unit 3 **(10 hours)**

Corporate Communication

- Corporate Communication: Definition and Function
- Crisis Communication
- Corporate Reputation Management and Corporate Identity
- Corporate Social Responsibility and Sustainable Development

Practical:

Developing a Public Relations/ Crisis Communication Campaign.

References

Essential Readings

- Argenti, P. A. (2013). *Corporate communication*. Spain: McGraw-Hill Higher Education.
- Coleman, A. (2020). *Crisis communication strategies: How to prepare in advance, respond effectively and recover in full*. New York: Kogan Page.
- Gregory, A. (2008). *Public relations in practice*, (2nd edition), New York: Kogan Page
- Jethwaney, J. (2018). *Corporate communication: Principles and practice*. New Delhi: SAGE.
- Jethwaney, J. (2016). *Social sector communication in India: concepts, practices, and case studies*. New Delhi: Sage.
- Jethwaney, J., & Sarkar, N. N.(2015). *Public relations management*, New Delhi: Sterling Publishers.
- Kotler, P., & Lee, N. (2011). *Corporate social responsibility: Doing the most good for your company and your cause*. W. Ross MacDonald School Resource Services Library.
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- Field, J. (2021). *Influential internal communication: Streamline your corporate communication to drive efficiency and Engagement*. New York: Kogan Page.
- Parsons, P. J. (2005). *Ethics in public relations*: *A guide to best practice*, New York: Kogan Page.
- Smith, D. R. (2012). *Becoming a public relations writer*, (4th edition), London: Routledge.
- Theaker, A., & Yaxley, H. (2013). *The public relations strategic toolkit*, London: Routledge.

Additional Resources:

Suggested Readings

- Black, S., & Sharpe, M. L. (1999). *Practical public relations*. Universal Book Stall, New Delhi.
- Cutlip, S. M. (1962). *Effective public relations*. New Delhi: Pearson Education.
- Danny, M., & Desanto, B. (2011). *Public relations: A managerial perspective*, SAGE.

- Henry, R. A. (2000). *Marketing public relations: The hows that make it work*. Iowa State Press.
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Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

DISCIPLINE SPECIFIC CORE COURSE – DSC-18 STUDIO PRODUCTION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-18: Studio Production	4	0	0	4	Class XII	Nil

Syllabus of DSC-18

Course Objectives

1. To train students with hands-on skills using a video camera.
2. To help student understand different techniques of on-field production.
3. To familiarize student with techniques of video editing.
4. To give hands on training for lighting and other production equipment.
5. To help develop a visual narrative for video production.

Course Learning Outcomes

1. Familiarity with the elements of a video camera and techniques of their usage.
2. Hands-on training with production equipment.
3. Skill acquisition of lighting and editing for video production.
4. Production of a Video Clip.

Unit 1

Video Camera **(20 hours)**

- Video Camera, Working, Types and Operating Techniques
- Types of Lenses, Focus and Resolution
- Cinematography: Camera Perspective, Angle, Composition, Continuity, Cutting and Close-Up, Shots and Movements
- Ethical Issues and Privacy Concerns

Unit 2

Production Techniques and Lighting **(24 hours)**

- Video Recording Formats: Analog and Digital, Broadcast Standards
- Single Camera Production: Filming Techniques, Dubbing
- Fundamental Lighting Concepts, Types of Lights
- Lighting Procedures, Lighting Objectives

Unit 3 **(20 hours)**

Post Production

- Video Editing: Concept and Process
- Types of Video Editing: Linear, Non-Linear and Online, Offline
- Techniques of Video Editing: Continuity and Montage, Kuleshov Experiment,
- Use of Graphics, Filters and Effects

Practical:

Production of a Video Clip

References

Essential Readings

- Belavadi, V. (2013). *Video production.* New Delhi: Oxford University Press.
- Jackman, J. (2017). *Lighting for digital video and television.* Oxford: CRC Press.
- Millerson, G., & Millerson, G. (1999). *Television production*. Oxford: Focal Press,13 edition.
- Zettl, H. (2015). *Television production handbook.* Stamford: Wadsworth Cengage Learning.
- Landau, D. (2014). *Lighting for cinematography: A practical guide to the art and craft of lighting for the moving image.* United Kingdom: Bloomsbury Academic.
- Millerson, G. (2016). *Effective TV production.* United Kingdom: Taylor & Francis Group.

Additional Resources:

Suggested Readings

- Donald, R., et al. (2000). *Fundamentals of television production.* New Jersey: Wiley—Blackwell.
- Gupta, R. G. (2010). *Audio and video systems: Principles, maintenance & troubleshooting.* New Delhi: Tata McGraw-Hill.
- Mercado, G. (2022). *The filmmaker's eye: Learning (and Breaking) the Rules of Cinematic Composition.* United Kingdom: Routledge.
- Hall, B. (2015). *Understanding cinematography.* United Kingdom: Crowood Press

E-Resources

- Videomaker (2019). Video courses and educational articles retrieved from http://www.videomaker.com
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Assessment Method

- Evaluation scheme and mode will be as per the guidelines notified by University of Delhi.

DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE 4- MEDIA MOMENTS IN HISTORY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE 4- Media Moments in History	4	3	1	0	Class XII	Nil

Syllabus of DSE 4

Course Objectives

1. The understanding of how media creates, filters and juxtaposes political reality of historic events is necessary to sharpen the intellectual acumen of students.
2. Enabling the students to understand critique and debate about the historic media moments. It will help them to understand the subtle yet significant relationship between media and gender/caste/rural societal discourses prevalent in the current era.
3. Ability to research on a particular historic media moment, analyse its impact and reach, while debating about the various ways in which it changed the fluid political discourse.

Course Learning Outcomes

1. Understanding the significance of a historic media moment in its political and socio-cultural context.
2. Critical evaluation of the role played by media in creating, filtering and manufacturing the prevalent political reality.
3. Analysis of the role played by media in rural/urban divide along with gender and caste based hierarchy that functions within the system.
4. Understanding the relationship between historical moments, societal hegemonic trends and media impact.

Unit 1

Historical Perspectives **(15 Hours)**

- Technology and Mass Media Transmissions
- The Printing Press
- Radio
- Camera: Photograph, Film

Unit 2 **(15 Hours)**

Defining Moments- India

- Dandi March
- Partition
- ‘Tryst with Destiny'
- 83 World Cup
- 26/11 Mumbai Attacks

Unit 3
Defining Moments- Global **(18 Hours)**

- Fall of Berlin Wall
- Hiroshima and Nagasaki: The Mushroom Cloud
- The Apollo 11 Lunar Landing
- 9/11 Twin Tower Attacks
- HAM Radio World War II
- Churchill's Speech
- Bombing of Baghdad

References

Essential Readings

- Blumler, J., & Coleman, S. (2015) Democracy and the Media—Revisited, Javnost - *The public*, 22(2): 111-128, Retrieved from DOI: 10.1080/13183222.2015.1041226
- Brummett, B. (1980) Towards a theory of silence as a political strategy. *Quarterly journal of speech* 66(3): 289-303, Retrieved from DOI: https://doi.org/10.1080/00335637509383294
- Entman, R. (2000). *Mediated politics: Communication in the future of democracy*. Cambridge: Cambridge University Press
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- Kraidy, M. (2016). The Naked Blogger of Cairo. Harvard: Harvard University Press

Additional Resources:

Suggested Readings

- Cimino, R., & Smith, C. (2007). Secular Humanism and Atheism beyond Progressive Secularism. *Sociology of religion*, 68(4), 407-424. Retrieved from http://www.jstor.org/stable/20453183
- Frank, A.G., (1977). Emergence of Permanent Emergency in India. *Economic and Political Weekly.* 12(11): 463-475
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- Mitchell, D.S., (2016, November 8). History of Berlin Wall- An Amazing Documentary. [Video File]. Retrieved from https://www.youtube.com/watch?v=myW1Padwxqk
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- Rajya Sabha TV, (2018, June 26). In-depth: The emergency. [Video File]. Retrieved from https://www.youtube.com/watch?v=mevPEZ4G9WQ

Assessment Method

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COMMON POOL OF GENERIC ELECTIVES (GE) COURSES OFFERED BY THE DEPARTMENTS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

GENERIC ELECTIVES (GE-6): EXPLORING HINDI CINEMA

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
GE:6 Exploring Hindi Cinema	4	3	1	0	Class XII	Nil

Syllabus of GE-6

Course Objectives

1. To promote the cultural and sociological understanding of theatre as a medium of communication.
2. To situate theatre as a flourishing medium of socio-political commentary.
3. To cover ground through watershed historical moments of Western and Indian Theatre
4. To impart practical training in different aspects of production and design essential to staging a play.

Learning Outcomes

1. Define theatre as a tool of mass communication.
2. Understand the significance of locales and the audience.
3. Understand various theatrical tools and techniques as communication strategies.
4. Utilize the knowledge gained in conceptualising a theatrical production as communication.

Unit 1 **(15 hours)**

Theatre and the Public

- Orality and Performance: Speech, Song, Dance, Visual Effects
- Entertainment and Information: Jatra, Bahrupiya, Nautanki
- Theatre as Subversion: Colonial Rule and the Dramatic Performances Act of 1876
- Theatre as Resistance: Devising and Writing a script

Unit 2 **(15 hours)**

Locales and Spectators

- The Theatre and its Architectonics: Classical Greek, Modern
- The Making of the Stage: Theatre of the Marketplace to the Proscenium stage
- The People's Stage: Commedia dell'Arte
- The Street Corner: Nukkad Natak
- Designing a Set

Unit 3 **(18 hours)**

Theatrical Techniques as Communication

- Brecht's Alienation Effect
- Dario Fo's Act III
- The Mask in Classical Greek Drama
- Bibek in the Jatra of Bengal
- The Chorus
- The Sutradhar
- The Vidushak and Shakespeare's Clown
- Performing a Scene

References

Essential Readings

- Amodio, M. C. (2004). *Writing the oral tradition: Oral poetics and literate culture in medieval England*. Notre Dame: University of Notre Dame Press.
- Bauman, R. (1986). *Story, performance and event: Contextual studies of oral narrative*. New York: Cambridge University Press.
- Brecht, B. (2010). *A short organum for the theatre, Approaches in literary theory: Marxism.* (Ed.) Anand Prakash. New Delhi: Worldview Publications.
- Emigh, J. (1996). *Masked performance: the play of self and other in ritual and theatre*. Philadelphia: University of Pennsylvania Press.
- Graham L. (2006). *A short introduction to the ancient reek theatre*. Revised Edition. Chicago: The University of Chicago Press
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- Leach, R. (2008). *Theatre studies*: *The basics.* London: Routledge.

Additional Resources:

Suggested Readings

- Bloom, H. (ed.). (2004) *Elizabethan drama*. New York: Chelsea House.
- Chaffee, J. & Crick, O. (ed.) (2015). *The Routledge companion to commedia dell' arte*. London: Routledge.
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- McDonald, M., & Walton, J. (ed.). (2007) *The Cambridge companion to reek and roman theatre*. New York: Cambridge University Press.
- Minchin, E. (2011). *Orality, literacy and performance in the ancient world.* Leiden: Brill Academic Publishers.
- Thorne G. (1999). *Stage design: A practical guide*. Ramsbury, Wiltshire: Crowood Press.

Assessment Method

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REGISTRAR