RAJASTHAN TECHNICAL UNIVERSITY

KOTA

REVISED SCHEME & SYLLABUS

OF

FIRST YEAR

MBA

(EFFECTIVE FROM THE SESSION: 2020-21)

MBA

WITH DUAL SPECIALIZATION

IN

MARKETING

HUMAN RESOURCE

FINANCE

OPERATIONS & SUPPLY CHAIN

INFORMATION SYSTEMS

BUSINESS ANALYTICS

SCHEME OF MBA PROGRAM

1. The Master of Business Administration (MBA) is 4 semesters program. The Program structure and credits for MBA have been taken as per AICTE guidelines and model Scheme based on the stakeholders needs and general structure of the program.

2. Minimum number of classroom contact teaching credits for MBA is 96 credits and field work/ internship of 06 credits, thus the minimum number of credits for award of MBA course is 102 credits. Out of 96 credits, 54 credits are allotted for core courses and rest 42 credits for electives including laboratory work.

3. The following shall be the scheme for teaching and examination of MBA Course for academic session 2020-21. The teaching scheme is given in terms of number of sessions for a course/lab work. Each session is of 90 minutes. There will be 5 days teaching in a week.

FIRST SEMESTER MBA TEACHING SCHEME

SN	Course Type	Paper Code	Paper Title	No of Sessions		Credits	Internal	External	Total
				Per Semester	Per Week				
1	PCC	M-101	Fundamentals of Management	24	2	3	30	70	100
2	PCC	M-102	Managerial Economics	24	2	3	30	70	100
3	PCC	M-103	Operations Management-I	24	2	3	30	70	100
4	PCC	M-104	Marketing Management	24	2	3	30	70	100
5	PCC	M-105	Information Technology for Managers	24	2	3	30	70	100
6	PCC	M-106	Organizational Behavior	24	2	3	30	70	100
7	PCC	M-107	Cost and Management Accounting	24	2	3	30	70	100
8	PCC	M-108	Business Statistics and Analytics for Decision Making	24	2	3	30	70	100
9	MCC	MCC	AUDIT COURSE	12	1	0	30	70	100*
10	REW	M-109	Seminar on Contemporary Issues	24	2	1	60	40	100
11	PCC	M-110	Data Analytics Lab.	24	2	1	60	40	100
12	PCC	M-111	Business Communication Lab.	24	2	1	60	40	100
13	SODECA		Social Outreach, Discipline & Extra Curriculum Activities	-			-	100	100
			Total for I Semester	276	23	27	420	780	1200

**Note: Marks of audit course will not be considered for credit purpose*

SECOND SEMESTER MBA TEACHING SCHEME

SN	Course Type	Paper Code	Paper Title	No of Sessions		Credits	Internal/ Minimum Marks	External/ Minimum Marks	Total
				Per Semester	Per Week				
1	PCC	M-201	Legal and Business Environment	24	2	3	30	70	100
2	PCC	M-202	Corporate Strategy	24	2	3	30	70	100
3	PCC	M-203	Quantitative Techniques	24	2	3	30	70	100
4	PCC	M-204	Financial Management	24	2	3	30	70	100
5	PCC	M-205	Human Resource Management	24	2	3	30	70	100
6	PCC	M-206	Marketing Research	24	2	3	30	70	100
7	PCC	M-207	Operations Management- II	24	2	3	30	70	100
8	PCC	M-208	New Enterprise and Innovation Management	24	2	3	30	70	100
9	MCC		AUDIT COURSE	12	1	0	30	70	100*
10	REW	M-209	Mini-Project	24	2	1	60	40	100
11	PCC	M-210	Business Ethics Lab.	24	2	1	60	40	100
12	PCC	M-211	Managérial Computing Lab.	24	2	1	60	40	100
13	SODECA		Social Outreach, Discipline & Extra Curriculum Activities	-			-	100	100
			Total for II Semester	276	23	27	420	780	1200

**Note: Marks of audit course will not be considered for credit purpose*

4. The first year of the MBA Program provides the incoming students, a thorough grounding in the basic and functional disciplines and courses are delivered with managerial focus. The first-year courses in the core curriculum are common to all students, and are aimed at providing contextual understanding, conceptual knowledge, analytical skills, tools and techniques, social, cultural, and environmental sensitivity. This will enable them to enter any stream of management when they embark upon a career, regardless of the choice of specialization they make in the second year.

5. All first-year courses are compulsory. The duration of external examination for each paper would be 3 hours. The minimum passing marks in each course will be 40% in each individual component of internal and external separately. A student must obtain 50% marks in aggregate in individual course for qualifying and to obtain pass grade.

6. **Laboratory Work:**

6.1 M-109/M-110/M-210/M-211: There shall be regular assessment of students in which internal assessment would be done by the concerned teachers taking the lab. A batch of 60 students is to be divided into 4 groups of 15 students per group for conducting lab classes. Each group is assigned a teacher for conducting the lab and assessment of the students will be done by the teacher out of 60 marks. The assessment of 40 marks shall be done by the external examiner appointed by the Head of the department in consultation with Director/Principal of the college.

6.2 The sessional examination for M-109/M-110/M-210/M-211 shall be conducted at the end of semester before theory examinations and schedule shall be notified in the MBA timetable by the RTU.

7. The evaluation of academic performance is based on internal assessment of the following components The distribution of internal assessment marks will be:

SN	COMPONENT	MARKS
1	Term Test (Minimum two tests for each course)	10
2	Assignments/ Quiz/Case analysis	05
3	Project Work/ Term Paper	10
4	Class Participation and attendance	05
	TOTAL	30

8. A systematic record for the award of internal assessment marks shall be maintained in the department signed by the faculty member concerned and counter signed by the Head of the Department. This type of assessment shall be done for all the four semesters.

9. Seminar on Contemporary issues (M-109)

9.1 In first semester, the students are required to take seminar on contemporary issues. The faculty members will assign contemporary issues concerning with Indian Corporate sector like, merger & acquisition, current economic issues, global interface, stock market developments, new HR initiatives, recent trends in marketing trends etc, to the students.

9.2 The students will prepare seminar under guidance of faculty members allotted by the Director/ Principal /Head of Department of the institute. There will be regular internal assessment and regular classroom interactions as per the number of sessions allotted to it.

9.3 The student will submit written report of seminar work, prepared individually and shall make an oral presentation before a panel consisting of internal and external examiner (Preferably from Industry) appointed by Director/Principal/HOD. The assessment of 40 marks shall be done by the external examiner appointed by the Head of the department in consultation with Director/Principal of the college.

9.4 The average number of pages in the report shall be 40 and should be typed by student himself. The format of the report is to be provided to students by the institute.

10. Mini-Project (M-209)

10.1 The Student should be able to identify the issues and challenge of the industry and is able to prepare report on the application of emerging technologies in the selected industry.

10.2 In second semester, the students are required to take one industry as per his/her interest, for analysis and prepare a project report. Preference should be given on the application of emerging technologies in the selected industry.

10.3 The students will prepare project report under guidance of faculty members allotted by the Director/ Principal /Head of Department of the institute. There will be regular internal assessment and regular classroom interactions as per the number of sessions allotted to it.

10.4 The student will submit written report of project work, prepared individually, and shall make an oral presentation before a panel consisting of internal and external examiner (Preferably from Industry) appointed by Director/Principal/HOD. The assessment of 40 marks shall be done by the external examiner appointed by the Head of the department in consultation with Director/Principal of the college.

10.5 The average number of pages in the report shall be 40 and should be typed by student himself. The format of the report is to be provided to students by the institute.

11. Summer Training Work/Internship

11.1 Summer Training Project offers an opportunity to put learning into practice and it also serves as an important experiential channel for students to move towards finalizing their preferences on various specializations.

11.2 At the end of the second semester examination, it is mandatory for every student of MBA to undergo on-the-job practical training in any manufacturing, service or financial organization. The training will be of 6 to 8 weeks duration. The college/institute will facilitate this compulsory training for students.

11.3 During the training, the student is expected to learn about the organization and analyze and suggest solutions to a live problem. The objective is to equip the students with the knowledge of actual functioning of an organization and problems faced by them for exploring feasible solutions.

11.4 During the course of training, the organization (where the student is undergoing training) may assign a problem/project to the student.

11.5 The student, after the completion of training will submit a report to the College/Institute which will form part of the third semester examination. The report must be submitted by the end of September 30. The report (based on training and the problem/project studied) prepared by the student will be known as Summer Training Report. It should reflect in depth study of an organization where the student undergoes training.

11.6 One comprehensive chapter must be included about the organization where the student has undergone training. This should deal with brief history of the organization, its structure, performance products/services and problem faced. This chapter will form part 1 of the report. Part 2 of the report will contain the study of problem undertaken during training. The average size of report ordinarily will be of minimum 100 pages in standard font size (12) and double spacing. Two neatly typed (one sided only) and soft bound copies of the report will be submitted to the College/Institute. The report will be typed on A-4 size paper.

11.7 The report will have three certificates, one by the Head of the Department, another by the Faculty guide and third one from reporting officer of the organization where the student has undergone training. These three certificates should be attached in the beginning of the report.

11.8 The Summer Training Project Report carry 200 marks and will be evaluated by two examiners (external and internal). The evaluation will consist of (1) Project Report evaluation (2) Project Presentation and Viva Voce. The Project Report evaluation will comprise of 120 sessional marks and would be evaluated by internal project guide. The Presentation and Viva Voce would comprise of 80 marks and would be evaluated by two examiners (1 external and 1 internal).

11.9 The external examiner will be appointed by University from the panel proposed by BOS and approved by DEAN/HVC, RTU. The concerned institute will bear the travelling, remuneration, DA and other incidental expenditure of external examiner with recourse to RTU.

11.10 Only such person will evaluate the project report who has minimum three years of experience of teaching MBA classes in a College/University.

11.11 The parameters on which external evaluation would be carried out are as under:

Project Report External Evaluation: Evaluation Criteria						
SN		Unsatisfactory	Satisfactory	Good	Excellent	Score
		4	8	12	16	
1	Understanding of Objectives with topic					
2	Understanding of Reliance of topic					

3	Interpretation & Analysis					
4	Presentation					
5	Query handling					

11.12 It is mandatory that the student will make presentation in the presence of teachers and students. The student is expected to answer to the queries and questions raised in such a meeting.

11.13 The student shall prepare the Summer Training Report as per the format given in the Summer Training Manual as prescribed by the University

11.14 The students will also be required to submit a completed feedback form from these summer organizations.

12 The specialization once selected in third semester would continue in fourth semester also. The university shall offer following specialization in various functional areas:

A. Financial Management
B. Marketing Management
C. Human Resource Management
D. Operations and Supply Chain Management
E. Information Systems
F. Business Analytics

13 The credits of SODECA may be kept over and above the minimum number of credits for award of MBA course.

14 Audit Courses: In addition to the core and elective courses, students can take one audit course in each semester covering subjects of developing desired attitude among the learners. The enrolment in a such a course will permit a student to attend the without being evaluated for credit. These courses will be termed as MBA Common Courses.

MBA Common Courses (Audit Courses):	
SN	Course Title
1	English for Research Paper Writing
2	Disaster Management
3	Sanskrit for Technical Knowledge
4	Value Education
5	Constitution of India
6	Pedagogy Studies
7	Stress Management by Yoga
8	Personality Development through Life Enlightenment Skills
9	Indian Ethos and Business Ethics

RAJASTHAN TECHNICAL UNIVERSITY

KOTA

DETAILED SYLLABUS

OF

FIRST YEAR

MBA

WITH DUAL SPECIALIZATION
IN
MARKETING, HUMAN RESOURCE,
FINANCE, OPERATIONS & SUPPLY CHAIN,
INFORMATION SYSTEMS, BUSINESS ANALYTICS

EFFECTIVE FROM THE SESSION: 2020-21

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M-101: FUNDAMENTALS OF MANAGEMENT

OBJECTIVES
1. To familiarize students with the basic concepts, principles, and practices of management.
2. To gain an understanding of the historical development of management theories and the implications for the management of any organization.
3. To help students identify and imbibe the key competencies needed to be an effective manager and resolve any management problem when presented

LEARNING OUTCOMES:
1. Understand the history and concepts related to Business Management.
2. Demonstrate the roles, skills, and functions of management.
3. Apply knowledge of Principles and Practices of Management to diagnose and solve organizational problems and develop optimal managerial decisions.
4. Learn from the management practices of Business leaders, the art of management.

SECTION-A

UNIT	COURSE DESCRIPTION	SESSIONS
I	**Basic Concepts of Management:** Management an Overview- Concept, Functions, Scope and Significance of Management, Managerial Roles, Managerial Skills, Schools of Management Thought: Classical Perspective- Scientific Management, Administrative Management, Bureaucratic Management; Behavioral Perspective; Systems and Contingency Approach for understanding organizations.	4
II	**Contribution of Management Thinkers:** Kautilya, Peter Drucker, C.K. Prahlad and Herbert Simon.	3
III	**Fundamentals of Planning:** Essentials of Planning, Objectives, Strategies, Policies; Decision making.	3
IV	**Fundamentals of Organizing:** Organizing - Nature and purpose, Departmentation, Span of Management, Line and Staff authority, Centralization and Decentralization.	3
V	**Staffing:** Human resource Management and Selection, Selection Process, Techniques of Selection-Tests and Interviews.	2
VI	**Directing and Leading:** Effective Directing, Supervision, Leadership- Concept, Styles and Theories- Trait Theory, Behavioral Theories, Contingency Theories.	3
VII	**Controlling and Coordinating:** Control- Concept, Types and Process, Techniques of Controlling. Coordination- Concept, Importance, Principles and Techniques of Coordination.	2
VIII	**Management Practices of:** Dhirubhai Ambani, Narayan Murthy, Azim Premji, Ratan Tata, Steve Jobs, Bill Gates.	4

SECTION B

At least one Case study/Problem from each UNIT
Questions will be case/inferences/application based

PRACTICAL COMPONENT:

- Studying organizational structures of any 10 companies and classifying them into different types of organizations which are studied above and justifying why such structures are chosen by those organizations.
- Preparing the leadership profiles of any 5 business leaders and studying their leadership qualities.
- Conducting Role plays on each function of Management.
- Preparing presentations on management practices of business leaders.
- Assigning group tasks to be accomplished in stipulated time.

Note: Faculty can either identify the organizations / leaders or students can be allowed to choose the same.

BOOKS RECOMMENDED:

1 Weihrich, Heinz and Koontz, Harold. Management A Global and Entrepreneurial Perspective. McGraw Hill.
2 Koontz. Essentials for Management: An International Perspective. Tata McGraw-Hill.
3 Robbins, Stephen P., Decenzo, David, A. Essentials of Management. Pearson Education.
4 Bhat. Management: Principles, Processes and Practices. Oxford University Press.
5 PC Tripathi and PN Reddy, "Principles of Management", Tata McGraw-Hill, Fifth Edition.
6 Drucker, Peter. The Practices of Management. Allied Publishers.
7 James AF *Stoner*, R. Edward Freeman, Daniel R. Gilbert, "Management", Prentice Hall International.

LIST OF JOURNALS / PERIODICALS / MAGAZINES / NEWSPAPERS

1. Harvard Business Review
2. Vikalpa: The Journal of Decision Makers, Journal of IIM, Ahmedabad
3. SANKALPA: Journal of Management & Research
4. Business India / Business Today / Business World/Effective Executive

M-102:MANAGERIAL ECONOMICS

OBJECTIVES
1. To develop analytical skills related to economic theories in business contexts.
2. To analyze the demand and supply conditions and assess the position of a company.
3. To design competitive strategies according to the natures of products and the structures of the markets.
4. To formulate and apply the right economic tools for business decision-making.

LEARNING OUTCOMES:
1. Assess critically the main determinants of demand and supply of the firm.
2. Apply the tools of economic theory to explain optimal production and pricing decisions by the firm in each market structure.
3. Appraise emerging issues in economics at the national and international levels.

4. Analyze mechanism by which the total amount of resources possessed by a firmware allocated among alternative uses.

SECTION A

UNIT	COURSE DESCRIPTION	SESSIONS
I	Introduction to Managerial Economics: Managerial Economics: Meaning, Nature, Scope, & Significance. Relationship of Managerial Economics with Statistics.	3
II	Fundamental Concepts: Opportunity Costs, Incremental Principle, Time perspective, Discounting and Equi-Marginal principles. Theory of the Firm: Firm and Industry.	3
III	Demand and Supply Analysis: Theory and Law of Demand, Individual and Market Demand, Determinants of Demand, Concept of Elasticity of Demand, Types of elasticity of demand, Uses of elasticity of demand for Managerial decision making, Measurement of elasticity of demand. Concept of Demand Forecasting, Methods – Qualitative and Quantitative (basic concepts only). Supply – Law of Supply, Its determinants and Elasticity of supply.	3
IV	Cost Analysis and Pricing Approach: Cost - Concept and Types of Costs, Short Run Cost Analysis - Fixed, Variable, Total, Average and Marginal Cost Curves. Long Run Cost Analysis - Economies and Diseconomies of Scale, Factors affecting cost at Micro-level. Full cost pricing, Product line pricing, Product lifecycle pricing. Pricing Strategies: Price Skimming, Penetration Pricing, Differential Pricing, Promotional Pricing, etc.	4
V	Production and Utility analysis: Concepts, production function with one variable input - Law of Variable Proportions. Production function with two variable inputs and Laws of returns to scale. Consumer behavior and Surplus. Marginal Utility Analysis, Economies of scale.	4
VI	Market structure and pricing practices: Perfect Competition: Features, Pricing under perfect competition. Monopoly: Features, Pricing under monopoly. Price Discrimination. Monopolistic Competition: Features, Pricing under monopolistic competition, Product differentiation. Oligopoly: Features, Kinked demand Curve, Cartels, Price leadership.	2
VII	Concepts of National Income, Index Number and Business Cycle: National Income- Concept, GNP,NNP,GDP,PCI Methods and difficulties in Measurement of National Income. Review of index Number- Meaning, Importance and Limitations. Meaning and Features of Business Cycles, Phases of Business Cycles	3
VIII	Profits: Determinants of Short-term & Long-term profits. Classification - Measurement of Profit. Break Even Analysis - Meaning, Assumptions, Determination of BEA, Limitations, Uses of BEA in Managerial decisions.	2

SECTION B

At Least one Case Study from each UNIT. Questions will be case/inferences/application based

PRACTICAL COMPONENT

- Assessing the Impact of Social Media on the demand of a product/Services.
- Mini project may be given to students to assess the long-term and short-term cost incurred for producing goods/services
- Considering an industry and analyzing its features, and pricing strategies implemented by any two rivalry firms.
- Considering an industry and critically analyzing the impactof COVID 19 on business cycle
- Preparing a project proposal for a new business venture to understand the BEP using real time data.

BOOKS RECOMMENDED:

1. D.N.Dwivedi, Managerial Economics, Vikas Publishing House, Eighth Edition.
2. D. M. Mithani, Managerial Economics - Theory and Application, Himalaya Publishing House, Eighth Edition.
3. Damodaran. Managerial Economics. Oxford University Press, second Edition.
4. Keat/ Banerjee, Managerial Economics: Economic Tools for Today's Decision Makers, Pearson Education, Seventh Edition.
5. Petersen, H. Craig., Lewis and Jain. Managerial Economics. Pearson Education, Fourth Edition.
6. Geetika, PiyaliGhosh, Purba Roy Chowdhury, Managerial Economics, McGraw-Hill Education, Third Edition.
7. Gillespie, Business Economics, Oxford University Press, Second Edition.

LIST OF JOURNALS/PERIODICALS/MAGAZINES/NEWSPAPERS

1. Margin- The Journal of Applied Economic Research
2. South Asia Economic Journal
3. Global Journal of Emerging Market Economics
4. Asian Journal of Management Cases
5. Economic Times Newspaper

M-103: OPERATIONS MANAGEMENT - I

OBJECTIVES
1. To acquire a set of skills and tools to improve Productivity to get competitive advantage through operations.
2. To comprehend planning, creation and management of resource capabilities used by a business to make services or products.
3. To analyze service operations system and its relationship with all other functions and activities in the organization.

LEARNING OUTCOMES:
1. Understand the different process technologies
2. Identify similarities and differences between products and services and basic manufacturing process.
3. Acquire the knowledge of Demand Forecasting and its techniques

4. Understand the importance of stores management and different techniques of inventory control.

SECTION-A

UNIT	COURSE DESCRIPTION	SESSIONS
I	Operations Management: Introduction, Scope of Operations Management, Operations Management and Decision Making, Historical Evolution of Operations Management, Key Issues for Today's Business Operations. Competitiveness, Strategy, and Productivity, Mission and Strategies, Operations Strategy, Implications of Organization Strategy for Operations Management , Productivity and its improvement	2
II	Demand Management and Forecasting; Need, objectives, Approaches to Forecasting, Qualitative and, Quantitative Methods, Forecasts Based on Time-Series Data, Associative Forecasting Techniques, Other Techniques: Focus Forecasting, Web-Based Forecasting-Collaborative planning, Forecasting, and Replenishment (CPFR). Accuracy and monitoring the forecast.	4
III	Product and Service Design: Introduction, Reasons for Product/ Service Design or Redesign. Idea Generation, Design Considerations, Strategies of Product or Service Life Stages, Degree of Standardization, Designing for Mass Customization, Phases in Product Design and Development, Designing for Production. Service Design: Overview.	2
IV	Capacity Planning: Introduction to capacity, Capacity Strategy, Defining and Measuring Capacity, determinants of effective capacity, developing capacity strategies, and evaluating alternatives. Cost-Volume analysis	2
V	Facilities Planning: Strategic Facilities Planning, Process Selection: Process Types, Product-Process matrix, Facility Location: Need for location decisions, Strategic Importance and Objectives. Factors affecting location, General Procedure for Making Location Decisions, qualitative and quantitative techniques of location analysis.	3
VI	Facilities Layout: Product, Process, Fixed Position, and Cellular layouts, Service Layout, Designing Product Layouts: Line Balancing, Designing Process Layouts, Systematic Layout planning, Materials Handling	3
VII	Planning levels: long range, Intermediate range and Short-range planning, Aggregate planning: Objective, Strategies, and techniques of aggregate planning. Master scheduling; Bill of materials, MRP; inputs processing and outputs, and overview of MRPII , use of MRP to assist in planning capacity requirements, Introduction to ERP	4
VIII	Inventory Control: The Nature and Importance of Inventories, Functions and Objectives, Inventory Costs, Inventory Ordering Policies, Economic Order Quantity Models, Basic Economic Order Quantity (EOQ) Model, Economic Production Quantity (EPQ), Quantity Discounts, Reorder Point Ordering, Shortages and Service Levels, Fixed-Order-Interval Model, Single-Period Model, Continuous Stocking Levels, Discrete Stocking Levels, Selective Inventory control techniques.	4

SECTION B

At least one Case Study from each UNIT. Questions will be case/inferences/application based

PRACTICAL COMPONENT

- Visit any industrial unit and understand the processes performed in the unit.
- Use the theoretical knowledge to understand the operations.
- Prepare a report on how the above concepts used in selected industrial unit under the guidance of your subject teacher.
- Practical Assignment on calculating EOQ of a manufacturing company
- Collect data for identifying forecasting techniques of five national brands
- Student Groups may carry out a project work by visiting industrial unit/plant to demonstrate the application of principles of operations and submit written report/make presentation using infographics/Video.

BOOKS RECOMMENDED:

1 Chase, R. B. et al., Operations and Supply Management, Tata McGraw-Hill, 2010.
2 Blanchard, David., Supply Chain Management Best Practices, NY, John Wiley & Sons, 2006.
3 Stevenson. Operations Management with Student DVD (SIE). Tata McGraw-Hill.
4 Russell & Taylor, III. Operations Management. Prentice Hall of India.
5 Nair. Production and Operations Management. Tata McGraw-Hill.
6 Govil, M., and Proth, J., Supply Chain Design and Management, Academic Press, 2001.

LIST OF JOURNALS/PERIODICALS/MAGAZINES/NEWSPAPERS

1. International Journal of Supply and Operations Management (IJSOM)
2. Operations and Supply Chain Management:(OSCM)
3. Journal of Operations and Supply Chain Management (JOSCM)
4. International Journal of Operations & Production Management(IJOPM)
5. International Journal of Supply Chain Management (IJSCM)

M-104: MARKETING MANAGEMENT

OBJECTIVES
1. To learn various dimensions of Marketing Management, Concepts and Applications.
2. To understand analytical perspectives, management decision tools for Planning, designing & implementing marketing strategy.
3. To have right understanding of consumer motivation and expectations.

LEARNING OUTCOMES:
1. Develop strong conceptual knowledge in the functional area of marketing management.
2. Analyze consumer markets, identify market segments, targets and craft the brand positioning.

3. Apply analytical skills in developing right marketing strategies and plans.
4. Devise effective product, pricing, promotion and placing strategies after environmental scanning for creating long-term loyalty relationships.

SECTION-A

UNIT	COURSE DESCRIPTION	SESSIONS
I	Introduction: Concept and Scope of Marketing, Philosophies of Marketing Management, Elements of Marketing - Needs, Wants, Demands, Customer, Markets and Marketers; Marketing Vs. Selling, Marketing – Mix, The Modern Components of the Mix- The Additional 3Ps, Holistic Marketing Concept. Co-Creation and Customer Engagement concept.	3
II	Marketing Environment & Marketing Strategy: Marketing Environment: Internal and External, Factors Affecting Marketing Environment, Functions of Marketing Management, Strategic Marketing Planning, Managing and controlling marketing program	3
III	Segmentation, Targeting and Positioning: The STP process, Concept of Market Segmentation, Benefits of Market Segmentation, Requisites of Effective Market Segmentation, Process of Market Segmentation, Bases for Segmenting Consumer Markets, Targeting strategies, Positioning concept and strategies.	3
IV	Consumer buying behavior: Introduction, Characteristics, Types of Buying Decision Behavior, Factors influencing Consumer Buying Behavior, Buying Decision Process, Buying Motives, Buyer Behavior Models	3
V	Product Management-Brand and Branding Strategy: Key concepts, Levels of Products, Classification of Products, Product Hierarchy, Product Line Strategies, Product Mix Strategies, Packaging and Labeling, New Product Development process, Product Life Cycle (PLC) – Stages and strategies, concept of a brand, brand elements and types	3
VI	Pricing and Channel Decisions : Pricing Objectives, Policies, Methods of Setting Price, Pricing Strategies, Distribution Channel Management, Member channel functions, Factors Affecting Channels of Distribution, Distribution channels design strategy, Introduction to logistics management, Current Trends in Wholesaling and Retailing. B2B, B2C	3
VII	Integrated Marketing Communication: Role of Marketing communications mix, Marketing Communications Tools- Advertising, Sales Promotion, Personal Selling, Public Relations, Direct Marketing, Social Media Marketing, Marketing Communications Planning,	3
VIII	Evaluating Marketing Performance and Recent Trends in Marketing: Marketing Strategy Implementation and Tools of measuring marketing performance- annual plan control, profitability control, efficiency control and strategic control., Introduction to importance of Data Analytics in Marketing Strategies, Customer Relationship Marketing, Digital Marketing, Sustainable marketing, Rural Marketing. Introduction to Global Marketing, Incoterms and its types	3

SECTION B

At Least one Case Study from each UNIT. Questions will be case/inferences/application based

PRACTICAL COMPONENT

1. Students should choose three companies- FMCG, Consumer Durable and Service Company and study their marketing-mix variables, customer retention strategies and innovative marketing strategies for enhancing customer engagement with the company brands.
2. Students are expected to visit and explore website of three of their preferred brands to identify the Segment & Target customer, Positioning strategy and effectiveness of their marketing strategies in making them popular.
3. Using smartphone or any other recording device students are expected to make a short video (12-15 mins duration) covering marketing-mix strategy (Product, Price, Place, Promotion) of a recently launched new product.
4. Students have to visit a Retail store targeting young people (for example Cafe Coffee Day, Benetton, Shoppers Stop, Adidas, etc). and make observations and assessment on the following:
   (a) Target market and strategic location of the store
   (b) Length and breadth of the store's product assortments
   (c) Internal and external atmospherics of the retail store (Lighting, décor, music, colour, spaces etc.)
   (d) Services offered by the store(limited service or full service)
   (e) Role of Personal Selling in the store
5. Selecting one television advertisement and one print advertisement students will describe the television and print advertisements in their assignment and answer the following questions:
   (a) Objective of both advertisements and the highlighted USP
   (b) Type of appeals (rational, emotional, moral) and execution-styles used in the advertisements
   (c) Target customer and media selection decision.
   (d) As creative and media planner for these brands what would be their suggestions regarding creative strategy, selection of media type, vehicle, timing etc.

BOOKS RECOMMENDED:

1. Kotler, P. T., & Armstrong, G. (2017). Principles of Marketing, Global Edition.
2. Chernev Alexander (2019) Strategic Marketing Management - The Framework, Cerebellum Press.
3. Dr .G. Bhuvaneshwari, Dr .S. Ramachandran (2018). Marketing Management, Airwalk Publications.
4. V S Ramaswamy (2017).Marketing Management: A Strategic Decision Making Approach, McGraw Hill Education
5. Michael J Etzel, Bruce J Walker, William J Stanton, Ajay Pandit, (2017). Marketing, 14e, McGraw Hill Education.
6. David A. Aaker& Amp; Damien McLoughlin; (2017). Strategic Market Management; John Wiley & Sons (Asia) Pvt. Ltd.
7. Baines, P., Fill, C., & Page, K. (2013). Essentials of marketing. Oxford University Press.

LIST OF JOURNALS/PERIODICALS/MAGAZINES/NEWSPAPERS

1. Journal of Marketing (USA)
2. International Marketing Review
3. International Journal of Online Marketing
4. Indian Journal of Marketing,
5. Marketing Master Mind, Etc.

M-105: IT FOR MANAGERS

OBJECTIVES

1. To acquire fundamental knowledge essential to manage Information technology functions successfully within an organization.
2. To define Information System from both a Technical and Business perspective.
3. To understand knowledge representations methods and IT Techniques as strategic tools to make business more competitive.

LEARNING OUTCOMES:

1. Apply frameworks and management principles to cope up with challenges inherent in rapidly advancing technology.
2. Design, plan, analyze, budget and propose technical requirement that impact the performance of business process to create a competitive edge.
3. Apply knowledge and evaluate the role of Information Technology in supporting various levels of Business strategy.
4. Access and interpret the relationship between Organizations, Information Systems and Business Processes.

SECTION A

UNIT	COURSE DESCRIPTION	SESSIONS
I	Business value of telecommunication networks: The basics of doing business on the Internet- the Internet revolution - the business value of Internet, Intranet and Extranet. Introduction to Web page Design. Creating Web Pages using HTML. Introduction to Cloud Computing.	4
II	Information Systems (IS): Concept of Data and Information, Kinds of Information Systems (IS); Elementary study of: Operations Support System (OSS), Transaction Processing System(TPS),Process Control System(PCS), Management Information System(MIS), Decision Support System(DSS). Artificial Intelligence (AI), Neural Networks, Expert Systems (ES).	3
III	Developing MIS Systems: System Development Life Cycle, Investigation Phase, Prototyping, Feasibility Analysis, System Analysis(DFD and ER Diagram), System Design, Implementing Business Systems, Testing, Documenting, Training and Maintenance.	4
IV	Data Organization issues, Exposure to Database Management System and SQL, Fundamentals of Data Warehouse and Data Mining for Decision Support	3
V	e-Business and e-Commerce: E-Business systems: e-Business models - Enterprise e-Business systems -E-Commerce systems – essential-Commerce processes - electronic payment processes - e-commerce application trends - Web store requirements, m-commerce.	3
VI	IT application in business: Functional business systems - cross-functional enterprise systems - Enterprise resource planning (ERP) - Customer relationship management (CRM) and Supply chain management (SCM).	4
VII	Management challenges: Security and Ethical Challenges of IT, Ethical Responsibility - Business Ethics, Technology Ethics; Cyber Crime and Privacy Issues.	3

SECTION B

At least One Case study/ Lab session for each UNIT. Questions will be inferences/application based

PRACTICAL COMPONENT

- Students should see actual/virtual assembling of a computer system.
- Considering an organization of repute study, the Management Information system of the organization.
- Develop MIS for small business application

BOOKS RECOMMENDED:

1. Kumar, K. And Rajkumar, S. Computer Applications in Business. Tata McGraw-Hill.
2. Lucas.Information Technology for Management. Tata McGraw-Hill.
3. David Cyganski, John A. Orr, Richard F. Vaz, Information Technology: Inside and outside, Pearson.
4. Laudon K C and Laudon J P., Rajanish Dass., Management Information Systems: Managing the Digital Firms, Pearson.
5. Stair, Ralph. M. Reynolds, George. Reynolds, George. W., Principles of Information System. Cengage Learning.
6. Murdick, Ross &Claggett. Information Systems for Modern Management Prentice Hall of India.

LIST OF JOURNALS/PERIODICALS/MAGAZINES/NEWSPAPERS

1. CIS Communications, Computer Society of India.
2. MIS Quaterly, University of Minnesota.
3. Journal of Management Information System (Taylor & Francis Online)
4. Journal of Information System & e-Business management (Scimago Journal)
5. IGI Global (International Journal of E-Business Research)

M-106: ORGANIZATIONAL BEHAVIOUR

OBJECTIVES

1. To facilitate the development of a perspective to diagnose & effectively deal with the issues of human behavior in organizations.

2. To enhance understanding of the dynamics of interaction and integration between the individual and the organization.
3. To explore the organization system in totality to capture the full complexity of organizational behavior.

LEARNING OUTCOMES:

1. Analyze the behavior of individuals and groups in organizations in terms of the key factors that influence organization behavior.
2. Critically evaluate the potential effects of important developments in the external environment on organizational behavior.
3. Analyze organizational behavioral issues in the context of organizational behavior theories, models, and concepts.
4. Manage conflict in organizational context and deal with stress.

SECTION A

UNIT	COURSE DESCRIPTION	SESSIONS
I	Concept of Organizational Behavior: Models of Organizational Behavior, Emerging issues in organizational behavior, International OB: An Introduction to Individual & Interpersonal Behavior in Global Perspectives.	2
II	Perception and Attribution: Concept, Nature, Process, Importance. Management and behavioral Applications of Perception, Attribution theory.	3
III	Attitude: Concept, and Importance, Attitude Measurement. Attitudes and Workforce Diversity.	2
IV	Personality and Learning: Concept, Nature, Determinants of Personality, Freuds psychoanalytical theory of personality. The Myers-Briggs Type Indicator model of personality, The Big five model of personality, traits of personality, Concept and Theories of Learning	3
V	Motivation: Definition, Nature and Importance, Basic Content & Process Theories of Motivation-,Maslow's Hierarchy of Needs Theory, Herzberg's Motivation-Hygiene Theory, Alderfer's ERG Theory, Mc Clelland's Achievement Motivation Theory, Cognitive and Behavioral theories- Expectancy, Equity, Goal-Setting theories.	4
VI	Group Dynamics: Transactional Analysis, Group Dynamics: Concept, Definition, Stages of Group Development, Group Cohesiveness, Types of Groups, Group Decision Making,	3
VII	Organizational Power, Culture and Change: Power: Concept, Sources of Power, Distinction between Power, Authority and Influence, Approaches to Power. Organization Culture: Concept, Characteristics & Importance of Culture. Organizational Change: Concept, process and managing change.	4
VIII	Conflict and Stress Management: Conflict: Concept, Sources, Types of Conflict, approaches to conflict, Levels of conflict: Intra, Individual, Interpersonal, and Intergroup, Conflict management techniques. Stress: Understanding Stress Management and Its Consequences, Causes of Stress, Managing Stress	3

SECTION B

At Least one Case Study from each UNIT. Questions will be case/inferences/application based

PRACTICAL COMPONENT

- Preparing the leadership profiles of any 5 business leaders and studying their behaviours with respects to the trait, behavioural and contingency theories studied.
- Identifying any five job profiles and listing the various types' abilities required for those jobs and also the personality traits/attributes required for the jobs identified.
- Students will be divided into groups of four to five members. The group's task will be to use concepts from the course to identify, analyze, and develop a plan for resolving a key problem that an organization is facing. The goal of this assignment is to analyze and apply OB concepts in a real organization.
- The key elements of motivation are intensity, direction and persistence. Based on these elements various motivation theory have been proposed. Compare the application of different motivational theories within the identified local organization to study using interviews, observations, and/or surveys.
- Based on learning of the concept of perception, conduct a study among managers in an organization to find out the impact of perceptual errors on perceptual interpretation.
- Study the various sources of stress across different levels in an organization. Identify individual and organizational strategies adopted to cope with stress. Suggest changes that could be brought into handle the stress more effectively in the organization.
- Stress Management: Workshop on Stress Management and importance of Yoga and Meditation for mental health

BOOKS RECOMMENDED

1. Stephen P. Robbins, Timothy A. Judge, Neharika Vohra, Organization Behavior, Pearson Education, 18th Edition, 2019.
2. Ashwathappa, K., Organizational Behavior, Himalaya Publication, 12th Edition 2019.
3. Fiona M. Wilson, Organizational Behavior and Work, Oxford University Press, 5th Edition, 2018.
4. Robbins & Judge, Essentials of Organizational Behavior, 14th edition, Pearson Education 2017.
5. Shashi K. Gupta, Rosy Joshi, Organisational Behavior,10th Edition, Kalyani Publication, 2017.
6. Suja Nair, Organisational Behavior-Text & Cases, Himalaya Publication, 2017.

LIST OF JOURNALS/PERIODICALS/MAGAZINES/NEWSPAPERS

1. Harvard Business Review, Harvard University.
2. Vikalpa, The Journal of decision maker, Sage publication.
3. Journal for Organisation Behaviour, Wiley online library.
4. Research in organization behavior, Elsevier.
5. Organisation Behaviour & Human resource magazine, Brock university library.

M-107: COST AND MANAGEMENT ACCOUNTING

OBJECTIVES
1. To inculcate an ability of preparing the financial statements of a business organization.
2. To develop the ability of performing analysis and deriving the interpretation from financial statements using different techniques of financial statement analysis.
3. To develop an orientation towards standards of accounting practices accepted and adopted at international level under IFRS.

LEARNING OUTCOMES:
1. Understand and describe management accounting.
2. Critically analyze and provide recommendations to improve the business operations using accounting techniques.
3. Identify problems associated with relying on financial accounting information for internal decision making.
4. Apply managerial accounting and its objectives in a way that demonstrates a clear understanding of ethical responsibilities.

SECTION A

UNIT	COURSE DESCRIPTION	SESSIONS
I	Introduction to Accounting: Need and Types of Accounting, Users of Accounting, concepts and conventions of Accounting, Accounting Equations.	2
II	Elementary Preparation of Books of Accounts: Journals, ledgers and trial balance. Final Accounts, Trading, Profit Loss account without adjustments, Balance Sheets	5
III	Financial Statements preparation, analysis and Interpretation: Income statement, Comparative, common size statements, Analysis techniques- Ratio Analysis, Cash flow Statement analysis as per AS3 and Fund flow statement analysis	5
IV	Cost Accounting -An Introduction: Concept, classification and Elements of Cost, Cost Sheet, Basics of Marginal costing	3
V	Standard Costing: Introduction, Material Variances only Budgetary Control – Concept, Types and Formats with basic calculations	3
VI	Accounting Standards and Introduction to IFRS: IFRS and proposed changes in Indian Accounting Standards.	2
VII	Emerging issues in Financial Accounting : Introduction to Human Resource Accounting, Responsibility Accounting and Basic concept of GST	2
VIII	Valuation: Valuation of goodwill, Inventory Management (LIFO, FIFO and HIFO methods)	2

SECTION B

At least One Case Study from each module. 50% of the Questions will be Numerical & Cases/Inferences based.

PRACTICAL COMPONENT:

- Study published financial statements of any three NSE listed companies and draw inferences and interpret the results.
- Prepare journals, ledgers and trial balance of any two companies of your choice.
- Prepare the statement of changes in the financial position of any two firms and comment.
- Study and report on any three companies following Responsibility Accounting.
- Do a ratio analysis of any two BSE listed companies and interpret results.

Books Recommended:

1 Anthony, Hawkins & Merchant, Accounting: Text and Cases, Tata McGraw Hill Education, 2010.
2 M Y Khan& P K Jain, Managerial Accounting, Tata McGraw Hill Publication,6th Edition, 2017.
3 Narayanaswamy R., Financial Accounting: A Managerial Perspective, PHI, 6th Edition, 2017.
4 Ravi M Kishore, Advanced Cost Accounting & Cost Systems, Taxmann's Publication,6th Edition 2016 .
5 Vijay Kumar, Accounting for Management, McGraw Hill Publication,4th Edition, 2010.
6 Anthony, Hawkins, Merchant, Accounting: Text and Cases, Tata McGraw Hill Publication,12th Edition 2015.
7 Ramachandran & Kakani, Financial Accounting for Management, Tata McGraw Hill, 4th Edition, 2016.

LIST OF JOURNALS/PERIODICALS/MAGAZINES/ARTICLES:

1. Journal of International Financial Management and Accounting.
2. Journal of Management Accounting Research.
3. Accounting and Business Research.
4. Accounting, Auditing & Accountability Journal.
5. Accounting Horizons.

M-108: BUSINESS STATISTICS AND ANALYTICS FOR DECISION MAKING

OBJECTIVES
1. To familiarize with basic mathematical and statistical techniques and their applications in managerial decision making.
2. To develop understanding for managerial implications of the mathematical techniques.
3. To understand significance of measures of central tendency, symmetrical and asymmetrical distribution, patterns.

LEARNING OUTCOMES:
1. Use of matrices for solving business problems.
2. Statistically analyze business data using various tools.
3. Apply distribution techniques in business context.
4. Carry out basic Investment Analysis

SECTION A

UNIT	COURSE DESCRIPTION	SESSIONS
I	Matrices and Determinants: Definition of a matrix, types of matrices, algebra of matrices, Transpose, Adjoint, Inverse of a matrix.	2
II	Business Applications using Matrices: Solving linear equations by using matrices, Input-Output analysis. Application of matrices for solution to simple business and economic problems.	3
III	Descriptive Statistics: Measures of central tendency and dispersion and their implications, Mean, Mode, Median, Variance and standard deviation and Coefficient of Variation, Z Score, Exploratory data analysis, Box and Whisker Plot	3
IV	Correlation: Covariance and coefficient of correlation. Visual explorations using software like Microsoft Excel/MINITAB etc.	3
V	Regression: Types of Regression models, determination of simple linear regression equation using least square method, coefficient of determination, Overview of Partial and Multiple regressions.	3
VI	Index Numbers: Meaning, Types of index numbers, uses of index numbers, Construction of Price, Quantity and Volume indices: Fixed base and Chain base methods. Fisher ideal index number. Ration and Proportion.	3
VII	Probability: Basic probability concepts, conditional probability, marginal probability, and its uses in business decision making; Bayes' theorem and its applications. Probability Distributions: Concept and application of Binomial, Poisson, Exponential and Normal distributions	4
VIII	Investment Analysis: Interest: simple, compound, nominal and effective rate of interest. time value of money, discounting. Annuity, amortization and sinking funds. Breakeven Analysis.	3

SECTION B

Note: 50% of the Questions will be Numerical & Cases/Inferences based.

PRACTICAL COMPONENT:

- Identifying a business problem and solving it using matrices & determinants.
- Illustrate practical usage of Index Numbers
- Analyzing relationship between different probability distributions
- Understanding managerial implications of correlation & regression
- Conducting investment analysis of five individual investors

BOOKS RECOMMENDED:

1 Doane. Applied Statistics in Business and Economics. Tata McGraw-Hill.
2 Aczel. Complete Business Statistics, Tata McGraw-Hill.
3 Gupta, S.P. Statistical Methods. Sultan Chand & Sons.
4 John C. Lee., Business and Financial Statistics Using Minitab 12 and Microsoft Excel 97. World Scientific Publisher
5 Sharma, J.K.., Business Mathematics, Theory and Application, Ane Books India.
6 Francis Andre, Ben Mousley,Business Mathematics and Statistics (2014), Cengage Learning
7 C. R. Kothari, Quantitative Techniques, Vikas Publishing House, 2009.

LIST OF JOURNALS/PERIODICALS/MAGAZINES/ARTICLES:

1. Proceedings of the Indian Academy of Sciences: Mathematical Sciences
2. Journal of the Ramanujan Mathematical Society
3. Journal of the Indian Mathematical Society
4. Sankhya: The Indian Journal of Statistics
5. Journal of Applied Statistics

M-109: SEMINAR ON CONTEMPORARY ISSUES

1. In first semester, the students are required to take seminar on contemporary issues. The faculty members will assign contemporary issues concerning with Indian Corporate sector like, merger & acquisition, current economic issues, global interface, stock market developments, new HR initiatives, recent trends in marketing trends etc, to the students.
2. The students will prepare seminar under guidance of faculty members allotted by the Director/ Principal /Head of Department of the institute. There will be regular internal assessment and regular classroom interactions as per the number of sessions allotted to it.
3. The student will submit written report of seminar work, prepared individually, and shall make an oral presentation before a panel consisting of internal and external examiner (Preferably from Industry) appointed by Director/Principal/HOD. The assessment of 40 marks shall be done by the external examiner appointed by the Head of the department in consultation with Director/Principal of the college. University shall not appoint any examiners for M-109.
4. The average number of pages in the report shall be 40 and should be typed by student himself. The format of the report is to be provided to students by the institute.

M-110: DATA ANALYTICS LAB.

OBJECTIVES	To equip the students with an understanding of the, tools like MSEXCEL/Solver, LINGO /SYSTAT /R/SAS/MINITAB/Design Expert etc to facilitate managerial decision making.
LEARNING OUTCOMES:	Use software's like MSEXCEL/Solver, LINGO /SYSTAT /R/SAS/MINITAB/Design Expert for taking managerial decisions.

SN	DETAILS OF LAB WORK
1	To use the following basic features of MSECXEL using the given dataset: Essential shortcuts, Paste Special (Value, Transpose), Absolute & Relative referencing. Data Analytics using Excel: Sort & Filter, SUBTOTAL, SUMIFS, COUNTIFS, Pivot Table for multivariable analysis, Computations, Sum, Max, Min, Average, Count.
2	To use the following advanced features of MSECXEL using the given dataset: Generating multiple reports, VLOOKUP, HLOOKUP, IF, Nested IFs, AND, OR etc. Data Cleaning and MIS reporting: LEFT, RIGHT, MID, UPPER, PROPER, LOWER, TRIM, Find & Replace, Go To Etc. MIS reporting: Automatic row-wise Subtotal, Conditional Formatting, File Password Select Dashboard Techniques, Grouping, Hide-Unhide Columns & Rows etc
3	To develop tables and charts for categorical and numerical data: Bar Chart, PIE Chart, Pareto Diagram, Steam and Leaf display, Frequency distribution, Histogram, Scatter plot and Time Series plots for the given dataset.
4	To compute the numerical descriptive statistics, covariance and coefficient of correlation for the given raw data and to construct Box and Whisker plot
5	Data Execution: Data Exporting, Data Validation, Data Analysis, V-Lookup, Data Segregation, creating a Pivot Table, working with Pivot Charts, Advance Statistical Functions
6	To construct contingency table, compute conditional, marginal probability and use Bayes theorem for the given data and interpret results
7	To construct the distribution plot for discrete distribution and continuous distribution probability distributions and infer results.
8	To compare the characteristics of data with theoretical properties of Normal distribution and to construct the normal probability plot
9	To carry out break even analysis using Excel's Goal Seek feature for the given problem.
10	Case Study on Demand Forecasting
11	To compute PV, NPV, XNPV, EMI, term of loan, IRR and infer the result for the given data set.

Note: The above list is suggestive. Experiments/case studies may be added relevant to the theory courses taught in the semester

BOOKS RECOMMENDED:

1. Stephen L. Nelson, Elizabeth C. Nelson "Microsoft Excel Data Analysis For Dummies, 2018 , Wiely
2. MacInnes, J. (2016), "An Introduction to Secondary Data Analysis with IBM SPSS Statistics", Sage Publishing.
3. Maheshwari, A. (2017), "Data Analytics", McGraw Hill Education.
4. Manohar Hansa Lysander, "Data Analysis and Business Modelling Using Microsoft Excel Paperback – 1", January 2016, PHI
5. Mize Edward, " Data Analytics: The Ultimate Beginner's Guide to Data Analytics", 2019, Venture Ink

M-111: BUSINESS COMMUNICATION LAB.

OBJECTIVES	1. To understand the fundamentals and importance of communication for managers. 2. To prepare students to acquire necessary communication skills required for better effective performance. 3. To enhance soft skills that are important to achieve goals.
LEARNING OUTCOMES:	1. Learning key principles of effective business communication and business etiquette. 2. Effectively solving problems and making good decisions 3. Developing and delivering business presentations 4. Collaborating in business with team and cross-functional teams

SN	DETAILS OF LAB WORK
1	Introduction: Business Communication-Process, Barriers to Communication, the Importance of Communication at Workplace, Applying 7 C's of communication. Practice: Describing about personal life and work life, one way and two-way communication and understand the various communication barriers, noise, filters. Select a text-based data (e.g., a newspaper article, a story, etc.) and analyze the effectiveness of 7 C's of communication.
2	Oral Communication: Paralanguage - appropriate use of Voice, tone, pauses and vocabulary. Elevator Speech. Practice: creating an outline for a short (30 to 90 second) Elevator Speech to introduce yourself
3	Written Communication: Introduction, need, significance and practice of: a) Cover Letters/Business letters b) Preparation of CV/Resume, c) Email writing and etiquette, d) Social Media writing e) Write your own one-page resume, Cover Letters/Business letters etc.
4	Written Communication: need, significance and practice of: a) Memo b) Circulars c) Press Release
5	Communication Media Etiquette: Telephone, Mobile, E-mail, social settings etc. a) To practice etiquette using communication media by using Role Plays b) To discuss do and don'ts while interacting on communication media.

6 Group Discussion: Practicing Mock Group Discussions, types of GD's, Applying leadership skills in a GD. Goal Setting. Conduction of Group Discussion on any topic.

7 Art of Presentation:
   a) To discuss the various elements of effective presentation, Designing Content, Use of creative ideas and interesting audio-visual aids, impressive grooming as per occasion – appearance, posture and gestures, Handling Stage fear and anxiety, Practicing delivery of presentation.
   b) Practice: Initial Planning, Preparation and Handling questions. To make effective use of Power Point Presentation demonstrating the use of animation, effects, hyperlinks, and productivity tools etc., Each student is required to give presentation of 5 minutes (this can be spread throughout the semester) and to be evaluated by the faculty

8 Teamwork:
   a) Discuss the elements of teamwork, stages of team formation, essential building block of effective teams
   b) To perform the given exercise on team building.

9 Employability Skills:
   a) Account creation on various social Media Platforms for employability and Networking,
   b) Getting ready for interview: First Impression and Clothing styles; Practicing Mock interviews, types of interviews, creating first right impression while approaching interview panel, analyzing interview questions (FAQ)

10 Business Etiquette and Success Abilities: Business and social etiquette, Guidelines for a meeting, a workshop or a conference and common mistakes, Time Management Skills, Art of giving and receiving feedback, Identifying and mapping success habits from successful people.
   a) To demonstrate conduction of Online Meetings / Video conferencing with the help of Google Meet, WebEx, Microsoft Teams etc. in the class.
   b) To conduct a mock meeting of students in the class identifying an issue of their concern. The students should prepare notice, agenda, and minutes of the meeting.

11 Case Analysis and Presentation: A suitable case is to be selected and administered in the class sticking to all the guidelines of case administering and analysis.

12 Group Activity: Form Student groups and ask them to write a persuasive letter and proposal for an innovative product or service. Circulate the work from each group among all other groups and ask them to evaluate the letter and proposal in line with possible responses to a letter (pleased, displeased, neither pleased nor displeased but interested, not interested)

Note: The above list is suggestive.

BOOKS RECOMMENDED:

1. Murphy, Effective Business Communication, 7th edition, Tata McGraw-Hill.
2. Sethi, Anjanee, and Bhavana Adhikari. Fundamentals of Communication, McGraw-Hill Education, 2013
3. Kaul, Asha, Effective Business communication, Prentice Hall of India.
4. Chaturvedi, P. D. and MukeshChaturvedi, Business Communication: Concepts, Cases and Applications, Pearson Education.
5. Ludlow, Ron & F. Panton, The Essence of Effective Communication, Prentice Hall of India.
6. Sally Chew. Business Etiquette: An Essential Guide for Executives. Times Books, 1992
7. Thill, John & C. V. Bovee, Excellence in Business Communication, McGraw Hill.

M-201: LEGAL AND BUSINESS ENVIRONMENT

OBJECTIVES
1. To have practical knowledge of legal issues to become more informed, sensitive and effective business leaders.
2. To understand various micro and macro environmental forces that affect business decision making.
3. To comprehend emerging trends in business environment. Also, to understand the government policies and current issues in Indian perspective.

LEARNING OUTCOMES:
1. Realize the importance of creating general legal boundaries that define the regulation of business.
2. Evaluating the role of law in an economic, political and social context.
3. Analyze the interaction between External and Internal forces of business environment.
4. Assess the changing business environment of India.

SECTION A

UNIT	COURSE DESCRIPTION	SESSIONS
I	Legal Aspect of Business: Introduction to Business Laws- Business Management and Jurisprudence; structure of the Indian Legal Systems: sources of Law; Manager and Legal System.	1
II	Law of Contract: Meaning of Contract; Essentials of a Valid Contract; Nature and Performance of Contract; Termination and Discharge of Contract. Contract of Indemnity and Guarantee- Definition and Concept Basic Essentials of a valid contract of Indemnity and Guarantee, Difference between contract of guarantee and contract of indemnity, Contract of Bailment: Definition and essentials. Rights and Duties of bailer and bailee and Law of Agency: Definition, Kinds of agents, Rights and Duties of agent and principal only. Elements of Law relating to Sale of Goods: Essentials of a Contract of Sale; Sale Distinguished from Agreement to Sell & Doctrine of Caveat Emptor.	5
III	Law relating to Business Organizations: Partnership Act, 1932: Partnership and its essentials, Rights and Duties of Partners, Types of Partners, Registration of Firms, and Modes of Dissolution of firms. Elements of Company Law 2013: Meaning and Nature of Company, Incorporation of a Company, Concept of Memorandum of Association, Article of Association , Concept of Board of Directors, Company Meetings and Winding of Company.	3

IV	**Protecting the property of Business:** Introduction to Copyright, Trademark, Secret, Geographical Indications, and Legislation for Anti-competitive and Unfair Trade Practices. Alternate Dispute resolutions: Introduction to Arbitration or Conciliation. Introduction to Consumer Protection Act 2019: Formation & Working of Consumer redressal agencies.	3
V	**Business Environment:** Nature, Concept and Significance, Types of environment: economic and non-economic environment and their interaction, Environment scanning and its process, Interaction between internal and external environments, Emergence of Market Driven Economies, Essential of competitive economies, emerging sectors of Indian economy.	3
VI	**Liberalization, Privatization and Globalization (LPG):** Introduction of Liberalization, Privatization and Globalization (LPG) Assessment of LPG in India with respect to Financial, Automobile and FMCG. Current industrialization trends and industrial policy. Agriculture and Business Role of Agriculture in Economic Development, Dependence of Business on Agriculture, Business opportunities in the rural sector.	3
VII	**Economic and Monetary Policies of India:** Emergence of Micro, Small and Medium (MSME) enterprises and Role of Institutions Micro, Small and Medium enterprises in India, Role of SIDBI and other institutions. Public sector reforms and performance; public-private partnership Monetary policy, Fiscal policy, current inflationary position and their impact on business environment. Stock exchange, Commodity exchanges in India, the role of SEBI, IRDA, Pension, and Board of Financial Supervision. Trends in service sector growth; Role of RBI and various Banking reforms and challenges	3
VIII	**Globalization trends and challenges:** Foreign Trade and Global Trends - Foreign Trade Policy, Balance of payment and Balance of Trade, Exchange rate and competitiveness, foreign capital flows and foreign collaboration, FDI in India. India's competitiveness in the world economy.	3

SECTION B

At least one Case Study from each UNIT Questions will be case/inferences/application based

PRACTICAL COMPONENT

- Students to collect prospectus, memorandum of association and articles of association of any two companies and present,.
- Students should select real life cases from Government and/or Corporate world, study the same and make presentation.
- Prepare an assignment on different business laws as applicable to managerial functions.
- Students should be divided in groups to select a firm from an industry and prepare report on various micro and macro environmental factors affecting the firm.
- Monitoring trends of FDI in a particular industry in India for five years and preparing a report.

BOOKS RECOMMENDED:

1. Kapoor G.K., Suri A. P. Corporate Laws, Taxmann Publications, Third Edition.
2. Ghosh ,B.N., Business Environment, Oxford University Press, First Edition.
3. Veena Keshav Pailwar, Business Environment, First Edition
4. Justin Paul, Business Environment Text & Cases, Tata McGraw Hill Publishing Co. Ltd., Fourth Edition.
5. Francis Cherunillam, Business Environment-Text and Cases, Himalaya Publishing House, Twelfth Edition.
6. A Comparative Study of Companies Act 2013 with Rules and Companies Act 1956 with Rules (2014)
7. Corporate Laws, The Companies Act 2013, Lexis-Nexis

LIST OF JOURNALS/PERIODICALS/MAGAZINES/NEWSPAPERS

1. Company Law Journal
2. International Journal of Information Processing and Management
3. Journal of Strategy and Management
4. Business Standard Newspaper
5. Business World Magazine

M-202: CORPORATE STRATEGY

OBJECTIVES
1. To evaluate major concepts and techniques of strategic management.
2. To have an overview of issues relevant to corporate and business strategy.
3. To develop strategic decision-making skills.

LEARNING OUTCOMES:
1. Develop understanding of the key dimensions of strategic management.
2. Apply diagnostic and practical skills to analyze and evaluate a range of business situations.
3. Develop skills in generating alternative solutions to complex problem areas in various business settings,
4. Demonstrate understanding of the concept of competitive advantage and its sources.

SECTION-A

UNIT	COURSE DESCRIPTION	SESSIONS
I	**INTRODUCTION OF STRATEGIC MANAGEMNT:** Strategic Management: introduction, nature & scope, need, strategic decision making. Strategic Intent through Vision and Mission Statements, Core Competencies of Business. Need for explicit mission, Components of mission statement, Formulation of mission & objectives and their specificity. Goals and Objectives of Business.	3
II	**Environmental Scanning:** Component of environmental scanning-SWOT analysis, Scanning of Socio economic, Technological, Political environment, Techniques for environmental analysis. Industry analysis: Porter's approach, Environmental threat & opportunity profile.	3
III	**Internal Environment Scanning:** Factors of internal analysis; Marketing & distribution. R&D & engineering, Production & operations, Finance & accounting, Corporate resources & personal factors, Analyzing strengths & weaknesses of enterprise (SWOT). Value chain analysis,	3

IV	Strategy Formulation- Business Strategy: Generic Business Strategies, Tactics for Business Strategies, Business strategies for different Industry Condition, Tools and Techniques for Strategic Analysis: Porter's Five forces Model of competition. SWOT analysis, McKinsey's 7's framework; GE-9 Cell Model, Bostan's Consultancy Model. Components of Competitor Analysis, Strategic Plan.	4
V	Strategy Formulation- Corporate Strategy : Grand Strategies –Stability, growth, retrenchment & combination strategies- Modernization, Diversification, Integration, Merger, Take-over and Joint Venture strategies, Turnaround – divestment and Liquidation strategies.	4
VI	Strategy Implementation: Nature of Strategic Implementation; Barriers to strategy implementation, Interrelationship of formulation and implementation Resource Allocation, Factors affecting resource allocation, Values, Ethics and strategy, Social Responsibilities and Strategic Management. Corporate Governance – Introduction & meaning, different stakeholders, ownership & management, governing board, governance issues, governance & strategic implementation.	4
VII	Evaluation and Control: An Overview and Nature of strategic evaluation and Control, Importance of Strategic Evaluation, Barriers in Evaluation, Strategic Control, Operational Control, Techniques of strategic evaluation and control.	2
VIII	International Strategy: Opportunities and Challenges of operating internationally, strategy in a global context, Multinational Corporation.	1

SECTION B

At least one Case study / Problem from each module. Questions will be case / inferences / application based

PRACTICAL COMPONENT:

- Analyzing Mission and Vision statements of any five companies and comparing them.
- Applying concept of Michael Porter's five forces model to any one industry (Retail/Infrastructure/FMCG/Insurance etc)
- Study of International strategies of any two companies.
- Preparing Environmental Profile of any two companies.
- Preparing presentation on corporate strategy of any one company of choice.

BOOKS RECOMMENDED

1. J. D. Hungerand T.L. Wheelen, Strategic Management and Business Policy, Pearson Education,N. Delhi.
2. Azhar Kazmi, Business Policy & Strategic Management, Tata McGraw Hill.
3. Thompson & Strickland, Strategic Management-Concepts and Cases; Tata McGraw Hill Publishing Co. Ltd. New Delhi
4. Garth Saloner, Andrea Shepard and Joel Podolny : Strategic Management, John Wiley & Sons.
5. John A. Pearce &R.B. Robinson, Strategic Management ,Strategy Formulation and Implementation, AIBT Publishers & Distributors, New Delhi
6. Ramaswamy and Namakumari, Strategic Planning Formulation of Corporate Strategy, MacMillan India Ltd. New Delhi
7. Budhiraja S Band Athreya MB,Casesin Strategic Management, Tata Mc Graw-Hill

LIST OF JOURNALS / PERIODICALS / MAGAZINES / NEWSPAPERS

1. Harvard Business Review
2. Vikalpa–A Journal for Decision Makers, IIM Ahmedabad
3. IIMB Management Review (IMR).
4. SANKAL PA: Journal of Management & Research(ISBN:22311904)
5. Business Standard/Economic Times/Financial Times/ Management Review

M-203: QUANTITATIVE TECHNIQUES

OBJECTIVES
1. To give an exposure to operations research techniques to support business decisions.
2. To understand simulation and its application in decision making

LEARNING OUTCOMES:
1. Apply quantitative tools in managerial decision making.
2. Apply decision theory for business decisions.
3. Effectively use simulation tool in relevant application areas.

SECTION-A

UNIT	COURSE DESCRIPTION	SESSIONS
I	Introduction to Quantitative Approaches to decision making, Classification of models, general method of solving quantitative models, Quantitative models in practice	2
II	Linear Programming: Structure of LP model, Assumption, Advantages, Limitations, General Structure of LPP, Model Formulation, of LP model, graphical method, simplex method. Application to production, marketing, agriculture etc., Introduction to Duality.	4
III	Transportation and Assignment models: Transportation problem, General structure of transportation problem, methods of finding initial basic feasible solution (NWCM, LCM & VAM), test for optimality (MODI Method), degeneracy, Assignment problems, Introduction, General structure, Hungarian method of solution, variations of assignment problems: minimization, maximization, unbalanced cases and restrictions	4
IV	Decision Theory: Decision-making under uncertainty- Maximin, Maximax, Laplace and Hurwicz criteria; decision-making under Risk- Expected Value (EMV, EOL,EVPI), decision tree analysis	3
V	Game Theory: Theory of games- formulation of game models, Two person Zero sum games & their solution, 2 x N and M x 2 games, pure strategies with saddle point, rule of dominance, solution methods for games without saddle point: Mixed strategies (Algebraic, Arithmetic, Graphical method only), Limitations of game theory.	3
VI	Replacement Theory: Replacement Problems: Replacement of items that deteriorate with time; Replacement of items that fail completely; staffing problem.	2

VII	Queuing Theory: Characteristics of Single Server Queueing model, Application of Poisson and Exponential distribution in estimating arrival rate and service rate; Applications of Queue model for better service to the customers. (No derivation, only application aspects)	3
VIII	Simulation: Simulation, process of simulation, types of simulation, steps in simulation process, Monte Carlo simulation, application in queuing, inventory, finance, marketing and HR areas, Advantages & Disadvantages.	3

SECTION B

At least one Case Study from each unit. Questions will be case/inferences/application based

PRACTICAL COMPONENTs:

- Solving and analyzing theoretical problems
- Application of problems by using excel
- Application of Techniques for real life problems
- Conducting data analysis using TORA and MS-Project
- Solving a real business problem using quantitative technique

BOOKS RECOMMENDED:

1. Frederick S. Hillier, Gerald J. Lieberman, Introduction to Operations Research - 9/e, Tata McGraw-Hill, 2011.
2. Sharma S. D, Operations Research: Theory, Methods and Applications, Kedar Nath, Ram Nath& Co.
3. Vohra N. D, Operations Research - 4/e, TMH, 2010
4. Taha H. A, Operations Research: An Introduction - 9/e, PHI
5. Gupta, P. K., and Hira, D. S., Operations Research, S. Chand & Company
6. Ravindran, A., et al., Operations Research, John Wiley & Sons.
7. Kapoor, V. K., Operation Research: Quantitative Techniques for Management, Sultan Chand, 2011

LIST OF JOURNALS/PERIODICALS/MAGAZINES/ARTICLES:

1. International Journal of Operations Research
2. Operations Research Perspectives-Journal-Elsevier
3. Journal of the Operational Research Society
4. Journal of Operations Management
5. International Journal of Production Research

M-204: FINANCIAL MANAGEMENT

OBJECTIVES

1. To understand the financial aspects of managerial decisions.
2. To develop skills to determine capital structure and other financial policies.
3. To develop managerial skills in areas related to investment, financing, and dividend policy decisions.

LEARNING OUTCOMES:

1. Apply financial management concepts and tools to the financing decisions and dividend decisions.
2. Appraise risk profile of firms; specifically, estimate the costs of capital, including debt and equity capital using financial data.
3. Apply concepts and tools to the decisions faced by a manager in investment decisions.
4. Select and apply techniques in assessing and managing working capital

SECTION-A

UNIT	COURSE DESCRIPTION	SESSIONS
I	Financial Management: Introduction to financial management, objectives of financial management. Changing role of finance managers in contemporary business environment. Interface of Financial Management with other functional areas.	2
II	Sources of Financing: Shares, Equity Shares, Preference Shares Debentures, Term loans.	2
III	Time value of Money: Future value of single cash flow & annuity, present value of single cash flow, annuity & perpetuity. Capital recovery & loan amortization.	2
IV	Investment Decisions: Investment evaluation techniques-Net present value, Internal rate of return, Modified internal rate of return, Profitability index, Payback period, Discounted payback period, Average Rate of Return Method Estimation of cash flow for new project, replacement projects	4
V	Cost of Capital: Cost of capital - basic concepts. Cost of term debenture capital, cost of preference capital, cost of equity share capital. Cost of retained earnings. Determination of Weighted average cost of capital (WACC)	4
VI	Financial Decisions: Working Capital Management: Working capital determinants, Current Assets financing policy. Determination of operating cycle. Estimation of working capital requirements of a firm: Operating Cycle Method and Net Assets Method. Leverage: Operating Leverage, Financial Leverage and Total Leverage.	4
VII	Capital Structure: Theory and Policy- Net Income Approach, Modigillani – Miller Approach, Modern Theories, Optimal Capital Structure, EBIT- EBT Analysis, Financial Break- Even.	3
VIII	Dividend Policy Decisions: Dividend Policy-Factors affecting the dividend policy - Dividend policies-stable dividend, stable payout. Dividend Theories: Walter, Gordon and MM Approach.	3

SECTION B

At least one Case/Problems from each unit/ Questions will be case/inferences/application based.

Note: 50% of the questions will be numerical.

PRACTICAL COMPONENT:

- Study the sources of finance of any five BSE listed companies & calculate the proportions of their sources of finance.
- Calculate future value of annuity of any five fixed deposits schemes offered by Banks/NBFCs.
- Calculate working capital requirement of any two firms using operating cycle method and net assets method.

- Evaluate investment decisions of any two firms using NPV and payback period method.
- Study dividend policy of any three growth firms for past five years and comment.

BOOKS RECOMMENDED:

1. Pearson Hunt, Charles Marvin Williams, Gordon Donaldson Basic Business Finance: A Text. R. D. Irwin.
2. Hampton, John. J. Financial Decision Making: Concepts, Problems, and Cases. Prentice-Hall International.
3. Prasanna, Chandra.Financial Management. Tata McGraw-Hill.
4. Pandey, I.M. Financial Management.Vikas Publishing House.
5. James, C. Van, Horne. Wachowicz,John. M. Fundamentals of Financial Management. Prentice Hall of India.
6. Khan, M. Y., & Jain, P. K. (2017). Financial Management: Text and Cases. 7th edition.
7. S. B., Hirt, G. A., & Short, J. D. (2000). Foundations of Financial Management. Toronto: McGraw-Hill Ryerson.

LIST OF JOURNALS/PERIODICALS/MAGAZINES/ARTICLES:

1. Journal of Finance.
2. The Review of Financial Studies.
3. Journal of Financial Economics
4. Journal of Financial and Quantitative Analysis
5. Journal of Banking and Finance

M-205: HUMAN RESOURCE MANAGEMENT

OBJECTIVES
1. To acquire basic knowledge of Human Resource Management and develop insight into the managerial skills required to effectively manage people in an organization.
2. To comprehend various facts of managing people and to create an understanding of the various policies and practices of human resource management.
3. To understand significance of career and succession planning.

LEARNING OUTCOMES:
1. Develop understanding of the basic concepts, functions and processes of human resource management.
2. Ability to apply knowledge of human resource planning and implement techniques of job design.
3. Design HRM processes such as Recruitment/Selection/Training/Performance appraisals/Reward Systems etc.
4. Develop competency to recruit, train, and appraise the performance of employees and handle employee issues.

SECTION-A

UNIT	COURSE DESCRIPTION	SESSIONS
I	Introduction: Human Resource Management- Meaning and significance, Major functions of HRM, HR as a factor of Competitive advantage, Line and Staff responsibility of HR Managers, HR Competencies.	2
II	Human Resource Planning and Job Analysis: HR Planning: Meaning, Significance and Process of Human Resource Planning. Job Analysis: Meaning, Importance, Process of Job Analysis. Job Design- Job Enlargement, Job Enrichment, Job Rotation.	3
III	Recruitment and Selection: Recruitment: Meaning, Significance and Sources of Recruitment, Cost-Benefit Analysis; Selection: Meaning, Significance and Process, Techniques-Tests and Interviews.	3
IV	Training and Development: Meaning and Significance of Training and Development, Process, Training Needs Analysis, Methods of Training- On the Job Methods and Off the Job Methods.	3
V	Compensation Management: Job Evaluation: Concept & Methods of Job Evaluation, Types of Compensation: Direct and Indirect, Salary/Wage Fixation, Allowances, Incentives, Bonus, ESOPs, and Fringe Benefits, Emerging Statutory aspects of Compensation & Benefits.	3
VI	Performance Appraisal: Meaning and Significance of Performance Appraisal, Methods of Performance Appraisal, Limitations and Problems. Potential Appraisal.	3
VII	Industrial Relations: Dynamics of Industrial Relations, Discipline and Domestic Enquiry, Grievance Management, Collective Bargaining, Legal aspects of Employee Relations with reference to Trade Union Act, Industrial Disputes and Settlement Machinery.	4
VIII	Career and Succession Planning: Career Planning: Meaning, Significance and Process of Career Planning, Stages of Career Development, Career Anchors. Succession Planning: Meaning, Significance and Process of Succession Planning.	3

SECTION B

At least one Case study/Problem from each module. Questions will be case/inferences/application based

PRACTICAL COMPONENT:

- Expose students to simulated recruitment exercises- Job profile, personal profile, advertisements, etc. and also standard selection tests followed in various sectors.
- Give a job analysis case and ask the students to prepare job description and job specification.
- Give a case and ask the students to prepare the recruitment advertisement for a news paper.
- Ask the students to prepare an appointment letter for the post of office manager of a company known to you.
- Give a performance goal setting case and ask the students to perform dyadic role playing.

Books Recommended:

1. Byars, L & Rue, L. Human Resource Management. McGraw Hill.
2. Aswathappa, K. Human Resource Management. Tata McGraw-Hill.
3. Dessler, Varkkey. Human Resource Management. Pearson.
4. Jyothi. Human Resource Management. Oxford University Press.
5. Mondy, R. Human Resource Management. Prentice Hall.
6. Steve Fleetwood, Anthony Hesketh, Explaining the Performance of Human Resource Management, Cambridge University Press.

7. Michael Armstrong, Human Resources Management Practice, Kogan Page, 10th edition.

LIST OF JOURNALS / PERIODICALS / MAGAZINES / NEWSPAPERS

1. Human Capital
2. Indian Journal of Industrial Relations
3. HRM Review
4. Human Resource Management Journal
5. Indian Journal of Training and Development

M-206: MARKETING RESEARCH

OBJECTIVES
1. To understand the concept and process of Market Research in business environment.
2. To develop the analytical abilities and market research skills.
3. To effectively report research findings.

LEARNING OUTCOMES:
1. Explain research process, and its implementation in functional areas of Business.
2. Apply research design in Qualitative and Quantitative context.
3. Elaborate Exploratory Research Design, Descriptive Research Designs and Experimental Design.
4. Collect field data, formulate appropriate Hypothesis cad carry out Hypothesis Testing.
5. Elaborate Concept of Measurement and Levels of measurement.

SECTION-A

UNIT	COURSE DESCRIPTION	SESSIONS
I	Introduction: Meaning, Objectives and significance of marketing research, types of marketing research problems, Emerging issues in research. Marketing Research Process: Steps Involved in Research Process. Research Design: Various Methods of Research Design	3
II	Collection of Data: Concept of Sample, Sample Size and Sampling Procedure, Various Types of Sampling Techniques, Determination and Selection of Sample Member, Types of Data: Primary and Secondary, Various Methods of Collection and Data, Preparation of Questionnaire and Schedule, Types of Questions, Sequencing of Questions, Check Questions, Length of Questionnaire, Precautions in Preparation of Questionnaire and Collection of Data.	4
III	Data Analysis and Scaling Techniques Coding, Editing and Tabulation of Data, Various Kinds of Charts and Diagrams Used in Data Analysis: Bar and Pie Diagrams and their Significance, Use of software like SPSS etc., in Data Analysis, Non-parametric & Parametric tests. Measurement Scales, Sources of Error in Measurement scales, Meaning and Classification of Scaling, Attitude Scaling Techniques.	4
IV	Estimation Theory and Hypothesis Testing: Sampling theory; Formulation of Hypotheses; Application of Z-test, t-test, F-test and Chi-Square test.	5
V	Techniques of association of Attributes & Testing : Application and Analysis of Variance (ANOVA). Nonparametric tests: Mann-Whitney test, Kruskal-Wallis test, Kolmogorov Smirnov Test.	3
VI	Applications of Marketing Research – Customer attitude and satisfaction research, brand equity, advertising effectiveness, copy testing, readership and viewership survey etc.	3
VII	Research Report Preparation: Types and Layout of Research Report, Significance of Report writing, Process of report writing, Mechanics of writing a research report, Precautions in Preparing the Research Report. Plagiarism, Paraphrasing & Citation.	1
VIII	Bibliography and Referencing: Significance of Bibliography & Referencing, APA style of referencing	1

SECTION B

At least one Case and Problems from each module. Questions will be case/inferences/application based

PRACTICAL COMPONENT:

- Identifying the Problem
- Preparing the Research Proposal
- Designing the Data Collection Instrument
- Conducting Pilot Survey, Final survey, Analyzing the Data using Software's like SPSS, Minitab, IBM Analytics, etc
- Preparing the Research Report.

BOOKS RECOMMENDED:

1. Cooper, Donald. Schindler, R. and Pamela, S. Business Research Methods. McGraw-Hill.
2. Bryman.Business Research Methods.Oxford University Press.
3. Naval Bajpai, Marketing Research:An Indian perspective, Pearson India, 2017
4. Aaker, Kumar & Day: Marketing Research, John Wiley & Sons, 1998
5. Malhotra, N.K, Dash S. (2010), "Marketing Research: An Applied Orientation", (6th Ed.), Pearson Education, India.
6. Zikmund, W.G. and Babin, B. J. (2016), "Essence of Marketing Research", (11th Ed.), Cengage Learning.
7. Beri, G.C. (2013), "Marketing Research", (5th Ed.), Tata McGraw Hill.
8. Green, P. E., Tull, D. S. and Albaum, G., "Research for Marketing Decisions", Prentice Hall of India

LIST OF JOURNALS/PERIODICALS/MAGAZINES/NEWSPAPERS

1. International Journal of Research in Marketing, Elsevier
2. International Journal of Social Research Methodology
3. Organizational Research Methods: Sage Journals
4. Journal of Marketing Research
5. International Marketing Review

M-207: OPERATIONS MANAGEMENT II

OBJECTIVES
1. To understand the ways and means of making processes or operating systems easier and efficient to use.
2. To comprehend students with the concept of supply chain and logistics management and its significance in business operations.
3. To increase understanding of the problems and opportunities faced by the operations manager in operations.

LEARNING OUTCOMES:
1. Apply Work study techniques in operations.
2. Use continuous improvement techniques for process improvement.
3. Explain different operations processes, and identify different types of process product matrix
4. Prepare a service blueprint for given service providing organization
5. Explain the importance, scope & functions of and issues & integrated framework in Supply Chain

SECTION-A

UNIT	COURSE DESCRIPTION	SESSIONS
I	Work Study: Motion and Time Study, Problem solving process, Work Method Design, Process analysis, Work measurement: Time Study, Rating, Allowances, Stopwatch time study, predetermined time standards, standard data, Work sampling.	3
II	Quality Management: The Dimensions of Quality, Evolution, Quality Gurus, Inspection, Quality Control, Quality Assurance, Quality Cost. Quality Awards, Certification: Introduction to ISO 9000, 14000 and 24700. Total Quality Management, QC Tools	3
III	Process Quality Improvement: Statistical Process Control (SPC), Variability, Control Charts for Attributes and Variables, Process capability analysis. Acceptance sampling, Six sigma for process Improvement Introduction to Product Quality Improvement: Quality Function Deployment, Robust Design and Taguchi Method	4
IV	Production Control, Shop-Floor Control, Scheduling Operations, Scheduling in High-Volume Systems, Intermediate-Volume Systems and Low-Volume Systems. Loading: Order Release. Loading and Assignment: Gantt Charts, Infinite and finite loading, Sequencing , priority rules, sequencing jobs through two work centers, scheduling services	3
V	JIT and Lean Operations: Toyota approach, Goals and building blocks of lean systems, Value stream mapping. Transitioning to a lean system, Lean services,	3
VI	Introduction to Maintenance Management: Importance of Maintenance, Types of Maintenance, Breakdown, Preventive, Predictive Maintenance and Total Productive Maintenance	1
VII	Supply Chain Management: Introduction to supply chain and SCM, Trends in Supply Chain Management, Global Supply Chains, ERP and Supply Chain Management, Management Responsibilities: Strategic, tactical, and Operational. E-Business, Supplier management, Inventory Management: bull whip effect, vendor managed inventory, Creating an Effective Supply Chain	3
VIII	Project Management : Introduction, Project Life Cycle, Behavioral Aspects, The Nature of Projects, Key Decisions in Project Management, The Project Manager, Certification, Work Breakdown Structure, Planning and Scheduling with Gantt Charts, PERT and CPM, The Network Diagram, Network Conventions, Computation of Critical Path, Time–Cost Trade-Offs: Crashing, Resource smoothing and levelling. Introduction to Project Management Software.	4

SECTION B

At least one Case Study from each module is to be discussed. Questions will be case/inferences/application based

PRACTICAL COMPONENT:
1. Visit any industrial unit and understand the processes performed in the unit.
2. Use the theoretical knowledge to understand the operations.
3. Prepare a report on how the above concepts used in selected industrial unit under the guidance of your subject teacher.
4. Study of Lean Operations of two Indian Companies.
5. Managerial Implications of Work Study

BOOKS RECOMMENDED:

1 Chase, R. B. et al., Operations and Supply Management, Tata McGraw-Hill, 2010.
2 Blanchard, David., Supply Chain Management Best Practices, NY, John Wiley & Sons, 2006.
3 Stevenson, Operations Management with Student DVD (SIE). Tata McGraw-Hill.
4 Russell & Taylor, III. Operations Management. Prentice Hall of India.
5 Nair, .Production and Operations Management. Tata McGraw-Hill.
6 Govil M., and Proth, J., Supply Chain Design and Management, Academic Press, 2001.

LIST OF JOURNALS/PERIODICALS/MAGAZINES/NEWSPAPERS
1. International Journal of Supply Chain and Operations Resilience
2. Journal of Operations Management (JOM)
3. Journal of Production Research & Management (JoPRM)
4. International Journal of Production Management and Engineering
5. American Journal of Operations Management and Information Systems (AJOMIS)

M-208: NEW ENTERPRISE AND INNOVATION MANAGEMENT

OBJECTIVES
1. To develop the expertise required for creating and starting a new venture.
2. To design creative strategies for pursuing, exploiting and further developing new business opportunities.
3. To analyze issues associated with securing and managing financial resources in new and established organizations.

LEARNING OUTCOMES:
1. Understand the key concepts underpinning entrepreneurship and its application.
2. Enhance the abilities to critically analyze situations and constructing viable solutions to entrepreneurial problems.
3. Conceptualize and implement concepts of innovation and the issues for facilitating innovation within the organizations.
4. Realize the importance of personal attributes that enable best use of entrepreneurial opportunities.

SECTION A

UNIT	COURSE DESCRIPTION	SESSIONS
I	Introduction to Entrepreneurship: Entrepreneurship and enterprise: Concept, role in economic development. Entrepreneurial competencies: awareness, assessment, and development. Entrepreneurial and Intrapreneurial mind. Entrepreneur– meaning, importance, traits, types. Entrepreneurial environment – Global Entrepreneurship Environment and Business climate in India.	3
II	Starting the Venture: Generating business idea – sources of new ideas, methods of generating ideas, creative problem solving, opportunity recognition; environmental scanning, competitor, and industry analysis; feasibility study – market feasibility, technical/operational feasibility, financial feasibility.	3
III	New Venture creation: Minimum Viable Product development and testing, Preparation of Business Plan and its importance. Requisites of a good business plan.	3
IV	Functional plans: Marketing plan: Marketing research for the new venture, steps in preparing marketing plan, contingency planning; organizational plan: form of ownership, designing organization structure, Financial plan: Preparing Financial plan for new venture—Need and significance of cash budget, working capital, Performa income statement, Performa cash flow, Performa balance sheet, break even analysis.	4
V	Sources of finance: Sources of external finance, short term as well as long term, Debt or equity financing, commercial banks, Angel Investors, venture capital; financial institutions supporting entrepreneurs;	3
VI	Entrepreneurship Development and Government: Role of Central Government and State Government in promoting Entrepreneurship, Statutory obligation in starting a unit (general like Income Tax, VAT, CST or GST, Service tax, excise and customs, labour laws, etc.) Start up strategies. Dealing with outside agencies like consultant, contractors, etc. Key marketing issue of new venture. Starting a franchising business. Starting an e-commerce venture. Buying a running business. Introduction to various incentives, subsidies and grants, Export Oriented Units, Fiscal and Tax concessions available. Development of women Entrepreneurs. Institutes supporting entrepreneurs - SIDBI, NABARD, KVIC, NBMSME. Start Up India, Make in India	4
VII	Legal issues: intellectual property rights patents, trademarks, copy rights, trade secrets, licensing, franchising. Cause of failure of new ventures and strategies to deal with, Growth strategies for a new enterprise.	2
VIII	Innovation Management: Innovation management an introduction, Types of Innovations organizational setups that facilitate innovations, Incubators and Accelerators- Role in facilitating entrepreneurship.	2

SECTION B

At least one Case Study from each UNIT. Questions will be case/inferences/application based

PRACTICAL COMPONENT

- Prepare a feasibility report/business plan and make presentation in the class.
- Prepare an assignment on at least three leading entrepreneurs
- Visit a franchisee and prepare a report and/or make presentation in the class
- Prepare an assignment on Intellectual Property Rights granted to Indian firms in any specific industry.
- Conducting survey for SME owners to understand the challenges that are faced by them in setting up their business.

BOOKS RECOMMENDED:

1. Rajeev Roy, Entrepreneurship, Oxford University Press, Second Edition.
2. Vasanth Desai, Dynamics of Entrepreneurial Development and Management, Himalaya Publishing House, First Edition.
3. Hisrich, Robert D., Michael Peters and Dean Shephered, Entrepreneurship, Tata McGraw Hill, Eleventh Edition.
4. Charantimath, Poornima, Entrepreneurship Development and Small Business Enterprises, Pearson Education.
5. Kumar Arya, "Entrepreneurship: Creating and Leading an Entrepreneurial Organization", Pearson Education, First Edition.
6. Harvard Business Review Entrepreneur's Handbook (HBR Handbooks)
7. B. Janakiram, M. Rizwana, Entrepreneurship Development: Text & Cases, First Edition.

LIST OF JOURNALS/PERIODICALS/MAGAZINES/NEWSPAPERS

1. Journal of Entrepreneurship and Innovation in Emerging Economies (JEIEE)
2. Journal of Small Business Management
3. Journal of Business Venturing
4. The Economic Times Newspaper

5. Business World Magazine

M-209: MINI-PROJECT

1. The objective is that a student should be able to identify the issues and challenge of the industry and is able to prepare report on the application of emerging technologies in the selected industry.
2. In second semester, the students are required to take one industry as per his/her interest, for analysis and preparing a project report. Preference should be given on the application of emerging technologies in the selected industry. It may consist of Financial Services, Data Science, Social Entrepreneurship, or any other suitable area of interest.
3. The students will prepare seminar under guidance of faculty members allotted by the Director/ Principal /Head of Department of the institute. There will be regular internal assessment and regular classroom interactions as per the number of sessions allotted to it.
4. The student will submit written report of seminar work, prepared individually and shall make an oral presentation before a panel consisting of internal and external examiner (Preferably from Industry) appointed by Director/Principal/HOD. The assessment of 40 marks shall be done by the external examiner appointed by the Head of the department in consultation with Director/Principal of the college. University shall not appoint any examiners for M-209.
5. The average number of pages in the report shall be 40 and should be typed by student himself. The format of the report is to be provided to students by the institute.

M-210: BUSINESS ETHICS LAB.

OBJECTIVES:
1. To comprehend Indian Ethos and values
2. To understand ethical problems and issues in various corporate situations.
3. To participate in case discussions of ethical issues that are grounded in strategic business settings.

LEARNING OUTCOMES:
1. Imbibe concept of ethical issues in corporate governance and adhere to ethical codes.
2. Develop knowledge of various CSR for implementing professional life.
3. Use their ethical imaginations in resolving dilemmas and enhancing business decision-making.
4. Appreciate the relevance of personal values in the business/workplace setting.

SN	DETAILS OF LAB WORK
1	Introduction Business Ethics: Discussion on theories of Ethics. • Case: Rajanna's Ethical Dilemma • Case: The Rise and fall of Vijay Mallya • Case; Business Ethics and Governance Issues at HP: The pretexting Controversy
2	Discussion on relevance of Indian ethos in organization, Indian Management thought Vs Western Management thought, Theory of GUNAS (Sattva, Rajas, Tamas), Doctrine of Karma. Discussion on: • Management lessons from Ramayana • Leadership and Management lessons from Chanakya Nitti • Corporate Lessons from Mahabharat • Management Lessons from Bhagavad Gita. • Presentation on implication of Indian Ethos in Business organizations.
3	Ethical Leadership: Case Study/Discussion with focus on Ethical leadership, • Case: The CEO of Starbucks and the Practice of Ethical Leadership • Case: Case on Executive Integrity • Ethical Leadership Story of Naranmurthy, Infosys • Ethical Leadership Story of Ratan Tata and India's Tata Group • Ethical Issues in Snap's IPO: Evaluating Leadership Character • Role play on Ethical Leadership behaviour
4	Corporate Social Responsibility: Legal Perspectives, Economic Perspectives, Ethical Perspectives. • Case: Managing for Stakeholders • Case: Corporate Social Responsibility in an Indian Public Sector Organization: A Case Study of NTPC • Field work on Corporate Social Responsibility
5	Discussion/ Case Study on Corporate Social Responsibility: • Case: CSR-Amul • Case: Havells India Ltd. • Case: Coca-Cola India: Is It an Eco-friendly Company? • CSR activity of BPCL Ltd. • CSR Activities of Mahindra & Mahindra Ltd. • CSR activities of ITC Ltd.
6	Ethical Issues in Business Area: Discussion on Ethical Issues in business arena of Finance, Marketing, IT etc. • Case: Facebook and our Fake News Problem • Case: Targeting a Broken Heart • Case: The Debacle and Revival of Nestlé India's Maggi

	• Case: Chaos at Uber: The New CEO's Challenge • Case: Volkswagen Emission Cheating Scandal: Matthias Muller's Big Challenge. • Case: Instagram and the Ethics of Privacy • Group Discussion on Ethical Issue (Case reading and discussion on Accounting Scandal of Satyam Ltd.and SAHARA India Fiasco)
7	Ethical Dilemma's: Divide the class into small groups of 4-6 students. Give them exercise on ethical dilemma's and ask each group to do brainstorming and arrive at the possible solutions. They may be present in the class to discuss various perspectives.
8	Corporate Governance: Significance of Corporate Governance in business • Case: Corporate Governance at Unilever • Case: Corporate Governance at Infosys • Assignment on studying Indian Corporate Governance framework

Note: The above list is suggestive. Case studies may be added

CASE REFERENCES:	
1. https://www.etcases.com 2. https://www.icmrindia.org/casestudies 3. https://www.icmrindia.org/casestudies 4. https://www.scu.edu/ethics/focus-areas/internet-ethics 5. https://www.scu.edu/ethics/focus-areas/internet-ethics 6. https://www.scu.edu/ethics/focus-areas/internet-ethics 7. https://www.etcases.com 8. https://distpub.com/product/aid14863-case-study-amul-corporate-social-responsibility 9. theinvestorsbook.com	10. https://www.etcases.com 11. https://www.scu.edu/ethics/focus-areas/internet-ethics 12. https://www.scu.edu/ethics/focus-areas/internet-ethics 13. https://www.etcases.com 14. https://icmrindia.org/casestudies 15. https://www.icmrindia.org/casestudies 16. https://www.scu.edu/ethics/focus-areas/business-ethics 17. https://www.icmrindia.org/casestudies 18. https://www.icmrindia.org/casestudies

BOOKS RECOMMENDED:

1. Zabihollah Rezaee &Timothy Fogarty, Business Sustainability, Corporate Governance, and Organizational Ethics Wiley ,2019
2. Richard A. Spinello, Business Ethics: Contemporary Issues and Cases, SAGE Publications, Inc; 2019
3. Joseph Des Jardins, An Introduction to Business Ethics, McGraw-Hill Education; 2019
4. Denis Collins Business Ethics-Best Practices for Designing and Managing Ethical Organizations, SAGE Publications, Inc. 2018
5. Archie B. Carroll , Jill Brown, Ann K. Buchholtz, Business & Society: Ethics, Sustainability & Stakeholder Management Cengage Learning, 2017
6. Christine Mallin, Corporate Governance, Oxford University Press, 5th Edition, 2015
7. Shitangsu K. Chakraborty, Samir R. Chatterjee, Applied Ethics in Management: Towards New Perspectives, Springer Science & Business Media, 2012

M-211: MANAGÉRIAL COMPUTING LAB

OBJECTIVES
1. To understand relevant applications software related to various courses taught in the semester such as QT, FM, HRM, MM, OM etc.
2. To use the application software packages like MS Excel/ SPSS/ MINITAB/ SYSTAT/R/ SAS/ Statgraphics/ TORA etc.
3. Make optimal business decisions by integrating the concepts of economics, mathematics and statistics.

LEARNING OUTCOMES:
1. Use appropriate computational tools to solve managerial problems using Software
2. Apply the Quantitative Techniques to real life business situations.
3. Use appropriate strategies and tools to analyze data.

SN	DETAILS OF LAB WORK
1	To determine the optimal solution using LPP Technique for problems/case study related to the following with the help of Excel Solver: • Product Mix/Diet/Blending Problems • Production applications • Marketing Applications • Financial Applications
2	To determine the optimal solution using Excel Solver for the problems/case study related to • Transportation • Assignment
3	Using the given survey data, construct the 95% confidence interval estimate of population characteristics for each variable and draw conclusions
4	Case study on correlation and regression analysis
5	Case study on application of Chi Square test to business situation
6	Case Study on discriminant analysis in marketing
7	Case Study on logistic regression for classification and prediction
8	Case study on Factor analysis for data reduction/ cluster analysis for market segmentation
9	To use p-value approach to hypothesis testing to test a mean or proportion: One sample test
10	To use hypothesis testing for comparing between difference between means, proportions, and variances of two populations
11	To carry out One-way ANOVA and Two-way ANOVA
12	To carry out Nonparametric test on the given data and infer results

Note: The above list is suggestive. Experiments/case studies may be added relevant to the theory courses taught in the semester

BOOKS RECOMMENDED:

1. Understanding Educational Statistics Using Microsoft Excel and SPSS, Martin Lee Abott , Wiley 2011
2. Statistics for Managers Using Microsoft Excel (5th Edition)David M. Levine David F. Stephan Timothy C. Krehbiel Mark L. Berenson, Prentice Hall
3. Statistics for Management, 7th edition, Levin & Rubin, Pearson Education Publication
4. Applied Statistics and Probability for Engineers , 6th edition, D. C. Montgomery and G. C. Runger, John Wiley & Sons.
5. Statistical Analysis with Excel For Dummies Joseph Schmuller, John Wiley & Sons, Inc. 2013
6. Business Data Analysis Using Excel, David Whigham ,OUP 2007

SOCIAL OUTREACH, DISCIPLINE & EXTRA CURRICULAR ACTIVITIES (SODECA)

(FOR SEMESTER- I & II MBA)

OBJECTIVES:

- To appreciate the importance and values of social life prevailing in Village.
- To understand the value of Social Work.
- To Understand the Significance of Discipline in student's Life through involving student in plantation, waste management, no plastic campaign, electricity, and water saving activities.
- To understand the value of extra co-curricular activities.

The following various activities are categorized as SODECA:

A. Games and Sports / Field Based Activities: Sports Activities or any other field related activity.

B. Cultural/ Literary Activities: Activities under the banner of Student Body, Celebration of recognized National Days/ Birth Anniversary of great personalities, Hostel Day/ Annual Day/ Fresher's Day or any other related activity.

C. Academic/Technical/ Professional Development Activities: Attending workshops, seminars, FDPs for reasonable duration/numbers. Attending/ paper presentation in conferences.

D. Social Outreach / Personality Development Based Activities: Contribution towards social up-gradation based activities, Activities by social organization like, Art of Living, Yoga etc., Blood donation, Awareness programs, personality development programs, activities under different clubs (if not covered under above heads) like, photography etc., NGO activities, Plantation/ cleanliness activities etc.

Involve student in plantation, waste management, no plastic campaign, electricity/Water saving activities and ask written suggestion from each student individually.

E. Anandam Program Activities:

The students are expected to perform the following activates:
Do at least one act of individual service each day
Record this act of service in a dedicated Register/Personal Diary (PD)
Participate in a sharing and presentation on the group service in the discussion session held once a month

Awarding Marks:

Effective contribution and active participation may be judged for awarding the marks. Additionally, following levels may be defined in each components A, B, C, D & E:

Component B	Level wise Marks			
	Level-1	Level-2	Level-3	Level-4
A. Games and Sports / Field Based Activities	-	-	50	60
B. Cultural/ Literary Activities	30	40	50	60
C. Academic/Technical/ Professional Development Activities	30	40	50	60
D. Social Outreach / Personality Development Based Activities	30	40	50	60
E. Anandam Program Activities	30	40	50	60
Maximum Marks	100			

Level-1:
i. Active Participation in activities at College/City Level
ii. Do at least one act of individual service each day in category E

Level-2:
i. Active participation in multiple activities at Level-1
ii. Participation at State level
iii. Getting award/ recognition at District/State Level
iv. Record this act of service in a dedicated Register/Personal Diary in category E

Level-3:
i. Active participation in multiple activities at Level-2
ii. Participation at National level
iii. Getting award/ recognition at National Level
iv. Participate in a sharing and presentation on the group service in the discussion session held once a month in category E

Level-4:
i. Active participation in multiple activities at Level-3
ii. Participation at International level
iii. Getting award/ recognition at International Level
iv. Providing technical solutions for the social problems

AUDIT COURSE: ENGLISH FOR RESEARCH PAPER WRITING

Course objectives: Students will be able to:

1. Understand that how to improve your writing skills and level of readability
2. Learn about what to write in each section
3. Understand the skills needed when writing a Title
4. Ensure the good quality of paper at very first-time submission

UNIT	COURSE DESCRIPTION	SESSIONS
I	Planning and Preparation, Word Order, Breaking up long sentences, Structuring Paragraphs and Sentences, Being Concise and Removing Redundancy, Avoiding Ambiguity and Vagueness	2
II	Clarifying Who Did What, Highlighting Your Findings, Hedging and Criticising, Paraphrasing and Plagiarism, Sections of a Paper, Abstracts. Introduction	2
III	Review of the Literature, Methods, Results, Discussion, Conclusions, The Final Check.	2
IV	key skills are needed when writing a Title, key skills are needed when writing an Abstract, key skills are needed when writing an Introduction, skills needed when writing a Review of the Literature,	2
V	skills are needed when writing the Methods, skills needed when writing the Results, skills are needed when writing the Discussion, skills are needed when writing the Conclusions	2
VI	useful phrases, how to ensure paper is as good as it could possibly be the first- time submission	2

BOOKS RECOMMENDED:

1. Goldbort R (2006) Writing for Science, Yale University Press (available on Google Books)
2. Day R (2006) How to Write and Publish a Scientific Paper, Cambridge University Press
3. Highman N (1998), Handbook of Writing for the Mathematical Sciences, SIAM. Highman'sbook .
4. Adrian Wallwork , English for Writing Research Papers, Springer New York Dordrecht Heidelberg London, 2011

AUDIT COURSE:: DISASTER MANAGEMENT

Course Objectives: -Students will be able to:

1. learn to demonstrate a critical understanding of key concepts in disaster risk reduction and humanitarian response.
2. critically evaluate disaster risk reduction and humanitarian response policy and practice from multiple perspectives.
3. develop an understanding of standards of humanitarian response and practical relevance in specific types of disasters and conflict situations.

UNIT	COURSE DESCRIPTION	SESSIONS
I	Introduction Disaster: Definition, Factors And Significance; Difference Between Hazard And Disaster; Natural And Manmade Disasters: Difference, Nature, Types And Magnitude.	2
II	Repercussions Of Disasters And Hazards: Economic Damage, Loss Of Human And Animal Life, Destruction Of Ecosystem. Natural Disasters: Earthquakes, Volcanisms, Cyclones, Tsunamis, Floods, Droughts And Famines, Landslides And Avalanches, Man-made disaster: Nuclear Reactor Meltdown, Industrial Accidents, Oil Slicks And Spills, Outbreaks Of Disease And Epidemics, War And Conflicts.	2
III	Disaster Prone Areas In India Study Of Seismic Zones; Areas Prone To Floods And Droughts, Landslides And Avalanches; Areas Prone To Cyclonic And Coastal Hazards With Special Reference To Tsunami; Post-Disaster Diseases And Epidemics	2
IV	Disaster Preparedness And Management Preparedness: Monitoring Of Phenomena Triggering A Disaster Or Hazard; Evaluation Of Risk: Application Of Remote Sensing, Data From Meteorological And Other Agencies, Media Reports: Governmental And Community Preparedness.	2
V	Risk Assessment	2

	Disaster Risk: Concept And Elements, Disaster Risk Reduction, Global And National Disaster Risk Situation. Techniques Of Risk Assessment, Global Co-Operation In Risk Assessment And Warning, People's Participation In Risk Assessment. Strategies for Survival.	
VI	Disaster Mitigation Meaning, Concept And Strategies Of Disaster Mitigation, Emerging Trends In Mitigation. Structural Mitigation And Non-Structural Mitigation, Programs Of Disaster Mitigation In India.	2

BOOKS RECOMMENDED:

1. R. Nishith, Singh AK, "Disaster Management in India: Perspectives, issues and strategies "'New Royal book Company.
2. Sahni, PardeepEt.Al. (Eds.)," Disaster Mitigation Experiences And Reflections", Prentice Hall Of India, New Delhi.
3. Goel S. L. , Disaster Administration And Management Text And Case Studies" ,Deep &Deep Publication Pvt. Ltd., New Delhi.

AUDIT COURSE: SANSKRIT FOR TECHNICAL KNOWLEDGE

Course Objectives

1. To get a working knowledge in illustrious Sanskrit, the scientific language in the world
2. Learning of Sanskrit to improve brain functioning
3. Learning of Sanskrit to develop the logic in mathematics, science & other subjects enhancing the memory power
4. The engineering scholars equipped with Sanskrit will be able to explore the huge knowledge from ancient literature

UNIT	COURSE DESCRIPTION	SESSIONS
I	Alphabets in Sanskrit, Past/Present/Future Tense, Simple Sentences	4
II	Order, Introduction of roots Technical information about Sanskrit Literature	4
III	Technical concepts of Engineering-Electrical, Mechanical, Architecture, Mathematics	4

BOOKS RECOMMENDED:

1. Abhyaspustakam" – Dr.Vishwas, Samskrita-Bharti Publication, New Delhi
2. "Teach Yourself Sanskrit" Prathama Deeksha-VempatiKutumbshastri, Rashtriya Sanskrit Sansthanam, New Delhi Publication
3. "India's Glorious Scientific Tradition" Suresh Soni, Ocean books (P) Ltd., New Delhi.

Course Outcomes: Students will be able to

1. Understanding basic Sanskrit language
2. Ancient Sanskrit literature about science & technology can be understood
3. Being a logical language will help to develop logic in students

AUDIT COURSE: VALUE EDUCATION

Course Objectives

1. Understand value of education and self- development
2. Imbibe good values in students
3. Let the should know about the importance of character

UNIT	COURSE DESCRIPTION	SESSIONS
I	Values and self-development –Social values and individual attitudes. Work ethics, Indian vision of humanism. Moral and non- moral valuation. Standards and principles. Value judgements	2
II	Importance of cultivation of values. Sense of duty. Devotion, Self-reliance. Confidence, Concentration. Truthfulness, Cleanliness. Honesty, Humanity. Power of faith, National y. Patriotism. Love for nature ,Discipline	3
III	Personality and Behavior Development - Soul and Scientific attitude. Positive Thinking. Integrity and discipline. Punctuality, Love and Kindness. Avoid fault Thinking. Free from anger, Dignity of labour. Universal brotherhood and religious tolerance. True friendship. Happiness Vs suffering, love for truth. Aware of self-destructive habits. Association and Cooperation. Doing best for saving nature	4
IV	Character and Competence –Holy books vs Blind faith. Self-management and Good health. Science of reincarnation. Equality, Nonviolence ,Humility, Role of Women. All religions and same message. Mind your Mind, Self-control. Honesty, Studying effectively	3

BOOKS RECOMMENDED:

1. Chakroborty, S.K. "Values and Ethics for organizations Theory and practice", Oxford University Press, New Delhi

Course outcomes: *Students will be able to*

1. Knowledge of self-development
2. Learn the importance of Human values
3. Developing the overall personality

AUDIT COURSE: CONSTITUTION OF INDIA

Course Objectives: Students will be able to:

1. Understand the premises informing the twin themes of liberty and freedom from a civil rights perspective.
2. To address the growth of Indian opinion regarding modern Indian intellectuals' constitutional role and entitlement to civil and economic rights as well as the emergence of nationhood in the early years of Indian nationalism.
3. To address the role of socialism in India after the commencement of the Bolshevik Revolution in 1917 and its impact on the initial drafting of the Indian Constitution.

UNIT	COURSE DESCRIPTION	SESSIONS
I	History of Making of the Indian Constitution: History Drafting Committee, (Composition & Working)	1
II	Philosophy of the Indian Constitution: Preamble Salient Features	2
III	Contours of Constitutional Rights & Duties: Fundamental Rights, Right to Equality, Right to Freedom, Right against Exploitation, Right to Freedom of Religion,Cultural and Educational Rights, Right to Constitutional Remedies, Directive Principles of State Policy Fundamental Duties.	3
IV	Organs of Governance: Parliament, Composition, Qualifications and Disqualifications, Powers and Functions, Executive, President, Governor, Council of Ministers, Judiciary, Appointment and Transfer of Judges, Qualifications, Powers and Functions	2
V	Local Administration: District's Administration head: Role and Importance, Municipalities: Introduction, Mayor and role of Elected Representative, CEO of Municipal Corporation. Pachayati raj: Introduction, PRI: ZilaPachayat. Elected officials and their roles, CEO ZilaPachayat: Position and role. Block level: Organizational Hierarchy (Different departments), Village level: Role of Elected and Appointed officials, Importance of grass root democracy	2
VI	Election Commission: Election Commission: Role and Functioning. Chief Election Commissioner and Election Commissioners. State Election Commission: Role and Functioning. Institute and Bodies for the welfare of SC/ST/OBC and women.	2

BOOKS RECOMMENDED:

1. The Constitution of India, 1950 (Bare Act), Government Publication.
2. Dr. S. N. Busi, Dr. B. R. Ambedkar framing of Indian Constitution, 1st Edition, 2015.
3. M. P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis, 2014.
4. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015.

Course Outcomes: Students will be able to:

1. Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
2. Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
3. Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
4. Discuss the passage of the Hindu Code Bill of 1956.

AUDIT COURSE: PEDAGOGY STUDIES

Course Objectives:

Students will be able to:

1. Review existing evidence on the review topic to inform programme design and policy making undertaken by the DfID, other agencies and researchers.
2. Identify critical evidence gaps to guide the development.

UNIT	COURSE DESCRIPTION	SESSIONS
I	Introduction and Methodology:	

	• Aims and rationale, Policy background, Conceptual framework and terminology • Theories of learning, Curriculum, Teacher education. • Conceptual framework, Research questions. • Overview of methodology and Searching.	3
II	Thematic overview: Pedagogical practices are being used by teachers in formal and informal classrooms in developing countries. Curriculum, Teacher education.	1
III	Evidence on the effectiveness of pedagogical practices, Methodology for the in depth stage: quality assessment of included studies.	2
IV	How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy? • Theory of change. • Strength and nature of the body of evidence for effective pedagogical practices. • Pedagogic theory and pedagogical approaches. • Teachers' attitudes and beliefs and Pedagogic strategies.	3
V	Professional development: alignment with classroom practices and follow- up support, Peer support, Support from the head teacher and the community. Curriculum and assessment, Barriers to learning: limited resources and large class sizes	3

BOOKS RECOMMENDED:

1. Ackers J, Hardman F (2001) Classroom interaction in Kenyan primary schools, Compare, 31 (2): 245-261.
2. Agrawal M (2004) Curricular reform in schools: The importance of evaluation, Journal of Curriculum Studies, 36 (3): 361-379.
3. Akyeampong K (2003) Teacher training in Ghana - does it count? Multi-site teacher education research project (MUSTER) country report 1. London: DFID.
4. Akyeampong K, Lussier K, Pryor J, Westbrook J (2013) Improving teaching and learning of basic maths and reading in Africa: Does teacher preparation count? International Journal Educational Development, 33 (3): 272–282.
5. Alexander RJ (2001) Culture and pedagogy: International comparisons in primary education. Oxford and Boston: Blackwell.

Course Outcomes: Students will be able to understand:

1. What pedagogical practices are being used by teachers in formal and informal classrooms in developing countries?
2. What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners?
3. How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy?

AUDIT COURSE: STRESS MANAGEMENT BY YOGA

Course Objectives

1. To achieve overall health of body and mind
2. To overcome stress

UNIT	COURSE DESCRIPTION	SESSIONS
I	Definitions of Eight parts of yog. (Ashtanga)	4
II	Yam and Niyam. Do`s and Don't's in life. Ahinsa, satya, astheya, bramhacharya and aparigraha Shaucha, santosh, tapa, swadhyay, ishwarpranidhan	4
III	Asan and Pranayam Various yog poses and their benefits for mind & body Regularization of breathing techniques and its effects-Types of pranayam	4

BOOKS RECOMMENDED:

1. 'Yogic Asanas for Group Tarining-Part-I" :Janardan Swami Yogabhyasi Mandal, Nagpur
2. "Rajayoga or conquering the Internal Nature" by Swami Vivekananda, AdvaitaAshrama (Publication Department), Kolkata

Course Outcomes:

Students will be able to:

1. Develop healthy mind in a healthy body thus improving social health also
2. Improve efficiency

AUDIT COURSE: PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENT SKILLS

Course Objectives

1. To learn to achieve the highest goal happily
2. To become a person with stable mind, pleasing personality and determination
3. To awaken wisdom in students

UNIT	COURSE DESCRIPTION	SESSIONS
I	Neetisatakam-Holistic development of personality • Verses- 19,20,21,22 (wisdom); Verses- 29,31,32 (pride & heroism); Verses- 26,28,63,65 (virtue); Verses- 52,53,59 (dont's); Verses- 71,73,75,78 (do's)	4
II	Approach to day to day work and duties. • Shrimad BhagwadGeeta: Chapter 2-Verses 41, 47,48; Chapter 3-Verses 13, 21, 27, 35; Chapter 6-Verses 5,13,17, 23, 35; Chapter 18-Verses 45, 46, 48.	4
III	Statements of basic knowledge. • Shrimad BhagwadGeeta: Chapter2-Verses 56, 62, 68 ; Chapter 12 -Verses 13, 14, 15, 16,17, 18 • Personality of Role model. Shrimad BhagwadGeeta: Chapter2-Verses 17, Chapter 3-Verses 36,37,42, Chapter 4-Verses 18, 38,39; Chapter18 – Verses 37,38,63	4

BOOKS RECOMMENDED:

1. "Srimad Bhagavad Gita" by Swami SwarupanandaAdvaita Ashram (Publication Department), Kolkata
2. Bhartrihari's Three Satakam (Niti-sringar-vairagya) by P.Gopinath, Rashtriya Sanskrit Sansthanam, New Delh

Course Outcomes: *Students will be able to*

1. Study of Shrimad-Bhagwad-Geeta will help the student in developing his personality and achieve the highest goal in life
2. The person who has studied Geeta will lead the nation and mankind to peace and prosperity
3. Study of Neetishatakam will help in developing versatile personality of students

AUDIT COURSE SYLLABUS: INDIAN ETHOS AND BUSINESS ETHICS

History & Relevance, Principles Practiced by Indian Companies, Role of Indian Ethos in Managerial Practices, Management Lessons from Vedas, Mahabharata, Bible, Quran, Kautilya's Arthashastra, Indian Heritage in Business, Management-Production and Consumption.

Ethics v/s Ethos , Indian v/s Western Management, Work Ethos and Values for Indian Managers- Relevance of Value Based Management in Global Change- Impact of Values on Stakeholders, Trans-Cultural Human Values, Secular v/s Spiritual Values , Value System in Work Culture.

Stress Management-Meditation for mental health, Yoga.

Contemporary Approaches to Leadership- Joint Hindu Family Business–Leadership Qualities of Karta, Indian Systems of Learning-Gurukul System of Learning, Advantages- Disadvantages of Karma, importance of Karma to Managers-Nishkama Karma- Laws of Karma, Law of Creation- Law of Humility- Law of Growth- Law of Responsibility- Law of Connection-Corporate Karma Leadership.

Understanding the need for ethics, Ethical values, myths and ambiguity, ethical codes, Ethical Principles in Business; Theories of Ethics, Absolutism verses Relativism, Teleological approach, the Deontological approach, Kohlberg's six stages of moral development (CMD), Managing Ethical Dilemma; Characteristics, ethical decision making, ethical reasoning, the dilemma resolution process; ethical dilemmas in different business areas of finance, marketing, HRM and international business.

Ethical Culture in Organization, Developing codes of Ethics and conduct, Ethical and value-based leadership. Role of scriptures in understanding ethics, Indian wisdom & Indian approaches towards business ethics

8/4/21

(BOS Convener)

Rajasthan Technical University, Kota

Scheme and Syllabus

of

MCA

(Effective from academic session: 2020-21)

RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Syllabus of SODECA[Anandam] for MCA course from the academic session 2020-21

Guidelines for SODECA [Anandam] in 2 Year MCA Program

Maximum Marks 100; Credits: 08

The following activities are categorized as SODECA [Anandam]:

Part I: Discipline (25 marks)

Minimum 25 marks shall be awarded unless is involved in indiscipline.

The marks shall be deducted from this component for those who shall involve themselves in indiscipline/ undesirable activities/ Detained from departments or in case of penalty of marks imposed by Chief Proctor/ Standing Disciplinary Committee (SDC), such deduction should be preferably approved by Head of the Institution/Principal/Director and subject to a maximum of 25 marks.

Part II: Extra Curricular Activities (75 marks)

A. Games and Sports / Field Based Activities:
Sports Activities or any other field related activity.

B. **Cultural/ Literary Activities/ Social Outreach / Personality Development Based Activities:**
Activities under the banner of ESF, Celebration of recognized National Days/ Birth Anniversary of great personalities, Hostel Day/ Annual Day/ Fresher's Day or any other related activity. Contribution towards social up-gradation based activities, Activities by social organization like, Art of Living, Yoga etc., Blood donation, Awareness programs, personality development programs, activities under different clubs (if not covered under above heads) like, photography etc., NGO activities, Plantation/ cleanliness activities etc.

C. Academic/Technical/ Professional Development Activities:
Attending workshops, seminars, FDPs for reasonable duration/numbers. Attending/ paper presentation in conferences**.**

D. Research Contribution to Social Applications:
Student is desired to perform his research applications to social problems.

E. Anandam Program Activities:
The students are expected to perform the following activates:

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register/Personal Diary (PD)
- Participate in a sharing and presentation on the group service in the discussion session held once a month

07.09.2020

Awarding Marks:

Effective contribution and active participation may be judged for awarding the marks. Additionally, following levels may be defined in Category A, B, C, D & E:

Category	Level wise Marks			
	Level-1	Level-2	Level-3	Level-4
A. Games and Sports / Field Based Activities	-	-	40	50
B. A. Cultural/ Literary Activities/ Social Outreach / Personality Development Based Activities	20	30	40	50
C. Academic/Technical/ Professional Development Activities	20	30	40	50
D. Research Contribution to Social Applications	30	40	50	60
E. Anandam Program Activities	30	40	50	60
Maximum Marks	100			

Level-1: (i) Active Participation in activities at College/City Level
(ii) Do at least one act of individual service each day in Category E

Level-2: (i). Active participation in multiple activities at Level-1
(ii). Participation at State level
(iii) Getting award/ recognition at District/State Level
(iv) Record this act of service in a dedicated Register/Personal Diary in Category E
(v) Providing technical solutions for the social problems at Institute level

Level-3: (i). Active participation in multiple activities at Level-2
(ii). Participation at National level
(iii) Getting award/ recognition at National Level
(iv) Participate in a sharing and presentation on the group service in the discussion session held once a month in Category E
(v) Providing technical solutions for the social problems at State level

Level-4: (i). Active participation in multiple activities at Level-3
(ii). Participation at International level
(iii) Getting award/ recognition at International Level
(iv) Providing technical solutions for the social problems at National level

07.09.2020

RAJASTHAN TECHNICAL UNIVERSITY, KOTA

CREDIT TEMPLATES

The guidelines for new Scheme for Postgraduate Programme

MCA (Master of Computer Applications)

1. Rajasthan Technical University, Kota has implemented the AICTE Model Curriculum for Postgraduate Degree Course in Computer Applications:

   (i) For students admitted in Session 2020-21 and onwards.
   (ii) The CGPA system shall be implemented for students admitted in session 2020-21 and onwards.

2 Definition of Credit:

Table: 2.1

1 Hr. Lecture (L) per week	1 credit
1 Hr. Practical (P) per week	0.5 credits
SODECA (Anandam)	02 credits

(i) Total 83 credits will be required to be earned by a student to be eligible to get Postgraduate Degree in Computer Applications (MCA).
(ii) The structure of the degree will be as follows:

Table: 2.2

Degree	Required Credits
MCA	83

3. Semester wise credit system:

Table:3.1

S.NO.	Semester	Credits		Total credits
		Courses	SODECA (Anandam)	
1.	I	21	02	23
2.	II	21	02	23
3	III	21	02	23
4.	IV	12	02	14
Total		75	08	83.00

07.09.2020

SODECA (Anandam): Social Outreach, Discipline & Extra Curriculum Activities

4. Mandatory Trainings:

Table: 4.1

S.No.	Duration of Training	Mode of Training	After	Exam Semester	Credits
1.	45 Days	In house/Industry	I Year(II SEM)	III SEM	1
				Total	01

NOTE:-Dates of trainings shall be notified in University Academic calendar.

5. Distribution of Number of Theory and Practical Courses in each semester.

I to III Semesters:

Table: 5.1

Category	Total Number of Papers
Theory	06
Practical	03

IV Semester:

Table: 5.2

Category	Total Number of Papers
Theory	02
Practical	01

07.09.2020

RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Bridge Course

1. Bridge Course [For students other than BCA / B.Sc. (CS/IT)]

It will be an audit course for Non Computer Graduates. No Marks will be added. But Student has to pass this Course; in order have basic knowledge of Computer Science.

2. Guidelines for Evaluation of Bridge Course

As per norms of AICTE APH 2020-21, students except BCA / B.Sc. (CS/IT) have to qualify a Bridge Course as per University norms.

a. Bridge course shall be an Audit Course whose award shall not be considered for overall MCA Course credit and percentage. However, the grades will be reflected in the mark sheet of the student.
b. Institutes/Colleges have to arrange classes as per RTU syllabus at their own level.
c. The examination for the bridge course will be conducted by University before the End term Examination (Both Odd and Even Semester) on the dates prescribed by the University.
d. Preferably the result of the bridge course should be declared before the End Term Examination.
e. The students have to clear the Bridge Course before the End Term Examination of third semester.
f. For a Pass, candidate must obtain at least grade E for each theory and practical.

3. Theory Question Paper pattern for Bridge Course Exam
Maximum Marks =100

a. Part-A will contain 10 questions, covering full syllabus of 2 marks each .Word limit for answer is 25 words.
b. Part-B will contain 5 questions (1from each unit) of 4 marks each. Word limit is 100 words.
c. Part-C will contain 3 out of 5 questions of 20 marks each .Questions will be based on Design/ Problem Solving skills.

4. Practical Question Paper pattern for Bridge Course Exam
Maximum Marks =100

a. Practical question paper will contain 4 practical questions of 15 marks each.
b. Practical Record will be of 20 marks.
c. Viva voce will be of 20 marks.

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YEAR-I

MCA Year 1 Semester I-BRIDGE COURSE						
Theory						
S.No.	**Course Code**	**Course Title**	**Hours**		**Marks**	
			L	**P**	**ETE**	**Total**
1	MCA-B00	Fundamentals of Computer Science	3		100	100
Practical						
2	MCA-B01	C Programming Lab		2	100	100
				Total	**200**	**200**

Bridge Course

L= Lecture, **P** = Practical, ETE = End Term Exam

1. I-Semester (First Year)

S No	Category	Credit
1	Theory	18
2	Practical	03
3	SODECA	02
	Total	**23**

MCA Year 1 - Semester I								
Theory								
S.No.	**Course Code**	**Course Title**	**Hours**		**Marks**			**Credits**
			L	**P**	**IA**	**ETE**	**Total**	
1	MCA-101	Mathematical Foundations in Computer Science	3		30	70	100	3
2	MCA-102	Object Oriented Programming with C++	3		30	70	100	3
3	MCA-103	Operating System	3		30	70	100	3
4	MCA-104	Computer Architecture	3		30	70	100	3
5	MCA-105	Database Systems	3		30	70	100	3
6	MCA-106	Web Technologies	3		30	70	100	3
Practical								

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1	MCA-151	Object Oriented Programming Lab		2	30	70	100	01
2	MCA-152	SQL-PL/SQL Lab		2	30	70	100	01
3	MCA-153	Web Technologies Lab		2	30	70	100	01
4		SODECA					100	02
				Total	**270**	**630**	**1000**	**23**

L= Lecture, **P** = Practical, **IA** = Internal Assessment, **ETE** = End Term Exam

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2. II-Semester (First Year)

S No	Category	Credit
1	Theory	18
2	Practical	03
3	SODECA	02
	Total	**23**

MCA Year 1- Semester II								
Theory								
S.No.	**Course Code**	**Course Title**	**Hours**		**Marks**			**Credits**
			L	**P**	**IA**	**ETE**	**Total**	
1	MCA-201	Java Technologies	3		30	70	100	3
2	MCA-202	Computer Networks	3		30	70	100	3
3	MCA-203	Data Structures	3		30	70	100	3
4	MCA-204	Software Engineering & UML	3		30	70	100	3
5	MCA-205	Python Programming	3		30	70	100	3
6	MCA-206	Business Informatics	3		30	70	100	3
Practical								
1	MCA-251	Data Structures Lab		2	30	70	100	01
2	MCA-252	Java Technologies Lab		2	30	70	100	01
3	MCA-253	Python Programming Lab		2	30	70	100	01
4		SODECA					100	02
Total					**270**	**630**	**1000**	**23**

L= Lecture, **P** = Practical, **IA** = Internal Assessment, **ETE** = End Term Exam

Note:
Mandatory Summer Training: 45 Working Days Summer Training during Semester Break, of
100 Marks. Evaluation will be done in Semester-III Examinations.

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YEAR-II

3. III-Semester (Second Year)

S No	Category	Credit
1	Theory	18
2	Practical	03
3	SODECA	02
	Total	**23**

III-Semester (Second Year) MCA Year 2 - Semester III								
Theory								
S.No.	**Course Code**	**Course Title**	**Hours**		**Marks**			**Credits**
			L	**P**	**IA**	**ETE**	**Total**	
1	MCA-301	Cloud Computing	3		30	70	100	3
2	MCA-302	Analysis and Design of Algorithm	3		30	70	100	3
3	MCA-303	Artificial Intelligence	3		30	70	100	3
4	MCA-304	Information Security	3		30	70	100	3
5	MCA-305	Mobile Application Development	3		30	70	100	3
6	MCA-306	Elective 1	3		30	70	100	3
Practical								
1	MCA-351	ADA Lab		2	30	70	100	01
2	MCA-352	Mobile Application Development Lab		2	30	70	100	01
3	MCA-353	Summer Industrial Training Presentation		2	30	70	100	01
4		SODECA					100	02
Total					**270**	**630**	**1000**	**23**

L= Lecture, **P** = Practical, **IA** = Internal Assessment, **ETE** = End Term Exam

Elective -1:

a) Data Mining and Warehousing
b) Big Data Technologies
c) Soft Computing

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4. IV-Semester (Second Year)

S No	Category	Credit
1	Theory	06
2	Practical	06
3	SODECA	02
	Total	**14**

MCA Year 2 - Semester IV								
Theory								
S.No.	**Course Code**	**Course Title**	**Hours**		**Marks**			**Credits**
			L	**P**	**IA**	**ETE**	**Total**	
1	MCA-401	Software Project Management	3		30	70	100	3
2	MCA-402	Elective 2	3		30	70	100	3
Practical								
3	MCA-451	Industrial Project		12	30	70	100	06
4		SODECA					100	02
Total					**90**	**210**	**400**	**14**

L= Lecture, **P** = Practical, **IA** = Internal Assessment, **ETE** = End Term Exam

Note: The industrial project is part of the curriculum will be held in the institute as one of the laboratories. This may be in continuations to the project under taken by the student during industrial training and/or of industrial nature and/or have good industrial significance and/or may be done in collaboration with industry (as per suitability at the institute level).
The evaluation will be done in the institute by one internal examiner and one external examiner (from outside the institute) appointed by RTU.

Elective 2:

a) Principles of Management and Information System
b) Machine Learning
c) Data Science with R

Examination Scheme: Total 83 Credits

There will be an internal assessment (IA) and End Term Examination (ETE) for all theory subjects:

Distribution of Marks:

Table: 1.1

S.No	Credit of Theory Paper	End Term Exam (Hours)	Internal Assessment (30%)	End Term Exam (70%)	Total Maximum Marks(x)
1	3	3 hours	30	70	100

Table: 1.2

Practical	Internal	External
	30%	70%

For all credit courses the internal assessment component shall be further divided as under:

Table: 1.3

S.No.	Component of Internal Assessment	Marks
1	I Mid Term Examination	10
2	II Mid Term Examination	10
3	III Mid Term Examination/ Surprise Class Test/ Assignments/Presentations	10
	Total	30

1. Pass Rules for MCA (2 Yr. Program):As per University rule

The result of a candidate will be worked out at the end of each Semester Examination. The absolute marks of a student (pi) shall be converted into relative marks (xi) on 100 point scale as below:

$$X_i = \frac{P_i}{P_{max}} q ,$$

where,

xi = Converted relative marks of an individual student in a particular ith subject/course (rounded off to next higher integer number).

Pi = Absolute percentage (%) of marks obtained by an individual student in the ith subject/course.

Pmax = It should be from range of highest absolute percentage of marks obtained in a subject, as per the following table:

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Table: 2.1

Range of highest absolute percentage (%) marks obtained in a subject/ paper exam by the student	P_{max} (%)
90-100	90
80-89	80
70-79	70
60-69	60
50-59	50
40-49	40
30-39	30

q =Highest equivalent relative marks taken for conversion purpose (as given in column 2 of the following table).

Table: 2.2

Absolute highest marks obtained in a subject *(Pabsolute max)*	Highest equivalent relative marks taken for conversation purpose (*q)* on 100 point scale
Column 1	Column 2
$Pabsolute\ max \geq 75\%$	100
$60\% \leq Pabsolute\ max < 75\%$	89
$30\% \leq Pabsolute\ max < 60\%$	79
$Pabsolute\ max < 30\%$	Not considered for conversion

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The Grade and Grade Point shall be awarded to an individual student as under:

Table:2.1

S.No.	Relative Marks (x_i)	Grade	Grade Points
1	$x_i \geq 90$	A++	10
2	$85 \leq x_i < 90$	A+	9.0
	$80 \leq x_i < 85$	A	8.5
4	$75 \leq x_i < 80$	B+	8.0
5	$70 \leq x_i < 75$	B	7.5
6	$65 \leq x_i < 70$	C+	7.0
7	$60 \leq x_i < 65$	C	6.5
8	$55 \leq x_i < 60$	D+	6.0
9	$50 \leq x_i < 55$	D	5.5
10	$45 \leq x_i < 50$	E+	5.0
11	$40 \leq x_i < 45$	E	4.0
12	$x_i < 40$	F	0

(i) For a Pass, candidate must obtain at least grade E for each theory and practical.

(ii) If a student remains "Absent" or obtains "Zero" marks in any of external component of theory or practical, he/she will be awarded "F" grade, respectively and will be required to appear in the subsequent back examinations. "F" grade student while applying for back paper exam., may opt either of the following options:-

i. Wish to carry forward the previous marks of internal assessment.

ii. Wish to improve the internal assessment too.

(iii) No grace shall be awarded.

(iv) Revaluation and copy view system will prevail as per existing examination regulations. However, change of grade point of individual candidate after the revaluation will be independent and shall not affect the grade point of other students.

(v) For a back examinee the grade and grade point of a particular subject/paper shall be calculated on the basis of its appearance in present (appearing) examination.

(vi) The result may include the absolute marks obtained a student in an individual subject with related grade. However, the mark-sheet will contain the Grade, SGPA and CGPA only along with the important related rules of CBCS system.

2. Semester wise SGPA:

$$SGPA = \frac{\sum_{i=1}^{n} c_i \times g_i}{\sum_{i=1}^{n} c_i}$$

Where,
c_i =Number of credits of the i^{th} course of a semester for which SGPA is to be calculated.
g_i =Grade points obtained in i^{th} course

$i = 1,2,\ldots,n$ represent the number of course in which a student is registered in the concerned semester.

3. Overall CGPA:

$$CGPA = \frac{\sum_{i=1}^{m} c_i \times g_i}{\sum_{i=1}^{m} c_i}$$

where,
c_i =Number of credits of the i^{th} course of a semester.
g_i = Grade points obtained in ith course. The Grade, lower than 'E' (i.e. grade point < 4.0) in a course shall not be taken into account.
$i = 1,2,\ldots,m$ represent the number of courses in which a student was registered and obtained a grade not lower than 'E' up to that semester for which CGPA is to be calculated.

(i) The SGPA/CGPA shall be awarded in each semester.
(ii) SGPA/CGPA shall be rounded off to two decimal digits on higher side.
(iii) Final course merit will be decided on the basis of absolute marks obtained by an individual student considering relevant merit ordinance of the university. Revaluation result will be taken into account for deciding the merit of the students.
(iv) Conversion of Percentage to CGPA

Equivalent Percentage= 10 x CGPA

(v) Award of Division: The division of the student shall be awarded in the following manner (subject to the passing of all the semester courses):

Table 4.1

1	CGPA ≥ 7	1st Division with Distinction
2	6≤ CGPA < 7	1st Division
3	5≤ CGPA <6	2nd Division
4	4≤CGPA <5	Pass

(vi) Maximum duration for the completion of course will be four (4) years.

4. End Term Exam Theory Paper Pattern: -

From the coming academic session 2020-21,the following single paper pattern is proposed for MCA course:

Table: 5.1

S.No.	Exam Time		End Term Exam Max. Marks(70)	
			70	
1	3Hours	Part A	10/10	10 x 2 = 20
		Part B	5/5	5 x 4 = 20
		Part C	3/5	3 X 10 = 30

Part-A will contain 10 questions, covering full syllabus of 2 marks each .Word limit for answer is 25 words.

Part-B will contain 5 questions (1from each unit) of 4 marks each. Word limit is 100 words.

Part-C will contain 3 out of 5 questions of 10 marks each .Questions will be based on Design/ Problem Solving skills.

5. Industrial Project Guideline:

The industrial project is part of the curriculum will be held in the institute as one of the laboratories. This may be in continuations to the project under taken by the student during industrial training and/or of industrial nature and/or have good industrial significance and/or may be done in collaboration with industry (as per suitability at the institute level). The evaluation will be done in the institute by one internal examiner and one external examiner (from outside the institute) appointed by RTU.

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RTU MCA SYLLABUS – YEAR-I (SEMESTER – I)

Bridge Course - Fundamentals of Computer Science [As per Choice Based Credit System (CBCS) Scheme) MCA Year 1 Semester I-BRIDGE COURSE			
Subject Code MCA-B00			
Number of Lecture Hours / Week	**03**	**END TERM EXAM (ETE) MARKS**	**100**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**
Credits: 0			

CONTENTS	Teaching Hours
Unit-1	**08 Hours**
Introduction to Computers: Characteristics of computers, Evolution of computers, generation of computers, classification of computers, applications of computers. **Input and Output Devices:** Keyboard, pointing devices, speech recognition, digital camera, scanners, optical scanners. Classification of output devices, Hard copy output devices- printers, plotters, computer output microfilm (COM), Classification of output devices, Soft copy output devices- monitors, audio output, projectors, and terminals. **Computer System:** Central processing unit (CPU), Memory, instruction format, instruction set.	
Unit-2	**08 Hours**
Primary and Secondary Memory: Memory hierarchy, Random access memory (RAM), types of RAM, Read only memory (ROM), types of ROM. Classification of secondary storage devices, magnetic tape, magnetic disk, optical disk. **Number Systems:** Introduction to number system, Binary, Octal, Hexadecimal, conversion between number bases, Alphanumeric- EBCDIC and ASCII, Sets Theory, Types of Sets, Multi Sets, Operations on Sets	
Unit-3	**08 Hours**
Computer Program: Introduction, developing a program, algorithm, flowchart, pseudo code. **Computer Languages:** Introduction, classification of programming languages, generations of programming languages, features of a good programming language. **Computer Software:** Software definition, relationship between software and hardware, software categories, system software, application software, utility software.	
Unit-4	**08 Hours**

Operating System: Introduction of operating system, types of operating system, functions of an operating system, modern operating systems. **Data Communication and Computer Network:** Introduction, data communication, transmission media, multiplexing, switching, computer network, network topologies, communication protocols, network devices. **Internet Basics:** Introduction, evolution of Internet, basic Internet terms, getting connected to Internet, Internet applications, electronic mail and other Internet Services, searching the web (search engines), languages of Internet, viruses. Use of Anti-Virus software.	
Unit-5	**08 Hours**
Office Management Tools **MS-Word:** Creating Saving documents, Entering, Editing, Page formatting, Finding and replacing text, Spell checking and Grammar checking, Indexing, Columns, Tables and feature there in, Inserting (Objects, picture, files etc.), Using Graphics, using Mail Merge, using Word Art, customizing MS Word. **MS Excel:** Spreadsheet terminology, organization of the worksheet area, editing cells using commands and functions, formatting worksheet, creating & editing charts, naming range and using statistical, mathematical and financial functions, multiple worksheets and Macros, working with objects, Worksheet printing options. **MS Power Point:** Anatomy of a power Point Presentation, Creating and Viewing a presentation, Managing Slide Shows, Using hyperlinks, advanced navigation with action setting and action buttons, organizing formats with Master Slides, adding graphics, multimedia and special effects, creating presentation for the web. **MS Access:** Planning a database (tables, queries, forms, reports), Creating and editing database, customizing tables, linking tables, designing and using forms, modifying database structure, maintaining database, Sorting and Indexing database, Querying a database and generating Reports, modifying a Report.	

Text Books:

1. Computer Fundamentals by P.K. Sinha, BPB Publication.
2. Fundamental of Computers Anita Goel, Pearson Education.
3. RajaramanV.– Fundamentals of Computers, Prentice Hall of India Pvt. Ltd.
4. MS-Office, Dr. S.S. Shrivastava, Published by Laxmi Publication.

Reference Books:

1. Computer Fundamentals and Programming in C, Reema Thareja, OXFORD University Press.
2. Introduction to Computer,Peter Norton's, Tata McGraw Hill Publication.
3. Office 2019:In Easy Steps,Michal Price ,BPB Publication.
4. Windows 8 & Office 2010, Andy Rathbone , Dummies

Bridge Course -C Programming Lab [As per Choice Based Credit System (CBCS) Scheme) MCA Year 1 Semester I-BRIDGE COURSE			
Subject Code MCA-B01			
Number of Lecture Hours / Week	**02**	**END TERM EXAM (ETE) MARKS**	**100**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**
Credits: 0			
Lab Experiments			
1. Basic C Programming:-Data types, Tokens, Keywords, Operators 2. Control Statements:-Programs on if, if-else, ladder,Switch, iterative statements-for, while, do-while. 3. Functions: - Programs on Functions. 4. Arrays:-Programs on Arrays. 5. Pointer:- Programs on Pointer. 6. Structures and Union. 7. Dynamic Memory allocation Programs on File Handling.			

Mathematical Foundations in Computer Science
[As per Choice Based Credit System (CBCS) Scheme)
SEMESTER-I

Subject Code	**MCA-101**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**03**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**

Credits: 03

CONTENTS	**Teaching Hours**
Unit-1	**08 Hours**
Matrices: Introduction, Rank of Matrix, Solving System of Equations, Inverse of a Matrix, Set theory, Principle of inclusion and exclusion, partitions, Permutation and Combination, Relations, Properties of relations, Matrices of relations, Closure operations on relations, Functions- injective, subjective and objective functions.	
Unit-2	**08 Hours**
Probability: Probability Classical, relative frequency and axiomatic definitions of probability, addition rule and conditional probability, multiplication rule, total probability, Bayes' Theorem and independence problems. Introduction to Statistics- Population, Sample, Variable, Descriptive Statistics-Mean, Mode, Median, Measures of Spread-Range, Inter Quartile Range, Variance, Standard Deviation.	
Unit-3	**08 Hours**
Propositions & Propositional Calculus: Propositions and logical operators, Truth table, Propositions generated by a set, Equivalence and implication, Basic laws, Functionally complete set of connectives, Normal forms, Proofs in Propositional calculus, Predicate calculus.	
Unit-4	**08 Hours**
Data Representation: Data Representation - Floating point Arithmetic – Addition, Subtraction, Multiplication and Division operation. Pitfall of floating point representation, Errors in numerical computation Iterative Methods, Measurement of Accuracy by using Absolute Error and Relative Error.	
Unit-5	**08 Hours**
Graphs & Trees: Basic Concepts of Graphs, Sub graphs, Matrix Representation of Graphs: Adjacency Matrices, Incidence Matrices, Isomorphic Graphs, Paths and Circuits, Eulerian and Hamiltonian Graphs, Multigraphs, Planar Graphs, Euler's Formula, Spanning Trees	
Text Books:	

1. Kenneth H.Rosen, "Discrete Mathematics and Its Applications", Tata McGraw Hill, 7thEdition, 2017.
2. Seymour Lipschutz, Marc Laras Lipson, Varsha H. Patil, " Discrete Mathematics (Schaum's Outlines) (SIE)", Revised 3rd Edition, 2017
3. Murray Spiegel John Schiller, R. AluSrinivasan, DebasreeGoswami, " Probability and Statistics", 3rd Edition, 2017
4. Salaria, R.S.: "Computer Oriented Numerical Methods", Khanna Book Publishing Co. (P.) Ltd., New Delhi. 5th Edition, 2012

Reference Books:

1. A.Tamilarasi&A.M.Natarajan, "Theory of Automata and Formal Languages", New Age International Pvt. Ltd Publishers, 2008.
2. David Makinson, "Sets, Logic and Maths for Computing", Springer Indian Reprint, 2011.
3. Edgar Goodaire ,"Discrete Mathematics with Graph Theory" Pearson Education
4. Bernard Kolman. Robert Busby. Sharon C. Ross," Discrete Mathematical Structures (Classic Version), 6th Edition", Pearson Education

Object Oriented Programming with C++ [As per Choice Based Credit System (CBCS) Scheme) SEMESTER-I			
Subject Code	**MCA-102**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**03**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**
Credits: 03			

CONTENTS	Teaching Hours
Unit-1	**08 Hours**
OOP Paradigm: Characteristics of OOP, Comparison between functional programming and OOP approach, characteristics of object oriented language - objects, classes, inheritance, reusability, user defined data types, polymorphism, overloading.	
Unit-2	**08 Hours**
Introduction to C++: Identifier and keywords, constants, C++ operators, type conversion, Variable declaration, statements, expressions, input and output, conditional expression loop statements, break control statements, Classes, member functions, objects, arrays of class objects, pointers and classes, nested classes, constructors, destructors Inline member functions, static class member, friend functions, and dynamic memory allocation.	
Unit-3	**08 Hours**
Polymorphism and Inheritance: Function overloading, operator overloading, polymorphism, early binding, polymorphism with pointers, virtual functions, late binding, pure virtual functions. Single inheritance, types of inheritance, types of base classes, types of derivations, multiple inheritances, container classes, member access control.	
Unit-4	**08 Hours**
Exceptions and Templates: Exception Syntax, Multiple Exceptions, Function Templates, Function Templates with multiple argument templates.	
Unit-5	**08 Hours**
File Handling in C++: C++ Streams, Console Stream Classes, Formatted And Unformatted Console I/O Operations, manipulators, File Streams, Classes File Modes, File Pointers and Manipulations File I/O	

Text Books:

1. K.R. Venugopal, Raj Kumar Buyya, “Mastering C++", McGraw-Hill, 2017.
2. Rajaram R, Object Oriented Programming and C++”, 2nd Edition, New Age International, 2013.
3. E Balagurusamy, "Object Oriented Programming with C++", Tata McGraw Hill, 2006
4. Yahwant Kanetkar, ”C++ Programming”, BPB Publication

Reference Books:

1. Kamthane," Object Oriented Programming with ANSI and Turbo C++", Pearson Education, 2006.
2.Andrei Alexandrescu," Modern C++ Design: Generic Programming and Design Patterns Applied "
3. Robert Lafore," Object Oriented Programming in C++ ",4th Edition, 2002
4. Bjarne Stroustrup," C++ Programming Language", Addison-Wesley, 2013

Operating System
[As per Choice Based Credit System (CBCS) Scheme)
SEMESTER-I

Subject Code	**MCA-103**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**03**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**

Credits: 03

CONTENTS	**Teaching Hours**
Unit-1	**08 Hours**
Introduction: Definition and types of operating systems, Batch Systems, multi programming, timesharing, parallel, distributed and real-time systems, Operating system structure, Operating system components and services, System calls, system programs, system boot. Process Management : Process concept, Process scheduling, Cooperating process, Threads, Interprocess communication, CPU scheduling criteria, Scheduling algorithms, Multiple-processor scheduling and Algorithm evaluation.	
Unit-2	**08 Hours**
Process Synchronization and Deadlocks: The Critical-Section problem, synchronization hardware, Semaphores , Classical problem of synchronization, Critical regions, Monitors, Deadlock-system model, Characterization, Deadlock prevention, Avoidance and Detection, Recovery from deadlock, Combined approach to deadlock handling. **Storage Management**: Memory Management –Logical and Physical Address Space, Swapping, Contiguous Allocation, Paging, Segmentation with paging, Virtual Memory, Demand paging and its performance, Page replacement algorithms, Allocation of frames, Thrashing , Page Size and other considerations.	
Unit-3	**08 Hours**
Introduction to concept of Open Source Software: Introduction to Linux , Evolution of Linux, Linux vs. UNIX, Different Distributions of Linux, Installing Linux, Linux Architecture, Linux file system (inode, Super block, Mounting and Unmounting), Essential Linux Commands (Internal and External Commands), Kernel, Process Management in Linux, Signal Handling, System call, System call for Files, Processes and Signals.	
Unit-4	**08 Hours**
Shell Programming: Shell Programming – Introduction to Shell, Various Shell of Linux, Shell Commands, I/O Redirection and Piping, Vi and Emacs editor, Shell control statements, Variables, if-then-else, case-switch, While, Until, Find, Shell Meta characters, Shell Scripts, Shell keywords, Tips and Traps, Built in Commands, Handling documents, C language programming, Prototyping, Coding, Compiling, Testing and Debugging, Filters	

Unit-5	**08 Hours**
Linux System Administrations: File listings, Ownership and Access Permissions, File and Directory types, Managing Files, User and its Home Directory, Booting and Shutting down (Boot Loaders, LILO, GRUB, Bootstrapping, init Process, System services)	

Text Books:

1. Silberschatz and Galvin, "Operating System Concepts", 10th edition, Wiley India, 2018.
2. Andrew S. Tanenbaum, Albert S. Woodhull, "Operating Systems Design & implementation", 3rd edition, Pearson Education, 2006.
3. UNIX: Concepts and Applications, Sumitabha Das, McGraw-Hill, 4th Edition, 2008.

Reference Books:

1. Practical Guide to Linux Commands, Editors, and Shell Programming, Sobell, Pearson, 2nd Edition, 2010.
2. A Practical Guide to Fedora and Red Hat Enterprise Linux, Sobell, Pearson, 5th Edition, 2010.
3. Forouzan B. A., Gilberg R. R., "UNIX and Shell Programming", TMH, 2nd edition, 2008.

Computer Architecture
[As per Choice Based Credit System (CBCS) Scheme)
SEMESTER-I

Subject Code	**MCA-104**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**03**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**

Credits: 03

CONTENTS	**Teaching Hours**
Unit-1	**08 Hours**
Basic Building Blocks: Gates, Boolean Functions and Expressions Designing Gate Networks, K-map simplification, Useful Combinational Parts, Programmable Combinational Parts, Timing and Control, Latches, Flip-flops, Registers and Counters, Sequential Circuits. **Arithmetic/Logic Unit**: Numbers Representation, Arithmetic Operations, Floating-Point Arithmetic.	
Unit-2	**08 Hours**
Register Transfer Language and Micro-operations: Concept of bus, data movement among registers, a language to represent conditional data transfer, data movement from/ to memory. Design of Arithmetic & Logic Unit and Control Unit Control design hardwired control, micro programmed arithmetic and logical operations along with register transfer, timing in register.	
Unit-3	**08 Hours**
Instruction and Addressing: A simple computer organization and instruction set, instruction formats, addressing modes, instruction cycle, instruction execution in terms of microinstructions, interrupt cycle, concepts of interrupt and simple 1/O organization, Synchronous & Asynchronous data transfer, Data Transfer Mode: Program Controlled, Interrupt driven, DMA (Direct Memory Access). Implementation of processor using the building blocks.	
Unit-4	**08 Hours**
Memory System Design: Memory Origination, Memory Hierarchy, Main Memory (RAM/ROM chips), Auxiliary memory, Associative memory, Cache Memory, Virtual Memory. Assembly Language Programs, Assembler Directives, Pseudo Instructions, Macroinstructions, Linking and Loading.	
Unit-5	**08 Hours**
Vector and Array Processing: Shared-Memory, Multiprocessing, Distributed Mufti Computing. **Microprocessor Concepts**: Pin Diagram of 8085, Architecture of 8085, Addressing Mode of 8085, functional block diagram of 8085 assembly language, instruction set of 8085.	

Text Books:

1. M. Morris Mano "Computer System Architecture" Prentice Hall, 2017
2. David A. Patterson and John L. Hennessy, Computer Organization and Design: The Hardware/Software Interface, Fifth Edition, Morgan Kaufmann / Elsevier, 2014.
3. Carl Hamacher, Zvonko Vranesic, Safwat Zaky and Naraig Manjikian, Computer Organization and Embedded Systems, Sixth Edition, Tata McGraw Hill, 2012.

Reference Books:

1. William Stallings, Computer Organization and Architecture – Designing for Performance, 8th Edition, Pearson Education, 2010.
2. John P. Hayes, Computer Architecture and Organization, 3rd Edition, Tata McGraw Hill, 2012.
3. John L. Hennessey and David A. Patterson, Computer Architecture – A Quantitative Approach‖, Morgan Kaufmann / Elsevier Publishers, 5th Edition, 2012.

Database Systems [As per Choice Based Credit System (CBCS) Scheme) SEMESTER-I			
Subject Code	**MCA-105**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**03**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**
Credits: 03			

CONTENTS	**Teaching Hours**
Unit-1	**06 Hours**
Introduction Overview of DBMS, Database System v/s File System, Architecture of DBMS, Data models**,** Entity Relationship Diagram, Types of Keys, Integrity Rules, Data Dictionary, Normalization (1NF, 2 NF, 3NF, BCNF, 4NF, 5NF), inclusion dependencies, loss less join decompositions, Codd's Rules	
Unit-2	**06 Hours**
Transaction Management Transactions: Concepts, ACID Properties, States Of Transaction, Serializaibility, Conflict & View Serializable Schedule, Checkpoints, Deadlock Handling	
Unit-3	**08 Hours**
Database Querying& Concurrency Control Relational Algebra, Set Operations, Relational Calculus, Steps In Query Processing, Algorithms For Selection, Sorting And Join Operations, Understanding Cost Issues In Queries, Query Optimization, Transformation Of Relational Expressions, Query Evaluation Plans Concurrency Control: Locks Based Protocols, Time Stamp Based Protocols, Validation Based Protocol, Multiple Granularity, Multi-version Schemes	
Unit-4	**08 Hours**
Recovery System & Security Failure Classifications, Recovery & Atomicity, Log Base Recovery, Recovery with Concurrent Transactions, Shadow Paging, Failure with Loss of Non-Volatile Storage, Recovery From Catastrophic Failure, Introduction to Security & Authorization, Introduction to emerging Databases-OODBMS, ORDBMS, Distributed database, Multimedia database ,Special database-limitations of conventional databases, advantages of emerging databases.	
Unit-5	**12 Hours**
SQL and PL/SQL Introduction to SQL: Characteristics of SQL, Advantages of SQL, SQL data types and literals, Types of SQL commands, SQL operators, Tables, views and indexes, Constraints, Group By and Having Clause, Order By Clause, Queries and sub queries, Functions, PL/SQL basics, blocks, architecture, variables, constants, attributes, character set, PL/SQL control structure, data types, conditional and	

sequential control statements, cursors, exceptions, triggers, functions, procedures and packages.	

Text Books:

1. Elmasri, Navathe, "Fundamentals of Database Systems", Addison Wesley, 6th Edition, 2011
2. Korth, Silberschatz, Sudarshan, "Database Concepts", McGraw Hill, 6thEdition, 2010

Reference Books:

1. Thomas Connolly, Carolyan Begg,, "Database Systems,: A Practical Approach to Design, Implementation and Management, Addison Wesley, 2014
2. Simon AR, "Strategic Database Technology: Management for the year 2000", Morgan Kaufmann, 1995
3. Gray J and Reuter A, "Transaction Processing: Concepts and Techniques", Morgan Kaufmann, 1993.
4. S.K.Singh," Database System: Concept ,Design and Application" PEARSON,2006
5. Raghu Ramkrishnan, Johannes Gehrke , "Database Management Systems", McGraw Hill International, 2007
6. C.J.Date, Longman, "An Introduction to Database System", Pearson Education, 2003

Web Technologies
[As per Choice Based Credit System (CBCS) Scheme)
SEMESTER-I

Subject Code	**MCA-106**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**03**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**

Credits: 03

CONTENTS	**Teaching Hours**
Unit-1	**08 Hours**
Introduction to HTML The internet: history of the World Wide Web, hardware and software trend, object technology – java script object, scripting for the web-browser portability. Introduction of HTML: introduction, markup language, editing HTML : common tags, headers, text styles, linking, images, formatting text, horizontal rules and more line breaks, unordered lists, nested and ordered lists, basic HTML tables : intermediate HTML tables and formatting : basic HTML forms, more complex HTML forms, HTML5: Input Types & Attributes, internal linking, creating and using image maps	
Unit-2	**08 Hours**
Java Script Introduction to scripting: introduction- memory concepts- arithmetic- decision making. Java script control structures, Java script functions: introduction – program Units in java script - function definitions, duration of identifiers, scope rules, recursion, java script global functions. Java script arrays: introduction, array-declaring and allocating arrays, references and reference parameters – passing arrays to functions, multiple subscripted arrays. Java script objects: introduction, math, string, date, Boolean and number objects.	
Unit-3	**08 Hours**
Dynamic HTML CSS: introduction – inline styles, creating style sheets with the style element, conflicting styles, linking external style sheets, positioning elements, backgrounds, element dimensions, text flow and the CSS box model, user style sheets, Filter and Transitions, HTML DOM, Browser BOM Event model : introduction, event ON CLICK, event ON LOAD – error handling with ON ERROR, tracking the mouse with event, more DHTML events.	
Unit-4	**08 Hours**
Introduction to PHP &Web Server Architecture Overview of PHP Capabilities, PHP HTML embedding tags & syntax, Simple script examples, PHP & HTTP Environment variables. PHP Language Core-Variables, Constants, Data Types, PHP: Operators, Flow Control & Loops, Arrays, String, Functions Include & require statements, Simple File & Directory Access Operations,	

Unit-5	**08 Hours**
Error handling, Processing HTML form using GET, POST, REQUEST, SESSION, COOKIE variables, Sending E-mail, Database Operations with PHP, Connecting to My-SQL (or any other database), Selecting a db, building & Sending Query, retrieving, updating & inserting data, CMS: Wordpress. Note: XAMMP is used for PHP	

Text Books:

1. Jennifer Robbins , "Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web graphics",O'reilly, 2018
2. Adrian W. West ," Practical Web Design for Absolute Beginners", 2016
3. Harvey M. Dietel, Paul Dietel& Tem R. Nieto, ", Internet& World Wide Web How to Program", Pearson, 2011
4. Ivan Bayross. "Web enabled commercial application development using HTML, DHTML, JavaScript, PERL-CGI", BPB Publications, 2010

Reference Books:

1. Hofstetter, Fred, "Internet Technology at work", Osborne, 2004
2. Steven Holzner, "PHP: The Complete Reference", McGrawHill, 2008
3. Elizabeth Naramore, Jason Gerner, Jeremy Stolz, and Timothy Boronczyk Beginning PHP, Apache, MySql web development.Wrox Publication, 2009
4. Ivan Bayross, Sharanam Shah, Shroff ,"PHP 5.1 for Professionals", Publishers and Distributers Pvt. Ltd., 2007

Object Orientated Programming Lab
[As per Choice Based Credit System (CBCS) Scheme)
SEMESTER-I

Subject Code	**MCA-151**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**02**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**
Credits: 01			

Lab Experiments

1. Basic Commands of Linux.
2. Basic Shell Programming.
3. Accessing help options, File names and Wild Card, Types of Files, Directory Hierarchy, Operations.
4. Introduction of vi and gedit Editor, File Permissions and Simple Filter Commands
5. Control Statements:-Programs on if-else ladder, iterative statements, Functions and recursions, predefined functions.
6. Pointer and Dynamic Memory:-Programs on Arrays, sorting (Bubble, selection, insertion) Searching (linear, Binary), 2D Array (Matrix operations), Pointers, Structures, union, enum, Dynamic Memory allocation Programs on File Handling, Programs on Command Line Arguments.
7. Objects, Functions and Constructor:- Programs on classes and objects constructors, functions , inline functions, Friend function.
8. Polymorphism:-Programs on Function Overloading, overriding, Operator overloading, programs on different type of inheritances, virtual function.
9. Exception Handling and File Handling: - Programs on input/output Streams, Exception Handling, File Handling,and Template Classes.

SQL-PL/SQL Lab
[As per Choice Based Credit System (CBCS) Scheme)
SEMESTER-I

Subject Code	**MCA-152**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**02**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**
Credits: 01			

Lab Experiments

1. SQL data types, Operators, Literals, Constraints
2. Assignment on Queries: Select / From / Where/ Group By/Having Clause/ Order By Clause/ SQL Operators/ Joins/ Built-in Functions
3. PL/SQL Block Structure
4. Conditional Statements
5. Iterations: Simple Loops, For Loop, While Loop, Nested Loops
6. Exception Handling
7. Database Programming with Record Variables
8. Database Programming with Cursors, Cursor-For Loop
9. Procedures & Functions
10. Triggers
11. Packages

Web Technologies Lab
[As per Choice Based Credit System (CBCS) Scheme)
SEMESTER-I

Subject Code	**MCA-153**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**02**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**

Credits: 01

Lab Experiments

HTML:

- Basics Elements & Attributes, HTML Formatting tags, Links,
- Images, Tables, Forms Elements
- HTML5 Audio and Video, HTML5 Input Types & Attributes
- CSS Syntax, CSS Attribute Selectors
- CSS properties: Fonts, Background, Colors, Links, Lists,
- CSS Box Model, Display, Opacity, Float, Clear
- CSS Layout, CSS Navigation Bar,
- CSS Rounded Corners, CSS Border Images, CSS Animations

JavaScript:

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

PHP:

- Installing XAMMP
- Variables, Data Types, Constants, Operators, Programming Loops,
- PHP Functions,
- Arrays
- Strings Functions
- PHP Form Handling, Require & Include
- PHP with MySQL

RAJASTHAN TECHNICAL UNIVERSITY, KOTA

RTU MCA SYLLABUS – YEAR-I (SEMESTER – II)

Java Technologies [As per Choice Based Credit System (CBCS) Scheme) SEMESTER-II			
Subject Code	**MCA-201**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**03**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**
Credits: 03			

CONTENTS	**Teaching Hours**
Unit-1	**08 Hours**
Introduction to Java OOP in Java, Characteristics of Java, Fundamental Programming Structures in Java, Abstract Class, Interfaces, Defining Methods, Inheritance, Overloading, Overriding, Packages, Exception Handling, Threads, Thread Life-Cycle	
Unit-2	**08 Hours**
J2EE Overview Need of J2EE, J2EE Architecture, J2EE APIs, J2EE Containers. Web Application Basics, Architecture and Challenges of Web Application, Servlet Life Cycle, Developing and Deploying Servlets, Exploring Deployment Descriptor (web.xml), Handling Request and Response, Initializing a Servlet. Servlet Chaining, Session Tracking and Management	
Unit-3	**08 Hours**
JDBC The JDBC Connectivity Model, Types of JDBC Drivers., Basic steps to JDBC, setting up a connection to database, Creating and executing SQL statements, ResultSet and ResultSet Metadata Object,Accessing Database.	
Unit-4	**08 Hours**
Java Server Pages Basic JSP Architecture, Life Cycle of JSP, JSP Tags & Expressions, JSP Implicit Objects, JSP Directives, Tag Libraries ,Using JDBC with JSP , Accessing a Database, Adding a Form, Updating the Database.	
Unit-5	**08 Hours**
Introduction to Spring Overview of Spring Framework- Inversion of Control / Dependency Injection Concepts, Aspect Oriented Programming - concept ,Spring MVC Architecture , Bean Factory and Application Context, Attaching and Populating beans, Injecting data through setters and constructors , Listening on events, Publishing events, Spring MVC Layering, Dispatcher Servlet, Writing a Controller, DAO, Models, Services, Spring Configuration File, Error handling Strategy.	

Text Books:

1. Herbert Schildt, "Java: The Complete Reference", 10th Edition, McGraw-Hill, 2017.
2. Marty Hall and Larry Brown, "Core Servlets and Java Server Pages", 2nd Edition, 2003.
3. MertCaliskan, KenanSevindik, Rod Johnson, Jurgen Holler, "Beginning Spring", Wrox publication, Feb 2015.

Reference Books:

1. Bruce Eckel, "Thinking in Java", 4th Edition, Prentice Hall, 2006.
2. Cay S. Horstmann, "Core Java, Volume I: Fundamentals", 9th Edition, Pearson Education, 2014.
3. Santosh Kumar K, "JDBC, Servlet, and JSP: Black Book", Kogent Solutions Inc., 2008.
4. MadhusudhanKonda, "Just Spring", 1st edition, O'Reilly, 2011.
5. E. Balagurusamy, "Programming with Java: A Primer", Tata McGraw-Hill, 2010.
6. Bryan Basham, Kathy Sierra & Bert Bates , "Head First Servlets and JSP" Paperback, 2008

Computer Networks [As per Choice Based Credit System (CBCS) Scheme) SEMESTER-II			
Subject Code	**MCA-202**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**03**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**
Credits: 03			

CONTENTS	**Teaching Hours**
Unit-1	**08 Hours**
Networking Fundamentals Introduction, Data & Information, Data Communication-Characteristics of Data Communication, Components of Data Communication, Data Representation, Data Flow- Simplex, Half Duplex, Full Duplex, Computer Network- Categories of a network, Protocol- Elements of a Protocol, Networking Standards, Reference Models- OSI Model, TCP/IP Model, Comparison of OSI and TCP/IP Model	
Unit-2	**08 Hours**
The Physical Layer Transmission Media- Guided & Unguided, PSTN: Structure of the Telephone System, Data & Signals Data types, Signal types- Analog & Digital, Modulation Techniques, Modem, Cable Modem, Protocols: DSL, ISDN. **The Data Link Layer Design Issues** Framing, Error Control-Error Detection and Correction, Flow Control, Protocols: FDDI, CDDI, Frame Relay, ATM, 802.11, PPP, HDLC.	
Unit-3	**08 Hours**
The Medium Access Sub-Layer Multiple Access Protocols: ALOHA, CSMA, Ethernet: Switched Ethernet, Fast Ethernet, Gigabit Ethernet, DLL Switching: Internetworking, Repeaters, Hubs, Bridges, Switches, Routers, Gateways, Virtual LANs.	
Unit-4	**08 Hours**
The Network Layer Design Issues, Routing Algorithms: Link State Routing, Distance Vector Routing, Flooding, Routing Protocols: RIP, IGRP, EIGRP, OSPF, Internetworking: Tunneling, Fragmentation, IPV4, IPV6 Basics, BGP. The Transport Layer Protocols: UDP, TCP, Headers	
Unit-5	**08 Hours**
The Application Layer DNS: The DNS Name Space, Name Servers-Mail: SMTP, POP3, HTTP, FTP, Telnet, Network Management: SNMP. **Network Security** Cryptography: Encryption, Decryption, Private/Public Key, Digital Signatures,	

SSL, Firewalls, PGP, S/MIME.	

Text Books:

1. Andrew S.Tanenbaum, "Computer Networks", Prentice Hall, 5th Edition, January, 2013.
2. A. BehrouzForouzan, "Data Comm. & Netw.5e Global Ed (English)" , McGraw Hill Education (India) Private Limited, 5thEdition, 2013.

Reference Books:

1. Andrew S.Tanenbaum, "Computer Networks ", Prentice Hall, 5thEdition (Paperback) January 2013
2. Douglas E.Comer& M. S. Narayana, "Computer Networks and Internets with Internet Applications", Pearson Education, 4th Edition, 2009.
3. Fred Halsall, "Data Communications, Computer Networks and Open Systems", Addison Wesley, 4th Edition, 2001.
4. William Stallings, "Cryptography and Network Security: Principles and Practice", Pearson Education, 5thEdition, 2011.

Data Structures [As per Choice Based Credit System (CBCS) Scheme) SEMESTER-II			
Subject Code	**MCA-203**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**03**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**
Credits: 03			

CONTENTS	Teaching Hours
Unit-1	**08 Hours**
Introduction Basic data structures such as arrays, linked list, stack, trees and queues and theirapplications, linked and sequential representation Basic Terminology, Elementary Data organization, Data Structure operations. Preliminaries of algorithm, Algorithm analysis and complexity. **Stack** Implementation of stack, operations on stack. Applications of stack: Conversion of infix-expressions to prefix and postfix expressions, evaluation of postfix expression.	
Unit-2	**08 Hours**
Queues Implementation of queues, Operations on Queue, Types of Queues - Circular queue, Dequeue and Priority Queue. **Linked List** Representation and Implementation of Singly Linked Lists, Two-way Header List, Traversing and Searching of Linked List, insertion and deletion to/from Linked Lists, insertion and deletion Algorithms, Doubly linked list, Header lists, circular lists, sorted lists.	
Unit-3	**08 Hours**
Trees Basic terminology and definitions. Array and Linked Representation of Binary trees, Traversing Binary trees. Binary Search Trees: Binary Search Tree (BST), Traversal, Insertion and Deletion in BST, and Introduction to balanced BST (AVL Trees)	
Unit-4	**08 Hours**
Searching: Sequential search, binary search, comparison and analysis. **Sorting** Insertion Sort, Bubble Sort, Quick Sort, Two-Way-Merge Sort, Heap Sort, Sorting on Different Keys, Practical consideration for internal Sorting.	
Unit-5	**08 Hours**

Graphs Terminology & Representations, Graphs & Multi-graphs, Directed Graphs, Sequential Representations of Graphs, Adjacency Matrices, Traversal, Connected Component and Spanning Trees, Minimum Cost Spanning Trees	

Text Books:

1. A. Tannenbaum, "Data Structure Using C", Pearson Education, 2019.
2. AnanyLevitin, "Introduction to the Design and Analysis of Algorithms", Third Edition, Pearson Education, 2012.
3. Thomas H.Cormen, Charles E.Leiserson, Ronald L. Rivest and Clifford Stein, "Introduction to Algorithms", Third Edition, PHI Course Private Limited, 2012.

Reference Books:

1. Donald E. Knuth, "The Art of Computer Programming", Volumes 1& 3 Pearson Education, 2009.
2. Steven S. Skiena, "The Algorithm Design Manual", Second Edition, Springer, 2008.
3. D.S Malik, "Data Structures using C++", Cengage Learning, 2nd edition, 2009
4. E. Horowitz &Sahni, "Fundamental Data Structure", Galgotia Book Source, 2007.

Software Engineering & UML [As per Choice Based Credit System (CBCS) Scheme) SEMESTER-II			
Subject Code	**MCA-204**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**03**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**
Credits: 03			

CONTENTS	**Teaching Hours**
Unit-1	**08 Hours**
Software Engineering Fundamentals Software Engineering - A layered Technology, The importance of software, software myths, software engineering paradigms, Software Process Models: Linear Sequential Model, Prototyping Model, RAD Model Evolutionary Software Process Models: Incremental Model, Spiral Model Component Assembly Model, Formal Methods, Fourth-Generation Techniques.	
Unit-2	**08 Hours**
Analysis Concepts and Principles Analysis Concepts and Principles, the Elements of the Analysis Model Data Modifying, Functional Modeling and Information Flow and Behavior Modeling, Mechanics of Structured Analysis, Data Dictionary. Requirement analysis, tasks, analyst, software prototyping, specification principles, representation and the software requirements specification.	
Unit-3	**08 Hours**
Software Project Planning Software Project Planning, Size Estimation, Cost Estimation, Models, Static, single variable models, Static, Multivariable Models, COCOMO, The Putnam Resource Allocation Model, Risk Identification and Projection: RMMM, Project scheduling and Tracking. Software Design Process, Design Principles, and Design Concepts: Effective ModularDesign, Design Heuristics, Design Documentation, Design Methods: Data Design, Architectural Design, Interface Design, Human Computer Interface Design, Procedural Design. Case Study for Design of any Application Project.	
Unit-4	**08 Hours**
Software Testing S/W Testing Fundamentals, White Box Testing, Black Box Testing, software testing strategies, verification and Validation, System Testing, Unit testing, Integration testing and Debugging. Software Maintenance Maintainability – maintenance Tasks, Characteristics of a good quality software. Case Study for Testing Techniques	
Unit-5	**08 Hours**

Unified Modeling Language (UML) Unified Modeling Language, Basic structures and modeling classes, common modeling techniques, relationships, common mechanism, class diagrams. Advanced structured modeling, advanced classes and relationships, interfaces, types and roles, instances and object diagram. Basic idea of behavioral modeling. State diagrams, Interaction diagrams, Use case diagrams Object- oriented concepts and principles. Identifying the elements of an object model. Object oriented projects metrics and estimation	

Text Books:

1. Roger S Pressman, Bruce R Maxim, "Software Engineering: A Practitioner's Approach", 8th Edition, 2019.
2. Ian Sommerville," Software engineering", Addison Wesley Longman, 9th Edition, 2017.

Reference Books:

1. Grady Booch, James Rumbaugh, IvarJacobson.," The Unified Modeling Language User Guide", 2nd Edition, 2017.
2. James Rumbaugh. MichealBlaha "Object oriented Modeling and Design with UML", 2011.
3. Ali Behforooz, Hudson, "Software Engineering Fundamentals", Oxford, 2009.
4. Charles Ritcher, "Designing Flexible Object Oriented systems with UML", TechMedia , 2008.

Python Programming
[As per Choice Based Credit System (CBCS) Scheme)
SEMESTER-II

Subject Code	**MCA-205**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**03**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**

Credits: 03

CONTENTS	**Teaching Hours**
Unit-1	**08 Hours**
Introduction and Overview Introduction, What is Python, Origin, Comparison, Comments, Variables and Assignment, Identifiers, Basic Style Guidelines, Python Objects, Standard Types, Other Built-in Types, Internal Types, Operators, Built-in Functions, Numbers and Strings. Introduction to Numbers, Integers, Floating Point Real Numbers, Complex Numbers, Sequences: Strings, Sequences, Strings, String-only Operators, Built-in Functions, String Built-in Methods, Special Features of Strings, Memory Management, Python Application Examples.	
Unit-2	**08 Hours**
Lists and Dictionaries Built-in Functions, List type built in Methods, Special Features of Lists, Tuples, Tuple Operators and Built-in Functions, Special Features of Tuples, Introduction to Dictionaries, Built-in Functions, Built-in Methods, Dictionary Keys, Conditionals and Loops: if statement, else Statement, elif Statement, while Statement, for Statement, break Statement, continue Statement, pass Statement, else Statement	
Unit-3	**08 Hours**
Object, Classes and Files Classes in Python, Principles of Object Orientation, Creating Classes, Instance Methods, Class variables, Inheritance, Polymorphism, Type Identification, File Objects, File Built-in Function, File Built-in Methods, File Built-in Attributes, Standard Files, Command-line Arguments, File System, File Execution, Persistent Storage Units.	
Unit-4	**08 Hours**
Regular Expression and Exception Handling Regular Expression: Introduction/Motivation, Special Symbols and Characters for REs, REs and Python. What Are Exceptions? Exceptions in Python, Detecting and Handling Exceptions, Exceptions as Strings, Raising Exceptions, Assertions, Standard Exceptions	
Unit-5	**08 Hours**

Database Interaction SQL Database Connection using Python, Creating and Searching Tables, Reading and storing config information on database, Programming using database connections, Python Multithreading: Understanding threads, Forking threads, synchronizing the threads, Programming using multithreading	

Text Books:

1. R. NageswaraRao, "Core Python Programming", Dreamtech Press, 2nd Edition, 2018
2. Dr. M. Suresh Anand, Dr. R. Jothikumar, Dr. N. Vadivelan, "Python Programming" , Notion Press, 1stEdition, 2020
3. Martin C. Brown, "The Complete Reference Python", McGraw Hill Education, 4thEdition, 2018

Reference Books:

1. Allen B. Downey, "Think Python", O'Reilly Media, 2016
2. Amit Ashok Kamthane, Ashok NamdevKamthane, " Programming and Problem Solving with Python" , McGraw Hill HED, 1st Edition, 2017
3. SakisKasampalis, Quan Nguyen, Dr Gabriele Lanaro, Ingram, "Advanced Python Programming", short title, 2019

Business Informatics
[As per Choice Based Credit System (CBCS) Scheme)
SEMESTER-II

Subject Code	**MCA-206**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**03**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**

Credits: 03

CONTENTS	**Teaching Hours**
Unit-1	**08 Hours**
Business Environment and Dependence on IT Introduction to Business Informatics, Organizational Structure and Design, Dependence on Technology, Integrating Technology with Business Environment, IT and Corporate Strategy, Sustaining a Competitive Edge through application of IT in Management Functions.	
Unit-2	**08 Hours**
E-Commerce Definition, Objectives, Components, Advantages and disadvantages, Scope, E-Commerce Models, E-Commerce Opportunities for Industries, Growth of E-Commerce, e-Commerce Applications- E-Marketing, E-Customer Relationship Management, E-Supply Chain Management, E-Governance, E-Buying, E-Selling, E-Banking, E-Retailing.	
Unit-3	**08 Hours**
E-Payments and Security issues in E-Commerce Introductions, Special features, Types of E-Payment Systems (EFT, E-Cash, E-Cheque, Credit/Debit Card, Smart Card, Digital Tokens and Electronic Purses/ Wallets), Security risk of E-Commerce, Types of threats, Security Tools, Cyber Laws, Business Ethics	
Unit-4	**08 Hours**
ERP Introduction, Needs and Evolution of ERP Systems, ERP Domain, ERP Benefits, ERP and Related Technologies, Relevance to Data Warehousing and Data Mining, ERP Drivers, Evaluation Criterion for ERP product, ERP Life Cycle: Adoption decision, Acquisition, Implementation, Use & Maintenance, Evolution and Retirement Phases, ERP Units, ERP Success & Failure Factors	
Unit-5	**08 Hours**
Information Systems Introduction, Categories of System: Open, Closed, Physical, Abstract, Dynamic, Static etc., Types of Information Systems: TPS, MIS, DSS, OLAP, OLTP, Expert System, Internet Based Systems, Learning Management Systems, Business Process	

Re-Engineering.	

Text Books:

1. Ravi Kalakota, “Electronic Commerce: A Manager's Guide”, Addison-Wesley Professional, Edition 2012.
2. Henry C. Lucas, Information Technology for Management, McGraw Hill, International Edition, July 2001.
3. Kenneth C. Laudon& Jane P. Laudon, Management Information System, Global Edition, Pearson Education, 2009.
4. ERP: A Managerial Perspective Book Description, Sadagopan S, Tata McGraw Hill, 2013

Reference Books:

1. Dr. K Abirami Devi & Dr. M Alagammai, “E-Commerce Essentials”, Margham Publication, 2012.
2. Kenneth C. Laudon, Karol Traver, “E-Commerce 2014”, Prentice Hall Publication, 2013.
3. Enterprise Resource Planning Systems System, Lifecycle, Electronic Commerce and Risk by Daniel E.O. Leary, 2011
4. WamanJawadekar, Management Information System: Text and Cases, Tata McGraw Hill, June 2009.

Data Structures Lab [As per Choice Based Credit System (CBCS) Scheme) SEMESTER-II			
Subject Code	**MCA-251**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**02**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**
Credits: 01			

Lab Experiments

1. Array implementation of Stack and Queue
2. Linked list implementation of List, Stack Queue
3. Array implementation of QUEUE
4. Applications of List, Stack and Queue ADTs
5. Implementation of Binary Trees and operations of Binary Trees
6. Implementation of Binary Search Trees
7. Implementation of AVL Trees
8. Implementation of Heaps using Priority Queues.
9. Graph representation and Traversal algorithms
10. Applications of Graphs
11. Implementation of searching and sorting algorithms

Java Technologies Lab
[As per Choice Based Credit System (CBCS) Scheme)
SEMESTER-II

Subject Code	**MCA-252**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**02**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**

Credits: 01

Lab Experiments

1. Simple java applications for understanding references to an instant of a class
2. Handling strings in JAVA
3. Package creation
4. Developing user defined packages in java
5. Use of Interfaces
6. Threads, Multithreading
7. Exception Handling
8. Dynamic HTML using Servlet
9. Use of get() and Post() methods
10. Cookies in Servlet
11. Session tracking and Management
12. JDBC
13. JSP Actions elements
14. Directives elements in JSP
15. JSP Tags
16. Implement JDBC with JSP
17. Implement JDBC with Servlet
18. Applications using Spring Web MVC

Python Programming Lab
[As per Choice Based Credit System (CBCS) Scheme)
SEMESTER-II

Subject Code	**MCA-253**	**INTERNAL ASSESSMENT (IA) MARKS**	**30**
Number of Lecture Hours / Week	**02**	**END TERM EXAM (ETE) MARKS**	**70**
Total Number of Lecture Hours	**40**	**SEMESTER END EXAM HOURS**	**03**
Credits: 01			

Lab Experiments

1. Implement a sequential search
2. Create a calculator program
3. Explore String Functions
4. Implement Selection Sort
5. Implement Stack
6. Read and Write into a file
7. Demonstrate usage of basic regular expression
8. Demonstrate use of advanced regular expressions for data validation
9. Demonstrate use of List
10. Demonstrate use of Dictionaries
11. Create Comma separate files(CSV), Load CSV files into internal data structure
12. Write script to work like a SQL SELECT statement for internal data structure