

ONLINE MBA

**MASTER OF BUSINESS ADMINISTRATION –
DATA SCIENCE**

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INTRODUCTION

If not the real world, the classes of MBA are simulated as real world, making the learning close to reality. Wide range of emerging specialization areas are on offer.

Programme Outcomes

Program outcomes are narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge and behaviours that students acquire in their matriculation through the program

1. **Decision Making:** Developing responsiveness to contextual social issues and exploring solutions, understanding business ethics and resolving ethical dilemmas
2. **Problem Solving:** Apply analytical decision-making skills and solve problems using cross functional information and research tools
3. **Global Outlook:** Demonstrate a global outlook with the ability to identify aspects of the global business and Cross-Cultural Understanding
4. **Domain Knowledge:** Leveraging domain knowledge for organizing information, analysis and exploring business opportunities
5. **Communication:** Exercise effective written and oral communication skills for different business situations
6. **Leadership:** Demonstrate proactive leadership and build effective teams.
7. **Entrepreneurship:** Evaluate and execute ideas for entrepreneurship
8. **ICT usage:** Leverage Technology for organizing information, analysis and research

PROGRAMME SPECIFIC OUTCOMES

1. **PSO1:** Application of management concepts and research tools to understand ever changing laws, policies and competition in world of business.
2. **PSO2:** Synthesize knowledge of different functional areas to take decisions that provide competitive edge and enable efficient execution of projects.

SALIENT FEATURES

Internationally Accredited: Accredited by Accreditation Council for Business Schools and Program (ACBSP).

Entrepreneurship: Entrepreneurship projects are integral part of curriculum and help establish themselves as successful entrepreneurs.

Professional Enhancement: In addition to core curricula, course offers subjects like communication, analytical and soft skills to enhance personality and employability.

Contemporary Curriculum: Instill advanced knowledge about contemporary area in management such as Green Marketing

Projects: Opportunity to work on business projects to enhance managerial skills.

Community Development Projects: Opportunity to work on community development project on social issues to cultivate social sensitivity and sense of responsibility.

Holistic Development: Participation in technical events, sports and cultural activities help in the holistic development of students

Case Based Teaching: Usage of real-life case studies to provide interactive teaching and learning methodology

PROGRAMMECODE: OL3521

DURATION OF THE PROGRAMME:

Minimum Duration 2 years

Maximum Duration 4 years

MEDIUM OF INSTRUCTION/EXAMINATION:

Medium of instruction and Examination shall be English.

PROGRAMME STRUCTURE

ONLINE MBA – DATA SCIENCE

Term	Core Courses (CRI, CRII, CRIIIA, CRIIIB) CRI+II – (8+3) 11x4 Credits CRIIIA - 1x4 Credits CRIIIB - 1x6 Credits	Discipline Specific Electives (DSE) 6x6 Credits	Ability Enhancement Courses (AECC) 1x4 Credits	Generic Electives (GE) 2x4 Credits	Credits
I	Discipline Specific Core - I Discipline Specific Core - II Discipline Specific Core - III Discipline Specific Core - IV Discipline Specific Core - V				20
II	Discipline Specific Core - VI Discipline Specific Core - VII Discipline Specific Core - VIII Discipline Specific Core - IX Discipline Specific Core - X		AECC-I Communication for Leaders		24
III	Discipline Specific Core - XI CRIIIA - Seminar on Summer Training OR 1 Course from the GE Basket 1 which is not chosen as Generic Elective (GE)	DSE-I DSE-II DSE-III		GE-I (Professional Enhancement, English, Political Science, Sociology)	30
IV	CRIIIB - Capstone Project	DSE- IV DSE-V DSE-VI		GE-II (Professional Enhancement, English, Political Science, Sociology)	28
Total	54 Credits	36 Credits	4 Credits	8 Credits	102

PROGRAMME SCHEME						
COURSE TYPE	COURSE CODE	COURSE TITLE	Cr.	CA	ETE (Th.)	ETE (Pr.)
	TERM 1					
DSC-I	EACC506	FINANCIAL REPORTING, STATEMENTS AND ANALYSIS	4	30	70	0
DSC-II	EECO515	MANAGERIAL ECONOMICS	4	30	70	0
DSC-III	EMGN578	INTERNATIONAL BUSINESS ENVIRONMENT	4	30	70	0
DSC-IV	EMKT503	MARKETING MANAGEMENT	4	30	70	0
DSC-V	EMGN581	ORGANISATIONAL BEHAVIOUR AND HUMAN RESOURCE DYNAMICS	4	30	70	0
	TERM 2					
DSC-VI	EFIN542	CORPORATE FINANCE	4	30	70	0
DSC-VII	EOPR639	OPERATIONS MANAGEMENT AND RESEARCH	4	30	70	0
DSC-VIII	EMGN801	BUSINESS ANALYTICS	4	30	70	0
DSC-IX	EMGN832	RESEARCH METHODOLOGY	4	30	70	0
DSC-X	EBSL605	LEGAL ASPECTS OF BUSINESS	4	30	70	0
AECC-I	EPEL537	COMMUNICATION FOR LEADERS	4	30	70	0
	TERM 3					
DSE-I	ECAP780	PROBABILITY AND STATISTICS	6	30	40	30
DSE-II	ECAP781	DATA SCIENCE TOOLBOX	6	30	40	30
DSE-III	ECAP782	ADVANCE DATA VISUALIZATION	6	30	40	30
DSC-XI	EMGN571	CORPORATE STRATEGY AND ENTREPRENEURSHIP	4	30	70	0
GE-I		GENERIC ELECTIVE I	4	30	70	0
CR-IIIA	EMGN583	SEMINAR ON SUMMER TRAINING	4	0	0	100
		OR Course from the GE basket 1 which is not chosen as Generic Elective (GE).	4	30	70	0
	TERM4					
DSE-IV	ECAP521	FUNDAMENTAL OF MACHINE LEARNING	6	30	40	30
DSE-V	ECAP518	DATA ANAYTICS WITH PYTHON	6	30	40	30
DSE-VI	EMGN803	BIG DATA ANALYTICS	6	30	70	0
GE-II		GENERIC ELECTIVE II	4	30	70	0
CR-IIIB	EMGN696	CAPSTONE PROJECT	6	0	0	100
	TOTAL CREDITS		102			

GENERIC ELECTIVE (GE) BASKET (PICK ANY ONE AREA)								
S. No.	Course Code	Course Title	Area	Cr.	CA	ETE (Th.)	ETP (Pr.)	Term
1	EPEA515	ANALYTICAL SKILLS-I	Professional Enhancement	4	30	70	0	3
2	EPEA516	ANALYTICAL SKILLS-II	Professional Enhancement	4	30	70	0	4
3	EENG539	ACADEMIC ENGLISH	English Language	4	30	70	0	3
4	EENG514	INTRODUCTION TO THE STUDY OF LANGUAGE	English Language	4	30	70	0	4
5	EENG519	POST-INDEPENDENCE INDIAN LITERATURE	English Literature	4	30	70	0	3
6	EENG527	POSTCOLONIAL LITERATURES AND CULTURAL STUDIES	English Literature	4	30	70	0	4
7	EPOL525	POLITICAL INSTITUTIONS IN INDIA	Political Science	4	30	70	0	3
8	EPOL527	PUBLIC POLICY AND GOVERNANCE IN INDIA	Political Science	4	30	70	0	4
9	ESOC515	FUNDAMENTALS OF SOCIOLOGY	Sociology	4	30	70	0	3
10	ESOC506	GLOBALIZATION AND SOCIETY	Sociology	4	30	70	0	4

Note:

1. Students can adopt only one area from Generic Elective basket that will be applicable for the Generic Electives I and II.
2. In case of Seminar on Summer Training, student may choose one course against Seminar on Summer Training from the Generic Basket 1 which is not chosen as GE.

Course code	EACC506	Course Title	FINANCIAL REPORTING, STATEMENTS AND ANALYSIS
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WEIGHTAGES	
CA	ETE(Th.)
30	70

Course Outcomes:

CO1: associate accounting information for decision making in organizations

CO2: analyse the cash position of an organization by evaluating cash flow from different activities

CO3: identify various cost accounting techniques, cost concepts & techniques of cost control in decision making

CO4: identify the accounting terminology and purpose of accounting framework

CO5: evaluate how activity-based costing can be utilized in the organizations

CO6: interpret the financial statements in accordance with generally accepted accounting principles

Unit No.	Content
Unit 1	Introduction to Accounting: Introduction, Accounting Equation, Rules of Accounting, Objectives, Advantages and Limitations of Accounting, Accounting Concepts and Conventions, Accounting Terminology, Concept of IFRS and its relevance, Qualitative features of IFRS, Elements of financial statements, Difference between IFRS and GAAP.
Unit 2	Corporate Financial Statements: Features and Importance, Vertical Format of Corporate Financial Statements, Conceptual framework of depreciation and amortization
Unit 3	Ratio Analysis: Liquidity Ratios, Solvency Ratios, Profitability Ratios, Turnover Ratios, Du-Pont Analysis, Importance and Objectives.
Unit 4	Financial Statement Analysis: Objectives of Analysis, Various Stakeholders and their Interests, Techniques of Financial Statement Analysis-Horizontal Analysis, Common Size Analysis
Unit 5	Artificial Intelligence and Analytics: Finance and Accounting transformation by AI
Unit 6	Cash Flow Statement: Meaning and Significance, Construction of Cash Flow Statement, Analysis of Cash Flow Statement
Unit 7	Basic Aspects of Cost Accounting: Preparation of Cost Sheet and Estimated Cost Sheet, Meaning, Cost Concepts and Cost Classification
Unit 8	Budgetary Control: Need and Steps involved in Budgetary Control, Meaning and Types of Budgets, Preparation of Cash Budget, Preparation of Flexible Budget
Unit 9	Inventory Valuation: Methods of pricing material issues, FIFO, LIFO
Unit 10	Marginal Costing and Profit Planning: Meaning and Objectives, CVP Analysis, Break Even Point and Break Even Analysis
Unit 11	Decision involving Alternative Choices: Concept and Steps involved in Decision Making, Profit Planning, Key factor, Determination of Sales Mix, Make or Buy decision, Exploration of New Markets, Continue or Discontinue a Product Line.
Unit 12	Transfer Pricing: Meaning and Importance, Advantages and Limitations, Methods of Calculating Transfer Price
Unit 13	Activity Based Costing: Concept and Pre-requisites, Activity Based Costing versus Traditional Costing, Steps Involved in Activity Based Costing, Cost Drivers, Determination of Cost under ABC, Benefits and Limitations
Unit 14	Responsibility Accounting: Concept and Significance, Elements, Responsibility Centers.

READINGS:

1. MANAGEMENT ACCOUNTING by KHAN M.Y AND JAIN P.K, MCGRAW HILL EDUCATION
2. FUNDAMENTALS OF COST ACCOUNTING by WILLIAM N. LANEN, SHANNON W. ANDERSON,

MICHAEL W. MAHER, MCGRAW HILL EDUCATION

3. MANAGEMENT ACCOUNTING by SHAH PARESH, OXFORD UNIVERSITY PRESS
4. A TEXTBOOK OF ACCOUNTING FOR MANAGEMENT by MAHESHWARI. S.N, MAHESHWARI SHARAD.K, MAHESHWARI SUNEEL.K, VIKAS PUBLISHING HOUSE
5. ACCOUNTING FOR DECISION MAKING by NEEDLES BELVERD. E, CENGAGE LEARNING
6. FINANCIAL ACCOUNTING FOR MANAGEMENT: AN ANALYTICAL PERSPECTIVE by GUPTA AMBRISH, PEARSON

Course code	EECO515	Course Title	MANAGERIAL ECONOMICS
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WEIGHTAGES	
CA	ETE(Th.)
30	70

Course Outcomes:

C01: apply economic principles to management decisions.

C02: evaluate the managerial decisions making around the theory of the firm with application in a globalized economy

C03: evaluate possible strategies in the event a firm is one of just a few companies in a market

C04: examine a comprehensive understanding of the current issues influencing economic development of India

Unit No.	Content
Unit 1	Nature and Scope of Managerial Economics: definition and scope of managerial economics, basic process of decision making in economics, existence of firm and its functions
Unit 2	Demand and supply analysis: determinants of demand and supply, individual and market demand and supply, market equilibrium
Unit 3	Demand Estimation: relevance of demand estimation for a firm, demand forecasting using qualitative forecast and time series analysis
Unit 4	Cost Theory and Estimation: short run cost functions, long run cost curves, economics of scale, learning curves
Unit 5	Production Theory: production function with one and two variables inputs, optimal combination of inputs, returns to scale
Unit 6	Market Structure: introduction to market structure, price and output determination under perfect competition, monopoly and monopolistic competition
Unit 7	Oligopoly: meaning and sources, cartelization and price leadership under oligopoly
Unit 8	Game Theory: meaning and types of games, dominant strategy and Nash equilibrium, prisoner's dilemma, mixed strategy
Unit 9	Indian Economy Since Colonialism: colonialism and development of the Indian economy, trends and composition of national income
Unit 10	Human Development: human development index, characteristics of developing world, state of human development in India
Unit 11	Structure of Indian Economy: introduction to agriculture, industrial sector and service sector, poverty and inequality, emerging energy-economy-environment regulatory framework
Unit 12	Economic Reforms: introduction to reforms, economic reforms for financial sector performance, agriculture, industry and services
Unit 13	Monetary Policy: concept and meaning, objectives, tools of monetary, role of monetary policy after the period of economic reforms, inflation and monetary policy
Unit 14	Fiscal policy: concept and meaning, objectives, tools of fiscal policy, role of fiscal policy after the period of economic reforms, inflation and fiscal policy

READINGS:

1. Managerial Economics- Principles and Worldwide Applications By Salvatore, Dominick and Rastogi, Siddhartha K., Oxford University Press.
2. Indian Economy By Gaurav Dutt, Ashwani Mahajan, S. Chand Publishing
3. Managerial Economics: An Integrative Approach By Hirshey, Mark, Cengage Learning
4. Indian Economy Performance and Policies, By Uma Kapila, Academic Foundation

Course code	EMGN578	Course Title	INTERNATIONAL BUSINESS ENVIRONMENT
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WEIGHTAGES	
CA	ETE(Th.)
30	70

Course Outcomes:

- C01: analyze business environment and trends to take decisions with respect to international business operations
- C02: interpret and apply international trade theories in international business operations
- C03: identify and critically analyse the role of foreign exchange market and usage of fundamental instruments for currency exchange
- C04: develop skills on analysing the business data, and problem solving in other functional areas such as marketing, business strategy and human resources
- C05: develop responsiveness to contextual social issues/ problems and exploring solutions, understanding business ethics and resolving ethical dilemmas
- C06: identify aspects of the global business and cross-cultural understanding

Unit No.	Content
Unit 1	Overview of international business environment: Globalization and international Business; introduction to international business, types of international business
Unit 2	Components of international Business environment: social environment, political and legal environment, economic environment, technological environment
Unit 3	The external environment and challenges: assessing risk in international business, Recent world trade and foreign Investment trends, environment Influence on Trade and investment patterns
Unit 4	International Trade theories: theory of absolute advantage, theory of comparative advantage, factor proportion theory, the diamond model of national competitive advantage, factor mobility theory
Unit 5	Protectionism and trading environment: Globalization trends and challenges; environment for foreign trade and investment, governmental influence on trade and investments; tariff and non-tariff barriers
Unit 6	Economic Integration and Co-operation: cross national cooperation and agreements, Role of international organizations: WTO, IMF, Regional Economic Integrations
Unit 7	International financial markets: foreign exchange market mechanism, exchange rate arrangement, determinants of exchange Rates, exchange rate movements and their impact
Unit 8	Global Debt and Equity Markets: Euro Currency market, offshore financial centres, International Banks, Non-Banking Financial service firms; stock markets
Unit 9	Global Competitiveness: Export Management, Technology and global Competition, world economic growth and the environment
Unit 10	Internationalization strategies: Theories of internationalization, Modes of operations in International Business, export and import strategy
Unit 11	Forms and Ownership of Foreign Production: Types of collaborative arrangements; Licensing, joint ventures & consortium approaches, Managing International Collaborations
Unit 12	International business diplomacy: Negotiating an International business, issues in asset protection, Multilateral sentiments
Unit 13	Country evaluation and selection: Opportunity and risk matrix, analysis of Macro and micro indicators, country comparison tools
Unit 14	Globalization and society: globalization with social responsibility, Ethical Dimensions of Labor Conditions, Ethics and the Environment, legislation for anti-competitive and unfair trade practices

READINGS:

1. Daniels, Radebaugh, Sullivan & Salwan, International Business Environments and Operations by Pearson
2. International Business - Competing in the Global marketplace by Charles W Hill, Arun Kumar Jain, McGraw Hill

Course code	EMKT503	Course Title	MARKETING MANAGEMENT
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WEIGHTAGES	
CA	ETE(Th.)
30	70

Course Outcomes

- C01: analyze and respond to environmental and competitive changes, their impact on marketing planning, strategies and practices
- C02: apply the conceptual frameworks, theory and techniques to various marketing contexts
- C03: prepare marketing and sales plan appropriate to the needs of customers and contexts
- C04: determine strategies for developing new products and services that are consistent with evolving market needs

Unit No.	Content
Unit 1	Introduction: market and marketing, definition, nature and scope of marketing, exchange process, functions of marketing, core marketing concepts
Unit 2	Marketing orientations: evolution of modern marketing concept, holistic marketing concepts, new marketing orientations selling vs. marketing
Unit 3	Marketing mix: 7 P's & 7 C's of Marketing, 4 A's of Marketing, customer quality, value and satisfaction, Michael E. Porters chain analysis model
Unit 4	Marketing environment: Significance of scanning marketing environment; Analysis of macro environment of marketing – economic, demographic, socio-cultural, technological, political legal and ecological; Impact of micro and macro environment on marketing decisions
Unit 5	Consumer behaviour: buyer behaviour, different consumer roles, need for studying buyer behaviour, different buying motives, consumer buying decision process and influences, consumer vs. business buying behaviour, industrial buying process
Unit 6	Segmentation decisions: market segmentation, characteristics of a segment, bases for segmenting a consumer market, levels of market segmentation, factors influencing selection of market segments
Unit 7	Targeting and positioning: Benefits of market segmentation; Criteria for effective market segmentation; Target market selection and strategies; Positioning – concept, bases and process
Unit 8	Product decisions: concept and classification, layers of products, major product decisions, product-mix, new product development stages, packaging and labelling, product life cycle (PLC) – concept and appropriate strategies adopted at different stages
Unit 9	Pricing decisions: pricing – objectives, price sensitivity, factors affecting price of a product, pricing methods and strategies, ethical issues in product and pricing decisions
Unit 10	Distribution planning: channels of distribution – concept and importance, different types of distribution middlemen and their functions, selection, motivation and performance appraisal of distribution middlemen
Unit 11	Distribution decisions: decisions involved in setting up the channel, channel management strategies, distribution logistics – concept, importance and major logistics decisions, channel integration and systems, ethical issues in distribution decisions
Unit 12	Distribution decisions: retailing and wholesaling, types of retail formats, retail theories, retailing strategies, non-Store retailing, wholesaling – nature and importance, types of wholesalers, developments in retailing and wholesaling in indian perspective
Unit 13	Promotion decisions: role of promotion in marketing, promotion mix, integrated

	marketing communication, concept, communication process and promotion, determining promotion mix, factors influencing promotion mix, developing promotion campaigns, sales promotion, direct marketing, public relations, digital and social media
Unit 14	Trends in marketing: service Marketing, e-marketing, green marketing, customer relationship management, rural marketing, other emerging trends, ethical issues in marketing

READINGS:

1. Kotler, P. & Keller, K. L. (2017). Marketing Management. Pearson
2. McCarthy, E. J., Cannon, J. & Perreault, W. (2014). Basic Marketing. McGraw-Hill Education
3. Etzel, M. J., Walker, B. J., Staton, W. J., & Pandit, A. (2010). Marketing Concepts and Cases. Tata McGraw Hill

Course Code	EMGN581	Course Title	ORGANISATIONAL BEHAVIOUR AND HUMAN RESOURCE DYNAMICS
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WEIGHTAGES	
CA	ETE(Th.)
30	70

Course Outcomes:

C01: enumerate the concept of management practices and organizational behavior

C02: develop and sharpen acumen of how different management thoughts can be used to improve organization functioning

C03: analyze the importance of management practices and important organizational behavior dimensions at different levels of organization

C04: appraise the dynamics of industrial relations and to manage them as per statutory regulations

C05: apply human resource management functions to handle emerging issues

Unit No.	Content
Unit-1	Organizational behavior: relationship between management and organization behavior, model of OB and contributing disciplines to the OB field Foundations of individual behavior: values, attitude and job satisfaction, theories of learning and behavior modification
Unit-2	Personality: theories of personality and its assessment, transactional analysis and attribution theory of perception Emotions: emotional intelligence and affective events theory of emotion Motivation: early and contemporary theories of motivation
Unit-3	Group dynamics: group dynamics and its significance, types of groups, formation and stages of group development, group performance factors Team development: team formation, its types and difference between group and team
Unit-4	Organizational conflict and negotiations: conflict sources, types and levels of conflict, traditional and modern approaches to conflict, resolution of conflict through negotiation Stress: sources and consequences of stress, stress management techniques
Unit-5	Introduction: External and Internal Forces of environment affecting HRM, Objectives and functions of HRM. Human Resource Planning: HRP process, Barriers and Prerequisites for Successful HRP.
Unit-6	Job Analysis: Methods of Collecting Job Data, Potential Problems with Job Analysis, Job Design and its approaches, Process of Job Analysis
Unit-7	Recruitment & Selection: Meaning, Recruitment process, Recruitment Methods, Challenges in India and Selection Process
Unit-8	Talent Management: talent management, talent retention, talent acquisition and sources of talent acquisition Orientation, induction and placement: process of orientation, induction and placement programme, Evaluation of Orientation Programme
Unit-9	Training and Development: employee training, difference in training and development, methods of training, methods of management development, people capability maturity model
Unit-10	Career planning and management: career management, process of career planning, challenges in career planning
Unit-11	Performance management system: performance management, performance planning, performance appraisal, potential appraisal, feedback and counselling
Unit-12	Compensation management: types and theories of compensation, concept of wages, factors influencing compensation management, incentives and fringe benefits, employee engagement and retention.

Unit-13	Managing industrial relations: major actors and their roles in IR, factors influencing IR, approaches to IR, grievance handling procedure
Unit-14	Industrial Disputes: industrial disputes, methods of settlement of industrial disputes, trade unions and their challenges in India

READINGS:

1. Organizational Behaviour By Stephen P. Robbins. Timothy A. Judge. Neharika Vohra, Pearson
2. Management by Management By Stephen P. Robbins. Mary Coulter. Neharika Vohra, Pearson
3. Human Resource Management By Dessler, G. And Varkkey, B, Pearson

Course Code	EFIN542	Course Title	CORPORATE FINANCE
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WEIGHTAGES	
CA	ETE(Th.)
30	70

Course Outcomes:

C01: understanding finance function with respect to its evolution and growth

C02: understanding the concept of Time Value of Money and interpreting the results based on calculations.

C03: analyzing financing needs of the businesses and designing an optimum capital structure

C04: understanding the retention and distribution of profits and impact on business valuation.

Unit No.	Content
Unit-1	Financial Management: An Overview, evolution of finance, the basic goal: creating shareholder value, agency issues, business ethics and social responsibility
Unit-2	Sources of Finance: Long term and Short-term sources of finance- Ordinary shares, Preferences shares, redeemable irredeemable debentures, Debt vs. Equity.
Unit-3	Money Market Instruments: Treasury Bills, Commercial Papers, Certificate of Deposits, Treasury Management and Treasury Operations in corporate. External Commercial Borrowings, Financing for MSMEs
Unit-4	Time Value of Money concept: Compounding and discounting, Future value and Present value, Annuities, Effective interest rates
Unit-5	Investment Decisions: Capital Budgeting Decisions, Rationale of Capital Budgeting, Non-Discounting Capital Budgeting Techniques - Payback period, Profitability Index, Accounting Rate of Return
Unit-6	Investment Decisions: Discounting Techniques of Capital Budgeting - NPV, IRR, Discounting Payback Period Method, Estimation of Cash Flows, NPV v/s IRR, Risk analysis in Capital Budgeting - Sensitivity Analysis, Certainty Equivalent Approach
Unit-7	Cost of Capital: Meaning and Concept, Cost of Debt, Cost of Equity, Cost of Retained Earnings, Calculation of WACC, International Dimensions in Cost of Capital
Unit-8	Financing Decisions: Capital Structure, Theories and Value of the firm - Net Income Approach, Net Operating Income Approach, Traditional Approach, Modigliani Miller Model, Determining the optimal Capital Structure, Checklist for Capital Structure Decisions, Costs of Bankruptcy and Financial Distress.
Unit-9	EBIT-EPS Analysis: Concept of Leverage, Types of Leverage: Operating Leverage, Financial Leverage, Combined Leverage.
Unit-10	Dividend Decisions: Factors determining Dividend Policy, Theories of Dividend Gordon Model, Walter Model, MM Hypothesis
Unit-11	Forms of Dividend: Cash Dividend, Bonus Shares, Stock Split, Stock Repurchase, Dividend Policies in practice.
Unit-12	Working Capital Management: Working Capital Policies, Risk-Return trade-off, Cash management, Receivables management
Unit-13	Corporate Governance: Value-based Corporate culture, Disclosures, transparency and accountability, Corporate Governance and Human Resource Management, Evaluation of performance of board of directors, Succession planning, Public sector undertakings and corporate governance, Insider trading, Lessons from corporate failure
Unit-14	Economic outlook and Business Valuation: Impact of changing business environment on corporate valuation, climate change and corporate valuation, Business sustainability and corporate valuation, Role of environmental, social, and governance (ESG) factors in corporate valuation

READINGS:

1. FUNDAMENTALS OF CORPORATE FINANCE by JONATHAN BERK, PETER DeMARZO & JARRED HARDFORD, PEARSON
2. CORPORATE FINANCE by STEPHEN A. ROSS, RANDOLPH W. WESTERFIELD & JEFFREY JAFFE, MCGRAW HILL

Course Code	EOPR639	Course Title	OPERATIONS MANAGEMENT AND RESEARCH
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WEIGHTAGES	
CA	ETE(Th.)
30	70

Course Outcomes:

C01: analyze how to optimally utilize the resources.

C02: apply the concepts in solving real life problems.

C03: adapt different opinions and make correct judgment.

C04: apply mathematical models to a given problem.

C05: analyze the various decision-making environments and the tools applicable to them

Unit No.	Contents
Unit- 1	Introduction to Operations Management and Research: introduction and scope of operation management, emerging issues in operations management, history of operations research, definitions and features of operations research approach, models and modelling in operations research, applications of operations research
Unit- 2	Forecasting: introduction, features and elements of forecasting, forecast based on judgment and opinion, forecast based on time-series data, associative forecasting techniques, concept of forecasting errors
Unit- 3	Design and layout: production of goods versus delivery of services, product-process matrix, design process, product design, service design, process types, product and service profiling, automation, facility layout, line balancing
Unit- 4	Location planning and analysis: need and nature of location decisions, factors that affect location decisions, evaluating location alternatives
Unit- 5	Management of quality: defining quality-dimensions of quality, determinants of quality, the cost of quality, quality tools, total quality management, inspection, control charts for variables (mean and range chart), control charts for attributes (p-chart, c-chart), run test
Unit- 6	Planning: Aggregate Production Planning; Master Production Schedule and MRP, MRP-II, ERP
Unit- 7	Inventory management: nature and importance of inventories, inventory counting systems and inventory costs, economic production quantity, quantity discounts, EOQ model
Unit- 8	Supply chain management: need, elements, and benefit of effective SCM, logistics and reverse logistics, requirements, and steps for creating an effective supply chain, lean vs. agile supply chains
Unit- 9	JIT and lean operations: goals and building blocks of lean systems
Unit- 10	Linear Programming: general mathematical model of linear programming, linear programming formulation, graphical solution, simplex method, Big M method, special cases
Unit- 11	Assignment and transportation problem: Hungarian Assignment Model (HAM), special cases in assignment problem, Initial Basic Feasible Solution (IBFS) i.e. NWCM, LCM and VAM Method, optimization using stepping stone and MODI, special cases including concept of degeneracy
Unit- 12	Project Management and Queuing Theory: difference between PERT and CPM, PERT problem with three time estimates and concept of probability, basic concepts and parameters of a queuing model, m/m/1 model characteristics
Unit- 13	Game Theory: basics, saddle point, mixed strategies including odds, dominance, sub games and graphical method
Unit- 14	Decision Theory: basics including decision making environments, decision making under risk, expected value of perfect information, decision making under uncertainty, concept of decision trees, decision tree analysis

READINGS:

1. OPERATIONS MANAGEMENT by WILLIAM J STEVENSON, MCGRAW HILL EDUCATION
2. OPERATIONS MANAGEMENT by NORMAN GAITHER, GREGORY FRAZIER, CENGAGE LEARNING

Course code	EMGN801	Course Title	BUSINESS ANALYTICS
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WEIGHTAGES	
CA	ETE(Th.)
30	70

Course Outcomes:

CO1: apply quantitative modelling and data analysis techniques to problems of real world.

CO2: employ best practices in data visualization to develop charts, maps, tables, and other visual representations techniques to communicate findings to diverse audiences.

CO3: identify and describe complex business problems in terms of analytical models

CO4: apply appropriate analytical methods to find solutions to business problems that achieve stated objective

Unit No.	Content
Unit 1	Business analytics and summarizing business data- overview of business analytics: scope, application, R-studio environment for business analytics, basics of R: packages, vectors, datatypes and data structures
Unit 2	Summarizing business data- one variable and two variables statistics, concept of pipes operator, functions to summarize variables: select, filter, mutate, arrange, summarize and group by
Unit 3	Business data visualization- basic graphs: bar-graph, line-chart, histogram, box and scatterplot, advanced data visualization: graphics for correlation, deviation, ranking, distribution and composition
Unit 4	Business forecasting using time series- time series modelling, exploration of time series data using R, ARIMA, GARCH, VAR methodologies for time series analysis
Unit 5	Business prediction using generalised linear models- logistic regression and statistical inference with application, survival analysis and its application
Unit 6	Machine learning for business- supervised models: K-NN and decision trees, unsupervised models: K-means and hierarchical clustering, classification and prediction accuracy
Unit 7	Text analytics for business- creating and refining text data, inferences through graphs, topic modelling and TDM analysis, sentiment analysis
Unit 8	Business intelligence- introduction to business intelligence, role of data and data base management, role of data mining in business strategy
Unit 9	Data visualization- role of visualization in business intelligence, introduction to charts, graphs and maps
Unit 10	Data environment and preparation- managing metadata, extracts and live data, cross database joints and union
Unit 11	Data blending- data prep with text and excel files, understating data types, extracting data from various file formats
Unit 12	Design fundamentals and visual analytics- filters, sorting, groups and sets, interactive filters, forecasting, use of tooltip, reference line, parameter, drill down and hierarchies
Unit 13	Decision analytics and calculations- types of calculations, logic calculations (including if comment, nested if command etc.), data calculations, string calculations
Unit 14	Mapping- role of maps in business intelligence and visualization, editing unrecognized locations

READINGS:

1. R FOR EVERYONE: ADVANCED ANALYTICS AND GRAPHICS by JARED P. LANDER, PEARSON
2. VISUAL DATA STORYTELLING WITH TABLEAU by LINDY RYAN, PEARSON
3. TEXT MINING WITH R: A TIDY APPROACH by JULIA SILGE AND DAVID ROBINS, SHROFF PUBLISHERS & DISTRIBUTORS PVT. LTD
4. MASTERING TABLEAU by DAVID BALDWIN AND MARLEEN MEIER, PACKT PUBLISHING

Course code	EMGN832	Course Title	RESEARCH METHODOLOGY
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WEIGHTAGES	
CA	ETE(Th.)
30	70

Course Outcomes:

- C01: identify critical thinking and scientific approaches to formulate research problems
C02: describe research design approaches, methods and conceptual differences to apply across different research contexts
C03: generalize familiarity with a phenomenon or to achieve new insights into it.
C04: interpret results generated from data analysis and report the findings.

Unit No.	Content
Unit 1	Background of research- Developing research proposals, research paradigms- contributions of research to theory and practice and research ethics
Unit 2	An introduction to research- Meaning, process, defining, research problem: selection, understanding and necessity of defined problem, research design, need and types of Research Design.
Unit 3	Reviewing Literature- Identifying, accessing and managing sources of information and scholarly literature, academic writing and referencing and steps in literature review development
Unit 4	Types of data in research- Primary and secondary data and sources, nature of qualitative and quantitative research, data and variables used in qualitative and quantitative methods, writing up qualitative research
Unit 5	Sampling design- Sampling design process, characteristics of good sample, types of sampling design, sampling techniques- random and non-random
Unit 6	Measurement and scaling technique: Tools of sound measurement, techniques of developing measurement tools, scaling meaning and important scaling techniques, statistical properties of different scales
Unit 7	Data collection methods- Observation, experimentation and survey methods, questionnaire: introduction, design process and coding the questionnaire
Unit 8	Descriptive statistics and time series- Measures for central tendency- ungrouped and ungrouped data, dispersion and distribution, index number and time series analysis
Unit 9	Hypothesis testing- Hypothesis definition and process, types and hypothesis testing procedure for t and z tests differences for single, two populations and paired sample.
Unit 10	Test of association- Correlation coefficient- Spearman rank and Karl's Pearson and test of association between nominal data- Chi-square test
Unit 11	Analysis of Variance (ANOVA) and prediction techniques- Analysis of variance for mean difference, reliability and validity, bivariate regression and multiple regression analysis
Unit 12	Multivariate analysis- Classification, important methods of factor analysis, factor analysis procedure, rotation in factor analysis, overview of cluster analysis, discriminant analysis, multi-dimensional scaling and conjoint analysis.
Unit 13	Reporting a quantitative study- Technique and precaution of interpretation, significance of report writing, layout and types of report.
Unit 14	Writing research proposal- Purpose, nature and evaluation-Content and format-Practical considerations-timelines, budgets, supervision management- Presentation and defense of proposals.

READINGS

1. BUSINESS RESEARCH METHODS by NAVAL BAJPAI, PEARSON
2. MARKETING RESEARCH by NARESH K MALHOTRA, PEARSON
3. MARKETING RESEARCH: TEXT AND CASES by NARGUNDKAR, R., MCGRAW HILL EDUCATION

Course code	EBSL605	Course Title	LEGAL ASPECTS OF BUSINESS
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WEIGHTAGES	
CA	ETE(Th.)
30	70

Course Outcomes:

- CO1: apply the statutory provisions related to Contract Act and Sales of Goods Act in business organizations.
- CO2: use legal rights and remedies by applying the provisions related to Consumer and Intellectual Property Rights.
- CO3: analyze the legal issues related to Negotiable Instruments
- CO4: interpret the legal implications of FEMA and Competition Act in designing various business policies and strategies.
- CO5: develop the understanding of Company form of business organization from its incorporation to winding up

Unit No.	Content
Unit 1	Indian Contract Act, 1872: essentials of contract, kinds of contract, free consent, discharge of contract, breach of contract
Unit 2	Sale of Goods Act, 1930: contract of sale, conditions and warranties, rights of unpaid seller
Unit 3	Consumer Protection Act 2019: introduction and objectives, rights of consumers, redressal machinery
Unit 4	Intellectual Property Rights: patents, copyrights and trademarks, trade secret, geographical indications, traditional knowledge digital library, intellectual property infringement
Unit 5	Negotiable Instruments Act, 1881: characteristics and kinds of Negotiable Instruments, comparison between promissory note, bill of exchange and cheque
Unit 6	FEMA Act, 1999: introduction, definitions, regulation and management of Foreign Exchange
Unit 7	Competition Act, 2002: definitions, anti-competitive agreements, abuse of dominant position, Combinations
Unit 8	Companies Act, 2013 (preliminary): company and its characteristics, kinds of companies, limited liability partnership, formation of a company
Unit 9	Company Documents: Memorandum of Association, Articles of Association, Doctrine of constructive Notice, Doctrine of Indoor management
Unit 10	Prospectus: types of prospectus, legal consequences of mis-statement in prospectus
Unit 11	Raising of Capital: Share and share capital, Alteration of share capital, Borrowing powers and charges
Unit 12	Company Management: appointment and removal of directors
Unit 13	Company Meetings: essentials of a valid meeting and types of meeting
Unit 14	Company winding up: modes of winding up under IBC Act and compulsory winding up under Companies Act, 2013

READINGS:

1. ELEMENTS OF BUSINESS LAW by N.D KAPOOR, SULTAN CHAND & SONS (P) LTD.

References:

1. A TEXTBOOK OF COMPANY LAW by P P S GOGNA, S Chand Publishing
2. A HANDBOOK ON CORPORATE AND OTHER LAWS by CA CS MUNISH BHANDARI, Bestword Publications Pvt. Ltd.
3. LEGAL ASPECTS OF BUSINESS: CONCEPTS AND APPLICATIONS by PARUL GUPTA, VIKAS PUBLISHING HOUSE

Course code	EPEL537	Course Title	COMMUNICATION FOR LEADERS
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WEIGHTAGES	
CA	ETE(Th.)
30	70

Course Outcomes:

- C01: develop critical thinking skills employed in small groups and public speaking
C02: compose business communication documents with structural precision and verbal accuracy
C03: formulate business queries and respond to any reason related to business situation
C04: use semantic and syntactic structure as per the advanced level of Common European Framework
C05: employ their reading speed and comprehension of business articles
C06: demonstrate consistent and appropriate language use in extended conversations and discussions

Unit No.	Content
Unit 1	Listening- understanding vocabulary and context: matching phrases and words with definitions, taking notes and completing them, understanding phrases and expressions in context
Unit 2	Listening for Details: filling missing details, interpreting listening tracks, identifying key and supporting ideas, taking detailed notes on information
Unit 3	Tenses, Clauses and transitional words or phrases: usage of defining and non-defining relative clauses, pronoun problems, usage of as or like, future time clauses, usage of tenses, infinitives, reference devices, position of adverbs, transitional markers,
Unit 4	Sentences: cleft sentences, synthesis of sentences, complex sentences, conditional sentences, alternatives to if
Unit 5	Vocabulary: one word substitution for a definition, abbreviations, antonyms, synonyms, connotative and denotative meanings, contextual use of words and phrases, substitution, collocation, concession words and phrases
Unit 6	Idioms and Proverbs: phrasal verbs, meaning and usage of idioms and proverbs, formal and informal usage of language
Unit 7	Reading Skills: types of texts – narrative, descriptive, extrapolative, essential skills for reading comprehension – decoding, fluency, vocabulary, reasoning and background knowledge, reading techniques
Unit 8	Comprehension Skills: identifying errors and superfluous words, identifying correlation of sentences and paragraphs, finding supporting ideas, identifying purpose, different strategies of comprehension, reading texts of different genres and of varying length, reading and interpreting non-linguistic texts, reading and understanding incomplete texts
Unit 9	Group Discussion: brainstorming ideas, taking stance, working in groups and enacting roles, showing agreement and disagreements, discussing possible scenarios, discussing various business possibilities, argument building for persuasion
Unit 10	Presentation Skills: do's and don'ts of presentation skills, presenting information and business proposals, making a short talk
Unit 11	Role Play and debate: useful vocabulary and phrases, assuming and reacting in different business scenarios, interviewing a partner, debate, group-forecasting, negotiation skills, debating pros and cons of a business decision
Unit 12	Writing Techniques and Strategies: types of writing, cohesion and coherence, expansion of ideas, thesis sentence, expansion of given sentence, reorganizing jumbled sentences into a coherent paragraphing, writing style and techniques
Unit 13	Writing: summarizing, explanation of points, paragraph writing, précis writing, essay writing
Unit 14	Business Correspondence: formats of business correspondence, writing and replying to memo, notice, note, letter, report, and proposal

Readings:

1. BUSINESS BENCHMARK- ADVANCED by GUY BROOK- HART, CAMBRIDGE PUBLICATIONS
2. ADVANCED ENGLISH GRAMMAR by MARTIN HEWINGS, CAMBRIDGE UNIVERSITY PRESS
3. THE MCGRAW-HILL HANDBOOK OF ENGLISH GRAMMAR AND USAGE by MARK LESTER, LARRY BEASON, MC GRAW HILL

Course Code	ECAP780	Course Title	PROBABILITY AND STATISTICS
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WEIGHTAGE		
CA	ETE(Th.)	ETE (Pr.)
30	40	30

Course Outcomes:

C01: experiment to carry out simple data investigations for categorical variables.

C02: measure a random variable that describe randomness or an uncertainty in certain realistic situation. It can be of either discrete or continuous type.

C03: employ the different types of data and choose an appropriate way to display them.

C04: identify and compare techniques for collecting data from primary and secondary sources, and identify questions and issues involving different data types

Unit No.	Content
Unit-1	Introduction to probability: Elements of Set Theory, Sample Space and Probability Measure, Statistical Independence, Conditional Probability, Counting Sample Points, Mutually and pair wise independent events, multiplication theorem of probability for independent events, Baye's theorem.
Unit-2	Introduction to statistics and data analysis: Statistical Inference, Samples, Populations and Experimental Design
Unit-3	Measures of Location: The Sample Mean and Median, Measures of Variability, Discrete and Continuous Data, Statistical Modeling, Scientific Inspection, and Graphical Diagnostics, Graphical Methods and Data Description, General Types of Statistical Studies.
Unit-4	Mathematical expectations: Definition, expected value of random variable, expected value of function of a random variable, properties of expectations, Various measures of Central Tendency, Dispersion, skewness and Kurtosis for continuous probability distribution, continuous distribution function, Variance, Properties of variance, covariance.
Unit-5	Moments: Chebyshev Inequality, Moments of Two or More Random Variables, Moments of Sums of Random Variables, Moment Generating Function, Properties of moment generating function, cumulants, Raw and central moments.
Unit-6	Relation between moments: raw moments & central moments, Effect of change of origin and scale on moments, Pearsonian coefficients Measures of skewness, kurtosis.
Unit-7	Correlation, regression and Pearson's Correlation coefficient, Spearman's Rank correlation coefficient
Unit-8	Regression: Regression Concepts, Regression lines, Multiple correlation and regression,
Unit-9	Analysis of variance: Analysis of Variance- One-way classification and two-way classification.
Unit-10	Standard distribution: Binomial, Poisson, Negative Binomial Distribution, Normal Distribution and their properties.
Unit-11	Statistical quality control: Introduction, Process control, control charts for variables – X and R, X and S charts control,
Unit-12	Charts for attributes: p chart, np chart, c chart and their applications in process control
Unit-13	Index numbers: Learn about the need of index numbers, explain the different methods of constructing index numbers, and evaluate the tests for judging the soundness of an index number.
Unit-14	Time series: Explain about time series, describe components of time series, and define measurement of variations of time series.
Unit-15	Sampling theory: Sampling Theory, Random Samples and random Numbers, Sampling with and without replacement, sampling distributions, sampling distribution

	of means, sampling distribution of properties, sampling distribution of differences and sum, standard errors, software demonstration of elementary sampling Theory.
Unit-16	Hypothesis testing: Definition of hypothesis, interpret statistical procedure of hypothesis testing, use application of hypothesis testing in several business contexts.
Unit-17	Tests of significance: Based On t, F and Z Distributions: -Student's (t) distribution, definition, properties, critical value of t, Application of t-distribution, Test for single mean, t-test for difference of mean,
Unit-18	Fischer Z- transformation, F-statistic, critical value of F distribution, application.
Unit-19	Statistical tools and techniques: Bayesian Concepts, Bayesian Inferences, Bayes Estimates Using Decision Theory Framework,
Unit-20	Statistical Tools: Excel, R-Studio and SPSS.

READINGS:

1. FUNDAMENTALS OF MATHEMATICAL STATISTICS by S.C. GUPTA AND V. K. KAPOOR, SULTAN CHAND & SONS (P) LTD.
2. PROBABILITY & STATISTICS FOR ENGINEERS & SCIENTISTS by RONALD E. WALPOLE, PEARSON

Course code	ECAP781	Course Title	Data Science Toolbox
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WEIGHTAGE		
CA	ETE(Th.)	ETE
30	40	30

Course Outcome:

- C01:** Understand the concept and need for data science.
C02: Discuss the various phases in the data analytics lifecycle.
C03: Analyze the fundamental areas of study in data science
C04: Understand the concept of data preprocessing.
C05: Understand the importance of data visualization.
C06: Learn the various data visualization software and libraries.
C07: Understand different types of machine learning techniques
C08: Use Python for developing machine learning algorithms
C09: Use various data science tools for developing algorithms
C010: Understand the fundamentals of big data.

Unit No.	Content
Unit 1	Introduction to Data Science: Why learn data science?, Life cycle of data analytics: Data discovery, Data preparation, Model planning, Model building, Communicate results, Operationalization. Types of data analysis: Descriptive analysis, Diagnostic analysis, Predictive analysis, Prescriptive analysis, types of data analytics.
Unit 2	Data pre-processing: Introduction to data preprocessing, Data preprocessing, Data wrangling, Data types and forms, Possible data error types.
Unit 3	Various data preprocessing operations: Data cleaning, Data integration, Data transformation, Data reduction, Data discretization.
Unit 4	Data Plotting and Visualization: Introduction to data visualization, Visual encoding, Data visualization software, Data visualization libraries, Basic data visualization tools, Advanced data visualization tools, Data visualization types.
Unit 5	Role of statistics in data science: Hypothesis testing, null hypothesis, alternative hypothesis, Statistical significance: Type 1 and type 2 errors, Data science, p-value, ANOVA, Chi-square test.
Unit 6	Machine learning: Introduction, types of machine learning techniques, learning problems and system, designing a learning system, concept of learning task.
Unit 7	Unsupervised learning: Introduction to Clustering algorithms, K Means, K mode, K median, Performance measures of clustering.
Unit 8	Supervised learning: Introduction to Classification algorithms, KNN (k-nearest neighbors) algorithm, Naïve Bayes algorithm, cross-validation and metrics.
Unit 9	Regression models: Introduction to regression, types of regression, Machine linear regression, machine logistic regression, regularization, performance metrics.
Unit 10	Weka: Introduction to weka tool, Data import, Choose model (algorithm), Hands on analysis of clustering and classification algorithms.
Unit 11	Excel data analysis: Introduction to excel data analysis, Data analysis tool pack, Descriptive statistics, Analysis of variance (ANOVA), Regression, Histogram.
Unit 12	R tool: Introduction R, RStudio, Some important R data structures: Vectors, character strings, Matrices, Lists, Dataframe, R programming structure.
Unit 13	Data science packages in R: Data import, ggplot2 for visualization, dplyr and dbplyr for Data Wrangling, mlr3 and caret, tidyverse.
Unit 14	NumPy and Pandas: Introduction to python, NumPy, understanding data types in python, Pandas for data analysis, data indexing and selection: Data selection in series, Data selection in DataFrame, Missing data in Pandas, Handling missing data
Unit 15	Machine learning packages in python: Data import, Visualization with Matplotlib,

	simple line and scatter plots, Seaborn, heatmap, Introducing Sci-kit learn package.
Unit 16	RapidMiner: Introduction, data importation and exporting tool, How to implement algorithms?, Hands on analysis of algorithms.
Unit 17	Tableau: Introduction, Data preparation, Adding data sources in Tableau, Creating data visualizations.
Unit 18	KNIME: Introduction, Overview of KNIME analytics platform, Node and workflow, Data preparation, Importing and exporting data, Hands on analysis of model.
Unit 19	Big data: Introduction to big data, Role of big data in data science, varies V's in big data, Characteristics of Big Data and Dimensions of Scalability, Foundations for Big Data Systems and Programming, Applications of Big data.
Unit 20	PowerBI and DataRobot: Introduction, Data modeling, Import and export data, Hands on analysis of PowerBI and DataRobot.

Readings:

1. Norman matloff, **"The Art of R Programming"**, No starch press, 2011.
2. Jason Bell, "Machine Learning: Hands-On for Developers and Technical Professionals", Wiley Publication, 2015
3. Jake Vander Plas, **"Python Data Science Handbook"**, O'reilly, 2017.
4. Alexander Loth, Nate Vogel and Sophie Sparkes, **"Visual Analytics with Tableau"**, Wiley, 2019.
5. Gypsy nandi and Rupam kumar sharma, "Data science Fundamentals and Practical approach", bpb publisher, 2020.

Course code	ECAP782	Course Title	ADVANCE DATA VISUALISATION
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WEIGHTAGE		
CA	ETE(Th.)	ETE (Pr.)
30	40	30

Course Outcomes:

- Discuss the terminology used in Tableau Prep.
- Identify how Tableau Prep approaches data sampling.
- Construct and understand data prep flows that address common scenarios encountered in data preparation, as applied to common data use cases.
- Review the quality of the data and perform exploratory analysis.

Unit No.	Content
Unit 1	Introduction to Data Visualization: Acquiring and Visualizing Data, Simultaneous acquisition and visualization, Applications of Data Visualization, Keys factors of Data Visualization. Reading Data from Standard text files (.txt, .csv, XML), Displaying JSON content. Data visualization tools.
Unit 2	Introduction to TABLEAU: Installation of TABLEAU, Tableau Interface Data Types, Tableau features
Unit 3	Tableau Data Sources: Connecting data with tableau, joining data sources, combine data sources using data blending, Creating and Using Sets, Creating & using Parameters
Unit 4	Basic Visualizations: Creating Basic Visualizations Creating Groups • Bar chart • Geographic map • Crosstab report • Scatter plot • Line chart
Unit 5	Creation of Hierarchies: Create hierarchies to drill down into data, creating groups for data, Creating and Using Sets Create data filters, create calculated fields, combine data sources using data blending, Creating & using Parameters, Bringing in More data with Joins
Unit 6	Advance Data Visualization/Graph: Bar Chart i. Stacked Bar Chart ii. Bar in Bar Chart iii. Combo Chart • Line Chart i. Single Axis ii. Dual Axis iii. Blended Axis • Dual Axis Chart i. Line ii. Bar iii. Lollipop Chart iv. Donut v. Bullet Graph vi. Histogram Chart vii. Animated Graph •
Unit 7	Building View Advance Map Option: Explain latitude and longitude, Default location/Edit locations, Symbol map & Filled Map, Map Layer, Image in map ,Map option.
Unit 8	Tableau Calculations & Filters: Calculated Fields • Basic Approach to Calculate Rank • Advanced Approach to Calculate Rank • Calculating Running Total • Filters Introduction • Quick Filters • Filters on Dimensions • Conditional Filters • Top and Bottom Filters • Filters on Measures • Context Filters • Slicing Filters • Data Source Filters • Extract Filters
Unit 9	Managing, organizing and enhancing data in tableau: Splitting data, Pivoting & Transforming data, Blue & green pills Filters, Blue & green pills effect on dates, cleaning data by Bulk Re-aliasing, setting data defaults, create hierarchies to drill down into data, Creating groups for data, Create calculated fields
Unit 10	Making Comparisons and Basic Calculation: Sorting, Calculation – String, Basic, Date and Logic, Continuous and Discrete data, Working with Dates, Creating calculated Fields i. Logical Function ii. Case if Function iii. ZN Function iv. Else if Function v. Ad-hoc Function, Manipulating Text – left and right function
Unit 11	Advance Calculation: Table Calculation, Running total, Percent, Percent total, Year over Year Growth, LOD i. Include ii. Exclude iii. Fixed

Unit 12	Analytical Topic/Capability: Trend Line • Forecasting • Cluster • Reference Line • Box Plot (Understanding Outliers in Data) • Distribution Band • Reference Band
Unit 13	Interactive Dashboards Tableau: Creating a dashboard, designing dashboard, add motions, adding interactivity with actions, Dashboard layout and formatting, add extra detail to visualization using Marks Shelf, Add Size, Shape, Labels
Unit 14	Sharing Your Dashboard: Publishing to PDF • Exporting to Pivot Table and Images • Exporting Packaged workbooks • Tableau Reader • Tableau Online • Tableau Server • Tableau Public • Version Control • Publishing to Tableau Server
Unit 15	Designing with Tableau: Story Points and how to create them, designing effective slide presentations to showcase data story, publish online business dashboards with Tableau, Exporting Pdfs, Sharing Dashboard Securely
Unit 16	Mathematical and visual analytics in tableau: Aggregate calculations, Date calculations, Logic calculations, Number calculations, String calculations, Type calculations, LOD Expressions, Add reference lines and trend lines
Unit 17	Advanced Data Modeling: Data Modeling, The Broader Tableau Ecosystem, Data Preparation: Where and When
Unit 18	Making charts interactive and animated: Data joins, updates and exits, interactive buttons, updating charts, adding transactions, using keys, wrapping the update phase in a function, adding a Play button to the page, Making the Play button go, Allow the user to interrupt the play, sequence. Visualization of groups, trees, graphs, clusters, networks, software, Metaphorical visualization
Unit 19	Visualization of Data with advanced technology: Visualization data with advanced analytics Polygon Maps, Bump Charts, Control charts, Funnel charts, Pareto charts, Waterfall charts, Usage and filtration of data with charts, visualizing categorical data, visualizing time series data, visualizing multiple variables, Visualizing geospatial data, Map box integrations, Web Mapping Services, Background Images
Unit 20	Projects: Financial Analysis Dashboard • HR Analysis Dashboard • Market Analysis Dashboard • Tourism Analysis Dashboard • New Business Analysis Dashboard • Banking Sector Analysis • Issue & Bug reporting Analysis • Population Trend Analysis

Readings:

- DESIGNING DATA VISUALIZATIONS: REPRESENTING INFORMATIONAL RELATIONSHIPS by JULIE STEELE, NOAH ILIINSKY, KINDLE EDITION

Reference

- MASTERING PYTHON DATA VISUALIZATION PAPERBACK by KIRTHI RAMAN, PACKT PUBLISHING

Course code	EMGN571	Course Title	CORPORATE STRATEGY AND ENTREPRENEURSHIP
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WEIGHTAGES	
CA	ETE(Th.)
30	70

Course Outcomes

- CO1: integrate understanding of functional aspects of management and explore their contribution to strategic management within organizations
- CO2: appraise the importance of environmental and industry analysis in formulating strategy
- CO3: analyze the role of marketing, accounting, finance, operations management and human resource management in strategy formulation
- CO4: evaluate the role of leadership, organizational structure and organizational culture in strategy-implementation
- CO5: analyse the business environment and identify the opportunities for starting up a venture.
- CO6: develop marketing plan, operations plan, HR plan and financial plan for new business ventures

Unit No.	Content
Unit 1	Strategic management: strategic decisions, strategic management process Strategic intent: mission, vision, goals and objective
Unit 2	External analysis: remote environment, industry environment, EFE Matrix, CPM Matrix Internal analysis: SWOT analysis, IFE Matrix, Value chain analysis, resource-based view of the firm, benchmarking
Unit 3	Corporate level strategies: growth strategy, integration strategy, diversification strategy, turnaround strategy, defensive strategy
Unit 4	International strategy: globalization of firms, global strategic planning, competitive strategies for firms in foreign markets, strategies for emerging markets
Unit 5	Business level strategy: cost leadership, differentiation, focus
Unit 6	Multi-business strategy: portfolio approach, BCG growth-share matrix, IE matrix, synergy approach, parenting framework, patching approach Strategy implementation: nature of strategy Implementation, matching structure with strategy, creating a strategy supportive culture
Unit 7	Evaluation and control: nature of strategy evaluation, strategy evaluation framework, strategic control, balanced scorecard Contemporary Issues: corporate governance, business ethics, social responsibility, environmental sustainability
Unit 8	Strategic management and Entrepreneurship: strategic management for start-ups, strategies for growing and maturing businesses, strategies for technology-oriented businesses
Unit 9	Latest Trends in entrepreneurship: social entrepreneurship, women entrepreneurship, intrapreneurship, challenges and strategic solutions for problems faced by entrepreneurs in India.
Unit 10	Overview of business plan: components of a business plan, business ideas, business ideas selection, feasibility study, legalities involved for business plan, forms of ownership, SWOT Analysis
Unit 11	Strategic Marketing plan: segmentation, targeting, positioning, marketing mix (7P), product mix, promotions mix, Pricing strategies
Unit 12	Strategic Operations plan: people and suppliers, manufacturing or outsourcing, plant size, location decision, inventory management
Unit 13	Strategic Human resources plan: manpower planning, organization structure, recruitment, selection, training and development, motivational techniques, performance appraisal

Unit 14	Strategic Financial plan: capital requirement, sources of funds, break even analysis, balance sheet, cash flows, payback period, ROI (return on investment)
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READINGS:

1. STRATEGIC MANAGEMENT by JOHN PEARCE II, RICHARD B ROBINSON, AMITA MITAL, MCGRAW HILL EDUCATION
2. STRATEGIC MANAGEMENT by HITT, IRELAND, HOSKISSON, MANIKUTTY, CENGAGE LEARNING

Course code	ECAP521	Course Title	FUNDAMENTAL OF MACHINE LEARNING
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WEIGHTAGE		
CA	ETE (Th.)	ETE (Pr.)
30	40	30

Course Outcomes:

C01: apply python libraries for data analysis and machine learning model development

C02: evaluate important features from a given dataset

C03: apply machine learning models for real world problems

C04: evaluate the performances of different machine learning models

Unit No.	Content
Unit 1	Introduction to Machine Learning: History and Evolution of Machine Learning, Basic Definitions and Concepts, Types of Machine Learning: Supervised, Unsupervised, Reinforcement Learning, Challenges and Issues in Machine Learning, Applications of Machine Learning in Various Fields
Unit 2	Introduction to Python: Basics of Python Programming Language, Introduction to Jupyter Notebook for Data Science, Python Packages and Libraries for Data Analysis and Machine Learning
Unit 3	Data Handling in Python: Data Analysis Techniques and Tools, Importing and Exporting Data in Python Environment, Data Wrangling: Cleaning, Transforming, and Manipulating Data, Exploratory Data Analysis (EDA) for Insights and Patterns
Unit 4	Data Pre-processing Implementation: Implementation of Data Pre-processing Techniques in Python Environment
Unit 5	Regression Analysis: Simple Linear Regression, Multiple Linear Regression, Non-Linear Regression Models, Mathematical Formulation of Regression Models, Model Evaluation Metrics for Regression Problems
Unit 6	Regression Implementation: Implementation and Performance Analysis of Linear Regression Models, Implementation and Performance Analysis of Multiple Regression Models, Implementation and Performance Analysis of Non-Linear Regression Models
Unit 7	Classification Problems: Introduction to Classification Problems, Understanding Decision Boundaries, K-Nearest Neighbors (KNN) Algorithm, Decision Trees: Construction and Visualization
Unit 8	Classification Algorithms: Logistic Regression, Support Vector Machine (SVM), Understanding Margin and Kernel Functions in SVM
Unit 9	Classification Implementation: Implementation and Performance Analysis of KNN Algorithm, Implementation and Performance Analysis of SVM Algorithm, Implementation and Performance Analysis of Logistic Regression
Unit 10	Clustering Techniques: Introduction to Clustering, K-Means Clustering Algorithm, Mathematical Formulation of K-Means Algorithm, Hierarchical Clustering Techniques
Unit 11	Ensemble Methods: Introduction to Ensemble Learning, Bagging and Random Forests, Boosting Algorithms
Unit 12	Clustering Implementation: Implementation and Performance Analysis of K-Means Clustering, Implementation and Performance Analysis of Hierarchical Clustering, Implementation and Comparison of Ensemble-based Machine Learning Approaches
Unit 13	Neural Networks: Biological Structure of Neurons, Perceptron and Multilayer Neural Networks, Backpropagation Algorithm, Introduction to Deep Neural Networks, Evaluation Metrics for Machine Learning Models
Unit 14	Neural Network Implementation: Designing an Artificial Neural Network for a Given

	Dataset, Implementation and Performance Comparison of Neural Network Models with other Classification Models on Various Datasets
Unit 15	Dimensionality Reduction Techniques: Introduction to Dimensionality Reduction, Principal Component Analysis (PCA), t-Distributed Stochastic Neighbor Embedding (t-SNE), Implementation and Visualization of Dimensionality Reduction Techniques
Unit 16	Feature Engineering: Importance of Feature Engineering in Machine Learning, Techniques for Feature Selection and Extraction, Handling Missing Data and Outliers, Implementation of Feature Engineering Techniques
Unit 17	Model Evaluation and Validation: Importance of Model Evaluation and Validation, Cross-Validation Techniques: K-Fold, Stratified K-Fold, Hyperparameter Tuning and Grid Search, Metrics for Model Evaluation: Accuracy, Precision, Recall, F1 Score
Unit 18	Time Series Analysis: Introduction to Time Series Data, Time Series Forecasting Techniques: Moving Average, Exponential Smoothing, ARIMA (AutoRegressive Integrated Moving Average) Model, Implementing Time Series Analysis in Python
Unit 19	Anomaly Detection: Understanding Anomalies in Data, Anomaly Detection Techniques: Statistical Methods, Machine Learning Approaches, Isolation Forest Algorithm, Implementation of Anomaly Detection Algorithms
Unit 20	Capstone Project and Presentation: Developing a Comprehensive Machine Learning Project from Concept to Deployment, Presenting and Showcasing the Capstone Project, Portfolio Development: Building a Professional Portfolio Demonstrating Machine Learning Projects and Skills

LABORATORY WORK:

Implementation of machine learning concepts (Data Analysis, Importing and Exporting Data in python, Data wrangling, Exploratory Data Analysis, Simple Linear Regression, Multiple Linear Regression, Non-Linear Regression, K-Nearest Neighbours, Decision Trees, Logistic Regression, Support Vector Machine, Margin, Kernel function and Kernel SVM, K-Means Algorithm, Bagging, random forests, boosting)

READINGS

1. Applied Machine Learning by MadanGopal (2018), McGraw Hill Education, India
2. Machine Learning by Tom Mitchell (2017), McGraw Hill Education, India
3. Principles of Soft Computing by S. N. Sivanandam and S. N. Deepa (2018), Wiley, India

Course Code	ECAP518	Course Title	DATA ANALYTICS WITH PYTHON
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WEIGHTAGE		
CA	ETE (Th.)	ETE (Pr.)
30	40	30

Course Outcomes:

C01: understand the basic structure and features of Python programming

C02: interpret object-oriented programming concepts such as encapsulation, inheritance and polymorphism as implemented in Python

C03: apply pandas and NumPy for data analysis

C04: implement machine learning algorithms

C05: analyze real-life situation specific problems and perceive solutions

C06: build exploratory data analysis and visualizations

Unit No.	Content
Unit- 1	Python basics: introduction, data types and operators
Unit- 2	Control Statements and functions: conditional statements, branch statements and loop statements, types of functions
Unit- 3	Python data structures: strings, lists, sets, tuples and dictionaries
Unit- 4	OOP concepts: OOP features, encapsulation, inheritance
Unit- 5	More on OOP concepts: function overloading, operator overloading and method overriding,
Unit- 6	Exception handling: catching exceptions, catching multiple exceptions, raising exceptions, custom exception
Unit- 7	Introduction to NumPy: arrays vs lists, array creation routines, arrays from existing data, indexing and slicing
Unit- 8	Operations on NumPy arrays: array manipulation, broadcasting, binary operators
Unit- 9	NumPy functions: mathematical functions, statistical functions,
Unit- 10	NumPy functions for sorting, searching and counting functions
Unit- 11	Handling data with pandas: introduction to pandas, series, Dataframe, sorting
Unit- 12	Working with csv File using NumPy, Operations on files using NumPy
Unit- 13	Data cleanup: investigation, matching and formatting
Unit- 14	Data visualization: introduction to matplotlib, line plot, multiple subplots in one figure
Unit- 15	More about Data visualization: bar chart, histogram, box and whisker plot,
Unit- 16	More about Data Visualization: scatter plot, pie charts
Unit- 17	Introduction to seaborn: seaborn, seaborn Vs matplotlib, data visualization using seaborn
Unit- 18	Machine learning: introduction, types of machine learning
Unit- 19	Machine learning algorithms: linear regression, k-nearest neighbors
Unit- 20	More about ML: decision trees, random forests, k-means clustering

LABORATORY WORK:

Implementation of Python programming concepts (control statements, functions, strings, lists, sets, tuples, dictionaries, OOP concepts, exception handling, NumPy arrays and functions, pandas, data visualization, machine learning algorithms)

READINGS:

1. Programming and Problem Solving with Python by Ashok Kamthane, Amit Ashok kamthane, McGraw Hill 2nd Edition
2. Hands-On Data Analysis with NumPy and pandas by Curtis Mille, Kindle Edition
3. Python for Data Analysis by Wes McKinney, O'Reilly Media
4. Machine Learning for Absolute Beginners by Oliver Theobald, Kindle Edition

Course Code	EMGN803	Course Title	BIG DATA ANALYTICS
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WEIGHTAGE		
CA	ETE (Th.)	ETE (Pr.)
30	40	30

Course Outcomes:

CO1: analyze the need and importance of fundamental concepts and principles of Big Data

CO2: apply internal functioning of different modules of Big Data and Hadoop

CO3: evaluate the big data ecosystem and appreciate its key components

Unit No.	Contents
Unit- 1	Introduction to Big Data: Big Data and its importance, The V's of Big Data, Challenges and Applications of Big Data, Tools used in Big Data Scenario.
Unit- 2	Foundations for Big Data: Distributed file system, scalable computing over internet, programming models for big data.
Unit- 3	Data Models: Data model vs. data format, data stream, understanding data lakes, exploring streaming sensor data.
Unit- 4	NOSQL Data Management: Introduction to NoSQL, aggregate data models, aggregates key-value and document data models relationships, graph databases, schema less databases, materialized views, distribution models, sharding, version, Map reduce partitioning and combining, composing map-reduce calculations.
Unit- 5	Introduction to Hadoop: Understand what Hadoop is, learning about other open-source software related to Hadoop, understand how Big Data solutions can work on the Cloud, Hadoop - Big Data Overview, Hadoop - Big Data Solutions.
Unit- 6	Hadoop Administration: Hadoop - Environment Setup, Hadoop - HDFS Overview, Starting HDFS, Hadoop - Command Reference.
Unit- 7	Hadoop Architecture: Understand the main Hadoop components, learn how HDFS works, List data access patterns for which HDFS is designed, describe how data is stored in an HDFS cluster.
Unit- 8	Hadoop Master Slave Architecture: Hadoop – Map Reduce, Hadoop – Streaming, Hadoop – Multi Node Cluster, Creating User Account, Configuring Key Based Login, Installing Hadoop and Configuring Hadoop on Master Server.
Unit- 9	Hadoop Node Commands: Configuring Master Node, Configuring Slave Node, Format Name Node on Hadoop Master, Starting Hadoop Services, Adding a New Data Node in the Hadoop Cluster, Adding User and SSH Access.
Unit- 10	Map Reduce Applications: Map Reduce workflows – unit tests with MR Unit – test data and local tests, anatomy of Map Reduce job run, classic Map-reduce, YARN failures in classic Map-reduce and YARN job scheduling, shuffle and sort, task execution, Map Reduce types, input formats, output formats.
Unit- 11	Hadoop Ecosystem: Applications on Big Data Using Pig and Hive, Data processing operators in Pig, Hive services, HiveQL, Querying Data in Hive, fundamentals of HBase and Zookeeper, IBM Info Sphere Big Insights and Streams.
Unit- 12	Predictive Analytics: Simple linear regression- Multiple linear regression- Interpretation of regression coefficients. Visualizations, Visual data analysis techniques, interaction techniques, Systems and applications
Unit- 13	Data Analytics with R: Machine Learning, Introduction, Supervised Learning, Unsupervised Learning, Collaborative Filtering, Big Data Analytics with Big R.
Unit- 14	Big data management using SPLUNK: data integration process, Big Data Management and Processing using Datameer, Installing Splunk Enterprise on Windows, Installing Splunk Enterprise on Linux, Exploring Splunk Queries.

Unit- 15	Natural Language Processing (NLP): Introduction to NLP, Text Preprocessing Techniques, Sentiment Analysis and Named Entity Recognition (NER)
Unit- 16	Big Data Security and Privacy: Challenges in Big Data Security, Access Control and Encryption Techniques, Compliance and Regulatory Considerations
Unit- 17	Big Data Governance and Ethics: Data Governance Frameworks, Ethics in Big Data Analytics, Data Privacy Laws and Regulations
Unit- 18	Big Data Applications and Case Studies: Industry-Specific Applications (Healthcare, Finance, Retail, etc.), Case Studies of Successful Big Data Implementations, Emerging Trends and Future Directions in Big Data Analytics
Unit- 19	Scalable Data Storage and Management: Introduction to NoSQL Databases (MongoDB, Cassandra, etc.), Scalable Data Storage Solutions (HBase, Amazon DynamoDB, etc.), Data Lake Architecture and Implementation
Unit- 20	Capstone Project: Final Project to Apply Knowledge and Skills, Real-World Big Data Analytics Project, Presentation and Demonstration of Capstone Project

List of Practical's / Experiments:

Introduction to Big Data Tools

- Introduction about Tools used in Big Data Analysis

Introduction to Virtual Box

- learning usage of VirtualBox installing and working with VirtualBox
- Installation of cloud era (for HADOOP, Hive installation)

Introduction to Hadoop Administration

- Hadoop - Environment Setup Hadoop - HDFS Overview
- File Management in HADOOP
- Understanding the layers of HADOOP HDFS, YARN and Map Reduce

Working with HIVE

- Introduction to Data Types in Hive, Creating Data tables, Alter Table, Drop Table, inserting data into the tables, creating views, Apply various functions.

MAP REDUCE Programming

- Understand the concept of Map Reduce, Execute the basic programs using Map Reduce such as Basic Word Count, Matrix Multiplication, Finding average age of Male and Female died in Titanic Disaster and similar ones.

Introduction to No-SQL with MongoDB (basic Commands)

- Create database / select, checking database, See all your databases, Show your collections / dB's, delete your collection, Drop selected database, Create collection, Capped option *(for create collection), Insert Data, Updating Data, removing data, Applying Projection and Limit, Sorting data.

READINGS:

1. BIG DATA by ANIL MAHESHWARI, MC GRAW HILL
2. UNDERSTANDING BIG DATA: ANALYTICS FOR ENTERPRISE CLASS HADOOP AND STREAMING DATA by GEORGE LAPIS, CHRIS EATON, TOM DEUTSCH, PAUL ZIKOPOULOS, DIRK DEROOS, MC GRAW HILL.
3. BIG DATA AND ANALYTICS by SEEMA ACHARYA, SUBHASHINI CHELLAPPAN, WILEY
4. BIG DATA FUNDAMENTALS by THOMAS ERL, PEARSON

References:

1. MINING OF MASSIVE DATASETS by JURE LESKOVEC, ANAND RAJARAMAN, JEFF ULLMAN, STANFORD UNIVERSITY PRESS

Course code	EPEA515	Course Title	ANALYTICAL SKILLS-I	
			WEIGHTAGE	
			CA	ETE (Th.)
			30	70

Course Outcomes:

C01: observe the basic concepts of reasoning and quantitative aptitude

C02: apply the learned concepts to solve the company specific reasoning and quantitative aptitude tests

C03: analyze the problem and use logic to interpret and handle different situations

C04: understand the concepts to solve the problems in given time

C05: reproduce the concepts and use it to solve the applications

C06: evaluate the knowledge by cracking online tests

Unit No.	Content
Unit 1	Number system: classification of numbers, rules of divisibility, multiplication and squaring of numbers, HCF & LCM of numbers, cyclicity of unit digit, remainder theorem
Unit 2	Average: average of numbers, arithmetic mean, weighted average
Unit 3	Mathematical operations: BODMAS rule, calculation based problem, conversion of symbols into signs
Unit 4	Percentage: commodity price increase/decrease, comparison based questions, population based examples, successive percent changes, budget based problems
Unit 5	Profit and loss: cost price, selling price, profit and loss, calculation of profit/loss percent, false weight, discount, successive discount, marked price
Unit 6	Direction sense test: understanding of directions, different types of practice problems
Unit 7	Blood relation: cracking jumbled up descriptions, relation puzzle, coded relations
Unit 8	Number, ranking and time sequence: number test, ranking test, time sequence test
Unit 9	Ratio and proportion: ratio and its types, proportion and its types, direct and indirect variations, partnership
Unit 10	Alligation or mixture: concept and rules of alligation, problem based on mixing of liquids/items
Unit 11	Problem on ages and numbers: problems on ages, problem on numbers
Unit 12	Permutation and combination: factorial, difference between permutation & combinations, circular permutation, arrangement and selection based problems, distribution and division Probability: experiment, sample space, event, probability of occurrence of an event, bayes theorem, odds of an event, selection based problems, binomial distribution
Unit 13	Logical venn diagram and set theory: venn diagram based problems, concept of set theory Syllogism: all, some and none relations, related statements with venn diagram
Unit 14	Data interpretation: basics of data interpretation, average and percentage, tabulation, bar graphs, pie charts, line graphs

READINGS:

1. QUANTITATIVE APTITUDE FOR COMPETITIVE EXAMINATIONS BY DR. R S AGGARWAL, S CHAND PUBLISHING
2. A MODERN APPROACH TO VERBAL & NON-VERBAL REASONING BY DR. R S AGGARWAL, S CHAND PUBLISHING
3. MAGICAL BOOK ON QUICKER MATHS BY M TYRA, BANKING SERVICE CHRONICLE ANALYTICAL REASONING BY M.K. PANDEY, BANKING SERVICE CHRONICLE

Course code	EPEA516	Course Title	ANALYTICAL SKILLS-II	
			WEIGHTAGE	
			CA	ETE (Th.)
			30	70

Course Outcomes:

CO1: apply logical reasoning to understand, interpret and handle different situations.

CO2: solve efficiently the company specific logical reasoning tests.

CO3: apply logical reasoning to prioritize and manage time.

CO4: decide to build the logic

CO5: examine the problem and handle it

CO6: apply the logics

Unit No.	Content
Unit 1	Time and Work: chain rule, computation of work done together, men, women, children-based problems, wages-based work problems, alternate day work
Unit 2	Pipes and Cisterns: inlet-outlet, part of tank filled, time-based problems, alternate work
Unit 3	Time and Distance: concept of time speed and distance, conversion of Units, average speed concept, different types of problems
Unit 4	Problem on trains: relative speed concept, faster and slower train Boats and streams and races: downstream and upstream, linear and circular track
Unit 5	Sequence and series completion: series completion, analogy, classification, arithmetic and geometric progression
Unit 6	Alphabet test and logical sequence of words: alphabetical order of words, letter-word problems, rule detection, alphabetical quibble, word formation by unscrambling letters, word formation using Letters of a given word, alpha-numeric sequence puzzle, logical sequence of words
Unit 7	Coding-Decoding: letter coding, number/symbol coding, substitution, matrix coding, mixed letter coding, mixed number coding
Unit 8	Simple interest: basics of principal, rate and time, rate computation, time computation, amount computation
Unit 9	Compound interest: concept of simple and compound interest, questions based on relation between compound and simple interest
Unit 10	Calendar: calculating odd days, basic concept of calendar, finding the exact day
Unit 11	Clocks: concept of clock, angle computation, facts Insert the missing character: set of figures, set of arrangements, set of matrix
Unit 12	Data sufficiency: check sufficiency of data to answer the given questions, Coding inequalities: basic operations, rules of inequalities, coded relations
Unit 13	Puzzle test: seating/placing arrangements, comparison type questions, sequential order of things, family-based problems
Unit 14	Non-Verbal Reasoning: series of figures, analogy of figures, classification of figures

READINGS:

1. QUANTITATIVE APTITUDE FOR COMPETITIVE EXAMINATIONS BY DR. R S AGGARWAL, S CHAND PUBLISHING
2. A MODERN APPROACH TO VERBAL & NON-VERBAL REASONING BY DR. R S AGGARWAL, S CHAND PUBLISHING
3. MAGICAL BOOK ON QUICKER MATHS BY M TYRA, BANKING SERVICE CHRONICLE
4. ANALYTICAL REASONING BY M.K. PANDEY, BANKING SERVICE CHRONICLE

Course code	EENG539	Course Title	ACADEMIC ENGLISH	
			WEIGHTAGE	
			CA	ETE (Th.)
			30	70

Course Outcomes:

C01: differentiate between a range of authentic academic texts

C02: observe actively to lectures, presentations and interviews to understand key information

C03: construct a variety of essays and other assignments

C04: appraise academic grammar

C05: apply academic English and vocabulary in professional life

Unit No.	Content
Unit 1	Academic writing: introduction, texts and academic texts, ways of writing, balanced versus weighted essays
Unit 2	Academic writing: brainstorming and outlining, gathering information
Unit 3	Writing paragraphs: introduction, types of paragraphs, enumeration
Unit 4	Writing paragraphs: exemplification, complex paragraphs, sequence
Unit 5	Writing paragraphs: comparison of items, cause effect in paragraph writing, visuals in paragraph writing
Unit 6	Basics of reports and research papers: introduction, types of reports, format of a report, assessment reports
Unit 7	Basics of reports and research papers: writing a report, understanding the text, data collection, writing a research paper
Unit 8	Basics of reports and research papers: overview of a research paper, selection of a research paper, plagiarism, citing sources, publication sources
Unit 9	Presenting your ideas: purpose of a presentation, components of a presentation, when to read or speak, preparation
Unit 10	Presenting your ideas: before the talk, on the podium, handling questions, strategic planning
Unit 11	Grammar for editing: basic sentences, verbs, nouns, editing a sentence
Unit 12	Grammar for editing: delayed subjects: it, there and what, the long and winding sentence, short sentences, parallelism
Unit 13	Working with words: misleading words, one word for many, complicated words, avoiding metaphors, redundant words
Unit 14	Working with words: linking words, expressing the degree of certainty, capitalization, sexist language

READINGS:

1. A COURSE IN ACADEMIC WRITING by RENU GUPTA, ORIENT BLACKSWAN PVT. LTD.
2. ENGLISH GRAMMAR by RAJEEVAN KARAL, OXFORD UNIVERSITY PRESS
3. OXFORD EAP: A COURSE IN ENGLISH FOR ACADEMIC PURPOSES by EDWARD DE CHAZAL AND SAM MCCARTER, OXFORD UNIVERSITY PRESS
4. MLA HANDBOOK by MODERN LANGUAGE ASSOCIATION OF AMERICA, MODERN LANGUAGE ASSOCIATION.

Course code	EENG514	Course Title	INTRODUCTION TO THE STUDY OF LANGUAGE	
			WEIGHTAGE	
			CA	ETE (Th.)
			30	70

Course Outcomes:

CO1: identify vowels and consonants in phonetics

CO2: distinguish between different parts of speech organs, place of articulation and manner of articulation

CO3: describe syllable and stress patterns in relationship with aspects of connected speech in English language

Unit No.	Content
Unit 1	Language and Phonetics: introduction to first and second language, introduction to phonetics
Unit 2	Language and Phonetics: meaning and importance of phonetics, difference between phonetics and phonology
Unit 3	The Production of Speech Sounds: introduction to the speech organs, articulators above the larynx
Unit 4	The Production of Speech Sounds: vowels and consonants, long vowels and short vowels
Unit 5	Vowels, Diphthongs, and Triphthongs: introduction to vowels, long vowels, short vowels
Unit 6	Vowels, Diphthongs, and Triphthongs: introduction, diphthongs, triphthongs
Unit 7	Voicing and Consonants: the larynx, respiration and voicing, plosives
Unit 8	Voicing and Consonants: place of articulation, manner of articulation, fortis and lenis
Unit 9	The Phoneme and Phonology: the functioning and patterning of sounds, the phoneme
Unit 10	The Phoneme and Phonology: the phonology, symbols and transcription, minimal pairs
Unit 11	The Syllable and Stress: strong and weak syllables, close front and close back vowels
Unit 12	The Syllable and Stress: syllabic consonants, nature of stress
Unit 13	The Syllable and Stress: levels of stress, placement of stress within the word
Unit 14	Aspects of Connected Speech: rhythm, assimilation, elision, linking

READINGS:

1. LINGUISTICS by CRYSTAL, DAVID, PENGUIN BOOKS INDIA
2. ENGLISH PRONOUNCING DICTIONARY by JONES, DANIEL, CAMBRIDGE UNIVERSITY PRESS
3. ENGLISH PHONETICS AND PHONOLOGY: A PRACTICAL COURSE by ROACH, PETER, CAMBRIDGE UNIVERSITY PRESS
4. MODERN LINGUISTICS: AN INTRODUCTION by VERMA, S.K & N. KRISHNASWAMY, OXFORD UNIVERSITY PRESS
5. MODERN LINGUISTICS: AN INTRODUCTION by VERMA, S.K & N. KRISHNASWAMY, OXFORD UNIVERSITY PRESS

Course code	EENG519	Course Title	POST-INDEPENDENCE INDIAN LITERATURE	
			WEIGHTAGE	
			CA	ETE (Th.)
			30	70

Course Outcomes:

CO1: understand the social cultural and political dimensions of Indian Writing in English.

CO2: deduce the historical elements and theoretical orientation of Indian Writing in English.

CO3: analyze the stylistic techniques of Indian Writing in English.

CO4: trace the essential features of Indian Writing in English.

Unit No.	Content
Unit 1	Literary Terms: feminism, patriarchy, sexism
Unit 2	Literary Terms: misogynoir, misandry, LGBTQ
Unit 3	Literary Terms: gender issues, male gaze, womanism
Unit 4	Rupa Bajwa - The Sari Shop: plot and narrative technique
Unit 5	Rupa Bajwa - The Sari Shop: social and political background, character analysis and thematic analysis
Unit 6	Tagore - Leave this chanting and singing: textual, analysis, thematic analysis, symbols and motifs, stylistic features
Unit 7	Tagore - Kamala Das - My Grandmother's House: textual analysis, thematic analysis
Unit 8	Tagore - Kamala Das - My Grandmother's House: symbols and motifs, stylistic features
Unit 9	Difficult Daughters by Manju Kapur: about the author, plot, character analysis
Unit 10	Difficult Daughters by Manju Kapur: thematic analysis and gender issues, critical analysis
Unit 11	Mahesh Dattani - Final Solution: character analysis and thematic analysis
Unit 12	Mahesh Dattani - Final Solution: plot, narrative technique
Unit 13	Girish Karnad - Nagamandala: thematic analysis, narrative technique
Unit 14	Girish Karnad - Nagamandala: plot summary, character analysis

READINGS:

1. THE VINTAGE BOOK OF MODERN INDIAN LITERATURE by AMIT CHAUDHURI, VINTAGE BOOKS
2. THE SARI SHOP by RUPA BAJWA, PENGUIN BOOKS INDIA
3. NAGAMANDALA by GIRISH KARNAD, OXFORD UNIVERSITY PRESS
4. GITANJALI: RABINDRANATH TAGORE by RABINDRANATH TAGORE, RUPA PUBLICATIONS
5. KAMALA DAS by DR. N. K. SHARMA, Unique Publisher
6. FINAL SOLUTIONS by MAHESH DATTANAI, PENGUIN BOOKS INDIA
7. DIFFICULT DAUGHTERS by MANJU KAPUR, PENGUIN BOOKS INDIA

Course code	EENG527	Course Title	POSTCOLONIAL LITERATURES AND CULTURAL STUDIES	
			WEIGHTAGE	
			CA	ETE (Th.)
			30	70

Course Outcomes:

CO1: identify the impact of colonialism on culture

CO2: estimate the significance of the post-colonial era in the life of its inhabitants

CO3: apply the post-colonial theory of Homi Bhabha and Edward Said in the prescribed texts

CO4: justify new trends in post-colonial discourse through the lens of selected texts

Unit No.	Content
Unit 1	Salman Rushdie: Midnight's Children: Midnight's Children as a post-colonial epic, technique of magic realism of Rushdie
Unit 2	Salman Rushdie: Midnight's Children: discussion of the plot of the novel, epical features of the novel
Unit 3	Salman Rushdie: Midnight's Children: character of Saleem and his importance, the themes of alienation and cultural dislocation
Unit 4	Chinua Achebe: Things Fall Apart: Struggle for dominance and identity crisis, introduction to the African culture
Unit 5	Chinua Achebe: Things Fall Apart: theme of cultural destruction, hybridity and marginalization
Unit 6	Chinua Achebe: Things Fall Apart: theme of gender discrimination in the novel, conflict between tradition and modernity
Unit 7	Bapsi Sidhwa: The American Brat: the life and achievements of the writer, the theme of male domination in society, Feroza's American experience
Unit 8	Bapsi Sidhwa: The American Brat: cultural assimilation of Feroza and the application of Bhabha's theory of hybridity, loss of identity of Feroza in America, cultural conflicts between Parsee culture and American culture, the character of Zareen
Unit 9	Jean Rhys: Wide Sargasso Sea: introduction to the writer, race, relations and prejudice, the theme of oppression of slavery
Unit 10	Jean Rhys: Wide Sargasso Sea: the episodes of magic and incantation in the novel, male domination and patriarchal power structure, discussion on the characters and themes
Unit 11	Derek Walcott: Dream On Monkey Mountain: the significance of the title of the drama, the post-colonial elements in the drama, the theme of the loss of identity
Unit 12	Derek Walcott: Dream On Monkey Mountain: the theme of marginalization and the application of the theory of Homi Bhabha, Makak and his confrontation with the colonial rulers, the significance of the ending of the drama
Unit 13	Margaret Atwood: Surfacing: the life and achievements of the writer, the significance of the title, the theme of alienation and the application of the theory of hybridity of Homi Bhabha
Unit 14	Margaret Atwood: Surfacing: the postcolonial elements in the novel, the theme of feminism in the novel, the role of nature in the novel, the plot structure of the novel

READINGS:

1. MIDNIGHT'S CHILDREN by SALMAN RUSHDIE, VINTAGE BOOKS
2. THINGS FALL APART by CHINUA ACHEBE, ANCHOR BOOKS
3. SURFACING by MARGARET ATWOOD, ANCHOR BOOKS
4. AMERICAN BRAT by BAPSI SIDHWA, MILKWEED EDITIONS
5. DREAM ON MONKEY MOUNTAIN by DEREK WALCOTT, FARRA, STRAUS
6. WIDE SARGASSO SEA by JEAN RHYS, PENGUIN CLASSICS

Course Code	EPOL525	Course Title	POLITICAL INSTITUTIONS IN INDIA	
			WEIGHTAGE	
			CA	ETE (Th.)
			30	70

Course Outcomes:

- C01:** understand the leading institutions of the Indian political system and the changing nature of these institutions
- C02:** assess the laws pertaining to elections and analyse the electoral system of India
- C03:** enumerate the working of the Indian federalism in the constitutional context
- C04:** distinguish the powers and functions of various organs of the government
- C05:** discuss about various constitutional and statutory bodies of India
- C06:** evaluate the functioning of the local government institutions

Unit No.	Content
Unit-1	Making of the Indian Constitution: Indian national movement to the making of the Indian constitution
Unit-2	Constituent Assembly: composition of constituent assembly, ideological moorings, constitutional debates
Unit-3	Philosophy of the Constitution: preamble, fundamental rights, directive principles of state policy
Unit-4	Constitutionalism in India: democracy, social change, national unity, checks and balances, basic structure debates, constitutional amendments
Unit-5	Union executive: president as the head of the state, prime minister and council of ministers
Unit-6	Union Parliament: structure of the union parliament, role and functioning, parliamentary committees
Unit-7	Judiciary part - I: Supreme Court, high court
Unit-8	Judiciary part - II: judicial review, judicial activism, judicial reform
Unit-9	State executive: Governor, Chief Minister and council of ministers
Unit-10	State Legislature: Legislative council and Legislative assembly
Unit-11	Federalism in India: strong centre framework, asymmetrical federal provisions and adaption, role of intergovernmental coordination mechanisms, inter-state council, emerging trends.
Unit-12	Electoral Process and Election Commission of India: conduct of elections, rules, electoral reforms. functioning and reforms of the local government Institutions
Unit-13	Constitutional and Statutory Bodies Part - I: Comptroller and Auditor General, National Commission for Scheduled Castes, National Commission for Scheduled Tribes
Unit-14	Constitutional and Statutory Bodies Part - II: National Commission for Human Rights, National Commission for Women, National Commission for Minorities

READINGS:

1. INDIAN GOVERNMENT AND POLITICS BY BIDYUT CHAKRABARTY, RAJENDRA KUMAR PANDEY, SAGE PUBLICATIONS
2. THE INDIAN CONSTITUTION: CORNERSTONE OF A NATION BY AUSTIN GRANVILLE, OXFORD PAPERBACKS

Course Code	EPOL527	Course Title	PUBLIC POLICY AND GOVERNANCE IN INDIA	
			WEIGHTAGE	
			CA	ETE (Th.)
			30	70

Course Outcomes:

C01: understand the nature and scope of public policy and administration in India

C02: assess the major problems and complexities in India's governance system

C03: appreciate the methodological pluralism and synthesizing nature of knowledge in public policy and administration

C04: analyse the changing dimensions and patterns in India's public governance and administrative processes.

C05: evaluate the role of non-state actors and civil society in India's public governance system.

Unit No.	Content
Unit-1	Public policy and Administration in India: meaning and evolution;
Unit-2	Public and private administration Approaches and its replications in India: System Theory, Decision Making,
Unit-3	Ecological Approach Public administration theories and concepts
Unit-4	Scientific Management Theory, Rational Choice theory, New Public Administration, Development Administration
Unit-5	Comparative Public Administration in India
Unit-6	New Public Management
Unit-7	changing nature of Public Administration: Indian public administration in the era of liberalization and Globalisation
Unit-8	Theories and Principles of Organization and its operations in India: Scientific Management Theory, Bureaucratic Theory, Human Relations Theory
Unit-9	Managing the organization: The case of India: Theories of leadership and motivation.
Unit-10	Organizational Communication: Theories and Principles, functioning in India and its impacts
Unit-11	Chester Bernard Principles of Communication, Information Management in the organization Managing
Unit-12	Conflict in the Organization: Mary Parker Follett Management by Objectives- Peter Drucker
Unit-13	Public Policy and Governance in India
Unit-14	Public policy issues and challenges in India.

READINGS:

1. Introduction To The Study Of Public Administration by Shafritz, J.M. and Hyde,
2. Public Administration in India by Sterling Publications, Sterling Publications.

Course Code	ESOC515	Course Title	FUNDAMENTALS OF SOCIOLOGY	
			WEIGHTAGE	
			CA	ETE (Th.)
			30	70

Course Outcomes:

C01: articulate all the methodical concepts to understand the social system and function

C02: collect information regarding various social units in terms of structural and functional analysis

C03: examine structural and functional significance of social institution

C04: innovate ideas to create pathways for the social problems

C05: apply theoretical understanding in the process of social change and mobilization

C06: analyse the process of social exclusion and inclusion in terms of policy making and development program

Unit No.	Content
Unit-1	Introduction to Sociology: Definition, Nature and Importance, Relation of Sociology with other social sciences-Economics, History, Political Science, Psychology and Social Anthropology
Unit-2	Sociology and other Social Studies: Branches of Sociology-Industrial Sociology, Political Sociology, Sociology of Family, Sociology of Education, Medical Sociology, Urban and Rural Sociology
Unit-3	Sociological Imagination: Development of Sociology as a Social Science and Sociological Prospective
Unit-4	Basic Concepts: Society, Community, Association and Institution –Social Groups, Social Structure and function, Role and Status, Social Stratification and Mobility, Social Control, Social process and Social Change.
Unit-5	Sociology of Culture: Culture and Socialization Definition-Features, Elements, Types, Cultural Relativity, Ethnocentrism, Cultural lag, Cultural System & sub-system, cultural change.
Unit-6	Social Institutions: Marriage, Family, Kinship, Religious Institutions, Economic Institution, Educational Institution and Political Institutions
Unit-7	Indian Social Institutions (I): Caste System, Jajmani System, Major religious practices
Unit-8	Indian Social Institutions (II): Indian Agriculture: farmers movements, Primary education, Mid-day meal, privatization of higher education, Research and development
Unit-9	Social Problems (I): Definition, Nature, Cause, Proposals, Legal and Constitutional measures in controlling social problems.
Unit-10	Social Problems (II): Family Disorganisation, Problem of Child Labour, Problem of Aged, Gender issues and Gender problems,
Unit-11	Social Problems (III): Communal Riots, corruption, terrorism, Alcoholism and Drug Addiction, problem of Unemployment, untouchability, population problem, Rural and Urban Problems, Nepotism
Unit-12	Social Change: Meaning Definition, Nature and Importance, Types of Social Change
Unit-13	Social Movement: Peasant movement, Dalit Movement, Backward Classes movement, Social Reform Movement
Unit-14	Social Inclusion and Exclusion: Meaning-Nature-issues and problems of Social Inclusion/Exclusion among Scheduled Caste and Class-Scheduled Tribes, Neo Buddhist movement, Women empowerment

READINGS:

1. Sociology: Principles of Sociology with an Introduction to Social Thoughts. Rao C.N. Shankar. S Chand.
2. Fundamentals of Sociology. Vidya Bhushan. Pearson Education.
3. Fundamentals of Sociology Gisbert P. Orient Black Swan. Third edition (2010).
4. Fundamentals of Sociology Rajendra Kumar Sharma. Atlantic.1st edition (2013).

Course Code	ESOC506	Course Title	GLOBALIZATION AND SOCIETY	
			WEIGHTAGE	
			CA	ETE (Th.)
			30	70

Course Outcomes:

C01: identify concept of globalization as academic contested

C02: locate the economic dimension of globalization

C03: consider the political dimension of globalization

Unit No.	Content
Unit-1	Introduction to globalization: concept, history of globalization
Unit-2	Dimensions of globalization (i): social, cultural, political
Unit-3	Dimensions of globalization (ii): Economic and ecological dimension
Unit-4	Globalization in India
Unit-5	Globalization in society: Family, marriage, relationship
Unit-6	Globalization in Culture: Language and communication, Social Structure
Unit-7	Globalization in education: Learning, Access to education, Technological gap
Unit-8	Globalization in economy: Globalization of Indian banks with WTO regime
Unit-9	Business Process Outsourcing (BPO): an emerging trend in India
Unit-10	Micro finance, Economic liberalization: free market policy
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Unit-12	Global crises: globalization as an inevitable process, The East Asia crises
Unit-13	Globalization in Indian society
Unit-14	Future of globalization: future of globalization, Broken promises of global institution

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