III Semester

L	T	P	C
4	0	0	4

STRATEGIC MANAGEMENT

UNIT-I

Introduction: Concepts in Strategic Management, Strategic Management as a process – Developing a strategic vision, Mission, Objectives, Policies – Factors that shape a company's strategy – Crafting a strategy.

UNIT-II

Environmental Scanning: Industry and Competitive Analysis -Evaluating company resources and competitive capabilities – SWOT Analysis – Strategies and competitive advantages in diversified companies and its evaluation. Tools and techniques- Porter's Five Force Model, BCG Matrix, GE Model,

UNIT-III

Strategy Formulation : Strategy Framework For Analyzing Competition, Porter's Value Chain Analysis, Competitive Advantage of a Firm, Exit and Entry Barriers - Formulation of strategy at corporate, business and functional levels. Types of Strategies

UNIT-IV

Strategy Implementation : Strategy and Structure, Strategy and Leadership, Strategy and culture connection - Operationalising and institutionalizing strategy- Organizational Values and Their Impact on Strategy – Resource Allocation – Planning systems for implementation.

UNIT-V

Strategy Evaluation and control – Establishing strategic controls - Measuring performance – appropriate measures- Role of the strategist – using qualitative and quantitative benchmarking to evaluate performance - strategic information systems – problems in measuring performance – Strategic surveillance -strategic audit

References

1. P.Subba Rao: Business Policy and Strategic Management, Himalaya Publishing House, New Delhi, 2010
2. Kazmi: Strategic Management and Business Policy, Tata McGraw Hill, 2009
3. R.Srinivasn: Strategic Management, PHI Learning, New Delhi, 2009
4. Adrian Haberberg & Alison: Strategic Management, Oxford University Press, New Delhi, 2009

III Semester

OPERATIONS RESEARCH

L	T	P	C
4	0	0	4

Unit – I:

Importance-The History of OR-Definition-Features-Scope of Operations Research –Linear Programming: Introduction-Advantages of using LP-Application areas of LP- Formation of Mathematical modelling, Graphical method, the Simplex Method; Justification, interpretation of Significance of All Elements in the Simplex Tableau, Artificial variable techniques: Big M Method.

UNIT II:

Transportation, Assignment Models: Definition and application of the transportation model, Methods for finding initial solution-tests for optimality-variations in transportation problem, the Assignment Model, Travelling Salesman Problem.

Unit – III:

Dynamic Programming – Applications of D.P. (Capital Budgeting, Production Planning, Solving Linear Programming Problem) – Integer Programming – Branch and Bound Method.

Unit – IV: Game Theory: Introduction – Two Person Zero-Sum Games, Pure Strategies, Games with Saddle Point, Mixed strategies, Rules of Dominance, Solution Methods of Games Without Saddle point – Algebraic, matrix and arithmetic methods.

Unit – V:

CPM & PERT and Replacement Model: Drawing networks – identifying critical path – probability of completing the project within given time- project crashing – optimum cost and optimum duration. Replacement models comprising single replacement and group replacement.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. Winston, Operations Research, Cengage, ND
2. Anand Sharma, Operations Research, Himalaya Publishing House,
3. Kalavarthy, S.Operations Research, Vikas Publishers House Pvt Ltd.,
4. Mcleavey & Mojena, Principles of Operations Research for Management, AITBS publishers,
5. V.K.Kapoor, Operation Research Techniques for Management, Sultan Chand & Sons,
6. Richard Bronson & Govindasami Naadimuthu, SCHAUM'S OUTLINE OF THEORY & PROBLEMS OF Operations Research, 2nd Ed., Tata Mc Graw-Hill Edition,
7. JK Sharma Operation Research – Theory and Applications, MacMillan.

ELECTIVES

Human Resource Management

Third Semester

S. No	Course Code	SUBJECT TITLE
1	EHR-301	Learning and Development
2	HER-302	Performance and Compensation Management
3	EHR-303	Strategic Human Resource Management
4	EHR-304	Talent Acquisition and Management

III SEMESTER ELECTIVES
(HUMAN RESOURCE MANAGEMENT)

III Semester

L	T	P	C
4	0	0	3

LEARNING AND DEVELOPMENT

Course Outcomes:

1. Understand foundations of L&D and its strategic significance.
2. Understand Theories of Learning and Instructional Design.
3. Learn to assess training needs at multiple organizational levels.

Unit I: Introduction to Learning and Development
Definition, Scope and Importance of Learning and Development in Organisational growth- Evolution of Training and Development- L&D as a Strategic Business Partner- The Learning Organisation (Peter Senge's Principles)-Learning Styles.

Unit II: Theories of Learning and Instructional Design
Adult learning theories(Andragogy)- Principles of Instructional Design (ADDIE Model, SAM)-Learning Objectives (Bloom's Taxonomy)-Designing Training Content- Selecting Delivery Methods (classroom, e-learning, blended)-Role of Learning Management System(LMS).

Unit III: Training Needs Assessment (TNA)
Purpose and Importance of TNA-Process of Training Needs Identification-Organizational, Task and Person Analysis- Methods for conducting TNA (Surveys, Interviews, Focus Groups and Job Analysis)-Identifying skill gaps and competency Mapping-Aligning TNA with Business Goals.

UNIT IV: Designing training and Evaluation of Training Effectiveness
Setting training objectives-Developing training content and Materials-Selecting training methods-Importance of evaluating training programs- Methods of training evaluation- Feedback mechanisms and continuous improvement.

UNIT V: Career and Leadership Development
Career Planning and development initiatives- Succession Planning and talent management-Leadership development programs-Coaching and mentoring in organizations- Contemporary issues in Learning and Development-Digital transformation, Gamification, Mobile learning, Diversity and inclusion in training programs- Ethical considerations in L&D.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

Reference Books:

1. Raymond A. Noe, Employee Training and Development**,** 2024, 9th Edition, McGraw-Hill Education

2. Rosemary Harrison, Learning and Development, Latest CIPD Edition (2023), Chartered Institute of Personnel and Development (CIPD), UK

3. Kathy Beevers & Andrew Rea, Learning and Development Practice in the Workplace,4th Edition (2022),Kogan Page / CIPD Publishing

4. B. Janakiram & D. Ravindra, Training and Development: Text, Research and Cases, 2nd Edition(2023), Biztantra / Dreamtech Press

III Semester

PERFORMANCE AND COMPENSATION MANAGEMENT

L	T	P	C
4	0	0	3

UNIT- I:

Introduction to Performance Management- Definition-Significance-Objectives-Evaluation of Performance Management Systems (PMS)-Distinction between performance appraisal and performance management- Key Performance Areas(KPAs) and Key Result Areas(KRAs)-Performance Standards and goal setting-Competency Mapping and assessment- Strategies for effective performance management.

UNIT- II:

Performance Management Cycle: Performance Planning –Performance monitoring and feedback-Performance Appraisal and Evaluation- Performance review and Development- Tools and Techniques of Performance Appraisal. Planning Individual Performance- Strategic Planning – Linkages to strategic planning- Barriers to performance planning.

UNIT-III:

Performance Monitoring and Counseling: Supervision- Objectives and Principles of Monitoring-Monitoring Process- Periodic reviews- Problem solving- engendering trust -Role efficiency-Coaching- Counseling and Monitoring- Concepts and Skills.

UNIT -IV:

Compensation Management: Concept and definition – objectives and dimensions of Compensation Management-Components of Compensation – factors influencing compensation –Role of compensation and Reward in Modern Organizations Compensation as a Retention strategy- aligning compensation strategy with business strategy -Theoretical Foundations of Compensation.

UNIT V:

Compensation Structure: Developing salary structures and pay grades- Market based pay structures-Internal equity and external competitiveness- Executive Compensation- Components and design of executive pay packages- long – term incentives and executive compensation. Incentive plans and benefits- Employee benefits and services. Linking compensation to employee engagement and retention.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References

1. Prem Chadha: ―Performance Management‖, Macmillan India, New Delhi, 2008.
2. Michael Armstrong & Angela Baron, ―Performance Management‖: The New Realities, Jaico Publishing House, New Delhi, 2010.
3. T.V.Rao, ―Appraising and Developing Managerial Performance‖, Excel Books, 2003.
4. David Wade and Ronad Recardo, ―Corporate Performance Management‖, Butter Heinemann, New Delhi, 2002.
5. Dewakar Goel: ―Performance Appraisal and Compensation Management‖, PHI Leaarning, New Delhi, 2009
6. A.M. Sarma ―Performance Management Systems‖ Himalaya Publishing House, New Delhi, 2010.

III Semester

L	T	P	C
4	0	0	3

STRATEGIC HUMAN RESOURCE MANAGEMENT

Course Objectives

- Understand the concept and significance of SHRM.
- Apply SHRM principles to align HR strategy with business goals.
- Evaluate the role of HR analytics in strategic decision-making.
- Formulate HR strategies for talent management, performance management, and organizational development.
- Assess the impact of global trends and challenges on SHRM practices.

Course outcomes:

1. Understand the strategic role of HR.
2. Aligning HR strategy with business strategy.
3. Develop strategic performance and compensation system.
4. Navigate global and ethical challenges in SHRM.

UNIT-I

Human Resource Strategy: Introduction to Strategic Human Resource Management - Evaluation objectives and Importance of Human Resources Strategy- Strategic fit – A conceptual framework - Human Resources contribution to strategy - Strategy driven role behaviors and practices – Theoretical Perspectives on SHRM approaches.

UNIT-II

Strategic Human Resource Planning: Objectives, benefits, levels of strategic planning -Activities related to strategic HR Planning-Basic overview of various strategic planning models-Strategic HR Planning model-Components of the strategic plan.

UNIT-III

Strategy Implementation: Strategy implementation as a social issue-The role of Human Resource-Work force utilization and employment practices-Resourcing and Retention strategies-Reward and Performance management strategies.

UNIT-IV

Strategic Human Resource Development: Concept of Strategic Planning for HRD Levels in Strategic HRD planning-Training and Development Strategies-HRD effectiveness.

UNIT-V

Human Resource Evaluation: Overview of evaluation - Approaches to evaluation, Evaluation Strategic contributions of Traditional Areas - Evaluating Strategic Contribution of Emerging Areas-HR as a Profit centre and HR outsourcing strategy.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. Charles R. Greer: "Strategic Human Resource Management" - A General Manager Approach - Pearson Education, Asia

2. Fombrum Charles & Tichy: "Strategic Human Resource Management" - John Wiley Sons, 1984

3. Dr. Anjali Ghanekar "Strategic Human Resource Management" Everest Publishing House, Pune 2009

4. Tanuja Agarwala "Strategic Human Resource Management" Oxford University Press, New Delhi 2014 www.universityupdates.in || www.android.universityupdates.in || www.ios.universityupdates.in www.universityupdates.in || www.android.universityupdates.in || www.ios.universityupdates.in University Updates

5. Srinivas R Kandula "Strategic Human Resource Development" PHI Learning PVT Limited, New Delhi 2009

6. Dreher, Dougherty "Human Resource Strategy" Tata Mc Graw Hill Publishing Company Limited, New Delhi 2008

III Semester

L	T	P	C
4	0	0	3

TALENT ACQUISITION AND MANAGEMENT

Course Objectives: To facilitate students in developing insights and understanding of effective management and development of talent in teams and organizations.

Contents:

UNIT-I

Introduction to Talent Acquisition: Definition and Scope of Talent and Talent Management, Importance of Talent Management, historical context of talent management, Challenges and Dilemmas, Workforce Planning and forecasting. Talent acquisition in the context of globalization and gig economy.

UNIT-II

Job Analysis and Employer Branding: Job Analysis-Process-Methods. Job description and Job Specification. Competency based job profiling- Employer Branding-Concepts, strategies and best practices. Employee Value Proposition(EVP).

UNIT-III

Sourcing and Recruitment Strategies: Internal Vs External Sourcing-Recruitment Methods- Social media recruitment –Use of AI and HR analytics in sourcing- Talent pools and Pipelines- Recruitment Process Outsourcing (RPO).

UNIT-IV

Selection and Onboarding: Selection tools-Resumes, Application forms, Interviews (Types), Psychometric Tests-Assessment Centers, Group Discussions, Case Interviews-Reference & background checks-Legal and ethical issues in selection-Effective onboarding practices – strategic importance and design. Diversity and Talent. Talent management and future directions

UNIT-V

Metrics and Evaluation in Talent Acquisition: Key Recruitment Metrics-Cost per hire, Time to fill, Quality of hire, Offer acceptance rate. Recruitment Analytics and Dashboards. Retention vs Acquisition. Future of Talent Acquisition – AI, Automation, Remote hiring, DEI in hiring

Suggested Readings:

1. Collings, D.G., Mellahi, K. &Cascio, W.F. (2017). The Oxford Handbook of Talent Management: Oxford University Press.
2. Wilcox, M. (2016). Effective Talent Management: Aligning Strategy, People and Performance. Routledge.
3. Sparrow, P., Scullion, H. &Tarique, I. (eds) (2014) Strategic Talent Management: Contemporary Issues in Global Context. Cambridge: Cambridge University Press.
4. Sparrow, P., Hird, M., and Cooper, C.L. (2015).

III SEMESTER
FINANCE

S. No	Course Code	SUBJECT TITLE
1	EFM-301	Investment and Portfolio Management
2	EFM-302	Financial Markets and Services
3	EFM-303	Taxation Management
4	EFM-304	Banking institutions and financial reforms

III Semester

L	T	P	C
4	0	0	3

INVESTMENT AND PORTFOLIO MANAGEMENT

Course Objective:

1) provides a broad overview of investment management, focusing on the application of Finance theory to the issue faced by portfolio managers and investors in general and
2) To provide conceptual foundation for the purpose of undertaking Investment analysis for securities as well as portfolios.

Course Outcomes:

At the end of this course students should be able to:

1) To provide a theoretical and practical background in the field of investments.
2) Designing and managing the bond as well as equity portfolios in the real word.
3) Valuing equity and debt instruments.
4) Measuring the portfolio performances

UNIT-I

Concept of Investment: Investment Vs Speculation, and Security Investment Vs Non- Security Forms of Investment-Investment Environment in India. Investment Process - Sources of Investment Information, Security Markets – Primary and Secondary – Types of securities in Indian Capital Market, Market Indices. Calculation of SENSEX and NIFTY.

UNIT-II

Return and Risk: Meaning and Measurement of Security Returns. Meaning and Types of Security Risks: Systematic Vs Non-systematic Risk. Measurement of Total Risk - Intrinsic Value Approach to Valuation of Bonds - Preference Shares and Equity Shares.

UNIT-III

Fundamental Analysis: – Economy, Industry and Company Analysis, Technical Analysis – Concept and Tools and Techniques Analysis – Technical Analysis Vs Fundamental Analysis - Efficient Market Hypothesis; Concept and Forms of Market Efficiency.

UNIT-IV

Elements of Portfolio Management: - Portfolio Models – Markowitz Model, Efficient Frontier and Selection of Optimal Portfolio. Sharpe Single Index Model and Capital Asset Pricing Model, Arbitrage Pricing Theory.

UNIT-V

Performance Evaluation of Portfolios: - Sharpe Model –Treynor -Jensen‘s Model- Fama Decomposition - Evaluation of Mutual Fund.

Suggested Readings:

1. Fisher DE and Jordon RJ, Security Analysis and Portfolio Management, PHI, New Delhi
2. Ambika Prsasad Dash, Security Analysis and Portfolio Management, IK Int Pub House, New Delhi
3. Satyanarayana, Security Analysis and Portfolio Management, Discovery Publishing House, New Delhi
4. Hirt and Block, Fundamentals of Investment Management, Tata Mc Graw Hill, New Delhi
5. Reily Frank K, Investment Analysis and Portfolio Management, Cengage, New Delhi
6. Bodie,Kane,Marcus and Mohanty, Investments, TataMcGraw Hill, New Delhi
7. Peter Lynch, One Up on Wall Street, Simon & Schuster Paperbacks, New York
8. Sharppe W, Alexander,GJ., & Baily JV., Investments, TMH, New Delhi
9. Avadhani, VA, SAPM, Himalaya Publishers.
10. Bhalla, VK Investment Management, S.Chand., New Delhi
11. Preeti Singh, Investment Management, Himalaya Publishers.
12. Timothy Vick, How to Pick Stocks like Warren Buffett, TMH, New Delhi

III Semester

L	T	P	C
4	0	0	3

FINANCIAL MARKETS AND SERVICES

Course Objectives:

1) Evaluate empirical evidence of market performance, and contrast it with theories of market performance.
2) Research and analyze specific problems or issues related to financial markets and institutions.
3) Exploring the international integration of international financial markets and analyzes the implications for financial managers.

Course Outcomes:

1) To familiarize with the Indian financial system through knowing the types of various financial institutions, instruments and financial markets.
2) To understand the various constituents of capital markets, functioning of capital markets and regulatory mechanisms associated with capital markets.
3) To understand the various types of Financial Services and to appreciate the role of financial services in economic development.
4) To understand the various types of Non-Banking Financial Companies (NBFCs) and to appreciate the role of financial services in economic development.
5) To know various legislations relating with financial sector and the recommendations of various committees suggesting finical reforms.

UNIT-I

Structure of Financial System: Role of Financial System in Economic Development – Financial Markets and Financial Instruments – Capital Markets – Money Markets – Primary Market Operations – Role of SEBI – Secondary Market Operations – Regulation – Functions of Stock Exchanges – Listing – Formalities – Financial Services Sector Problems and Reforms.

UNIT-II

Financial Services: Concept, Nature and Scope of Financial Services – Regulatory Frame Work of Financial Services – Growth of Financial Services in India – Merchant Banking – Meaning- Types – Responsibilities of Merchant Bankers – Role of Merchant Bankers in Issue Management – Regulation of Merchant Banking in India.

UNIT-III

Venture Capital: Growth of Venture Capital in India – Financing Pattern under Venture Capital – Legal Aspects and Guidelines for Venture Capital, Leasing – types of Leases – Microfinance models: Generic models viz. SHG, Grameen, and Co- operative, variants SHG NABARD model, SIDBI model, SGSY model, Grameen Bangladesh model, credit unions.

UNIT-IV

Credit Rating: Meaning, Functions – Debt Rating System of CRISIL, ICRA and CARE. Factoring, Forfeiting and Bill Discounting – Types of Factoring Arrangements – Factoring in the Indian Context;

UNIT-V

Mutual Funds: Concept and Objectives, Functions and Portfolio Classification, Organization and Management, Guidelines for Mutual Funds, Working of Public and Private Mutual Funds in India. Debt Securitization – Concept and Application – De-mat Services-need and Operations- role of NSDL and CSDL.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

Suggested Readings:

1) Bhole & Mahakud, Financial Institutions and Market, TMH, New Delhi
2) Satyanarayana, Financial Markets and Services Discovery Publishing House, New Delhi
3) V.A.Avadhani, Marketing of Financial Services, Himalayas Publishers, Mumbai
4) DK Murthy, and Venugopal, Indian Financial System, IK Int Pub House
5) Anthony Saunders and MM Cornett, Fin Markets & Institutions,TMH,
6) Edminister R.D., Financial Institution, Markets and Management.
7) Punithavathy Pandian, Financial Markets and Services, Vikas, New Delhi
8) Vasanth Desai, Financial Markets & Financial Services, Himalaya, Mumbai

III Semester

L	T	P	C
4	0	0	3

TAXATION MANAGEMENT

Course Objective:

1) This course aims at teaching Indian tax system, various heads of income and tax planning with reference to salaried persons.
2) Students will also get an overview of income tax department's website and how to file a return.
3) Students will learn legal ways of minimizing tax liability by making use of various tax exemptions and deductions.

Course Outcomes:

After doing this course student will be able to:
1) Calculate income under various heads.
2) Compute total income.
3 Make tax plan for individual.
4) File tax return

UNIT-I

General Principles of Tax – Direct and Indirect Taxes – State Power to Levy Tax – Tax System – Provisions of Income Tax Act 1961 – Finance Act – Basic Concepts.

UNIT-II

Direct tax system:-Income Tax – Deductions, Computation, Payment and Accounting-deductions from Gross Total Income, Rebates and Reliefs and Computation of Taxable Income and Tax Payable, Filing of Income Tax Returns – Provisions, Forms and Due Dates, Notices and Assessments.

UNIT-III

Tax Planning for Firms, HUFs and AOPs- partnership firm under Income Tax Law, tax deductions available to firms, Provisions relating to interest and remuneration paid to partner, Computation of partnership firms 'book profit, Set-off and carry-forward of losses of Firms and taxation of HUFs and Associations of Persons (AOPs).

UNIT-IV

Corporate Taxation- Computation of taxable income, Carry-forward and set-off of losses for companies, Minimum Alternative Tax (MAT), Set-off and Carry-forward of Amalgamation Losses, Tax Planning for Amalgamation, Merger and Demerger of Companies, Tax Provisions for Venture Capital Funds

UNIT-V

Tax Audit and Accounting for Income Tax - Tax Audit, Qualities and Qualifications Required in Tax Auditors, Forms, Reports and Returns and Tax Reporting and Disclosure in Financial Statements

Suggested Readings:

1. Dr. V.K. Singhania & Dr. Kapil Singhania, Direct Taxes Law and Practice, Taxman Publications Pvt. Ltd., New Delhi.
2. Bhagavati Prasad, Direct Taxes Law and Practice, Wishwa Prakashan, New Delhi.
3. Dinkar Pagare, Income Tax and Practice, Sultan Chand and Sons, New Delhi.

III Semester

BANKING INSTITUTIONS AND FINANCIAL REFORMS

L	T	P	C
4	0	0	3

Course Objectives:

1) To introduce students to the Indian financial system & Banking system
2) To enrich student's understanding of the fundamental concepts and banking reforms
3) To equip students with the knowledge and skills necessary to become employable in the Banking sector.

Course outcome:

1) Subjects give overview of financial system to students such as flow of funds in financial system, financial system and economic development.
2) Students learn different financial system and their framework and reforms
3) Students studies non-banking financial institutions, their role in financial system, sources of finance and RBI guidelines.
4) Students learn the concept of financial reforms and its importance in rural economy.

UNIT-I

Financial System in India: Introduction - Evolution of Banking - Phases of development - RBI and the Financial System - Committees on Banking Sector Reforms - Prudential Banking -- RBI Guidelines and directions- financial sector reforms.

UNIT-II

Banking system:- Organization, Structure and Functions of RBI and Commercial Banks: Introduction - Origination, Structure and Functions of RBI and Commercial Banks - Role of RBI and Commercial Banks - Lending and Operation policies - Banks as Intermediaries - NBFCs - Growth of NBFCs - FDI in Banking Sector - Banking Regulations - Law and Practice.

UNIT-III

Financial Institutions and Development Banking : Introduction - Origin, Growth and Lending Policies of Terms lending Institutions - Working of IDBI - IFCI - STCs - SIDBI - LIC - GIC - UTI - Role of Financial Institutions in Capital Market.

UNIT-IV

New Financial Instruments and Institutions: Private Banks - Old generation and New generation private banks - Foreign Banks - NSE - Depositories - DFHI - New Equity and Debt Instruments - SEBI and RBI guidelines.

UNIT-V

Financial sector reforms: Reforms in banking sectors – Reforms in Debt market – reforms in foreign exchange market –Monetary reform- currency reforms – crypto currency regulations

Suggested Readings:

1. Koch W Timothy and Scott S Macdonald, "Bank Management" Thomson (South-Western), Bangalore 2005 (Text Book)
2. Khan M Y., "Indian Financial System", Tata Mc Graw Hill, New Delhi, 2004
3. Srivastava, RM ., "Management of Indian Financial Institutions", Himalaya Publishing House, Mumbai, 2005
4. Avadhani V A., "Investments and Securities Markets in India", Himalaya Publishing House, Mumbai, 2004
5. Srinivasan NP and Saravanavel, P., "Development Banking in India and Abroad", Kalyani Publications, Ludhiyana, 2001

III SEMESTER MARKETING

S. No	Course Code	SUBJECT TITLE
1	EMM-301	Consumer Behavior
2	EMM-302	Retail Management
3	EMM-303	Customer Relationship Management
4	EMM-304	Advertising and Brand Management

III Semester **MARKETING ELECTIVES**

L	T	P	C
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CONSUMER BEHAVIOR

Course Objective: This course is aimed at understanding the consumer behavior under different circumstances and its implications on marketers to achieve organizational success.

UNIT-I

Introduction to Consumer Behavior: Understanding consumers and market segments, Evolution of consumer behavior, Models of Buyer Behavior, Consumer Black box model – Howard Model, Howard- Sheth Model, Webster and Wind Model.

UNIT-II

Consumer as an individual - Psychological Foundations of Consumer Behavior: Consumer Motivation, Perception, Personality and Behavior, Learning and Behavior Modification, Information Processing, Memory Organization and Function, Attitude Formation and Attitude Change.

UNIT-III

Consumer in social context: Social and Cultural Environment, Economic, Demographic, Cross Cultural and Socio–Cultural Influences, Social Stratification, Reference Groups and Family influences.

UNIT-IV

Consumer as decision maker: Consumer decision making process - High and Low Involvement - Pre-purchase Processes, Post Purchase processes, Consumption and evaluation, Brand Loyalty and Repeat Purchase Behavior - Diffusion of innovation - Communication and Consumer Behavior – Designing persuasive communication.

UNIT-V

Consumerism: The roots of consumerism – Consumer safety – consumer privacy –- consumer information, legislative responses to consumerism and marketer responses to consumer issues – consumer protection act, 1986 – Central consumer protection council – state consumer protection councils, consumer disputes redressal agencies, consumer disputes redressal forum, National Consumer Disputes Redressal Commission.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

REFERENCES:

1. Leon G. Schiffman, Joseph Wisenblit, S. Ramesh Kumar, Pearson India, 2016
2. Ramneek Kapoor, Nnamdi O Madichie: “Consumer Behavior” Text and Cases”, TMH, NewDelhi, 2012.
3. Ramanuj Majumdar: “Consumer Behavior insight from Indian Market”, PHI Learning, New Delhi, 2011
4. David L Loudon and Albert J Della Bitta, “Consumer Behavior” 4/e, TMH, New Delhi, 2002
5. M.S.Raju: “Consumer Behavior Concepts, applications and Cases”, Vikas Publishing House, New Delhi, 2013.

RETAIL MARKETING

L	T	P	C
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Objectives

➢ To understand the concept, process and management of retail business

➢ To develop an understanding of the retail strategy and planning process, and

➢ To have an understanding of merchandise process

UNIT-I

An overview of Retailing - Types of stores - Product Retailing vs. Service Retailing - Non store Retailing - Retail strategy - Achieving competitive advantage and positioning Retailing environment - Legal, Social, Economic, Technological, issues - Trends in the Indian Retailing Industry.

UNIT-II

Retail store location and layout - Country/Region analysis - Trade area analysis - Site evaluation and selection - Store design and layout - Comprehensive store planning - Exterior design and layout - Interior store design and layout – visual merchandising – elements of visual merchandising.

UNIT-III

Planning merchandise needs and merchandise budgets - Methods for determining inventory evaluation - Assortment planning, buying and vendor relations - Merchandise pricing - Price strategies - Psychological pricing - Mark-up and markdown strategies.

UNIT-IV

Communicating with the retail customer - Retail promotion mix-Advertising - Sales promotion - Publicity – Push and Pull strategies in retailing - Retail selling process - Retail database- In-store customer service.

UNIT-V

Globalization and changing retail formats – Online retailing - International Retailing – Opportunities and Challenges - Market entry formulas - New customized formats (customized stores, portable stores, merchandise depots, retail theatre, service malls, customer- made stores, interactive kiosk 'shopping arcades')

REFERENCES

1. Chetan Bajaj, Tuli & Srivastava, RETAIL MANAGEMENT, Oxford University Press, New Delhi.2010
2. Giridhar Joshi, INFORMATION TECHNOLOGY FOR RETAIL, Oxford University Press, New Delhi.2009 Swapna Pradhan, RETAIL MANAGEMENT, TEXT & CASES, Tata McGraw-Hill Publshing company, New Delhi, 2008
3. Ron Hasty and James Reardon, RETAIL MANAGEMENT. McGraw-Hill Publication, International Edition. Fernie,
4. PRINCIPLES OF RETAILING, Elsevier Publishing, 2010.

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CUSTOMER RELATIONSHIP MANAGEMENT

Course Objective: The objective of this course is to provide students with a comprehensive understanding of Customer Relationship Management (CRM) as a strategic tool to enhance customer satisfaction, loyalty, and long-term profitability. The course aims to equip learners with knowledge of CRM principles, technologies, and practices that help businesses acquire, retain, and grow their customer base.

UNIT-I

Customer Relationship Management Fundamentals: Definition and Significance of CRM – Critical success factors for a winning CRM program – Emergence of CRM practice – CRM Strategy, Stages of relationship – Issues of relationship – CRM cycle – Customer Life Time Value – 7 C's of CRM - Application areas.

UNIT-II

Building Customer Relationship Management and CRM Implementation: Requisites for Effective Customer acquisition – Customer Knowledge Management for Effective CRM – Customer Retention Process – Strategies to Prevent Defection and Recover Lapsed Customers – CRM framework for Implementation – Implementing CRM process – The dynamics of Relationships, The relationship oriented organization - Integration of CRM with ERP System – Barriers to effective CRM – Gartner's Competency model of CRM.

UNIT-III

Functional Components of CRM: Database Management in CRM – Relationship data management-Database Construction – Data Warehousing – architecture of Data Warehousing - Data Mining Characteristics – Data Mining tools and techniques – Meaning of Call Centre – Significance and Advantages of Call Centre – Multimedia Contact Centre - Important CRM software for Multimedia Contact Centre

UNIT-IV

Sales Force Automations (SFA): Definition and need of Sales Force Automation – Barriers to successful Sales Force Automation – functionality and technological aspect of Sales Force Automation – data synchronization – flexibility and performance – Impact of CRM on Marketing Channels – Meaning – How does the traditional distribution channel structure support customer relationship – Influence of the channels on pricing and the formation of relationships – The relationship policy to improve size, quality and relationship with the customer base - emerging channel trends that impact CRM

UNIT-V

Trends and Issues in CRM: CRM in e- business (B2B & B2C) – Measuring the Effectiveness of CRM – Factors Influencing the future of CRM – E-CRM in Business – Features of e-CRM – Advantages of e-CRM. The best CRM implementation strategies –Privacy and ethics Consideration in CRM implementation.

REFERENCES:

1. V. Kumar Werner Reinartz – Customer Relationship Management - Concept, Strategy, and Tools Third Edition – springer
2. Ed Peelen: "Customer Relationship Management" Pearson, Education
3. Roger J Baran, Robert J Galka and Daniel P Strunk: "Customer Relationship Management" Cengage learning
4. S.Shanmuga sundaram: "Customer Relationship Management" Prentice Hall of India.
5. Alok Kumar, Chabbi Sinha & Rakesh Kumar – Customer Relationship Management: Concepts and application – Biztantra, Delhi,2007
6. H. Peeru Mohammad, A/ Sagadevan – Customer Relationship Management – A step by step approach, Vikas publishing house Pvt. Ltd, Delhi, 2008

III Semester

L	T	P	C
0	0	0	3

ADVERTISEMENT AND BRAND MANAGEMENT

Course Objective: Expose the students to the dynamism of advertising and brand management and equip them to be able to manage the advertising and branding activities in the business scenario.

UNIT-I

Basics of Advertising: definition importance and nature; Communication model; Persuasion Process –perception, learning and attitude change and their impact on advertisements; Major advertising decisions and influencing factors; Determining advertising Objectives and budget.

UNIT-II

Developing Advertising Campaign: Determining advertising message and copy - Headline, body copy, logo, illustration and layout; Creative styles and advertising appeals; Media planning – media selection and scheduling.

UNIT-III

Organization and Evaluation of Advertising Efforts: In-house arrangements; Using advertising agencies – selection, compensation and appraisal of advertising agency; Evaluating Advertising Effectiveness. Branding concepts - definition of brand, Importance of branding Brand personality, brand image, brand identify, brand equity and brand loyalty; Product vs.
Corporate branding: Major branding decisions.

UNIT-IV

Identifying and selecting brand name Building brand personality, image and identity; Brand positioning and re-launch; Brand extension; Brand portfolio; communication for branding
Enhancing brand image through sponsorship and even management.

UNIT-V

Managing Brand Equity and Loyalty: Brand Building in Different Sectors - Customers, industrial, retail and service brands. Building brands through Internet. Developing International Brands: Pre-requisites and process; Country-of-origin effects and global branding; Building Indian brands for global markets.

REFERENCE:

1. S.H.H Kazmi and SatishK.Batra : Advertising and sales promotion, Excel books
Cowley. D: Understanding Brands, ,Kogan Page Ltd
2. George E.Belch& Michael A. Balch : Advertising and Promotion, TMH
3. Aaker, Myers &Batra : Advertising Management , Prentice Hall.
4. Wells,Moriarity&Burnett : Advertising Principles & practices , Prentice Hall.

III SEMESTER SYSTEMS

S. No	Course Code	SUBJECT TITLE
1	ESY-301	Data Mining & Data Warehousing
2	ESY-302	Software Project Management
3	ESY-303	Python for Data Science
4	ESY-304	Block chain in Business and Management

III Semester

L	T	P	C
3	0	0	3

DATA MINING & DATA WAREHOUSING

Pre-requisites: Data Structures, Algorithms, Probability & Statistics, Data Base Management Systems

Course Objectives: The main objective of the course is to

- Introduce basic concepts and techniques of data warehousing and data mining
- Examine the types of the data to be mined and apply pre-processing methods on raw data
- Discover interesting patterns, analyse supervised and unsupervised models and estimate the accuracy of the algorithms.

UNIT-I

Data Warehousing and Online Analytical Processing: Basic concepts, Data Warehouse Modeling: Data Cube and OLAP, Data Warehouse Design and Usage, Data Warehouse Implementation, Cloud Data Warehouse, Data Mining and Patten Mining, Technologies, Applications, Major issues, Data Objects & Attribute Types, Basic Statistical Descriptions of Data, Data Visualization, Measuring Data Similarity and Dissimilarity. (Text Book- 1)

UNIT-II

Data Preprocessing: An Overview, Data Cleaning, Data Integration, Data Reduction, Data Transformation and Data Discretization. (Text Book- 1)

UNIT-III

Classification: Basic Concepts, General Approach to solving a classification problem, Decision Tree Induction: Attribute Selection Measures, Tree Pruning, Scalability and Decision Tree Induction, Visual Mining for Decision Tree Induction, Bayesian Classification Methods: Bayes Theorem, Naïve Bayes Classification, Rule-Based Classification, Model Evaluation and Selection. (Text Book- 2)

UNIT-IV

Association Analysis: Problem Definition, Frequent Itemset Generation, Rule Generation: Confident Based Pruning, Rule Generation in Apriori Algorithm, Compact Representation of frequent item sets, FP-Growth Algorithm. (Text Book- 2)

UNIT-V

Cluster Analysis: Overview, Basics and Importance of Cluster Analysis, Clustering techniques, Different Types of Clusters; K-means: The Basic K-means Algorithm, K-means Additional Issues, Bi-secting K Means, Agglomerative Hierarchical Clustering: Basic Agglomerative Hierarchical Clustering Algorithm DBSCAN: Traditional Density Center-Based Approach, DBSCAN Algorithm, Strengths and Weaknesses. (Text Book- 2)

Text Books:

1. Data Mining concepts and Techniques, 3rd edition, Jiawei Han, Michel Kamber, Elsevier, 2011.
2. Introduction to Data Mining: Pang-Ning Tan & Michael Steinbach, Vipin Kumar, Pearson, 2012.

Reference Books:

1. Data Mining: VikramPudi and P. Radha Krishna, Oxford Publisher.
2. Data Mining Techniques, Arun K Pujari, 3rd edition, Universities Press,2013.
3. (NPTEL course by Prof.PabitraMitra) http://onlinecourses.nptel.ac.in/noc17_mg24/preview
4. http://www.saedsayad.com/data_mining_map.htm

III Semester

L	T	P	C
3	0	0	3

SOFTWARE PROJECT MANAGEMENT

Course Objectives:

At the end of the course, the student shall be able to:

- To describe and determine the purpose and importance of project management from the perspectives of planning, tracking and completion of project
- To compare and differentiate organization structures and project structures
- To implement a project to manage project schedule, expenses and resources with the application of suitable project management tools

UNIT-I

Conventional Software Management: The waterfall model, conventional software Management performance.

Evolution of Software Economics: Software Economics, pragmatic software cost estimation.

Improving Software Economics: Reducing Software product size, improving software processes, improving team effectiveness, improving automation, Achieving required quality, peer inspections.

UNIT-II:

Life cycle phases: Engineering and production stages, inception, Elaboration, construction, transition phases. **Artifacts of the process:** The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts.

UNIT- III:

Model based software architectures: A Management perspective and technical perspective.

Work Flows of the process: Software process workflows, Iteration workflows.

Checkpoints of the process: Major mile stones, Minor Milestones, Periodic status assessments.

UNIT- IV:

Project Organizations and Responsibilities: Line-of-Business Organizations, Project Organizations, evolution of Organizations.

Project Control and Process instrumentation: The seven core Metrics, Management indicators, quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation.

UNIT-V:

Agile Methodology, Adapting to Scrum, Patterns for Adopting Scrum, Iterating towards Agility.

Text Books:

1. Software Project Management, Walker Royce, PEA, 2005.
2. Succeeding with Agile: Software Development Using Scrum, Mike Cohn, Addison Wesley.
3. The DevOps Handbook: How to Create World-Class Agility, Reliability, and Security in Technology Organizations, Gene Kim , John Willis , Patrick Debois , Jez Humb,1st Edition, O'Reilly publications, 2016.

Reference Books:

1. Software Project Management, Bob Hughes,3/e, Mike Cotterell, TMH
2. Software Project Management, Joel Henry, PEA
3. Software Project Management in practice, Pankaj Jalote, PEA, 2005,
4. Effective Software Project Management, Robert K.Wysocki, Wiley,2006.

III Semester

L	T	P	C
3	0	0	3

PYTHON FOR DATA SCIENCE

Course Objectives:

Python programming has become one of the most popular languages for software development, particularly within the fields of data science, machine learning, artificial intelligence, and web development.

The students will learn elements of the language and development strategies by creating a complete program that performs a wide range of operations on a variety of data types, structures, and objects, implements program logic through conditional statements and loops, structures code for reusability through functions, classes, and modules, reads and writes files, and handles error conditions.

Course Outcomes

The learnings in the course will enable students to

CO1: Learn the different types of Python applications

CO2: Understand and remember the python commands to run program in IDE

CO3: Apply the concept of variables, data types, conditions and functions to create mini programs

CO4: Analyze the data structures, database and lists to generate the desired output

CO5: Evaluate various data wrangling and math operations using numpy and pandas library and Develop basic data visualization using the matplotlib library

Course Contents:

UNIT-I

Introduction to Python-Python importance -Python installation - Data types, variables, Input, output and operators in Python -Print comment and formatting in Python- Python Program Flow.

UNIT-II

Functions and Modules -Function parameters and scope - Variable arguments -Calling a function-Files Handling- Classes in Python • Class and Object and their creation • Variables and Instance methods • Inheritance and Polymorphism.

UNIT-III

Data Structures in Python • List and Index • Range function •

Dictionaries in Python • Dictionary and its content • Predefined value in a Dictionary - Tuples in Python. **Database and SQL** • Creating a database • Creating tables, rows and column • Reading, Updation and deletion of Table structure and table data • Select, From, Where, Order By, Having clause • Wildcard values, Joins and conditions.

UNIT-IV

IDE for Data science in python - Jupyter notebook - Code running and debugging in notebook- Introduction to NumPy module - Arrays in NumPy -Array Slicing and indexing - NumPy built-in functions -Perform math operations in NumPy.Introduction to pandas fundamentals.

UNIT-V

Introduction to data visualization • Principles of information visualization • Good visualization strategy- Basic and advanced charting (Introduction to matplotlib library) - Charting fundamentals -Data manipulation and charts -Interactive charts -Addressing a research question using data visualization

Textbook Yuli Vasiliev, Python for Data Science, O'Reilly Publication, 3rd Edition, 2022, ISBN 9781718502208.

Reference Books: 1. Hameed, Python for Data Science, Wiley, 2021, ISBN 978-9354243479.
2. Motwani, Data Analytics using Python, Wiley, 2020, ISBN 978-812650295

III Semester

L	T	P	C
3	0	0	3

BLOCK CHAIN IN BUSINESS AND MANAGEMENT

Course Introduction

Blockchain technology has generated massive interest among governments, enterprises, and academics, because of its capability of providing a transparent, secure, tamper-proof solution for interconnecting different stakeholders in a trustless setup. In January 2021, the Ministry of Electronics and Information Technology (MeiTY), Government of India, published the first draft of the "National Strategy on Blockchain" that highlights 17 potential applications that are of national interest. Against this backdrop, this subject will cover the basic design principles of Blockchain technology and its applications over different sectors.

Course Outcomes

At the end of the course students will be able to:

CO1: Reflect on the underlying technology that drive blockchain in business.
CO2: Explain the underlying technology that drive blockchain in business with examples.
CO3: Apply the learnt tools and techniques to share information and assets.
CO4: Analyse business case for use of Blockchain technology
CO5: Use open-source tools to create a blockchain use case.
CO6: Evaluate the Blockchain use case considering best practices.

Course Content

UNIT-I

Introduction to blockchain: Importance in the business, Evolution of Blockchain Technology, Elements of a Blockchain, Types of Blockchain, Introduction to cryptography & cryptocurrencies Money, Block Structure and real world applications.

UNIT-II

Blockchain Technology and frameworks: Introduction to popular Blockchain technologies, Smart Contracts & DApps, Identity and Anonymity on Blockchain, Governance and Consensus

UNIT-III

Use cases of blockchain in business applications: Blockchain and Cryptocurrency (Bitcoin, Ethereum), Blockchain and NFT, Blockchain in Supply Chain and Manufacturing, Blockchain in Fintech, Blockchain in Healthcare, Blockchain in Government and Public Service.

UNIT-IV

Blockchain Applications: Blockchain Consensus: network models, corruption tolerance, sybil resistance- Nakamoto Consensus: security, attacks and incentives-
Scalability in Blockchain- Introduction to IoT.

UNIT-V

Practical blockchain: Hyperledger and Ethereum – concepts and application, Hyperledger Composer

References:

1. Don Tapscott and Alex Tapscott; Blockchain Revolution; Portfolio Penguin, 1st Edition, 2016; ISBN: .0241237858
2. Mohsen Attaran and Angappa Gunasekaran; Applications of Blockchain Technology in Business; Springer; 1st Edition; 2019; ISBN – 9783030277987.
3. Hyperledger Tutorials - https://www.hyperledger.org/use/tutorials
4. Ethereum Development Resources - https://ethereum.org/en/developers

III SEMESTER
LOGISTICS AND SUPPLY CHAIN MANAGEMENT

S. No	Course Code	SUBJECT TITLE
1	ELS-301	Store keeping and Warehousing management
2	ELS-302	Supply Chain Risk Management
3	ELS-303	Purchasing and Material Management
4	ELS-304	Reverse Logistics

STORE KEEPING AND WAREHOUSING MANAGEMENT

Objectives: To familiarize the students with Store keeping and Warehousing their importance, methods of valuation of stock to provide adequate knowledge to minimize the cost and improve the overall efficiency of the storekeeping and warehousing operations.

Outcome: Students must gain an insight into the intricacies of Store keeping and Warehousing and their importance and impact on efficient logistics and supply chain management

UNIT-I

Warehousing Management – Warehouse Functions – Objectives of Stores – Location and Layout – Prevention – Management of Receipts – Issue Control – Stores Documentation

UNIT-II

Stock Valuation and Verification: Need for Valuation – Methods of Valuation – FIFO – LIFO – Average Price – Weighted Average – Standard Cost – Replacement Price – Stock Verification – Process of Verification –Material Storage Systems – benefits – methods.

UNIT-III

Disposal of Obsolete and Scrap items - Management of SOS – Categorization of Obsolete/Surplus – Reasons for Obsolescence – Control of Obsolescence – Control of Scrap – Responsibility for Disposal – Disposal Methods -

UNIT-IV

Insurance: Risk Management - Buyer's Interest – Marine Insurance – Inland Transit Insurance – Stores Insurance – Contractors All Risk Insurance – Miscellaneous Insurance – A to Z Claims Procedure – Loss Minimization- Spare Parts Management - Salient Features of Spares – Inventory Control of Spares – Categorization of Spares – Provisioning of Spares – Pricing of Spares – Relevance of Maintenance – Maintenance Costs

UNIT-V

IT for Warehouse Management (WM): Warehouse documentation – Information flows in the warehouse – ERP – WMS – Bar code – RFID – Organization Data – Warehouse Structure – Warehouse Master Data – WM Material master view – Organization Data – Define Warehouse structure Warehouse number - Storage type- Storage section - Storage Bin - Picking Area - Storage unit – Quantity- Creating Transfer requirement automatically/ manually - Creating Transfer requirement for storage – Data mining and warehousing

REFERENCES

Gudehus and Kotzab – Comprehensive logistics – Springer – second edition – 2012

Dr. K..C Jain, Patidar, Purchasing and Material Management, S.Chand and co, 2011

Gopalakrishnan P.– Purchasing and Materials management – Tata McGraw Hill – 23rd Edition – 2008.

Alan Rushton, John Oxley, Phil Croucher - The hand book of logistics and distribution management, Kogan page limited, 2000

David Blythe Foster - Automatic warehouse – London Lliffe – 1970.

SUPPLY CHAIN RISK MANAGEMENT

UNIT I

Basics of Risk Management: Risk and Management-Growth of risk Management-defining Risk--Features of Risk. Decisions and Risk- Decisions with Certainity-Uncertainity-risk- ignorance-Managing risk.

UNIT II

Risks in Supply Chain: Risks arising out of Trends affecting Supply Chain-Integration-Cost Reduction-Agile Logistics-E Business- Globalization, Outsourcing-Supply chain risk management-Aims steps and Principles. Trends in Supply Chain Management. Integration of supply Chains, Cost Reduction, Agile logistics, E – Business, Globalization, Outsourcing, Changing practices in Logistics. Approaches to Risk Management.

UNIT III

Identifying and Analysing Risks: Types of Risks-Identifying Risks-Tools for analyzing past events-Collecting opinions—analyzing operations—Measuring Risk—Likelihood of a risky event-Consequences of risk—Responding to Risks—Alternative Responses—Defining the options and choosing the best response—Network view of risk—Shared risks.

UNIT IV

Creating Resilient Supply Chains: Designing of a Resilient Supply Chain—Principles of designing resilient Supply Chain—Physical features of a resilient supply chain—Relationship within a resilient supply chain—Risk compensation and Business Continuity. Risk and Management - Risk in the Supply Chain, Features of Risk, Decisions &Risk, Structure of Decisions, Decisions with uncertainty, Risk, ignorance, Managing Risk Structure of a Supply Chain, Increasing Risk.

UNIT V

Identifying Risks – Types of Risks, Tools for analyzing past events, Operations, Problems with Risk Identification, Measuring Risk, Consequences of Risk, Responding to Risk – Alternative responses, Defining Options, Choosing the best response, Implementation & Activation, A Network view of Risk – Shared Risks, Achieving an Integrated approach, Analyzing & responding to risks. Business Continuity Management: Emergencies and Crisis—Views of BCM and steps in BCM

Text Books:

1. Supply Chain Risk Management by Donald Walters,Kogan Page First Edition
2. The New Supply Chain Challenge Risk Management in a Global Economy by Bosman R,FM Global,Johnson RI 2006
3. Gregory L. Schlegel , Robert J. Trent Supply Chain Risk Management: An Emerging Discipline (Resource Management) Hardcover – Import, 3 Nov 2014.
4. Donald Waters – Supply Chain Risk Management, Published by the Chartered Institute of Logistics & Transport, U.K
5. Jeremy F.Shapiro, Modelling the Supply Chain, Duxbury.

PURCHASING AND MATERIAL MANAGEMENT

Objective:

To gain the insights into purchasing and materials management for efficient utilization and optimization of resources and to gain practical knowledge in application of the same to enhance the firm's overall efficiency.

Outcome: Students are enabled to efficiently utilize the knowledge gained in managing the purchases and materials to enhance the firms profitability and overall efficiency.

UNIT I:

Purchase and pricing policies: Purchase policy- Rate and Running Contract – Subcontracting – Systems Contract – Stockless purchase –Buying seasonal items – Forward Buying – Hedging – Purchasing Activities – Indent Status – A to Z of Purchase Order –Transportation – Incoming Inspection – Bill settlement –Documentation.

UNIT II:

Meaning of Right Price – Price Analysis – Determination of Right Price – Influencing Factors on Pricing – Classification of Pricing – Price Forecasting - Right Place – Purchase Budgets – Budgetary control – Need Identification Problems – Definition of lead time Elements- Cost Reduction and Lead time.

UNIT III:

Relevance of Good Supplier - Advantages of Good Relations –Prerequisites – Evaluation of Suppliers – The Buyers Role – Role of the Vendor –Relevance of Good Suppliers – Need for vendor evaluation – Goals of Vendor Rating – Advantages of Vendor Rating – Parameters of Vendor Rating.

UNIT IV:

Role of Material Management – Classes of Material – Materials and Profitability – Profit Center Concept – Material Objective –Centralized Purchasing-Decentralizing – Delegation of Powers – Definition of Material Planning –Bill of Material – Material Requirement Planning – Importance of Material Research- Definition – Advantages of Materials Information System .

UNIT V:

Codification – Classification – Methodology–Requirement of codes – Coding Structure and Design –Advantages - International Codification – Cost and Consequences – Right Quantity – Economic Ordering Quantity – Derivations of EOQ - Ethics In Materials Management – Ethics in Buying – Code of Ethics – Problems in Ethics – Backdoor Selling – A to Z Tips for Ethical Purchasing – Professionalization.

REFERENCE

1. P Gopalakrishnan, M Sundaresan, Material management an integrated approach , PHI Learning Private Limited, 2011
2. Rajendra Mishra, Materials Management, Excel books, 2009
3. A.K.Datta, Materials Management: Procedures, text and cases – PHI, 2008.
4. Gopalakrishnan P, Purchasing and Materials management – Tata McGraw Hill, 2001
5. Michiel R. Leenders, Harold E. Fearon, Wilbur B. England, Purchasing and Materials management, Irwin, 1989

REVERSE LOGISTICS

Objective: The students are enabled to know the importance of Reverse Supply Chain Management

Outcome: Students are capable of applying the knowledge gained in the organizational context for success.

UNIT I

Introduction: Description of reverse supply chain networks – benefits of reverse logistics – barriers to reverse logistics – continuation of forward supply chains – history of reverse logistics – principal drivers of the movement – activities in reverse logistics - services, returns, relocation, restoration – modification and repair - remanufacturing, recycling, disposal.

UNIT II

Role of private industry: new paradigms in product design (design for sustainability) – design and operate green supply chains – develop systems to manage reverse logistics – participate in job ventures to seek social objectives

UNIT III

Role of government and customers: Government - research – to identify threats and opportunities – legislation for standardizing business requirements – regulation – participation.

Role of customers – participant in RSC – educated customer – supporter of green supply chain

UNIT IV

Reverse logistics networks: Continuation of the forward supply chain, operate in an open system environment – heavily outsourced by major businesses – support and service – need for a life cycle system approach – need for IT – other considerations in designing reverse supply chains

UNIT V

Future of Reverse logistics : Growth in amount of materials recycled – increase in number of companies performing reverse logistics activities – joint venture between private business and governments – increased emphasis on preventing not just reusing - increasing focus on TQM and six sigma – prominent companies practicing Reverse SCM – recent trends

REFERENCES :

Harald Dyckhoff, Richard Lackes, Joachim Reese – supply chain management and Reverse logistics, springer, 2004

Hamed Fazlollahtabar, Supply chain management models , CRC Press, Richard E. Crandall, William R. Crandall, Charlie C. Chen, Principles of Supply Chain Management, CRC Press, 2009

Rossi Setchi, Robert J. Howlett, Ying Liu, Peter Theobald, Sustainable Design and Manufacturing, springer 2016

Srivathsan Narayanan, Optimizing Reverse Logistics with SAP ERP, Galileo Press, 2010

III SEMESTER

TRAVEL AND TOURISM MANAGEMENT

S. No	Course Code	SUBJECT TITLE
1	ETT-301	Travel agency and Tour Operations
2	ETT-302	Resort Planning and Destination Management
3	ETT-303	Tourism Policy and Planning
4	ETT-304	Recreation Management

TRAVEL AGENCY AND TOUR OPERATIONS

UNIT-I

Travel Trade - Historical Perspectives - Emergence of Thomas Cook and American Express Company - Types of Tour Operators - Wholesale and Retail Travel Agency business - Linkages and Integration with the Principal Service Providers - the Changing Scenario of Travel Trade.

UNIT-II

Travel Agency and Tour Operation Business - Functions of Travel Agency - Setting up a full-fledged Travel Agency - Sources of Income of a travel agency - Diversification of Business - Travel Insurance, Forex, Cargo & MICE – Documentation - IATA Accreditation - Recognition from Government.

UNIT-III

Itinerary Planning & Development - Meaning, Importance and Types of Itinerary - Resources and Steps for Itinerary Planning - Do's and Dont's of Itinerary Preparation - Tour Formulation and Designing Process - FITs & Group Tour Planning and Components - Special Interest Tours (SITs).

UNIT-IV

Tour Packaging & Costing - Importance of Tour Packaging – Classifications of Tour Packages - Components of Package Tours - Concept of costing - Types of costs - Components of tour cost - Preparation of cost sheet - Tour pricing - Calculation of tour price - Pricing strategies - Tour packages of Thomas Cook, SOTC, Cox & Kings and TCI.

UNIT-V

Role and Responsibility of Travel Trade Associations: Objectives - Roles and functions of UFTAA, PATA, ASTA, TAAI, IATO, ATAOI, ADTOI, IAAI, FIYTO, TAFI.

TEXT BOOKS

1. Chand, M. (2002), Travel Agency Management: An Introductory Text, Anmol Publications Pvt. Ltd., New Delhi.
2. Negi. J (2005), Travel Agency Operations: Concepts and Principles, Kanishka, New Delhi.

REFERENCES

1. Holloway, J.C. (2002), The Business of Tourism, Prentice Hall, London, pp.220-279.
2. Roday. S, Biwal.A &Joshi.V. (2009), Tourism Operations and Management, Oxford University Press, New Delhi, pp-164-296.
3. Goeldner, R & Ritchie. B (2010), Tourism, Principles, Practices and Philosophies, John Wiley & Sons, London.
5. John Cousins David Foskett&Cailein Gillespie (2002), Food and Beverage Management, Pearson Education, England.
6. Arthur & Gladwell, Hotel Assistant Manager (London communicate, Barril, Jenkins)

RESORT PLANNING AND DESTINATION MANAGEMENT

Course Objectives: By the end of this course, students will be able to: understand the fundamentals of resort planning and development. They will be able to analyze the economic, social, and environmental impacts of resorts, evaluate site selection criteria and feasibility studies. The student will be effective in resort planning

UNIT-I

Introduction to resort concepts: Evolution and trends in resort development definition, scope, development, roles of resorts in tourism and hospitality, nature of demand of resort, Key stakeholders in destination management

UNIT-II

Classification and structure: Different types of resorts - product functional specifications, strategy development and implementation and designing of organizational structure to match with the type of resort.

UNIT-III

Resort planning: Site selection criteria, feasibility analysis, architecture and landscape design principles, Resort master planning and zoning, macro and micro business environment and impsact on resort planning, the five phase resort planning and development

UNIT-IV

Economic, operations and sustainability management: Economic analysis of resort operation and forecasting, Resort operations and service quality management Customer experience and satisfaction strategies, Environmental impact assessments, social impact assessment, Sustainable tourism certifications and best practices, Community involvement in destination management

UNIT-V

Destination Management and marketing and promotion of resorts: Destination life cycle and competitiveness, Role of Destination Management Organizations (DMOs), Government policies and regulations in tourism and resorts, Market segmentation and target audiences, Branding and positioning of resort destinations

Reference:

1. Gee chuk y resort and management
2. Stipnsaukdavid m. and roffman,horlod,facilities management
3. Lawson ,hotels and resorts:planning design and refurbishment
4. Inskeep, E. (1991). *Tourism Planning: An Integrated and Sustainable Development Approach.*
5. Mill, R. C. (2008). *Resort Management & Operation.*

TOURISM POLICY AND PLANNING

UNIT-I

Concept, need, objective, institutional framework and the principal lines of public tourism policy; The role of govt. public and private sector in formulation of tourism policy. Roles of international, national, state and local tourism organizations in carrying out tourism policies.

UNIT-II

Goal of national administration and tourism policy. Policy making bodies and its process at national levels. Outline of L.K.Jha Committee (Ad-hoc Committee) - 1963, National Tourism Policy -1982, National Committee Report-1998, National Action Plan on Tourism - 1992.

UNIT-III

National Tourism Policy-2002. Opportunities for investments in hotel sector & Tourism related organizations. Incentives and concessions extended for tourism projects and resources of funding. Case study of TFCI

UNIT-IV

Background, Approach and Process, Techniques of Plan Formulation. Planning for Tourism Destinations-Objectives, methods, steps and factors influencing planning. Destination life cycle concept.

UNIT-V

Tourism planning at international, national, regional, state and local, the traditional, approach and PASLOP method of tourism planning, Important feature of five year tourism plans in India. Elements Agents, Processes and typologies of tourism development. Case study of selected state tourism policies (West Bengal, Goa, Kerala, Rajasthan)

Suggested Readings:

1. Bezbarua M.P, Indian Tourism Beyond TheMillenium
2. Burkart&Medlik, Tourism; Past, Present and Future
3. Gee, Chuck Y, James C. Makens , Dexter J. L. & Choy, The Travel Industry
4. Murphy, Peter H, Tourism: A Community Approach

RECREATION MANAGEMENT

UNIT-I

Recreation: an overview - Range of Recreation Businesses: Recreation Vehicles, parks, adventure travel, winter sports, historic sites, camping, resorts, motor coach operators, enthusiast groups, recreation product manufacturers - Development of the geography of tourism and recreation - Recreation Theories - Recreation and leisure services.

UNIT-II

Recreational Resources - the Demand and Supply for Recreation and Tourism - Recreational demand - Recreational and Tourist Motivation - Barriers to Recreation - Gender and Social Constraints.

UNIT-III

Recreation Management: Impact of recreation on tourism - Recreation Resource Management - Tourism and recreation planning and policy - Urban and rural recreation - Relationships between leisure, recreation and tourism.

UNIT-IV

Marketing of Recreation: Marketing Recreation services and facilities- Customers of recreational products - Marketing plan- Marketing Mix for recreation-Case studies.

UNIT- V

Trends in the recreation industry- Tourism recreation and climate change - Tourists and recreational demand for wilderness, National Parks and natural areas - Supply of the wilderness and outdoor recreation experience - Environmental perspectives on coastal recreation and tourism.

TEXT BOOKS

1. George Torkildsen (2000), Leisure and Recreation Management, Fourth Edition, E&FN Spon, London

REFERENCES

1. C. Michael Hall & Stephen J. Page (2006), The Geography of Tourism and Recreation-Environment, Place and Space, Third Edition, Routledge, London.
2. William C. Gartner & David W. Lime (2000), Trends in Outdoor, Recreation, Leisure and Tourism, CABI, London.
3. Chris Ryan (2006), Recreational Tourism, Demands and Impacts, Viva Books, New Delhi.
4. Michael Hall.C. & James Higham (2006), Tourism, Recreation and Climate Change, Viva Books, New Delhi.
5. Charles R. Goeldner& Brent Ritchie J.R (2006), Tourism, Principles, Practices, Philosophies, John Wiley and Sons, New Jersey.

III SEMESTER
HEALTH CARE AND HOSPITAL MANAGEMENT

S. no	Course Code	SUBJECT TITLE
1	EHH-301	Health Economics
2	EHH-302	Health Care Policies and Delivery Systems
3	EHH-303	Hospital organization and Management
4	EHH-304	Hospital Functions and Support Services

HEALTH ECONOMICS

Objective: It is intended to provide an in-depth knowledge about the sources of funds and its effective utilization to achieve a better quality of health care services within a reasonable cost.

UNIT-I

Introduction of Economics Nature of Economics Analysis - – functioning of Economic systems – Circular flow and interdependence of Economic activity – Basic Economic concepts – scarcity – Opportunity cost – Discounting principle – Concept of marginal Utility – Demand – Supply and Elasticity – Relevance of Economics to health and medical care.

UNIT-II

Demand Analysis and Production Function Utility analysis – Nature of Demand and determinants – law of demand – Elasticity of Demand – Supply Curves – Cost Concepts and Cost Analysis. Production function – production with one variable input. Law of variable proportion: production with two variable inputs: production isoquant: isocost lines. Estimating production functions: cost concepts and break even analysis.

UNIT-III

Health Determinants Unique Nature of Health – Health as a Consumer and investment Good – Valuation of Health – Externalities in Health care – Economic Evaluation in Healthcare.

UNIT-IV

Market Analysis Market Configuration – price determination under different marker conditions- nature and Characteristics of Health care markets – Demand for supply of health care services – Market failure and Government intervention and control.

UNIT-V

Health care Finances and Trends Health care indicators – Health policies -Health care expenditure – Financing of Health care, Allocations under 5 year plans – National Rural Health Machine (NRHM) – Human Development indices. .Public Health in India: Public health challenges, cost concern, consumer empowerment, fostering experimentation in the health sector. New delivery and financing models, policy reform and entrepreneurial ventures, innovation in health delivery organization.

III Semester

L	T	P	C
4	0	0	3

HEALTH CARE POLICIES AND DELIVERY SYSTEM

Objective: To understand the importance of health care policies and to be acquainted with the disaster and safety, delivery system.

UNIT-I

Introduction – Theoretical frame work – Environment – Internal and External – Environmental scanning – Economic Environment – Competitive Environment – natural Environment – Politico Legal Environment – socio Cultural Environment- International and Technological Environment.

UNIT-II

A Conceptual Approach to Understanding the Health Care Systems – Evolution – Institutional Settings – Out Patient services – Medical Services – surgical Services – Operating Department – Pediatric services – Dental services – Psychiatric services – casualty & Emergency services – Hospital Laboratory services – Anesthesia services – Obstetrics and Gynecology services – Neuro – Surgery service – Neurology services.

UNIT-III

Overview of Health care sector in India – Primary care – Secondary care – Tertiary care – Rural Medical care – urban medical care – curative care – preventive care – General & special Hospitals – Understanding the hospital management – Role of medical, Nursing staff, Paramedical and Supporting Staff – Health Policy – Population Policy – Drug Policy – Medical Education Policy.

UNIT-IV

Health Care Regulation – WHO, International Health Regulations, IMA, MCI, State Medical Council Bodies, Health universities and Teaching Hospitals and other Health care Delivery Systems.

UNIT-V

Epidemiology – Aims – Principles – Descriptive, Analytical and Experimental Epidemiology – Methods – Uses.

Suggested Readings:

1. A & Lee, K., Economics of Health, OUP, Oxford, 1983.
2. Liz Haggard, Sarah Hosking, Healing the Hospital Environment: Design, Maintenance, and Management of Healthcare Premises
3. Park JE, Park K., Textbook of preventive and social medicine, 20th edition, Banarsidas Bhanot Publishers. 2009
4. S.L GOEL, Healthcare Management and Administration, Deep & Deep publications Pvt.Ltd., New Delhi.

HOSPITAL ORGANIZATION AND MANAGEMENT

III Semester

L	T	P	C
4	0	0	3

HOSPITAL FUNCTIONS AND SUPPORT SERVICES

Objective: To get familiarized with support service systems and to get acquainted with hazards and its management in hospital environment.

UNIT I

Nutrition and Dietary services – Pharmacy services – Medical Records services.

UNIT II

Facilities Engineering – Maintenance of Civil Assets – Electrical supply and Water supply – Medical gas pipeline – Plumbing and Sanitation – Air conditioning system – Hot water and Steam supply – Communication Systems –Biomedical engineering departments in modern hospitals.

UNIT III

Laundry services – Housekeeping services – CSSD-Energy conservation methods – AMC.

UNIT IV

Ambulance services – Mortuary services – Hospital security services – other ancillary services

UNIT V

Disaster management – Fire hazards – Engineering Hazards – Radiological hazards. - Outsourcing of Support services –Waste disposal and management.

Suggested Readings:

1. G.D.Kunders, Hospital and Facilities Planning and Design Jacob Kline, Hand book of Bio-Medical Engineering
2. Webster J.G and Albert M. Coo, Clinical Engineering Principles and Practices Antony Kelly, Maintenance Planning and Control

III SEMESTER
ENTREPRENEURSHIP AND SMALL ENTERPRISE MANAGEMENT

S. no	Course Code	SUBJECT TITLE
1	EES-301	Indian Models in Entrepreneurship
2	EES-302	Entrepreneurial Marketing
3	EES-303	Social Entrepreneurship
4	EES-304	Business Plan Preparation for Small Business

III Semester

L	T	P	C
4	0	0	3

INDIAN MODELS IN ENTREPRENEURSHIP

UNIT-I :

Introduction: Concept and Characteristics of Entrepreneurship. Theories of Entrepreneurship. Process of Entrepreneurship. Entrepreneurship Environment. Barriers to Entrepreneurship. Entrepreneurship and Innovation-Innovation and Creativity- Innovation in Current Environment – Types of Innovation- Entrepreneurship and Economic Development. Corporate Entrepreneurship – Concept and Types.

UNIT-II :

Entrepreneur: Concept, Characteristics Types, Roles and Functions of Entrepreneurs. Qualities of a Successful Entrepreneur, Ethical and Social Responsibilities of Entrepreneurs. Entrepreneur Vs. Manager. Entrepreneur Vs. Entrepreneurship. Entrepreneurial Mobility. Entrepreneurial Culture. Entrepreneurial Motivation.

UNIT-III :

Entrepreneurship Development Programmes (EDP) : Need for and Significance of EDP. Objectives of EDP. Phases of EDP. Course Contents of and Curriculum for EDP. EDP at International Levels. EDP Programmes in India. Small and Medium Enterprises – Government Policies for Micro, Small and Medium Enterprises (MSMEs), Institutional Support System for MSMEs in India. Role of DICs, SFCs, SIDBI, EDI etc. Women Entrepreneurship-Rural Entrepreneurship.

UNIT-IV : New Venture Promotion : Identification of Business Opportunities- Choice of Appropriate Form of Business Organization. Step by step approach for starting a new venture- Determining the Size of Operation. Plant Location Decision- Choice of Technology- Sources of Raising Capital.

UNIT-V : Project Management : Concept, Characteristics, Components and Significance of Project Management-Role of Project Managers - Stages of Project Management-Components of Project Management. Project Life Cycle. Project Identification and Selection. Project Formulation and Appraisal.

References:

1. David H. Holt : Entrepreneurship – New Venture Creation (Prentice Hall of India, New Delhi)
2. Marc. J. Dollinger : Entrepreneurship – Strategies & Resources (Pearson Education, New Delhi)
3. Peter F. Drucker : Innovation and Entrepreneurship (William Heinemann Ltd., Landon)
4. M.B. Shukla : Entrepreneurship and Small Business Management (Kitab Mahal, Allahabad)
5. S.S. Khanaka : Entrepreneurial Development (S. Chand & Company Ltd., New Delhi)
6. Vasant Desai : Dynamics of Entrepreneurial Development & Management (HPH)

ENTREPRENEURIAL MARKETING

III Semester

SOCIAL ENTREPRENEURSHIP

L	T	P	C
4	0	0	3

UNIT I

Need and importance of Third Sector in development. Typologies of third sector - Voluntary, NGO, NPO, CBO, CSO, Growth of third sector in India – Performance and environment of third sector. Third sector relationship to state and civil society

UNIT II

Concept, Definition, Importance – Role of a social entrepreneurship –History of Social Entrepreneurship- Social Entrepreneurship Vs business entrepreneurship –Shift to Social Entrepreneurship- social entrepreneurs and social change –qualities and traits of social entrepreneurs.

UNIT III

Concept, Definition, Importance of social enterprises – Social Business-Principles and Social Innovation-similarities and differences between social enterprises and nonprofits – types of social enterprises – concept of Triple Bottom Line, Bottom of the Pyramid, Sustain opreneurship – Corporate Social Responsibility– Boundaries of Social Entrepreneurship. Select case studies of Indian Social Enterprises.

UNIT IV

Global & National environment to promote social enterprises and social entrepreneurship. Financial Management of social enterprises – venture capital for social enterprises – Corporate, Community and government support for social enterprises

UNIT V

Application of marketing principles in welfare and development field – social marketing. Marketing of Social Services – Case studies related to Social and service marketing in the field of Health, Education, Environment protection, Energy consumption and Human rights.

REFERENCES

1. Alex Nicholls, (2006), Social Entrepreneurship: New Models of Sustainable Social Change, New York: Oxford University Press.
2. David Bornstein, (2007). How to Change the World: Social Entrepreneurs and the Power of New Ideas, New York: Oxford University Press.
3. Fred Setterberg, Kary Schulman (1985), Beyond Profit: Complete Guide to Managing the Non Profit Organizations, New York: Harper & Row.
4. Gregory Dees, Jed Emerson, Peter Economy (2002), Enterprising Non Profits – A Toolkit for Social Entrepreneurs, New York: John Wiley and Sons.
Peter Drucker (1990), Managing the Non Profits Organizations: Practices and Principles, New York: HarperCollins.

III Semester

L	T	P	C
4	0	0	3

BUSINESS PLAN PREPARATION FOR SMALL BUSINESS

OBJECTIVE: To explain relevance of business plans while taking business decisions for small business.

UNIT - I

Business Plan - Meaning- The why of business plan - Basic parameters - Timing of decision undertaken Project parameters - the common considerations - Factors of successful business - capital management- financial control -anticipating change and adaptability.

UNIT – II

Business plan process - sources of information - Internet, government sources and statistics - offline research resources - library - SBDC'S -Trade and industries associations - sources of market research - evaluating data- benefits of market study -coverage of market study - information sources.

UNIT - III

Business plan components - The Executive summary - company description - Industry analysis and trends - Target market - Competition - strategic position and risk assessment - Marketing plan and sales strategy - operations - Technology plan -management and organization.

UNIT – IV

Starting the Venture - Generating business idea – Source of new ideas - Methods of generating ideas - Steps in setting up a small business enterprise,

UNIT V:

Concept of Project Appraisal - Environmental scanning - Competitor and industry analysis - Feasibility study – Market feasibility, Technical / operational feasibility - Financial Feasibility - Managerial competence. Functional plans - Marketing plan – Financial plan.

Suggested Readings:

1. Entrepreneurship (6th Edition) – Robert D Hisrich, Tata McGraw Hill
2. Entrepreneurship: A Contemporary Approach – Kuratko, Thomson Learning Books
3. Small Scale Industries and Entrepreneurship (2003) – Vasant Desai, Himalaya Publishing House
4. Entrepreneurship Management (2018)- Satyanarayana- Discovery Publishing House, New Delhi
5. Entrepreneurial Development – S.S. Khanka, S. Chand & Co

III SEMESTER
AGRO-BUSINESS MANAGEMENT

S. no	Course Code	SUBJECT TITLE
1	EAB-301	Agro-Marketing Management
2	EAB-302	Agro-Business and Rural Green Market
3	EAB-303	Agro-Business Environment
4	EAB-304	Entrepreneurship for Agriculture

AGRO-MARKETING MANAGEMENT

UNIT-I

Meaning and scope, agricultural marketing and economic development; Agricultural market structure – meaning, components and dynamics of market structure; marketing strategy – meaning & significance, formulation of marketing strategy; agribusiness marketing environment, design of marketing mix, market segmentation and targeting, determinants of consumer's behaviour.

UNIT-II

Product management - product management process and decisions, new product development – significance and classification of new product, stages and estimation of demand of new product; product life cycle.

UNIT-III

Pricing policies and practice for agribusiness - determinants of price, objectives of pricing policies and pricing methods.

UNIT-IV

Promotional management - advertising planning and execution; sales promotion; grading and standardization.

UNIT-V

Distribution management - storage and warehousing and transportation management for agricultural products; marketing agencies/intermediaries – roles and functions; distribution channels involved in agribusiness.

Readings books

1. Marketing Management - Analysis, Planning, implementation and Control. Pearson Edu.
2. Krishnamacharyulu C & Ramakrishan L. 2002. Rural Marketing. Pearson Edu. Ramaswamy VS & Nanakumari S. 2002. Marketing Management.2nd Ed. Mac Millan India.

AGRO-BUSINESS AND RURAL GREEN MARKET

Objective: To develop understanding regarding issues in rural markets like rnarketing environment, consumer behaviour, distribution channels, marketing strategies, etc.

UNIT-I
Concept and scope of rural green marketing, nature and characteristics of rural markets, potential of rural rnarkets in India, rural communication and distribution.

UNIT-II
Environmental factors - socio-cultural, economic, demographic, technological and other environmental factors affecting rural green marketing.

UNIT-III
Rural consumer's behaviour - behavior of rural consumers and farmers; buyer characteristics and buying behaviour; Rural v/s urban markets, customer relationship management, rural market research.

UNIT-IV
Rural green marketing strategy - Marketing of consumer durable and non-durable goods and services in the rural markets with special reference to product planning; product mix, pricing objective, pricing policy and pricing strategy, distribution strategy.

UNIT-V
promotion and communication strategy - Media planning, planning of distribution channels, and organizing personal selling in rural market in India, innovation in rural marketing.

Suggested Readings

1. Krishnamacharyulu C & Ramakrishan L. 2002.
2. Rural Marketing. Pearson Edu. Ramaswamy VS & Nanakumari S. 2006. Marketing Mandgement.3rd Ed. MacMillan Publ. Singh AK & Pandey S. 2005.
3. Rural Marketing. New Age' Singh Sukhpal.2004. Rural Marketing. Vikas Publ. House

AGRO-BUSINESS ENVIRONMENT

Objective: To expose learners to the environment in which the agri-business is conducted. Focus will be on understanding micro and macro environmental forces and their impact on agri-business.

UNIT-I

Role of agriculture in Indian economy; problems and policy changes relating to farm supplies, farm production, agro processing, agricultural marketing, agricultural finance etc. in the country.

UNIT-II

Structure of Agriculture - Linkages among sub-sectors of the Agro business sector; economic reforms and lndian agriculture; impact of liberalization, privatization and globalization on Agro business sector.

UNIT-III

Emerging trends in production, processing, marketing and exports; policy controls and regulations relating to the industrial sector with specific reference to agro-industries.

UNIT-IV

Agro business policies- concept and formulation; and new dimensions in Agro business environment and policy.

UNIT-V

Agricultural price and marketing policies; public distribution system and other policies. Suggested Readings:

1. Adhikary M. 1986. Economic Environment of Business. S. Chand & Sons.
2. Aswathappa K. 1997. Essentials of Business Environment Himalaya Publ.
3. Francis Cherunilam 2003" Business Environment. Himalaya Publ.

ENTREPRENEURSHIP FOR AGRICULTURE

Objective: To expose the learner to the fields of entrepreneurship development focus will be to train the students to develop new projects and encouraging them to start their own ventures.

UNIT-I

Entrepreneurship: Definition, concept, characteristics, Classes, Theories of Entrepreneurship - Significance of entrepreneurship in economic development qualities of entrepreneur.

UNIT-II

Entrepreneurial Process and Structure, Barriers to Enterprise, Sources of Innovative Opportunities, Marketing Research; Business Environment – Micro Environment, Macro Environment, Venture Feasibility – Technical, Marketing, Financial Feasibility, Starting new business or buy firms. Entrepreneurship in Agricultural Sector.

UNIT-III

Business strategy - concept - long term and short term focus; Business organization; Sources of Finance, Venture capital financing - concept, purpose and schemes, Capital Markets; Government Policies and Regulations for Agribusiness

UNIT-IV

Entrepreneurship development programs and role of various institutions in developing entrepreneurship, life cycles of new business, environmental factors affecting success of a new business, reasons for the failure and visible problems for business

UNIT-V

Business Plan – Sources of Product, Pre-Feasibility Study, Criteria for selection of product, Ownership & Capital; Growth Strategies in business – Market penetration, Market expansion, Product Expansion, Diversification, Acquisition; Steps in Product launch.

Suggested Readings:

1. Dandekar, V. M. and Sharma, V. K., 2016, Agri-Business and Entrepreneurship Development. Manglam Publications, New Delhi.
2. Desai, V., 2006, Entrepreneurship Development, Project formulation, Appraisal & Financing for Small Industry. Himalaya Publications, New Delhi.
3. Hisrich, R. D. and Peters, M. P., 2002, Entrepreneurship, Tata McGraw Hill.
4. Kaplan, J. M. and Warren, A. C., 2013, Patterns of Entrepreneurship Management, John Wiley & Sons; 4th revised edition.

III SEMESTER
BUSINESS ANALYTICS

S. no	Course Code	SUBJECT TITLE
1	EBA-301	Predictive Analytics
2	EBA-302	Text, Social Media& Web Analytics
3	EBA-303	Essentials of Business Analytics
4	EBA-304	Marketing Analytics

L	T	P	C
0	1	2	2

III Semester

PREDICTIVE ANALYTICS

Course Objective: This course will enable students to apply specific statistical and regression analysis methods applicable to predictive analytics to identify new trends and patterns, uncover relationships, create forecasts and to develop and use various quantitative and classification predictive models based on various regression and models.

UNIT-I

Linear Regression: Coefficient of determination-- Significance test, Residual analysis - Standard Error - Ratio of variance- Galton Graph – Ratio of Regression – Interpretation of Galton‘s Graph - Confidence and Prediction intervals.

UNIT-II

Multiple Linear Regression: Coefficient of determination--Interpretation of regression coefficients--Categorical variables— heteroscedasticity - Multi-co linearity outliers-- Auto regression and Transformation of variables—Regression--Model Building.

UNIT-III

Logistic and Multinomial Regression: Logistic function-- Estimation of probability using Logistic regression, Variance-- Wald Test-- Hosmer Lemshow Test-- Classification Table-- Gini Co-efficient.

UNIT-IV

Forecasting: Moving average-- Exponential Smoothing-- Casual Models. Time Series Analysis--Moving Average Models-- ARIMA models-- Multivariate Models.

UNIT-V

Index numbers: construction of Index numbers – selection of items- selection of base – selection of average and system of weighting – construction of various types of index numbers. Theory of probability ad sampling: statistical probability – the Laws of probability – permutations and combinations.

Reference Books:

1. Anderson, Sweeney and Williams ―Statistics for business and economics‖, Cengage Learning, 2011.
2. Richard I. Levin. David S. Rubin, ―Statistics for Management‖, Pearson Education, 2012.
3. Richard A. Johnson, Irwin Miller and John Freund, ―Probability and Statistics for Engineers‖, Pearson Education, 2014.
4. Ronald E. Walpole, Raymond H. Meyers, Sharon L. Meyers, ―Probability and Statistics for Engineers and Scientists‖, Pearson Education.
5. Asthana B.N., ―Elements of Statistics‖ Chaitanya publishing house, Allahabad.

TEXT, SOCIAL MEDIA & WEB ANALYTICS

UNIT-I

Text Analytics: Text Analytical Approach and Tools to Analyze Data: Analytical Approaches-- History of Analytical Tools-- Introducing Popular Analytical Tools-- Comparing Various Analytical Tools. Text mining –unstructured text, episode rule discovery for texts, hierarchy of categories, text clustering.

UNIT-II

Social Media Analytics: Introduction to Semantic Web: Limitations of current Web-- Development of Semantic Web-- Emergence of the Social Web. Social Network analysis: Development of Social Network Analysis -Key concepts and measures in network analysis. Electronic sources for network analysis: Electronic discussion networks- Blogs and online communities - Web-based networks.

UNIT-III

Knowledge representation on the Semantic web: Ontology and their role in the Semantic Web: Ontology-based knowledge Representation – Ontology languages for the Semantic Web: Resource Description Framework - Web Ontology Language. Modeling and aggregating social network data: State-of-the-art in network data representation - Ontological representation of social individuals - Ontological representation of social relationships - Aggregating and reasoning with social network data. Social-semantic applications: Generic Architecture- Sesame- Elmo – Graph util, Flink-Open academia. Social network extraction: Survey method-electronic data extraction- Data collection Optimization prediction- Evaluation.

UNIT-IV

Understanding web analytics: The foundations of Web analytics: Techniques and Technologies – Present and Future of Web analytics.---Data Collection: Importance and Options –Web server log files: Click stream data – User submitted information – Web server performance data – Page tags –First and third party tracking - Web Analytics Strategy: Key performance indicators – Web analytics process – Heuristics evaluations – Site visits – Surveys – Measuring reach – Measuring acquisition – Measuring conversion – Measuring retention – Security and privacy implications of Web analytics.

UNIT-V

Web Analytics Tools: Content organization tools – Process measurement tools – Visitor segmentation tools – Campaign analysis tools – Commerce measurement tools – Google analytics – Omniture – Web trends – Yahoo! Web analytics. Google Analytics: Key features and capabilities – Quantitative and qualitative data - Working of Google analytics – Privacy - Tracking visitor clicks, Outbound links and Non HTML files.

Reference Books:

1. Bernard J. Jansen, ―Understanding User-Web Interactions via Web analytics‖, Morgan and Claypool, 2009.
2. Avinash Kaushik, ―Web Analytics2.0‖, John Wiley and Sons, 2010.
3. Brian Clifton, ―Advanced web metrics with Google analytics‖, John Wiley and Sons, 2012. 4. Justin Cutroni, ―Google Analytics‖, O‟Reilly, 2015.
4. Jerri L. Ledford, Joe Teixeira and Mary E. Tyler, ―Google Analytics‖, John Wiley and Sons, 2013.

ESSENTIALS OF BUSINESS ANALYTICS

COURSE OBJECTIVES This course helps the students to understand and analyze basic essentials of business analytics business framework. They shall be exposed to fundamental statistical techniques to solve real life problems and enable them to take better decisions.

UNIT-I

Introduction to Business Analytics, Types of data, Integrating Analytics with business, Business Analytics for Competitive Advantage, Descriptive, Predictive, and Prescriptive Analytics, Dashboards History; Subdivisions within Statistics; Data collection, Editing, Classification, Tabulation, Diagrammatic and Graphical representation of data.

UNIT-II

Measures of Central tendency and Dispersion: Arithmetic Mean, Geometric Mean, Harmonic Mean, Median, Mode, Mean Deviation, Quartile Deviation, Standard Deviation, Skewness, Kurtosis and Moments.

UNIT-III

Probability and Probability Distributions: Introduction to Probability, Probability Rules, Probabilities under Conditions of Statistical Independence, Probabilities under Conditions of Statistical Dependence, Revising Prior Estimates of Probabilities, Bayes' Theorem, Random Variables, Use of Expected Value in Decision Making, Binomial Distribution, Poisson Distribution, Normal Distribution.

UNIT-IV

Sampling and Estimation: Random Sampling, Introduction to Sampling Distributions, Relationship Between Sample Size and Standard Error, Point Estimates, Interval Estimates, Confidence Intervals, Calculating Interval Estimates of the Mean from Large Samples.

UNIT-V

Testing of Hypotheses: Hypothesis, Steps in Hypothesis Testing, Measuring the Power of a Hypothesis Test, Hypothesis Testing of Means and Proportions, Analysis of Variance, One way ANOVA and Two way ANOVA, Non-parametric tests: Chi-Square Test, The Sign Test for Paired Data, The MannWhitney U Test, Kruskal-Wallis Test, The Kolmogorov-Smirnov test. Correlation, Regression and Time Series: Correlation, Product moment correlation, Rank correlation, Bi-variate correlation, Regression, Simple linear Regression, Line of best fit, Time Series, Trend Analysis, Cyclical Variation, Seasonal Variation, Irregular Variation, Time Series Analysis in Forecasting.

References:

1. Richard I. Levin & David S.Rubin, Statistics for Management, PHI.1999, New Delhi.
2. Kishor S. Trivedi, Probability and Statistics with Reliability, Queuing and Computer Science Applications, John Wiley & Sons, Singapore, 2002.
3. John E.Freund & Ronald E. Walpole, Mathematical statistics, PH, New Jersey, 1980.
4. E.L.Lehmann, Testing Statistical Hypotheses, John Wiley & Sons, New York, 1986.
5. S.P. Gupta, Statistical Methods, Sultan Chand &Sons, New Delhi 1998.
6. Sundar Rao P.S.S, Richard J, Introduction to biostatistics – A manual for students in Health Sciences, PHI Learning Pvt. Ltd. 1996, New Delhi.
7. Susan Miltan , Statistical methods in the Biological and Health Sciences,1999, McGraw- Hill

MARKETING ANALYTICS

Course Objective: This course aims to provide knowledge on elements of market analysis and to use marketing analytics to predict outcomes and systematically allocate resources.

UNIT-I

Introduction: Marketing Analytics, Models and metrics- Market Insight – Market data sources, sizing, PESTLE trend analysis, and Porter five forces analysis – Market segment identification and positioning.

UNIT-II

Competitive Analysis and Business Strategy: Competitor identification, Intelligence gathering, analysis and strategy- Analytics based strategy selection, with strategic models and metrics, Forecasting, balanced scorecard, and critical success factors.

UNIT-III

Product, Service and Price Analytics: Conjoint analysis model, decision tree model, portfolio resource allocation, pricing techniques, pricing assessment, pricing for business markets, price discrimination.

UNIT-IV

Distribution And Promotion Analytics: Retail location selection, distribution channel evaluation, and multi-channel distribution, Promotion budget estimation and allocation, promotion metrics for traditional media and social media.

UNIT-V

Market basket Analysis, Text Analytics, Spread sheet Modelling - Sales Analytics: E Commerce sales mode, sales metrics, profitability metrics and support metrics.

Reference Books

1. Stephan Sorger, ―Marketing Analytics – Strategic Models and Metrics‖, Admiral Press, 2013.
2. Mark Jeffery, ―Data Driven Marketing: The 15 Metrics Everyone in Marketing should know‖, Wiley, 2013.
3. Paul W. Farris, Neil T. Bendle, Phillip E. Pfeifer, David J. Reibstein ―Marketing Metrics: The Definitive Guide to Measuring Marketing Performance‖, Pearson FT press, 2012.

III SEMESTER INTERNATIONAL BUSINESS

S. no	Course Code	SUBJECT TITLE
1	EIB-301	International Marketing
2	EIB-302	International Financial Management
3	EIB-303	International Trade Procedures & Documentation
4	EIB-304	International Strategic Management

INTERNATIONAL MARKETING

Objectives:

1To understand the basic concepts of Marketing

2 To gain the knowledge of marketing management in the international perspective

3 To develop marketing strategies for the dynamic international markets.

Outcomes: 1. Understanding the role of marketing in making satisfied exchanges.

2. Able to use the variables of marketing management for successfully doing the business in the International arena.

UNIT-I

The Concept of marketing - Evolution of marketing: From transaction based to relationship marketing- Marketing research and Decision support systems .Market Segmentation, Targeting and Positioning

UNIT-II

Product Mix - Product management decisions, Branding and Packaging, Product Life Cycle strategies - New Product Development - Pricing considerations and approaches, Base Methods of setting Price, pricing strategies and Policies.

UNIT-III

Distribution channels and physical distribution. Marketing communication and Promotion mix Strategies. Nature of international marketing: meaning, Framework for International Marketing-Barriers for International Marketing

UNIT-IV

International Marketing Decisions: product Planning, Designing and Development for international markets-Pricing Decisions: Pricing Strategies And Price setting For International Markets.

UNIT-V

Distribution: Channel Management And Physical distribution Management in International Marketing. Promotion: International Advertising Programs, Sales Management And Sales Promotion For Foreign Markets

Text Books:

1. Philip Kotler, Marketing Management- The South Asian Perspective, Pearson Education

2. Warren J. Kegan: Global Marketing Management' Pearson Education Reference Books:

1. Svend Hollensen : Global Marketing: A Decision-Oriented Approach- , Pearson Education. 2. Ramasamy, Namakumari: Marketing Management, McMillan Publishers

3. Saxena: Marketing Management (Tata McGraw-Hill)

INTERNATIONAL FINANCIAL MANAGEMENT

Objectives:

1. To make the students understand the concept and nuances of international accounting
2. To help students to know the standards and practices for international business firms
3. To know the importance of financial reporting in international environment.

Learning Outcomes:

1. Students will get aware on various international accounting principles and practices with global joint ventures and intercompany transactions.
2. Enhance the learners ability on international reporting skills with various accounting techniques.

UNIT-I

Objective of International Financial Reporting – Concept International Accounting Practices, introduction to inter corporate investments – inter company transaction – Global Joint Venture Accounting, Foreign Currency Translation accounting.

UNIT-II

Financial instruments – Presentation and disclosure – Convertibale securities – recognition and measurement of financial instruments – comprehensive income – settlement Date Vs Trade Date Accounting.

UNIT-III

Inter corporate investment – Temporary and Portfolio investments – Business combination and reporting methods – consolidation procedures – Financial statement6s disclosure.

UNIT-IV

Global mergers & acquisitons accounting – consolidating wholly, non wholly owned subsidiary under equity and cost recording – Inteer company revenue, expenses & inter company profile profit & expenses

UNIT-V

Financial reporting in an international environment – Integrated Vs Self Sustaining foreign subsidiary – GAAP for public sector organisations.

Books:

INTERNATIONAL TRADE PROCEDURES & DOCUMENTATION

Objectives

1. To understand India's contribution in International Trade and Service
2. To know the Export and Import Documents used in Global Trade
3. To identify futre opportunties and chellenges of India's Foreign Trade

Learning Outcomes:

1. To identify future opportunities and challenges of India's Foreign Trade.
2. Students gain the knowledge of Export and Import Documents used in Global Trade.

UNIT-I

DOCUMENTATION : Documentation – Meaning – Need for Documentation – Types of documents – Commercial Documents – Regulatory Documents – Documentation for Transportation, Customs Clearance – Aligned Documentation System – Benefits of Aligned Documentation System. Export Order – Nature of Export Order – Execution of Export Order.

UNIT-II

Import Procedure and Documentation: Global sourcing – Types of global procurement – Tender – Negotiation – Contract and others – Customs regulations and import clearance formalities – Types of import licenses Export Promotion Capital Goods Scheme (EPCG) license- Duty exemption scheme – Import Risk Management. Import License – Types of Import Licenses – Procedure for procurement of Import licenses – IEC(Importer Exporter Code Number) - Import of Capital Goods – Duty Exemption schemes, Import formalities for 100% EOU's and SEZ-CEZ-Import export management.

UNIT-III

International Trade: Need and importance of International Trade – Recent Trends in World Trade – Leading players – India's Foreign Trade – Commodity composition and Destination – India's Export and Import position in World merchandise trade and services –Project Exports- Deemed Exports - India's Foreign Trade Policy – India Trade Agreements and tariff benefits

UNIT-IV

tarting an Export Organization: Starting an export firm – Selection of an export product – Market selection –Buyer selection - Registration procedure with Sales Tax, Central Exercise and various Boards and councils – Exim code number – Elements of export contract- Global rules as UCP 600 of ICC, INCOTERMS – Terms of payment and Letter of Credit – Payment settlement of exp

UNIT-V

EXPORT CLEARANCE GST -Clearance of Export and Import of Cargo – GST – meaning and importance – Exim Documents – Importance of Exim Documents , Types and Characteristics-Electronic Data Interchange (EDI) – Meaning and role of EDI in international trade. Physical examination of goods – Warehousing – duty drawback – Bill of Lading - Bill of Entry.-Import Risk Management-Export Finance: Sources of Finance - Role of commercial bank, EXIM Bank, ECGC SIDBI and others – Export promotion Schemes – Insurance for Export – Types – export credit insurance – Risk Management – Types of risks – mitigation methods

Text Books:

1. Aseem Kumar(2007) “Export and Import Management”, Excel Books Publications, New Delhi
2. David Stewart (2008)” International Supply Chain Management”, Cengage publications,
3. Ram Singh(2008) “Export Management” Indian Institute of Foreign Trade, New Delhi 4.P.K.Khurana (2010): Export Management, Galgotia Publication, New Delhi
4. Jeevanandam C(2002) “Foreign Exchange: Practices Concepts and control” Sultan Chand Publications
5. Foreign Trade Policy(2015-2020): Hand book of Export Procedure and Annual of the Ministry of Commerce, Government of India.

INTERNATIONAL STRATEGIC MANAGEMENT

Objectives:

1 To familiarize the concepts, tools and techniques of international strategic management.

2 To enable the students to develop analytical skills.

3 To enhance the ability to apply the concepts to solve various business problems.

Learning Outcomes:

1. International strategic management processes used by top level management in multinational enterprises

2. Creatively apply knowledge from different approaches to strategic management issues and problems of multinational enterprises.

UNIT-I

Strategic Management Concepts and Characteristics – Emergence of International Strategic Management (ISM) – importance of ISM - Strategic Management Process - Forces necessitating the adoption of ISM concept by MNC's as well as Indian Companies.

UNIT-II

Global business environment - Nature, components of External Environment – PESTEL study - Industry analysis - SWOT analysis – External sector evaluation matrix- IE matrix - Porters Five forces model - Corporate capability analysis –Diagnosing industry globalization potential– Building global market participation – Competition in global industries – competitor profile matrix - Regional strategy.

UNIT-III

Internal Environment Scanning – Resources, Capabilities, Core competencies – Significance of core competence concept in strategy making –GAP analysis – Mc Kinsey's 7s Framework – GE 9 cell model. Value Chain Analysis and its significance – Balanced Scorecard.

UNIT-IV

Setting Vision, Mission, goal and corporate objectives – External and Internal forces interacting with corporate objectives – Types of strategy - Generic strategies - Business level - Corporate level - Stability strategy – Growth and diversification strategy.

UNIT-V

Conducting a global strategy analysis - Identifying strategic alternatives–Implementing corporate strategy – Strategic control and operational control.

Text books

1. Thomson, Peteraf,Gamble and Strickland (2017), "Crafting and Executing strategy concepts and cases" (21st Edition), Tata Mc. Graw Hill
2. John A. Pearce II, Richard B. Robinson, and Amita Mital, (2018), Strategic Management (SIE) McGraw Hill Education, 14th Edition.
3. Fred R. David (2015), "Strategic Management concepts and cases" Eastern Economy education PHI learning Pvt. ltd.,
4. Kamel Mellahi, Jedrzej George Frynas and Paul Finlay (2005), "Global Strategic Management" Oxford University Press.

III SEMESTER
ARTIFICIAL INTELLIGENCE

S. no	Course Code	SUBJECT TITLE
1	EAI-301	Introduction to Artificial Intelligence
2	EAI-302	Python Programming
3	EAI-303	Block chain Technology
4	EAI-304	Machine Learning

III Semester

L	T	P	C
3	0	0	3

INTRODUCTION TO ARTIFICIAL INTELLIGENCE

Course Outcome(s):

This course introduces students to the basic knowledge representation, problem solving, and learning methods of artificial intelligence.

UNIT–I

Introduction, Overview of Artificial intelligence: Problems of AI, AI technique, Tic - Tac - Toe problem. Intelligent Agents, Agents & environment, nature of environment, structure of agents, goal based agents, utility based agents, learning agents.

Problem Solving, Problems, Problem Space & search: Defining the problem as state space search, production system, problem characteristics, issues in the design of search programs.

UNIT–II

Search techniques: Problem solving agents, searching for solutions; uniform search strategies: breadth first search, depth first search, depth limited search, bidirectional search, comparing uniform search strategies. Heuristic search strategies Greedy best-first search, A* search, AO* search, memory bounded heuristic search: local search algorithms & optimization problems: Hill climbing search, simulated annealing search, local beam search

UNIT-III

Constraint satisfaction problems: Local search for constraint satisfaction problems. Adversarial search, Games, optimal decisions & strategies in games, the minimax search procedure, alpha-beta pruning, additional refinements, iterative deepening.

UNIT– IV

Knowledge & reasoning: Knowledge representation issues, representation & mapping, approaches to knowledge representation. Using predicate logic, representing simple fact in logic, representing instant & ISA relationship, computable functions & predicates, resolution, natural deduction. Representing knowledge using rules, Procedural verses declarative knowledge, logic programming, forward verses backward reasoning, matching, control knowledge.

UNIT–V

Probabilistic reasoning: Representing knowledge in an uncertain domain, the semantics of Bayesian networks, Dempster-Shafer theory, Planning Overview, components of a planning system, Goal stack planning, Hierarchical planning, other planning techniques

Expert Systems: Representing and using domain knowledge, expert system shells, and knowledge acquisition.

Home Assignments:

Assignments should include problems related to the topics covered in lectures, like heuristics, optimal search, and graph heuristics. Constraint satisfaction problems, k-nearest neighbors,

decision trees, etc. can be included in home assignments.

Text Books:

1. Stuart Russell and Peter Norvig, Artificial Intelligence: A Modern Approach
2. Artificial Intelligence, Russel, Pearson

Reference Books:

1. Artificial Intelligence, Ritch & Knight, TMH
2. Introduction to Artificial Intelligence & Expert Systems, Patterson, PHI
3. Logic & Prolog Programming, Saroj Kaushik, New Age International
4. Expert Systems, Giarranto, VIKAS

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PYTHON PROGRAMMING

Course Objectives:

The main objectives of the course are to

a. Introduce core programming concepts of Python programming language.
b. Demonstrate about Python data structures like Lists, Tuples, Sets and dictionaries
c. Implement Functions, Modules and Regular Expressions in Python Programming and to create practical and contemporary applications using these

UNIT-I:

History of Python Programming Language, Thrust Areas of Python, Installing Anaconda Python Distribution, Installing and Using Jupyter Notebook.

Parts of Python Programming Language: Identifiers, Keywords, Statements and Expressions, Variables, Operators, Precedence and Associativity, Data Types, Indentation, Comments, Reading Input, Print Output, Type Conversions, the type () Function and Is Operator, Dynamic and Strongly Typed Language.

Control Flow Statements: if statement, if-else statement, if...elif…else, Nested if statement, while Loop, for Loop, continue and break Statements, Catching Exceptions Using try and except Statement.

Sample Experiments:

1. Write a program to find the largest element among three Numbers.
2. Write a Program to display all prime numbers within an interval
3. Write a program to swap two numbers without using a temporary variable.
4. Demonstrate the following Operators in Python with suitable examples.

   i) Arithmetic Operators ii) Relational Operators iii) Assignment Operators iv) Logical Operators v) Bit wise Operators vi) Ternary Operator vii) Membership Operators viii) Identity Operators
5. Write a program to add and multiply complex numbers
6. Write a program to print multiplication table of a given number.

UNIT-II:

Functions: Built-In Functions, Commonly Used Modules, Function Definition and Calling the function, return Statement and void Function, Scope and Lifetime of Variables, Default Parameters, Keyword Arguments, *args and **kwargs, Command Line Arguments.

Strings: Creating and Storing Strings, Basic String Operations, Accessing Characters in String by Index Number, String Slicing and Joining, String Methods, Formatting Strings.

Lists: Creating Lists, Basic List Operations, Indexing and Slicing in Lists, Built-In Functions Used on Lists, List Methods, del Statement.

Sample Experiments:

7. Write a program to define a function with multiple return values.
8. Write a program to define a function using default arguments.
9. Write a program to find the length of the string without using any library functions.

10. Write a program to check if the substring is present in a given string or not.
11. Write a program to perform the given operations on a list:
    i. addition ii. insertion iii. slicing
12. Write a program to perform any 5 built-in functions by taking any list.

UNIT-III:

Dictionaries: Creating Dictionary, Accessing and Modifying key:value Pairs in Dictionaries, Built-In Functions Used on Dictionaries, Dictionary Methods, del Statement.

Tuples and Sets: Creating Tuples, Basic Tuple Operations, tuple() Function, Indexing and Slicing in Tuples, Built-In Functions Used on Tuples, Relation between Tuples and Lists, Relation between Tuples and Dictionaries, Using zip() Function, Sets, Set Methods, Frozenset.

Sample Experiments:

13. Write a program to create tuples (name, age, address, college) for at least two members and concatenate the tuples and print the concatenated tuples.
14. Write a program to count the number of vowels in a string (No control flow allowed).
15. Write a program to check if a given key exists in a dictionary or not.
16. Write a program to add a new key-value pair to an existing dictionary.
17. Write a program to sum all the items in a given dictionary.

UNIT-IV:

Files: Types of Files, Creating and Reading Text Data, File Methods to Read and Write Data, Reading and Writing Binary Files, Pickle Module, Reading and Writing CSV Files, Python os and os.path Modules.

Object-Oriented Programming: Classes and Objects, Creating Classes in Python, Creating Objects in Python, Constructor Method, Classes with Multiple Objects, Class Attributes Vs Data Attributes, Encapsulation, Inheritance, Polymorphism.

Sample Experiments:

18. Write a program to sort words in a file and put them in another file. The output file should have only lower-case words, so any upper-case words from source must be lowered.
19. Python program to print each line of a file in reverse order.
20. Python program to compute the number of characters, words and lines in a file.
21. Write a program to create, display, append, insert and reverse the order of the items in the array.
22. Write a program to add, transpose and multiply two matrices.
23. Write a Python program to create a class that represents a shape. Include methods to calculate its area and perimeter. Implement subclasses for different shapes like circle, triangle, and square.

UNIT-V:

Introduction to Data Science: Functional Programming, JSON and XML in Python, NumPy with Python, Pandas.

Reference Books:

1. Python with Machine Learning by Dr. A. Krishna Mohan et al. SChand publications.
2. Introduction to Programming Using Python, Y. Daniel Liang, Pearson.
3. Gowri shankar S, Veena A., Introduction to Python Programming, CRC Press.

Python Programming, S Sridhar, J Indumathi, V M Hariharan, 2nd Edition, Pearson, 2024

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BLOCKCHAIN TECHNOLOGY

Course Objectives:

- To learn the fundamentals of Block Chain and various types of block chain and consensus mechanism.
- To understand public block chain system, Private block chain system and consortium block chain.
- Able to know the security issues of blockchain technology.

UNIT – I

Fundamentals of Blockchain: Introduction, Origin of Blockchain, Blockchain Solution, Components of Blockchain, Block in a Blockchain, The Technology and the Future.

Blockchain Types and Consensus Mechanism: Introduction, Decentralization and Distribution, Types of Blockchain, Consensus Protocol.

Cryptocurrency: Bitcoin, Altcoin and Token: Introduction, Bitcoin and the Cryptocurrency, Cryptocurrency Basics, Types of Cryptocurrencies, Cryptocurrency Usage.

UNIT – II

Public Blockchain System: Introduction, Public Blockchain, Popular Public Blockchains, The Bitcoin Blockchain, Ethereum Blockchain.

Smart Contracts: Introduction, Smart Contract, Characteristics of a Smart Contract, Types of Smart Contracts, Types of Oracles, Smart Contracts in Ethereum, Smart Contracts in Industry.

UNIT – III

Private Blockchain System: Introduction, Key Characteristics of Private Blockchain, Private Blockchain, Private Blockchain Examples, Private Blockchain and Open Source, E- commerce Site Example, Various Commands (Instructions) in E-commerce Blockchain, Smart Contract in Private Environment, State Machine, Different Algorithms of Permissioned Blockchain, Byzantine Fault, Multichain.

Consortium Blockchain: Introduction, Key Characteristics of Consortium Blockchain, Need of Consortium Blockchain, Hyperledger Platform, Overview of Ripple, Overview of Corda.

Initial Coin Offering: Introduction, Blockchain Fundraising Methods, Launching an ICO, Investing in an ICO, Pros and Cons of Initial Coin Offering, Successful Initial Coin Offerings, Evolution of ICO, ICO Platforms.

UNIT – IV

Security in Blockchain: Introduction, Security Aspects in Bitcoin, Security and Privacy Challenges of Blockchain in General, Performance and Scalability, Identity Management and Authentication, Regulatory Compliance and Assurance, Safeguarding Blockchain Smart Contract (DApp), Security Aspects in Hyperledger Fabric.

Applications of Blockchain: Introduction, Blockchain in Banking and Finance, Blockchain in E ducation, Blockchain in Energy, Blockchain in Healthcare, Blockchain in Real-estate, Blockchain in Supply Chain, The Blockchain and IoT. Limitations and Challenges of Blockchain.

UNIT – V

Blockchain Case Studies:

Case Study 1 – Retail,

Case Study 2 – Banking and Financial Services,

Case Study 3 – Healthcare,

Case Study 4 – Energy and Utilities.

Blockchain Platform using Python: Introduction, Learn How to Use Python Online Editor, Basic Programming Using Python, Python Packages for Blockchain.

Blockchain platform using Hyperledger Fabric: Introduction, Components of Hyperledger Fabric Network, Chain codes from Developer.ibm.com, Blockchain Application Using Fabric Java SDK.

Text book:

1. "Block chain Technology", Chandramouli Subramanian, Asha A.George, Abhilasj K A and Meena Karthikeyan , Universities Press.

Reference Books:

1. Blockchain Blue print for Economy, Melanie Swan, SPD Oreilly.
2. Blockchain for Business, Jai Singh Arun, Jerry Cuomo, Nitin Gauar, Pearson Addition Wesley

MACHINE LEARNING

III SEMESTER
BANKING AND INSURANCEMANAGEMENT

S. no	Course Code	SUBJECT TITLE
1	EBI-301	Principles and practices of Indian Banking System
2	EBI-302	Fundamentals of Insurance
3	EBI-303	Treasury Management
4	EBI-304	Business Finance

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III Semester

PRINCIPLES AND PRACTICES OF INDIAN BANKING SYSTEM

Course Objective:

1) Provides a broad overview of Indian Banking System, focusing on the application of, Finance theory to the issue faced by Indian Banking System in general and
2) To provide conceptual foundation for the purpose of undertaking Principles and practices of Indian Banking System as well as banking system.

Course Outcomes:

At the end of this course students should be able to:

1) To provide a theoretical and practical background in the field of Indian Banking System.
2) Measuring the Indian Banking System

Chapter-1:

Nature – concept of Banking – Functions of Banking – Scope – Fundamentals of Banking – Banking Regulations – RBI Guidelines.

Chapter-2:

Framework of Nationalization of Banks – Role of Public sector banks – Rules and regulations of public sector banks – Banking sector reforms – committees reviews on banking.

Chapter-3:

Management of Banking policy – Banks internal policies – Different loan policies – Credit Management of Banks – Management of Deposits – Loans and advances.

Chapter-4:

Bank Investment – SLR requirement investment in nature – significance- financial security of investment – profit & Loss account – Balance sheet Report.

Chapter-5:

Management of Finance - Liquidity – Banking Loans and advances – cash credit – overdraft – domestic lending – global lending – secured advances – financial efficiency – evaluation of loans – Loan administration – Lending Rates.

References:

1. OP Agarwal – Banking and insurance, Himalaya publications
2. E Gordan & P.K.Gupta – Principles of Banking, Himalaya Publications
3. Modern Banking – D.Muralidharan, EEE

III Semester

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FUNDAMENTALS OF INSURANCE

The main objectives of this course are to:

1. Impart theoretical base on fundamentals principles of insurance business
2. Learn the procedure to become an insurance agent
3. Learn the functions of insurance agent
4. Equip with the practices of insurance industry
5. Impart knowledge on the types and principles of insurance

UNIT – I

Introduction to insurance – Nature and scope of insurance – significance – Insurance contracts – IRDA Role in insurance sector – Policies of Insurance – Growth of Indian insurance sector - Insurance as a social security tool; insurance and economic development.

UNIT – II

Types of insurance – life insurance – General insurance – Health insurance – Different types of policies – Functions of General Insurance product – Business insurance – Use of Insurance in business - Fundamental/Principles of life Insurance/Marine/Fire/Medical/General Insurance: Contract of various kinds; Insurance Interest

UNIT – III

Growth and development of Indian insurance industry – Life insurance products – Health insurance products – Types of Health insurance policies – Types of Agricultural insurance policies – Personal insurance policies - Functions of the Agent: Proposal form and other forms for grant of cover; Financial and medical underwriting; Material information; Nomination and assignment; Procedure regarding settlement of policy claims.

UNIT – IV

LIC of India – Origin – Growth – Development – Objectives of LIC – Marketing of LIC – Growth of General Insurance – Functions – Scope of General Insurance in Indian context – Impact of Economic reforms on insurance industry - Pre- requisite for obtaining a license: Duration of license; Cancellation of license; Revocation or suspension/termination of agent appointment; Code of conduct; Unfair practices

UNIT – V

Legal Aspect of LIC – Different Products – General and legal requirements of contracts – LIC Products – Term insurance – Permanent insurance – Moneyback and endowment policies.

References:

1. K.Mishra – Fundamentals of LIC, PHI
2. OP Agarwal – Banking and insurance, Himalaya publications
3. E Gordan & P.K.Gupta – Banking and Insurance, Himalaya Publications
4. K.Mishra – Fundamentals of LIC, PHI

III Semester

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TREASURY MANAGEMENT

The main objectives of this course are:

1. To learn the concept of treasury management
2. To understand about treasury management.
3. To learn about sources of financ treasury management
4. To have an understanding about treasury management
5. To provide knowledge on treasury management

UNIT – I

Treasury Management – Scope and Importance - Structure of Treasury Management -Functions of Treasurer and Controller-Treasury Control –Introduction - Importance of -Treasury Control - Framework of Treasury Control - Treasury Audit -Sarbanes Oxley - Impact on Treasury Control

UNIT – II

Treasury Analytics - Yield Curve Analysis - Risk Management -Basis Point Value (BPV) - Concept of Convexity and its Properties- Concept of Value-at-Risk

UNIT – III

Interest Rate Risk Management - forward Rate Agreement (FRA) -T-bill Futures - Eurodollar futures - T-bond futures - Over-the-Counter Options -Calls and Puts on LIBOR -Caps, Floors and Collars -Exchange Traded Options - Embedded Options

UNIT – IV

Funding and Investments -Short-term Financing -Aggressive and Conservative Approach - Sources of Short-Term Financing -Working Capital Cycle - Long-Term Financing -Money Markets -Capital Markets

UNIT – V

Implementation - Treasury Management - Treasury Management Systems - Software Applications :The description of several different Treasury Management Systems , their functions and features -Treasury Policy - Developing a Treasury Framework - Elements of Policies in Specific Areas -Treasury Performance

REFERENCE BOOKS:

1. Banking and Insurance – OP AGARWAL – Himalaya
2. Risk management in Insurance – S.ARUNAJATESAN,T R VISWANATHAN

III Semester

BUSINESS FINANCE

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The main objectives of this course are:
1. To learn the concept of business finance
2. To understand about Financial plan.
3. To learn about sources of finance
4. To have an understanding about cost and capital structure
5. To provide knowledge on capitalization

UNIT – I
Business Finance: Introduction – Meaning – Concepts - Scope – Function of Finance Traditional and Modern Concepts – Contents of Modern Finance Functions

UNIT – II
Financial Plan: Meaning - Concept – Objectives – Types – Steps – Significance – Fundamentals

UNIT – III
Capitalisation - Bases of Capitalisation – Cost Theory – Earning Theory – Over Capitalisation – Under Capitalisation : Symptoms – Causes – Remedies – Watered Stock – Watered Stock Vs. Over Capitalisation

UNIT – IV
Capital Structure – Cardinal Principles of Capital structure – Trading on Equity – Cost of Capital – Concept – Importance – Calculation of Individual and Composite Cost of Capital.

UNIT – V
Sources and Forms of Finance: Equity Shares, Preference Shares, Bonds, Debentures and Fixed Deposits – Features – Advantages and Disadvantages- Lease Financing: Meaning – Features – Forms – Merits and Demerits

Reference
1. Essentials of Business Finance - R.M. SriVatsava Financial Management – Saravanavel
2. E Gordan & P.K.Gupta – Principles of Banking, Himalaya Publications Modern Banking – D.Muralidharan, EEE

III SEMESTER
BIG DATA ANALYTICS

S. No	Course Code	SUBJECT TITLE
1	EBD-301	Introduction to Big data Analytics
2	EBD-302	Python programming
3	EBD-303	Data Analytics
4	EBD-304	Machine learning

III Semester

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INTRODUCTION TO BIG DATA ANALYTICS

Course Objectives: This course is aimed at enabling the students to

- To provide an overview of an exciting growing field of big data analytics.
- To introduce the tools required to manage and analyze big data like Hadoop, NoSQL, Map Reduce, HIVE, Cassandra, Spark.
- To teach the fundamental techniques and principles in achieving big data analytics with scalability and streaming capability.
- To optimize business decisions and create competitive advantage with Big Data analytics

UNIT – I

big data, convergence of key trends, unstructured data, industry examples of big data, web analytics, big data and marketing, fraud and big data, risk and big data, credit risk management, big data and algorithmic trading, big data and healthcare, big data in medicine, advertising and big data, big data technologies, introduction to Hadoop, open source technologies, cloud and big data, mobile business intelligence, Crowd sourcing analytics, inter and trans firewall analytics.

UNIT – II

Introduction to NoSQL, aggregate data models, aggregates, key-value and document data models, relationships, graph databases, schema less databases, materialized views, distribution models, sharding, master-slave replication, peer- peer replication, sharding and replication, consistency, relaxing consistency, version stamps, Working with Cassandra ,Table creation, loading and reading data.

UNIT – III

Data formats, analyzing data with Hadoop, scaling out, Architecture of Hadoop distributed file system (HDFS), fault tolerance, with data replication, High availability, Data locality , Map Reduce Architecture, Process flow, Java interface, data flow, Hadoop I/O, data integrity, compression, serialization. Introduction to Hive, data types and file formats, HiveQL data definition, HiveQL data manipulation, Logical joins, Window functions, Optimization, Table partitioning, Bucketing, Indexing, Join strategies.

UNIT – IV

Apache spark- Advantages over Hadoop, lazy evaluation, In memory processing, DAG, Spark context, Spark Session, RDD, Transformations- Narrow and Wide, Actions, Data frames ,RDD to Data frames, Catalyst optimizer, Data Frame Transformations, Working with Dates and Timestamps, Working with Nulls in Data, Working with Complex Types, Working with JSON, Grouping, Window Functions, Joins, Data Sources, Broadcast Variables, Accumulators, Deploying Spark- On-Premises Cluster Deployments, Cluster Managers- Standalone Mode, Spark on YARN

, Spark Logs, The Spark UI- Spark UI History Server, Debugging and Spark First Aid

UNIT – V

Spark-Performance Tuning, Stream Processing Fundamentals, Event-Time and State full Processing - Event Time, State full Processing, Windows on Event Time- Tumbling Windows, Handling Late Data with Watermarks, Dropping Duplicates in a Stream, Structured Streaming Basics - Core Concepts, Structured Streaming in Action, Transformations on Streams, Input and Output.

Text Books:

1. Big Data, Big Analytics: Emerging, Michael Minnelli, Michelle Chambers, and AmbigaDhiraj, 1st edition ,2013
2. SPARK: The Definitive Guide, Bill Chambers & MateiZaharia, O'Reilley, 2018-first Edition.
3. Business Intelligence and Analytic Trends for Today's Businesses", Wiley, First edition-2013.
4. P. J. Sadalage and M. Fowler, "NoSQL Distilled: A Brief Guide to the Emerging World Polyglot Persistence", Addison-Wesley Professional, 2012
5. Tom White, "Hadoop: The Definitive Guide", Third Edition, O'Reilley, 2012

Reference Books:

1. "Hadoop Operations", O'Reilley, Eric Sammer, First Edition -2012.
2. "Programming Hive", O'Reilley, E. Capriolo, D. Wampler, and J. Rutherglen, 2012.
3. "HBase: The Definitive Guide", O'Reilley, Lars George, September 2011: First Edition..
4. "Cassandra: The Definitive Guide", O'Reilley, Eben Hewitt, 2010.

"Programming Pig", O'Reilley, Alan Gates, October 2011: First Edition

PYTHON PROGRAMMING

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Course Objectives:

The main objectives of the course are to

- Introduce core programming concepts of Python programming language.
- Demonstrate about Python data structures like Lists, Tuples, Sets and dictionaries
- Implement Functions, Modules and Regular Expressions in Python Programming and to create practical and contemporary applications using these

UNIT – I

History of Python Programming Language, Thrust Areas of Python, Installing Anaconda Python Distribution, Installing and Using Jupyter Notebook.

Parts of Python Programming Language: Identifiers, Keywords, Statements and Expressions, Variables, Operators, Precedence and Associativity, Data Types, Indentation, Comments, Reading Input, Print Output, Type Conversions, the type () Function and Is Operator, Dynamic and Strongly Typed Language.

Control Flow Statements: if statement, if-else statement, if...elif…else, Nested if statement, while Loop, for Loop, continue and break Statements, Catching Exceptions Using try and except Statement.

Sample Experiments:

1. Write a program to find the largest element among three Numbers.
2. Write a Program to display all prime numbers within an interval
3. Write a program to swap two numbers without using a temporary variable.
4. Demonstrate the following Operators in Python with suitable examples.

   i) Arithmetic Operators ii) Relational Operators iii) Assignment Operators iv) Logical Operators v) Bit wise Operators vi) Ternary Operator vii) Membership Operators viii) Identity Operators
5. Write a program to add and multiply complex numbers
6. Write a program to print multiplication table of a given number.

UNIT – II

Functions: Built-In Functions, Commonly Used Modules, Function Definition and Calling the function, return Statement and void Function, Scope and Lifetime of Variables, Default Parameters, Keyword Arguments, *args and **kwargs, Command Line Arguments.

Strings: Creating and Storing Strings, Basic String Operations, Accessing Characters in String by Index Number, String Slicing and Joining, String Methods, Formatting Strings.

Lists: Creating Lists, Basic List Operations, Indexing and Slicing in Lists, Built-In Functions Used on Lists, List Methods, del Statement.

Sample Experiments:

1. Write a program to define a function with multiple return values.
2. Write a program to define a function using default arguments.
3. Write a program to find the length of the string without using any library functions.
4. Write a program to check if the substring is present in a given string or not.
5. Write a program to perform the given operations on a list:
   ii. addition ii. insertion iii. slicing
6. Write a program to perform any 5 built-in functions by taking any list.

UNIT – III

Dictionaries: Creating Dictionary, Accessing and Modifying key:value Pairs in Dictionaries, Built-In Functions Used on Dictionaries, Dictionary Methods, del Statement.

Tuples and Sets: Creating Tuples, Basic Tuple Operations, tuple () Function, Indexing and Slicing in Tuples, Built-In Functions Used on Tuples, Relation between Tuples and Lists, Relation between Tuples and Dictionaries, Using zip() Function, Sets, Set Methods, Frozenset.

Sample Experiments:

7. Write a program to create tuples (name, age, address, college) for at least two members and concatenate the tuples and print the concatenated tuples.
8. Write a program to count the number of vowels in a string (No control flow allowed).
9. Write a program to check if a given key exists in a dictionary or not.
10. Write a program to add a new key-value pair to an existing dictionary.
11. Write a program to sum all the items in a given dictionary.

UNIT – IV

Files: Types of Files, Creating and Reading Text Data, File Methods to Read and Write Data, Reading and Writing Binary Files, Pickle Module, Reading and Writing CSV Files, Python os and os.path Modules.

Object-Oriented Programming: Classes and Objects, Creating Classes in Python, Creating Objects in Python, Constructor Method, Classes with Multiple Objects, Class Attributes Vs Data Attributes, Encapsulation, Inheritance, Polymorphism.

Sample Experiments:

1. Write a program to sort words in a file and put them in another file. The output file should have only lower-case words, so any upper-case words from source must be lowered.
2. Python program to print each line of a file in reverse order.
3. Python program to compute the number of characters, words and lines in a file.
4. Write a program to create, display, append, insert and reverse the order of the items in the array.

5. Write a program to add, transpose and multiply two matrices.
6. Write a Python program to create a class that represents a shape. Include methods to calculate its area and perimeter. Implement subclasses for different shapes like circle, triangle, and square.

UNIT – V

Introduction to Data Science: Functional Programming, JSON and XML in Python, NumPy with Python, Pandas.

Reference Books:

1. Python with Machine Learning by Dr. A. Krishna Mohan et. al. Schand Publications.
2. Introduction to Programming Using Python, Y. Daniel Liang, Pearson.
3. Gowri shankar S, Veena A., Introduction to Python Programming, CRC Press.
4. Python Programming, S Sridhar, J Indumathi, V M Hariharan, 2nd Edition, Pearson, 2024

III Semester

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DATA ANALYTICS

Course Outcomes:

After completion of this course students will be able to

- Understand the impact of data analytics for business decisions and strategy
- Carry out data analysis/statistical analysis
- To carry out standard data visualization and formal inference procedures
- Design Data Architecture
- Understand various Data Sources

UNIT-I

Data Management: Design Data Architecture and manage the data for analysis, understand various sources of Data like Sensors/Signals/GPS etc. Data Management, Data Quality (noise, outliers, missing values, duplicate data) and Data Processing & Processing.

UNIT-II

Data Analytics: Introduction to Analytics, Introduction to Tools and Environment, Application of Modeling in Business, Databases & Types of Data and variables, Data Modeling Techniques, Missing Imputations etc. Need for Business Modeling.

UNIT-III

Regression – Concepts, Blue property assumptions, Least Square Estimation, Variable Rationalization, and Model Building etc. Logistic Regression: Model Theory, Model fit Statistics, Model Construction, Analytics applications to various Business Domains etc.

UNIT-IV

Object Segmentation: Regression Vs Segmentation – Supervised and Unsupervised Learning, Tree Building – Regression, Classification, Overfitting, Pruning and Complexity, Multiple Decision Trees etc. Time Series Methods: Arima, Measures of Forecast Accuracy, STL approach, Extract features from generated model as Height, Average Energy etc and Analyse for prediction.

UNIT-V

Data Visualization: Pixel-Oriented Visualization Techniques, Geometric Projection Visualization Techniques, Icon-Based Visualization Techniques, Hierarchical Visualization Techniques, Visualizing Complex Data and Relations.

TEXT BOOKS:

1. Student's Handbook for Associate Analytics – II, III.
2. Data Mining Concepts and Techniques, Han, Kamber, 3rd Edition, Morgan Kaufmann Publishers.

Reference Books:

1. Introduction to Data Mining, Tan, Steinbach and Kumar, Addision Wisley, 2006.
2. Data Mining Analysis and Concepts, M. Zaki and W. Meira
3. Mining of Massive Datasets, Jure Leskovec Stanford Univ. Anand Rajaraman Milliway Labs Jeffrey D Ullman Stanford Univ.

MACHINE LEARNING

Course Objectives:

The objectives of the course is to

- Define machine learning and its different types (supervised and unsupervised) and understand their applications.
- Apply supervised learning algorithms including decision trees and k-nearest neighbours (k-NN).
- Implement unsupervised learning techniques, such as K-means clustering.

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Course Outcomes: At the end of the course, student will be able to

- Enumerate the Fundamentals of Machine Learning
- Build Nearest neighbour based models
- Apply Models based on decision trees and Bayes rule
- Make use of Linear discriminants for machine Learning
- Choose appropriate clustering technique

UNIT-I

Introduction to Machine Learning: Evolution of Machine Learning, Paradigms for ML,Learning by Rote, Learning by Induction, Reinforcement Learning, Types of Data, Matching, Stages in Machine Learning, Data Acquisition, Feature Engineering, Data Representation, Model Selection, Model Learning, Model Evaluation, Model Prediction, Search and Learning, Data Sets.

UNIT-II

Nearest Neighbor-Based Models: Introduction to Proximity Measures, Distance Measures, Non-Metric Similarity Functions, Proximity Between Binary Patterns, Different Classification Algorithms Based on the Distance Measures ,K-Nearest Neighbor Classifier, Radius Distance Nearest Neighbor Algorithm, KNN Regression, Performance of Classifiers, Performance of Regression Algorithms.

UNIT-III

Models Based on Decision Trees: Decision Trees for Classification, Impurity Measures, Properties, Regression Based on Decision Trees, Bias–Variance Trade-off, Random Forests for Classification and Regression. **The Bayes Classifier:** Introduction to the Bayes Classifier, Bayes' Rule and Inference, The Bayes Classifier and its Optimality, Multi-Class Classification | Class Conditional Independence and Naive Bayes Classifier (NBC)

UNIT-IV

Linear Discriminants for Machine Learning: Introduction to Linear Discriminants, Linear Discriminants for Classification, Perceptron Classifier, Perceptron Learning Algorithm, Support Vector Machines, Linearly Non-Separable Case, Non-linear SVM, Kernel Trick, Logistic Regression, Linear Regression, Multi-Layer Perceptrons (MLPs), Backpropagation for Training an MLP.

UNIT-V

Clustering :Introduction to Clustering, Partitioning of Data, Matrix Factorization | Clustering of Patterns, Divisive Clustering, Agglomerative Clustering, Partitional Clustering, K-Means Clustering, Soft Partitioning, Soft Clustering, Fuzzy C-Means Clustering, Rough Clustering, Rough K-Means Clustering Algorithm, Expectation Maximization-Based Clustering, Spectral Clustering.

Text Books:

1.“Machine Learning Theory and Practice”, M N Murthy, V S Ananthanarayana, Universities Press (India), 2024

Reference Books:

1.“Machine Learning”, Tom M. Mitchell, McGraw-Hill Publication, 2017

2.“Machine Learning in Action”,Peter Harrington, DreamTech

3.“Introduction to Data Mining”, Pang-Ning Tan, Michel Stenbach, Vipin Kumar, 7th Edition, 2019.

III SEMESTER
PHARMACEUTICAL MANAGEMENT

S. no	Course Code	SUBJECT TITLE
1	EPHM-301	Pharmaceutical Production, Operations and Quality Management
2	EPHM-302	Pharmaceutical Business Environment
3	EPHM-303	Pharmaceutical Product and Brand Management
4	EPHM-304	Regulatory Affairs in Pharma

PHARMACEUTICAL PRODUCTION, OPERATIONS AND QUALITY MANAGEMENT

Course Objectives:

1. Understanding the basic framework, transformation processes and their extensions in relation to pharma operations.
2. Analyze the concept of an operations strategy planning and management.
3. Applying the standard practices in pharmaceutical product production processes and their quality management.
4. Identify the importance of building and equipment layout, regulatory requirements, GMP and cGMP in pharmaceutical production.

Syllabus:

UNIT – I

Introduction to production and operations management: Definition, concept and Evolution of Production and operations management, Nature and Scope of production/operations management, Production function and its environment, Functions of production/operations manager, Organization of production function in Pharma industry.

UNIT – II

Facilities planning: Product selection and design, service design, Process and technology, selection, Location of manufacturing/service facility, Layout planning Product layout, process layout, fixed position and group layout, layout design. Drug and Pharmaceutical Plants-Building layout, equipment layout, regulatory requirements for the same, Resources Requirement Planning, Capacity Planning, Labour Planning,

UNIT – III

Production planning and control: Aggregate production planning, Materials Requirement Planning, Operations Scheduling and Production activity control for mass manufacturing, batch processing.

UNIT – IV

Materials planning and Inventory: Need and definition, factors affecting planning- external and internal, dependent, and independent demand system, techniques of planning, Material Budgeting and Purchasing. Inventory Control: Importance and scope, costs, economic order quantity, Inventory control techniques.

UNIT – V

Quality Control & Management Quality control functions, Acceptance sampling, Statistical Process control, Application of control charts, Operating characteristic curve and its applications, Total Quality improvement

Textbook:

1. Operations Management by Bernard Taylor
2. Production and Operations Management by Adam, Ronald, and Ebert 3. Production and Operations Management by Aswathappa and Bhat.

Reference Books:

1. International Pharmaceutical Product Registration: Aspects of Quality, Safety and Efficacy; Anthony C. Cartwright; Taylor & Francis Inc., USA.
2. International Business Environment and Management by V K Bhall and S Shiva Ramu
3. Government and Business by N K Sengupta
4. World Trade Organization by Anne Krueger
5. Indian Constitution by D DBasu 8. Constitution of India by P M Bakshi
6. Technology Acquisition and Application: Interpretation of the Indian Experience by A V Desai

PHARMACEUTICAL BUSINESS ENVIRONMENT

Course Objectives:

1. Understanding the basic concepts of business environment in pharmaceutical sector. including the history of evolution of Pharma Sector in India (from the days of Vedas preparing medicines at home to the current industrial production day).
2. Analyze the Legal guidelines/regulations guiding Pharma sector in India, policy for R&D, Technology Transfer.
3. Applying the critical elements of political environment constitution provisions affecting business in India; the economic roles of the government, growth, and control of corporate sector in India.
4. Identify the impacts and opportunities from globalization in pharma sector.
5. Understand the importance ethics, consumers right, consumerism in pharma sector.

Syllabus:

UNIT – I

Introduction to Business Environment Meaning & Importance of Business Environment Dimensions of Business Environment, Impact of Internal & External Environment of Business on Pharmaceutical Industry.

UNIT – II

Environmental, Political, Social and Economical cultural environment of pharmaceutical business Various Processes for Environmental Analysis, SWOT Analysis, Changing Market Access Strategies in Pharmaceutical Industry, Political, legal and economic environment for pharmaceutical business.

UNIT – III

Evolution of Indian Pharmaceutical Industry Global Pharmaceutical Business Environment Different Evolution Phases of Indian Pharmaceutical Industry, Present status of Indian Pharma Industry (Present value, Key Players, Indian Bulk Drug Market).

UNIT – IV

International and technological environment: Global Pharma Developments, Multinational Corporation, Mergers & Acquisitions of pharmaceutical industry at global level & India level.

UNIT – V

Strategies & Trends — Research & Development in Pharmaceutical Industries Pharmaceutical research and development support fund (PRDSF), R&D Opportunities, and Contract research Opportunities, Research in generics, changing the conventional façade of drug discovery research.

Textbook:

1. Davies, Juanita. Essentials of Medical Terminology. 3rd edition. New York. Delmar. 2008. E book
2. Mogli. J.D. Medical Records: Organization & Management 2ndedition New Delhi: Jaypee Brothers.
3. The body by Bilbirson Agreed for Occupance

Reference Books:

1. Business Environment by F. Cherunilam, Himalaya Publishing House, Revised edition- 2019
2. Business Environment by Raj Aggarwal and Parag Diwan,2002
3. Government and Business by N K Sengupta,1999
4. Technology and Economic Development The Indian Case by Debashish Mallick,2014
5. Business Laws by N D Kapoor, 2019
6. Business Policy and Strategic Management by W F Glueck and Jauch, 1988
7. Pharmaceutical Industrial Management, Shah, 2010
8. Pharmaceutical Marketing in India, Subba Rao, 2018

PHARMACEUTICAL PRODUCT AND BRAND MANAGEMENT

Course Objectives:

1. Understanding the basic concepts of business environment in pharmaceutical sector. including the history of evolution of Pharma Sector in India (from the days of Vedas preparing medicines at home to the current industrial production day).
2. Analyze the Legal guidelines/regulations guiding Pharma sector in India, policy for R&D, Technology Transfer.
3. Applying the critical elements of political environment constitution provisions affecting business in India; the economic roles of the government, growth, and control of corporate sector in India.
4. Identify the impacts and opportunities from globalization in pharma sector.
5. Understand the importance ethics, consumers right, consumerism in pharma sector.

Syllabus:

UNIT – I

Introduction to Product Management Definition, role of product management and scope of product management, product levels, classification of pharma products.

UNIT – II

New Product Development, Product Mix and Product life- cycle Definition of new product, type of new products, product mix and product line strategies, product life cycle concept and its linkage with the pharmaceutical industry.

UNIT – III

Product Planning and Pricing Strategies- Meaning, objectives of product planning, components of product planning, pricing, importance and objective of pricing, factors influencing the price determination, pricing policies, pricing methods or determination or the price of pharma product.

UNIT – IV

Branding of the Pharma Products- Meaning and history of branding, branding elements- brand identity, brand personality, Brand Name, Brand Image, Brand Value and Brand Awareness, Concept of Brand Equity, Promotional-mix, Benefits of building Brand Equity, brand positioning and difference with consumer brands, Branding process, pharma branding process and strategies, reinforcing and revitalizing pharmaceutical brands.

UNIT – V

Pharma Product Promotion Defining promotion, promotional strategies, issues in pharma product promotion, approaches for pharma product promotion Product-mix Optimization & Promotional-mix Optimization: Portfolio Analysis by factoring key determinants, BCG Matrix, brand building decisions; leveraging the Promotional-mix for Brand Building.

Textbook:

1. Product Management in India by Majumdar, R.2007
2. Marketing Management: Planning by Ramaswamy, V.S. and Namakumari, S. Marketing by Zikmund, A. July 2018.
3. Innovating Organization, edited by Pettigrew &Fenton, 2000.
4. Marketing Research - Measurement and Method by Tull and Hawkins, 1993.
5. Strategic Brand Management by Kevin Keller, Pearson 2013.
6. Brand Positioning by Sen Gupta, 2nd Edition 2005.
7. Managing Indian Brands by Ramesh Kumar, 2003

REGULATORY AFFAIRS IN PHARMA

Course Objectives:

1. Understanding the of the regulatory framework governing pharmaceutical products at national and international levels, including laws, guidelines, and standards.
2. Analyze the principles and practices to ensure compliance with regulatory requirements throughout the drug development lifecycle, from preclinical studies to post-marketing surveillance.
3. Applying the critical elements of political environment constitution provisions affecting business in India; the economic roles of the government, growth, and control of corporate sector in India.
4. Identify the Acquire knowledge of post-marketing surveillance activities, such as adverse event reporting, pharmacovigilance, and risk management, to ensure ongoing safety monitoring of approved drugs.
5. Understand the processes and procedures involved in obtaining regulatory approvals for new drugs, including the preparation and submission of regulatory dossiers and interaction with regulatory authorities.

Syllabus:

UNIT – I

Definition, need for patenting, types of patents, conditions to be satisfied by an invention to be patentable, introduction to patent search. Parts of patents and filling of patents. Essential elements of patent: Guidelines for preparation of laboratory note book, non-obviousness in patent.

UNIT – II

Role of GATT, TRIPS and WIPO.

UNIT – III

Brief introduction to Trademark protection and WHO patents. IPR's and its types. Major bodies regulating Indian pharmaceutical sector.

UNIT – IV

Brief introduction to CDSCO, WHO, USFDA, EMEA, TGA, MHRA, MCC, ANVISA.

UNIT – V

Regulatory requirements for contract research organization. Regulations for biosimilars.

Textbook:

1. Berry F.R. and Nash R.A., Pharmaceutical Process Validation, Vol-57 of Drugs and
2. Pharmaceuticals, Taylor and Francis, London.
3. Evans J.R., Anderson D.R., Sweeny D.J. and Williams T.A., Applied Production and Operations Management, West Publishing Company, Eagan.
4. Ahuja K.K., GMP for Pharmaceutical Material Management, CBS Publishers, New Delhi. ISO-9000: Norms and Explanations.

III SEMESTER
DIGITAL MARKETING

S. no	Course Code	SUBJECT TITLE
1	EDM-301	Fundamentals of Digital Marketing
2	EDM-302	Integrated marketing Communication
3	EDM-303	Search Engine Marketing
4	EDM-304	Social Media Marketing

FUNDAMENTALS OF DIGITAL MARKETING

Course Outcome :

1. Students will develop an understanding of digital and social media marketing practices.
2. Students will develop understanding of the social media platforms
3. Students will acquire the skill to acquire and engage consumers online.
4. Students will develop understanding of building organizational competency by way of digital marketing practices and cost considerations.
5. Students will develop understanding of the latest digital practices for marketing and promotion.

UNIT – I

Introduction to Digital Marketing: The new digital world - trends that are driving shifts from traditional marketing practices to digital marketing practices, the modern digital consumer and new consumer's digital journey. Marketing strategies for the digital world – latest practices.

UNIT – II

:Social Media Marketing -Introduction to Blogging, Create a blog post for your project. Include headline, imagery, links and post, Content Planning and writing. Introduction to Face book, Twitter, Google +, LinkedIn, YouTube, Instagram and Pinterest; their channel advertising and campaigns.

UNIT – III

"Acquiring & Engaging Users through Digital Channels: Understanding the relationship between content and branding and its impact on sales, search engine marketing, mobile marketing, video marketing, and social-media marketing. Marketing gamification, Online campaign management; using marketing analytic tools to segment, target and position; overview of search engine optimization (SEO).

UNIT – IV

Designing Organization for Digital Success: Digital transformation, digital leadership principles, online P.R. and reputation management. ROI of digital strategies, how digital marketing is adding value to business, and evaluating cost effectiveness of digital strategies

UNIT – V

:Digital Innovation and Trends: The contemporary digital revolution, digital transformation framework; security and privatization issues with digital marketing Understanding trends in digital marketing – Indian and global context, online communities and co-creation,

Suggested Readings

1- Vandana, Ahuja; Digital Marketing, Oxford University Press India (November,2015)
2- Moutsy Maiti: Internet Marketing, Oxford University PressIndia
3- Puneet Bhatia: Fundamental of Digital Marketing, 2e, 2019, Pearson Education India
4- Liana Li Evans; Social Media Marketing,1/e, 2011, Pearson Education India

INTEGRATED MARKETING COMMUNICATION

UNIT – I

AN INTRODUCTION TO INTEGRATED MARKETING COMMUNICATION (IMC)

An Introduction to Integrated Marketing Communication (IMC): Meaning and role of IMC in Marketing process, one voice communication V/s IMC. Introduction to IMC tools – Advertising, sales promotion, publicity, public relations, and event sponsorship; The role of advertising agencies and other marketing organizations providing marketing services and perspective on consumer behaviour

UNIT – II

UNDERSTANDING COMMUNICATION PROCESS 9 Understanding communication process: Source, Message and channel factors, Communication response hierarchy- AIDA model, Hierarchy of effect model, Innovation adoption model, information processing model, The standard learning Hierarchy, Attribution Hierarchy, and low 20% involvement hierarchy Consumer involvement- The Elaboration Likelihood (ELM) model, The Foote, Cone and Belding (FCB) Model

UNIT – III

PLANNING FOR MARKETING COMMUNICATION (MARCOM) Establishing marcom Objectives and Budgeting for Promotional Programmes-Setting communication objectives, Sales as marcom objective, DAGMAR approach for setting ad objectives. Budgeting for marcom-Factors influencing budget, Theoretical approach to budgeting viz. Marginal analysis and Sales response curve, Method to determine marcom budget

UNIT – IV

DEVELOPING THE INTEGRATED MARKETING COMMUNICATION PROGRAMME Planning and development of creative marcom, Creative strategies in advertising, sales promotion, publicity, event sponsorships etc. Creative strategy in implementation and evaluation of marcom- Types of appeals and execution styles. Media planning and selection decisions- steps involved and information needed for media planning. Measuring the effectiveness of all Promotional tools and IMC.

UNIT – V

DIGITAL MEDIA & ADVERTISING Digital Media, Evolution of Technology, Convergence of Digital Media, E- Commerce and Digital Media, Advertising on Digital Media, Social Media, Mobile Adverting, E-PR Advertising Laws & Ethics: Adverting & Law, Advertising & Ethics

References

1. Advertising & Promotion- An Integrated Marketing Communications Perspective, George Belch, Michael Belch &KeyoorPurani, TATA McGraw Hill 8th edition

2. Wells, Moriarty & Burnett, Advertising, Principles & Practice, Pearson Education, 7th Edition, 2007. Kenneth Clow. Donald Baack, Integrated Advertisements, Promotion and Marketing communication, Prentice Hall of India, New Delhi, 3rd Edition, 2006.

3. Terence A. Shimp and J.Craig Andrews, Advertising Promotion and other aspects of Integrated Marketing Communications, CENGAGE Learning, 9th edition, 2016

4. S. H. H. Kazmi and Satish K Batra, Advertising & Sales Promotion, Excel Books, New Delhi, 3rd Revised edition edition, 2008.

5. Julian Cummings, Sales Promotion: How to Create, Implement and Integrate Campaigns that Really Work, Kogan Page, London, Fifth Edition Edition ,2010.

6. JaishriJefhwaney, Advertising Management, Oxford University Press, 2nd Edition, 2013. Dr Niraj Kumar, Integrated Marketing Communication, Himalaya Publishing House 2015

SEARCH ENGINE MARKETING

COURSE OUTCOMES CO217 DM .1 REMEMBERING DEFINE the key concepts in Search Engine Marketing. CO217 DM .2 UNDERSTANDING EXPLAIN the key SEO Tools and techniques CO217 DM .3 APPLYING EXPERIMENT with various techniques and tools for SEO. CO217 DM .4 ANALYSING DISCOVER Inbound Marketing Strategy as a tool for SEM CO217 DM .5 EVALUATING MEASURE the effectiveness of website optimization by using website analytics.

UNIT – I

Introduction to SEM/Fundamentals of SEM: Search Engine Marketing (SEM), Understanding Google Search, Comparison between SEO and SEM, Terminologies associated to SEM, Search Engine Results Page (SERP), Organic Reach, Google Display Network (GDN). Understanding Web and Mobile Marketing perspective, Key Terms. (4+2)

UNIT – II

Search Engine Optimization: Introduction to SEO concept and role in digital marketing: Understanding Search Engine Optimization: Search Engine Optimization (SEO), Features of SEO, Significance of SEO. Model used in Digital Marketing, The Five Stage AACRO POEM model, Inverted Pyramid in SEOS, Content Drilldown, E3model, Understanding Web and Mobile Marketing perspective, Key Terms. (4+2)

UNIT – III

Search Engine Optimization Tools/Analysis: Key SEO tools, Application and Functions Google Domain, Google my business, Google Search Console, Google Trends, Google Tag manager, SEM Rush, Domain Authority Score, Google Ads, Google Analytics, Google Marketing Platform, Word stream advisor. (4+2)

UNIT – IV

Inbound Marketing: Essentials of an Effective Inbound Strategy, Optimizing Your Website for Search Engines, Convert Visitors in Leads, Creating Content with a Purpose, Lead & its generation online, Relevant Lead and Converting Visitors into Lead, Converting Leads into Sales, Key Terms. (4+2)

UNIT – V

Application of Web Analytics: Different types of Web Analytics, Social Media Web Analytics, Mobile Web Analytics, Conversion Web Analytics, Key Performance Indicators, Website Traffic Measurement Metrics, Key Terms. (4+2)

References

1. Digital Marketing Prof. Seema Gupta, 2ndEdition,Mcgraw Hill Publications.
2. Search Engine Marketing by Andreas Ramos &Steaphanie Cota, 1stEdition,McGraw-Hill Education.

SOCIAL MEDIA MARKETING

UNIT – I

Introduction to social media marketing: Introduction to the concept of social Media-Definition, Characteristics and Scope, History. Social media marketing- Definition, Uses and Scope, Social media platforms - Facebook, YouTube, LinkedIn, Instagram, Twitter, Pinterest, Blogs. Importance of Social Media Marketing. Social Media Marketing advantages and limitations. Introduction to social media marketing strategies. (7+1)

UNIT – II

Content designing for social media platforms: Terminologies-basics of content creation, process, Identification of target audience and social media platform, defining content mix using sales posts, interactive posts and informative posts, Impact of colors, images on the customer, tools used for content creation like canva, GIFs, Instagram stories, pin templates, tall pins, image cut outs, YouTube video Thumbnail, etc. (10+2)

UNIT – III

Facebook and Instagram advertising and marketing Introduction to Facebook and Instagram platform as advertising and marketing media, characteristics of Facebook and Instagram marketing. Target audience, page set up, Post types and its dimensions, competitor analysis, case studies. (8+1)

UNIT – IV

Twitter, LinkedIn, YouTube, Pinterest advertising and marketing: Introduction and overview of platforms, Characteristics, how to use these platforms, target audience, profile / account building, how to pin. Crafting summary for marketing, creating and uploading videos, use of hashtags, Case studies. (8+2)

UNIT – V

Metrics of social media marketing: What is to be measured- Parameters to measure impact- volume, reach and Engagement (engagement rates, engagement metrics). Influence, share of voice (volume and sentiment), referrals and conversions, response rate and time. Case studies. (5+1)

References

1. Internet age - Marketing with social media, Dr Apoorva Palkar, Amit Jadhav, Himalaya publication
2. Social Media Marketing - A Strategic Approach 1st Edition, Nicholas Bormann, Donald Barker, Krista Neher, Melissa Barker - Cengage.

IV SEMESTER

IV SEMESTER

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CORPORATE LEGAL FRAMEWORK

(Objective: The course is designed to assist students in understanding basic laws affecting a Business Enterprise.)

UNIT – I

Significance of Business Laws—Indian Contract Act, 1872: Meaning and classification of contracts—Essentials elements of a valid contract— performance of a contract—Discharge of a contract—Void agreements- Breach and remedies of a contract.

UNIT – II

The Sale of Goods Act, 1930: Meaning and Essentials of contract of sale— Sale and Agreement to sell—Conditions and Warranties—Transfer of property Performance of a contract of sale—Unpaid seller- Negotiable instrument act 1881 – Foreign exchange management Act 1999 – Environment Protection Act 1986

UNIT – III

The Indian Partnership Act, 1932: Meaning and Essentials of partnership-- Registration of partnership—Kinds of partners—Rights and Liabilities of Partners—Relations of parties to third parties—Dissolution- Elements of Partnership - Types of Partner - Position of Minor as a - Partner - Types of Partnerships - Formation and Registration of Partnership - Relation of Partners to One another - Duties of Partners - Dissolution - Limited Liability Partnership Act, 2008

UNIT – IV

The Consumer Protection Act, 1986: Meaning of Consumer, Service, Goods, Deficiency, Defect, Unfair Trade Practices—Rights of Consumers—Machinery For redressal of Grievances—Remedies available to injured consumers – Information Technology Act, 2000 – Essential commodities Act, 1995 -

UNIT – V

The Companies Act, 1956: Nature and Registration—Kinds of Companies—Mode of Incorporation - Memorandum of Association—Article of Association—Kinds of Shares— Powers and duties of Directors—winding up- - Types of Companies in Company Law -Rules of Allotment -Transfer and Transmission of Shares -Statutory Meeting - Annual General Meeting - winding up

Transfer and Transmission of Shares

SUGGESTED BOOKS:

1. N.D.Kapoor—Commercial Law—Sultan chand publishers, New Delhi.
2. S N Maheswaru & Suneed Maheswari—Commercial Laws—Mayoor Paper Backs— NOIDA
3. Satyanarayana – Corporate Company Law Discovery Publishing House, New Delhi
4. Tulisian P.C.—Business Laws—Tata Mc Graswhill Publishing house-New Delhi
5. Kucchal—Business Law—Vikas Publishing House, New Delhi.
6. Avatar Singh—Mercantile Law--EBC—New Delhi.

IV SEMESTER

SUPPLY CHAIN MANAGEMENT AND ANALYTICS

UNIT - I

Basics of Supply Chain Management: Introduction to Supply Chain Management – Evolution- Different views of Supply Chain – Supply Chain Strategy – Supply Chain Drivers – Developing Supply Chain Strategy- Strategic fit in Supply Chain. Analytics in Supply Chain Management.

UNIT – II

Supply Chain Analysis - Types of Supply Chains - Advanced Planning - Structure of Advanced - Planning Systems-Strategic Network Planning - Demand Planning - Master Planning - Demand Fulfilment and ATP - Production Planning and Scheduling Purchasing and Material Requirements Planning Distribution and Transport – Planning - Coordination and Integration - Collaborative Planning.

UNIT – III

Set covering and Set Partitioning Problems, Travelling Salesman Algorithms, Advanced Vehicle Routing Problem Heuristics, Scheduling Algorithms-Deficit function Approach and Linking Algorithms.

UNIT- IV

Fuzzy Logic and Techniques-Application in SCM - Recent issues in SCM: Role of computer/ IT in supply chain management, CRM Vs SCM, Benchmarking concept, features and implementation, outsourcing –basic concepts, value addition in SCM – concept of demand chain management.

UNIT- V

Inventory Management in Supply Chain- Network Design in Supply Chain- Alternative Channels of Distribution- Location Decisions in Supply Chain-Implementing Advanced Planning Systems - The Definition of a Supply - Chain Project -The Implementation Process- SCM in a Pharmaceutical – Company Food and Beverages - Computer Assembly Semiconductor – Manufacturing.

Suggested Readings:

1. Mohanty R.P, S.G Deshmuki ―Supply Chain Management‖ Biztantra, New Delhi
2. Sunil Chopra, Peter Meindl, Supply Chain Management ,Pearson Education, India.

IV SEMESTER

HUMAN RESOURCE MANAGEMENT

S. No	Course Code	SUBJECT TITLE
1	EHR-401	Labor Welfare and Employment laws
2	EHR-402	International HRM
3	EHR-403	Employee Relations and Workplace Culture
4	EHR-404	Human Capital Management

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IV SEMESTER

HUMAN RESOURCE MANAGEMENT

LABOR WELFARE AND EMPLOYMENT LAWS

UNIT I:

Labour Welfare: Introduction to Labour Welfare: Concept, scope and philosophy, principles and approaches of labour welfare, Classification-Evolution of labour welfare in India- Impact of ILO on labour welfare in India. Welfare Officers 'Role, Status and Function, Signs of poor welfare.

UNIT II:

Labour Legislation: Objectives-Principles-Classification-Evaluation of Labour legislation in India-Factories Act 1948, Definitions - Objectives of Act - Factory Inspectorate – Measures to be taken by Factories for Health, Safety and Welfare of Workers - Working Hours - Provisions Relating to Hazardous Processes - Annual Leave with Wages - Special Provisions - Obligations by Employer and Employee - Offences and Penalties.

UNIT III: Wage and Social Security Legislations: Payment of wages Act 1936 - Minimum wages Act 1948 - Payment of Bonus Act 1966 - Employees' State Insurance Act, 1948, Employees' Provident Funds and Miscellaneous Provisions Act, 1952, Payment of Gratuity Act, 1972, Workmen's Compensation Act 1923 - Maternity Benefit Act 1961.

UNIT IV: Industrial Relations Legislation: Industrial Disputes Act 1947Concept, objectives, Types of Strikes and their Legality – Authorities under the Act and their Duties – Voluntary Reference of Disputes to Arbitration – Types of Strikes and Lock-outs Wages for Strike and Lock-out Period– Change in Conditions of Service.

UNIT V: Industrial Employment (standing orders) Act 1946: Certification of Draft Standing Orders – Appeals – Date of Operation of Standing Orders – Posting of Standing Orders – Payment of Subsistence Allowance. Trade Unions Act 1926.The New Labor Codes: Code on Wages 2019, industrial relations code 2020, code on social security 2020, occupational safety, health and working conditions code 2020.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. Govt. of India (Ministry of Labour, 1969). Report of the Commission on Labour Welfare, New Delhi: Author.
2. Govt. of India (Ministry of Labour, 1983). Report on Royal Commission on Labour in India, New Delhi: Author.
3. Malik, P.L: ―Industrial Law‖, Eastern Book Company. Laknow
4. Moorthy, M.V: ―Principles of Labour Welfare‖, Oxford University Press, New Delhi.
5. Pant, S.C: ―Indian Labour Problems‖, Chaitanya Pub. House. Allahabad.

IV SEMESTER

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INTERNATIONAL HUMAN RESOURCE MANAGEMENT

UNIT I

Introduction: A Global HR Perspective in New Economy-Challenges of Globalization - Implications of Managing People and Leveraging Human Resource - Strategic Role of International HRM – Distinction between Domestic and International HRM – HR Challenges at International Level.

UNIT II

Managing International Assignments: Significance -Global HR Planning – Staffing policy – Training and development – performance appraisal –International Labour relations – Industrial democracy - Positioning Expatriate – Repatriate – factors of consideration - Strategies - Legal content of Global HRM- International assignments for Women - Problems.

UNIT III

Cross Culture Management: Importance – Concepts and issues – Understanding Diversity – Managing Diversity Cross- Cultural Theories – Hofstede‘s Model – Kluchkohn - Strodthbeck Model – Andre- Laurent‘ Theory – Cultural Issues. considerations - Problems – Skill building methods – Cross Culture Communication and Negotiation – Cross Culture Teams. Talent crunch – Indian MNCs and Challenges.

UNIT IV

Compensation Management: Objectives -Importance – Concepts- Trends - Issues – Methods – Factors of Consideration – Models – incentive methods – Approaches of Compensation in Global Assignments - global compensation implications on Indian systems - Performance Management.

UNIT V

Global Strategic Advantages through HRD: Measures for creating global HRD Climate – Strategic Frame Work of HRD and Challenges - Globalization and Quality of Working Life and Productivity – Challenges in Creation of New Jobs through Globalization- New Corporate Culture.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. Subba Rao P: ―International Human Resource Management‖, Himalaya Publishing House, Hyderabad, 2011
2. NilanjanSen Gupta: ―International Human Resource Management Text and cases‖ Excel Books, New Delhi.
3. Tony Edwards :―International Human Resource Management‖, Pearson Education, New Delhi, 2012
4. Aswathappa K, Sadhana Dash: ―International Human Resource Management, TMH, New Delhi,
5. Monir H Tayeb: ―International Human Resource Management‖, Oxford Universities Press, Hyderabad, 2012.

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IV SEMESTER

EMPLOYEE RELATIONS AND WORKPLACE CULTURE

UNIT I:

Industrial Relations Management: Concept-meaning and scope of IR-system frame work-Theoretical perspective- Evaluation –Background of industrial Relations in India- Influencing factors of IR in enterprise and the consequences. Globalization and IR- Recent Trends in Industrial Relations.

UNIT II:

Trade Unions: Introduction-Definition and objectives-growth of Trade Unions in India -Union Recognition-Union Problems-Employees Association- Collective Bargaining –Characteristics-Importance-Principles-The process of CB-Participation in the bargaining Process-Essential conditions for the success of collective bargaining –Negotiating techniques and skills.

UNIT III:

Employee Grievances: Causes of Grievances – Grievances Redressal Machinery – Discipline in Industry - Measures for dealing with Indiscipline–Standing Orders- Code of Discipline.

UNIT IV:

Industrial Disputes: Meaning, nature and scope of industrial disputes - Cases and Consequences of Industrial Disputes –Prevention and Settlement of industrial disputes in India.

UNIT V: Ethics, Diversity and Inclusion in Workplace Culture: Ethical issues in ER, Corporate culture and ethical leadership, Workplace diversity and inclusion, DEI strategies, Role of HR in ethical and inclusive culture building.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References

1.C.S Venkataratnam: ―Industrial Relations‖, Oxford University Press, New Delhi, 2011
2. Sinha: ―Industrial Relations, Trade Unions and Labour Legislation‖, Pearson Education, New Delhi, 2013
3. Mamoria: ―Dynamics of Industrial Relations‖, Himalaya Publishing House, New Delhi, 2010
4. B.D.Singh: ―Industrial Relations‖ Excel Books, New Delhi, 2010
5. Arun Monappa: ―Industrial Relations‖, TMH, New Delhi. 2012
6. Prof. N.Sambasiva Rao and Dr. Nirmal Kumar: ―Human Resource Management and Industrial Relations‖, Himalaya Publishing House, Mumbai
7. Ratna Sen: ―Industrial Relations‖, MacMillon Publishers, New Delhi, 2011.

IV SEMESTER

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HUMAN CAPITAL MANAGEMENT

UNIT – I

Economic theories of Human Capital: Nature and Role of Human Capital; The Human Capital Model; Predictions of Human Capital Approach; Socio-economic relevance of labour problems in changing scenario; Evolution of organized labour; Industrialization and Development of Labour Economy; Growth of Labour Market in India in the globalised stetting.

UNIT – II

Accounting Aspects of Human Capital – Cost Based Models: Meaning, Basic Premises, Need and Significance of HRA, Advantages and Limitation of HRA; Monetary and Non-Monetary Models; Cost Based Models- Acquisition Cost Method, Replacement Cost Model, Opportunity Cost Method, standard cost method, Current Purchasing Power Method (C.P.P.M.); Comparison of Cost incurred on Human capital and the contributions made by them in the light of productivity and other aspects.

UNIT – III

Accounting Aspects of Human Capital – Value Based Models: Value Based Models - Hermanson's Unpurchased Goodwill Method, Hermanson's Adjusted Discount Future Wages Model, Lev and Schwartz Present Value of Future Earnings Model, Flamholtz's Stochastic Rewards Valuation Model, Jaggi and Lau's Human Resource Valuation Model, Robbinson's Human Asset Multiplier Method, Watson's Return on Effort Employed Method, Brummet, Flamholtz and Pyle's Economic Value Method of Group Valuation, Morse's Net Benefit Method; Recent developments in the field of Human Asset/Capital Accounting.

UNIT – IV

Quality of Work Life: Workers' Participation in Management - Worker's Participation in India, shop floor, Plant Level, Board Level- Quality Circles. Workers' education objectives -Rewarding. Employees Engagement and Empowerment-nature-types-drivers-benefits-measurement of Engagement-Empowerment.

UNIT – V

Industrial Accidents and safety: meaning and definition of accident-types of industrial accidents-cost and consequences-causes and prevention of accidents- Industrial safety –statutory machineries for industrial safety-safety audit. Social Security: Introduction and types –Social Security in India, Health and Occupational safety programs- work place discipline –work place counselling-meaning –definition –types-advantages-characteristics of an effective counsellor.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

Suggested Readings:

1. I.L.O., Social & Labour aspects of Economic Development, Geneva
2. Report of the National Commission on Labour
3. Patterson & Schol., Economic Problems of Modern Life. Mc-Graw Hill Book Company.
4. Walter Hageabuch, Social Economics, Cambridge University Press.
5. S. Howard Patterson, Social Aspects of Industry.
6. Millis and Montgonery, Labours Progress and some Basic Labour Problems. Mc -Graw Hill Book Company.
7. Flamholtz, Eric, Human Resource Accounting, Dickenson Publishing Co., Califf.
8. Hermanson, Roger H. Accounting for Human Assets, Occasionals Paper No.14, Graduate School of Business Administration, Michigan State University.
9. Flamholtz, Eric G., Human Resource Accounting: Advances in Concepts, Methods and Applications, Jossey Eass Publishers, San Francisco, London.
10. Likert, Rensis, The Human Organisation: Its Management and Value, McGraw Hill Book Co., New York, N.Y.
11. Ganguli, Prabuddha, Intellectual Property Rights: Unleashing the Knowledge Economy, Tata McGraw-Hill Publishing Co. Ltd., New Delhi.
12. Chakraborty, S.K., Human Asset Accounting: The Indian Context in Topics in Accounting and Finance, Oxford University Press. Note: Latest edition of the readings may be used.

IV SEMESTER-FINANCE

S. No	COURSE CODE	SUBJECT TITLE
1	EFM-401	Corporate Strategic Finance
2	EFM-402	International Trade and Finance
3	EFM-403	Global Financial Management
4	EFM-404	Financial Derivatives

IV SEMESTER

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CORPORATE STRATEGIC FINANCE

Course Objective:

1)To orient on various aspects in corporate financial management.
3)To elaborate on the role of finance manager for making better investment decisions.
4) To impart knowledge of various aspects in corporate Strategic Investment Decisions.
5)To discuss in detail the aspects pertaining to corporate Strategic Financing Decisions.
6)To elucidate the practical aspects of Mergers, Acquisitions and Value Based Management.

Course Outcome:

Students will be able to:

1)Understand financial strategy and control of a company.
2)Learn the relevance of risk and uncertainty in making corporate strategic decisions.
3)Learn various aspects of corporate capital budgeting.
4)Understand the corporate capital structure, dividend policy, financial distress, restructuring.
5)Identify the different diversification strategies and mergers and acquisitions

UNIT – I

Introduction of corporate finance – Shareholder Value Creation (SCV): Market Value Added (MVA) – Market-to-Book Value (M/BV) – Economic Value Added (EVA) – Managerial Implications of Shareholder Value Creation.

UNIT – II

Sources of corporate funding: Governing Regulatory Framework for share capital Debt securities – Capital Structure Planning and Policy – Financial Options and Value of the Firm – Dividend Policy and Value of the Firm.

UNIT – III

Corporate Investment Strategy – Techniques of Investment Appraisal Under Risk and Uncertainty – Risk Adjusted Net Present Value – Risk Adjusted Internal Rate of Return – Capital Rationing – Decision Tree Approach for Investment Decisions – Evaluation of Lease Vs Borrowing Decision.

UNIT – IV

Corporate Merger Strategy – Theories of Mergers – Horizontal and Conglomerate Mergers – Merger Procedure – Valuation of Firm – Financial Impact of Merger – Merge and Dilution Effect on Earnings Per Share – Merger and Dilution Effect on Business Control.

UNIT – V

Corporate Takeover Strategy – Types of Takeovers – Negotiated and Hostile Bids – Takeover Procedure – Takeover Defenses – Takeover Regulations of SEBI – Distress Restructuring Strategy – Sell offs – Spin Offs – Leveraged Buyouts.

Suggested Readings:

1. Van Horn, JC, Financial Management and Policy, Prentice Hall,New Delhi
2. PG Godbole, Mergers, Acquisitions and Corporate Restructuring, Vikas, New Delhi
3.Weaver, Strategic Corporate Finance, Cengage, ND
4.Weston JF, Chung KS & Heag SE., Mergers, Restructuring & Corporate Control, Prentice Hall.
5.Satyanarayana, Strategic Financial Management Discovery Publishing House, New Delhi
6.GP Jakarthiya, Strategic Financial Management, Vikas, New Delhi
7.Coopers & Lybrand, Strategic Financial: Risk Management, Universities Press (India) Ltd.
8.Robicheck, A, and Myers, S., Optimal Financing Decisions, Prentice Hall Inc.
9.Bhalla, V.K., Managing International Investment and Finance, New Delhi, Anmol, 1997.

IV SEMESTER

L	T	P	C
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INTERNATIONAL TRADE AND FINANCE

Objectives

➢ To make the students well aware about the formalities associated with International trade

➢ To make the students aware of the documentation of International Trade and

➢ To make the students aware of the FOREX Management and Export Promotion Schemes.

UNIT – I

International Trade –Benefits – Basis of International Trade – Foreign Trade and Economic Growth – Balance of Trade – Balance of Payment – Current Trends in India – Barriers to International Trade – Indian EXIM Policy.

UNIT – II

Export and Import Finance: Special need for Finance in International Trade – INCO Terms (FOB, CIF, etc.,) – Payment Terms – Letters of Credit – Pre Shipment and Post Shipment Finance – Forfaiting – Deferred Payment Terms – EXIM Bank – ECGC and its schemes – Import Licensing – Financing methods for import of Capital goods.

UNIT – III

Foreign Exchange Markets – Spot Prices and Forward Prices – Factors influencing Exchange rates – The effects of Exchange rates in Foreign Trade – Tools for hedging against Exchange rate variations – Forward, Futures and Currency options – FEMA – Determination of Foreign Exchange rate and Forecasting – Law of one price – PPP theory – Interest Rate Parity – Exchange rate Forecasting.

UNIT – IV

Export Trade Documents: Financial Documents – Bill of Exchange – Type – Commercial Documents – Proforma, Commercial, Consular, Customs, Legalized Invoice, Certificate of Origin Certificate Value, Packing List, Weight Certificate, Certificate of Analysis and Quality, Certificate of Inspection, Health certificate. Transport Documents - Bill of Lading, Airway Bill, Postal Receipt, Multimodal Transport Document. Risk Covering Document: Insurance Policy, Insurance Cover Note. Official Document: Export Declaration Forms, GR Form, PP From, COD Form, Softer Forms, Export Certification, GSPS – UPCDC Norms.

UNIT – V

Export Promotion Schemes – Government Organizations Promoting Exports – Export Incentives: Duty Exemption – IT Concession – Marketing Assistance – EPCG, DEPB – Advance License – Other efforts I Export Promotion – EPZ – EQU – SEZ and Export House.

REFERENCES

1. Jeevanandam .C, INTERNATIONAL BUSINESS, M/s Sultan & Chand, Delhi, 2008
2. Sumathi Varma, INTERNATIONAL BUSINESS, Ane, Delhi, 2010

IV SEMESTER

L	T	P	C
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GLOBAL FINANCIAL MANAGEMENT

Courses Objectives

1) To study the role that international trade and investment, currency movements, Derivative instruments, hedging strategies, international financial markets, and International agreements and institutions play in the management of multinational Corporations.
2) To provide an understanding of both the key features of foreign exchange markets and the actual problems of multinational corporations.
3) To understand the importance of balance of trade and balance of payments to the development of macroeconomic policy.
4) To distinguish among alternative derivative instruments and different types of exposures multinational corporations face while using derivative instruments.
5) To evaluate cross-border investment opportunities, and describe a multinational firm's ecision-making process for investment and tax policies.

Course Outcomes

At the end of this course, students will be able to:
1)Outline the concepts of applied international financial management and its scope.
2) Analyse the evolution of the global monetary system and related world bodies.
3) Examine the relationships that exist between national stock markets, currency markets and interest rate markets.
4) Develop critical, analytical problem-based learning skills and transferable skills to prepare for postgraduate employment in international financial management.
5) Demonstrate the techniques of International capital budgeting, International capital structure and cost of capital and International financing.

UNIT – I

International Monetary and Financial System: Evolution; Breton Woods Conference and Other Exchange Rate Regimes; European Monetary System, South East Asia Crisis and Current Trends.

UNIT – II

Foreign Exchange Risk: Transaction Exposure; Accounting Exposure and Operating Exposure – Management of Exposures – Internal Techniques, Management of Risk in Foreign Exchange Markets: Forex Derivatives – Swaps, futures and Options and Forward Contracts.

UNIT – III

Features of Different International Markets: Euro Loans, CPs, Floating Rate Instruments, Loan Syndication, Euro Deposits, International Bonds, Euro Bonds and Process of Issue of GDRs and ADRs.

UNIT – IV

Foreign Investment Decisions : Corporate Strategy and Foreign Direct Investment; Multinational Capital Budgeting; International Acquisition and Valuation, Adjusting for Risk in Foreign Investment.

UNIT – V

International Accounting and Reporting; Foreign Currency Transactions, Multinational Transfer Pricing and Performance Measurement; Consolidated Financial Reporting.

Suggested Readings:

1. Buckley Adrin, Multinational Finance, 3rd Edition, Engle Wood Cliffs, Prentice Hall of India.
2. S.P.Srinivasan, B.Janakiram, International Financial Management, Wiley India, New Delhi.
3. Clark, International Financial Management, Cengage, ND
4. V.Sharan, International Financial Management, 3rd Edition, Prentice Hall of India.
5. A.K.Seth, International Financial Management, Galgothia Publishing Company.
6. Satyanarayana, Global Financial Management, Discovery Publishing House, New Delhi
7. P.G.Apte, International Financial Management, Tata McGrw Hill, 3rd Edition.
8. Bhalla, V.K., International Financial Management, 2nd Edition, New Delhi, Anmol, 2001.
9. V.A.Avadhani, International Financial Management, Himalaya Publishing House.

IV SEMESTER

L	T	P	C
4	0	0	3

FINANCIAL DERIVATIES

COURSE OBJECTIVES

1) To predict the price movement in the stock market and to provide commitments to prices for future dates to give protection against adverse movements in future prices.
2) To understand the basics of the various instruments operating in the stock market along with their trading mechanism and regulations.
3) To develop various pricing models of stock prices, trading, hedging of options and Management of derivative exposure.

COURSE OUTCOMES

After completion of this course, the student will be able to
1) Students will be able to analyze the risks in different financial markets.
2) Acquire ability to selection of various options and then can apply them to specific markets.
3) Student will be able to strategically manage the financial derivatives.

UNIT – I

Introduction to Financial Derivatives – Meaning and Need – Growth of Financial Derivatives in India – Derivative Markets – Participants- Functions – Types of Derivatives – Forwards – Futures – Options-Swaps – The Regulatory Framework of Derivatives Trading in India.

UNIT – II

Forward Market: Concept- features of forward contract – classification of forward contracts- forward trading mechanism – determination of forward prices – valuing forward contracts – forward prices vs futures prices- payoff from the forward contracts – foreign currency forwards – pricing currency forward contracts.

UNIT – III

Futures Market: Features of Futures –Differences Between Forwards and Futures – Financial Futures – Trading – Currency Futures – Interest Rate Futures – Pricing of Future Contracts- Value at Risk (VaR)-Hedging Strategies – Hedging with Stock Index Futures – Types of Members and Margining System in India – Futures Trading on BSE & NSE.

UNIT – IV

Options Market: – Meaning & Need – Options Vs Futures -Types of Options Contracts – Call Options – Put Options Factors Affecting Options pricing- Put-Call Parity Pricing Relationship - Pricing Models - Introduction to Binominal Option Pricing Model – Black Scholes Option Pricing Model.

UNIT – V

Swaps Markets: – Meaning – Overview – The Structure of Swaps – Interest Rate Swaps – Currency Swaps – Commodity Swaps – Swap Variant – Swap Dealer Role –Equity Swaps – Economic Functions of Swap Transactions - FRAs and Swaps.

Suggested Readings:

1. Hull C. John, ―Options, Futures and Other Derivatives‖, Pearson Educations Publishers,
2. David Thomas. W & Dubofsky Miller. Jr., Derivatives valuation and Risk Management, Oxford University, Indian Edition.
3. ND Vohra & BR Baghi, Futures and Options, Tata McGraw-Hill Publishing Company Ltd.
4. Red Head: Financial Derivatives: An Introduction to Futures, Forward, Options‖ Prentice Hall of India.
5. David A. Dubofsky, Thomas W. Miller, Jr.: Derivatives: Valuation and Risk Management, Oxford University Press.
6. Sunil K.Parameswaran, ―Futures Markets: Theory and Practice‖ Tata-McGraw-Hill Publishing Company Ltd.
7. D.C. Patwari, Financial Futures and Options, Jaico Publishing House.
8. T.V. Somanathan, Derivatives, Tata McGraw-Hill Publishing Company Ltd.
9. NSE Manual of Indian Futures & Options & www. Sebi.com
10. S.C. Gupta, Financial Derivatives: Theory, Concepts and Problems, Prentice Hall of India.

IV SEMESTER - MARKETING

S. No	Course Code	SUBJECT TITLE
1	EMM-401	Green Marketing
2	EMM-402	Marketing Research
3	EMM-403	Services Marketing
4	EMM-404	Sales and Distribution Management

GREEN MARKETING

Course Objectives:

To make the student understand the concept of Green Marketing and Green Products

UNIT – I

Green Marketing and Green Product: Introduction to green marketing-strategic green planning-environment and consumption- Green Product- Green Behavior- Five shades of green consumers Segmenting consumers- Green consumer‘s motives-Buying strategies -Green Business Opportunities- Designing green products-eco-design to eco- innovation-Fundamentals of green marketing-Establishing Credibility-Green distribution and Packaging Contemporary Government polices and subsidies that aids green product development

UNIT – II

Green Marketing Concepts: Green Spinning – Green Selling – Green Harvesting – Enviropreneur Marketing - Compliance Marketing – Green Washing – Climate Performance Leadership Index

UNIT – III

Purchase Decision: Meaning of Purchase decision – Factors affecting Purchase decision – Steps in the decision making process - Five stages of consumer buying decision process - Models of buyer decision-making

UNIT – IV

Environmental consciousness: Introduction of Environment - Importance of environmentalism - Environmental movement - Benefits of green environment to the society - E- waste exchange - Extended Producer Responsibility Plan - Guidelines for Collection and Storage of E-Waste - Guidelines for Transportation of E-Waste - Guidelines for Environmentally Sound Recycling of E-Waste

UNIT – V

Green Marketing Initiatives: Green Firms – HCL‘s Green Management Policy – IBM‘s Green Solutions – IndusInd Bank‘s Solar Powered ATMs – ITCs Paperkraft – Maruti‘s Green Supply Chain – ONCGs Mokshada Green Crematorium – Reva‘s Electric Car – Samsung‘s Eco- friendly handsets- Wipro Infotech‘s Eco-friendly computer peripherals

References:

1. Green Marketing and Environmental Responsibility in Modern Corporations, Esakki and Thangasamy, IGI Global, 2017
2. Green Marketing Management, Robert Dahlstrom, Cengage Learning, 2010.

Essential Reading / Recommended Reading

1. Green Marketing: Challenges and Opportunities for the New Marketing Age, Jacquelyn A. Ottman, NTC Business Books, 1993
2. The New Rules of Green Marketing, Jacquelyn A. Ottman,Berrett-Koehler Publishers, 2011.

MARKETING RESEARCH

Course Objectives: By the end of the course, students should be able to Understand the role and importance of marketing research, Design a marketing research study, Collect and analyze primary and secondary data and Use statistical tools to interpret data.

UNIT – I

Introduction to Marketing Research: Definition and Scope of Marketing Research, Importance of marketing research in, Business Decision-Making, Marketing Research vs. Market Research, Ethical Issues in Marketing Research

UNIT – II

Research Design and data collection methods: Steps in the Marketing research Process, Types of Research: Exploratory, Descriptive, and Causal, Primary vs. Secondary Data, Qualitative Research Methods (Focus Groups, In-depth Interviews, Ethnography), Quantitative Research Methods (Surveys, Experiments, Observations) application and sample size determination.

UNIT – III

Measurement Analysis and interpretation: Types of Scales (Nominal, Ordinal, Interval, Ratio), Reliability and Validity in Measurement, Descriptive and Inferential Statistics, Factor and Cluster Analysis

UNIT – IV

Marketing Research Tools and application: SPSS, Excel, and Other Analytical Tools, Data Visualization and Dashboarding, AI and Big Data in Marketing Research

Applications of Marketing Research - Consumer Behavior Analysis, Brand Research, Advertising Research, Market Segmentation and Positioning Studies, Product and Pricing Research

UNIT – V

Reporting and Presentation of Research Findings: Structuring a Research Report, Effective Data Presentation Techniques, Storytelling with Data

REFERENCES:

1. “Marketing Research: An Applied Orientation" – Naresh K. Malhotra - Prentice Hall, 7th Edition
2. "Essentials of Marketing Research" – William G. Zikmund, Barry J. Babin, Cengage Learning, 6th Edition
3. "Marketing Research" – G.C. Beri - McGraw-Hill Education, 5th Edition, 2013
4. "Marketing Research: Text and Cases" – Rajendra Nargundkar - McGraw-Hill Education, 4th Edition, 2015
5. "Marketing Research" – Naresh Malhotra & Satyabhushan Dash - Pearson Education, 7th Edition (Revised), 2019
6. "Marketing Research" – R. Panneerselvam - PHI Learning,1st Edition, 2004

SERVICES MARKETING

UNIT – I

Introduction to Services Marketing: Understanding Services, Differences in Goods versus Services, Emerging Service Environment, Classification of Services. Service Market Segmentation, Targeting & Positioning: Process of market segmentation, customer loyalty Segmentation, Targeting and Positioning service value addition to the service product, planning and branding service products, new service development.

UNIT – II

Pricing strategies for services: Service pricing, establishing monetary pricing objectives foundations of pricing objectives, pricing and demand, putting service pricing strategies into practice. Service promotion: The role of marketing communication. Implication for communication strategies, setting communication objectives, marketing communication mix.

UNIT – III

Implementing Services Marketing: Improving Service Quality and Productivity, SERVQUAL, Service Failures and Recovery Strategies. Customer Relationship Marketing: Relationship Marketing, the nature of service consumption understanding customer needs and expectations, Strategic responses to the intangibility of service performances.

UNIT – IV

Managing Service Delivery Process: Managing Physical Evidence of Services, Designing and Managing Service Processes, Managing People for Service Advantage.

UNIT – V

Marketing of Services in Sectors: Financial Services, Health Service, Hospitality Services including travel, hotels and tourism, Professional Service, Public Utility Services, Educational Services.

Text Books:

1. Valarie A. Zeithaml & Mary Jo Bitner - Services Marketing: Integrating Customer Focus Across The Firm, Third Edition, 2004; Tata McGraw-Hill Publishing Company Ltd, 2008.
2. Christopher H. Lovelock, Jochen Wirtz, Jayanta Chatterjee, Services Marketing: People, Technology, Strategy (A South Asian Perspective) Fifth Edition 2011; Pearson Education

Suggested Readings:

1. Cengiz Haksever, Barry Render, Roberta S. Russel, and Robert G. Murdic: Service Management and Operations (Second Edition); Pearson Education (Singapore) Pte., Ltd., 2003.
2. Kenneth E. Clow & David L. Kurtz: Services Marketing, Biztantra Publication, 2003.
3. Nimit Chowdhary & Monika Chowdhary, Textbook of Marketing of ServicesThe Indian Experience, Macmillan India Ltd., 2005

SALES AND DISTRIBUTION MANAGEMENT

UNIT – I

Introduction to Sales Management: Meaning of sales - Evolution of Sales Concept – Nature and Role of Selling – Objectives of Sales Management - Integrating Sales and Marketing Management - Environmental Changes Affecting Sales Management – The Sales Organization – Role of a Sales Organization – Basis for Designing a Sales Organization –Types of Sales Force Structure -Sales Culture – Sales Functions & Policies – Role of a sales manager – responsibilities of sales manager

UNIT – II

Personal selling: Buyer Seller Dyads – Types of Selling Jobs - Sales Force Objectives and strategies – Theories of Personal Selling – Personal Selling Process - The sales planning process and its importance - Types of Budgets - Methods of Budgeting for Sales Force

UNIT – III

Assessing Market Potential: Importance of Assessing Market Potential - Analyzing Market Potential – Sales Forecasting Methods – Selecting a Forecasting Methods – definition of sales quota – types of sales quotas – methods of setting sales quotas – sales analysis and audit – compensating sales force – types of compensation plans – designing compensation plans - Determinants of sales force performance - Methods of sales force evaluation

UNIT – IV

Marketing Channels, integration and management: Channel members and their functions - Designing marketing channels - Channel flows and costs –Importance of channel integration – Vertical marketing systems – Types of vertical marketing systems – Horizontal marketing systems - Hybrid channel systems – criteria for selecting channel members – evaluation of channel members – modifying channel arrangements – managing channel relationships - Managing Channel Conflicts

UNIT – V

Wholesaling & Retailing: Wholesaling and its importance – Types of wholesalers – Strategic issues in wholesaling - Trends shaping wholesale distribution - Challenges in wholesaling - Wholesaling in India –Retailing and its Importance – Evolution of retailing – Classification of retailers - Strategic issues in retailing - Trends in retailing – channel Information system - Ethical and Social Issues in Sales and Distribution Management

Reference books

1. Sales and distribution management – Richard R. still, Edward W. Cundiff, Norman A.P Govoni and Sandeep Puri – Pearson publications.
2. Sales and distribution management – Krishna K Havaldar and Vasant Calvale – Mc Graw hill – 3rd edition
3. Sales and distribution management – Tapan K. Panda, Sunil Sahadev – Oxford Higher Education
4. Sales and distribution management – K. Shridhara Bhat – Himalaya Publishing House

IV SEMESTER- SYSTEMS

S. No	Course Code	SUBJECT TITLE
1	ESMJ-401	Introduction to Artificial Intelligence
2	ESMJ-402	Enterprise Resource Planning
3	ESMJ-403	Internet of Things(IOT)
4	ESYS-404	Data Analytics

IV SEMESTER

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INTRODUCTION TO ARTIFICIAL INTELLIGENCE

Course Outcome(s):

This course introduces students to the basic knowledge representation, problem solving, and learning methods of artificial intelligence.

UNIT–I

Introduction, Overview of Artificial Intelligence: Problems of AI, AI technique, Tic - Tac - Toe problem. Intelligent Agents, Agents & environment, nature of environment, structure of agents, goal based agents, utility based agents, learning agents.

Problem Solving, Problems, Problem Space & search: Defining the problem as state space search, production system, problem characteristics, and issues in the design of search programs.

UNIT–II

Search techniques: Problem solving agents, searching for solutions; uniform search strategies: breadth first search, depth first search, depth limited search, bidirectional search, comparing uniform search strategies. Heuristic search strategies Greedy best-first search, A* search, AO* search, memory bounded heuristic search: local search algorithms & optimization problems: Hill climbing search, simulated annealing search, local beam search

UNIT-III

Constraint satisfaction problems: Local search for constraint satisfaction problems. Adversarial search, Games, optimal decisions & strategies in games, the minimax search procedure, alpha-beta pruning, additional refinements, iterative deepening.

UNIT– IV

Knowledge & reasoning: Knowledge representation issues, representation & mapping, approaches to knowledge representation. Using predicate logic, representing simple fact in logic, representing instant & ISA relationship, computable functions & predicates, resolution, natural deduction. Representing knowledge using rules, Procedural verses declarative knowledge, logic programming, forward verses backward reasoning, matching, control knowledge.

UNIT–V

Probabilistic reasoning: Representing knowledge in an uncertain domain, the semantics of Bayesian networks, Dempster-Shafer theory, Planning Overview, components of a planning system, Goal stack planning, Hierarchical planning, other planning techniques

Expert Systems: Representing and using domain knowledge, expert system shells, and knowledge acquisition.

Text Books:

1. Stuart Russell and Peter Norvig, Artificial Intelligence: A Modern Approach
2. Artificial Intelligence, Russel, Pearson

Reference Books:

1. Artificial Intelligence, Ritch & Knight, TMH
2. Introduction to Artificial Intelligence & Expert Systems, Patterson, PHI
3. Logic & Prolog Programming, Saroj Kaushik, New Age International
4. Expert Systems, Giarranto, VIKAS

IV SEMESTER

L	T	P	C
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ENTERPRISE RESOURCE PLANNING

Course Objectives:

COB 1: To help in understanding basic concepts in ERP.

COB 2: To help in understanding the importance of ERP.

COB 3: To help in analyzing the effects of ERP on business.

Course Outcomes:

At the end of this course students will be able to:

CO 1: Describe the meaning of ERP.

CO 2: Explain the importance of ERP Implementation.

CO 3: Distinguish Pre ERP implementation and post ERP implementation.

CO 4: Compare ERP System Options and Selection Methods.

CO 5: Research on ERP present and future.

UNIT- I:

Introduction to ERP: Overview of ERP – Introduction and Evolution –advanced ERP-SCM and CRM systems and related technologies – ERP life cycle ERP implementation Life cycle- SDLC and ERP lifecycle.

UNIT-II:

ERP Implementation: reasons for ERP failure. Pre – implementation Tasks – Implementation methodologies – Process definition - Dealing with employee resistance Training and Education – Project management and monitoring Success and failure factors of an ERP implementation.

UNIT-III:

Post ERP implementation: Change Management – post implementation review, support, maintenance and security of ERP. Different business modules of an ERP package. ERP market place and market place dynamics.

UNIT-IV:

ERP System Options and Selection Methods: Optimal Means of Developing an ERP, Measurement of Project Impact, IT Selection and Project Approval, ERP proposal Evaluation, Project Evaluation Techniques.

UNIT--V:

ERP present and future: Turbo charge the ERP system- EAI – ERP. Internet and WWW- Future Directions and trends in ERP – Future Directions in ERP: New Markets, New Technologies, Faster Implementation Methodologies, New Business Segments, Trends in Security.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. Singla: ―Enterprise Resource Planning‖, Cengage Learning, New Delhi, 2013.

2. Alexleon: ―Enterprise Resource Planning‖, TMH, New Delhi, 2011.

3. Mahadeo Jaiswal, Ganesh Vanapalli: ―Enterprise Resource Planning‖, MacMillon, New Delhi,2013.

4. N.Venkateswaran: ―Enterprise Resource Planning‖, SCITECH Publiscation, New Delhi, 2009.

5. S.Kesharwani, SBodduluri, M Ashok Kumar: ―Enterprise Resource Planning‖, Paramount Publishing House, New Delhi, 2012.

IV SEMESTER

L	T	P	C
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INTERNET OF THINGS

Course Outcome(s):

This course will help students understand basic principles and concepts of Internet-of-Things use cases, applications, architecture and technologies. Students will get an overview of an end to endIoT system encompassing the edge, cloud and application tiers. This course will build upon the foundations created in the pre-requisite courses and will equip the students to architect a complete IoT application on their own. The lab exercises will consist of hands-on experiments that will lead to building an IoT application end-to-end.

UNIT– I

Introduction to IoT and Use cases: Understanding basic concepts of IoT, Consumer IoT vs Industrial Internet, Fundamental building blocks, Use Cases of IoT in various industry domains.

UNIT- II

Architecture: IoT reference architectures, Industrial Internet Reference Architecture, Edge Computing, IoT Gateways, Data Ingestion and Data Processing Pipelines, Data Stream Processing.

UNIT-III

Sensors and Industrial Systems: Introduction to sensors and transducers, integrating sensors to sensor processing boards, introduction to industrial data acquisition systems, industrial control systems and their functions.

UNIT–IV

Networking and Communication for IoT: Recap of OSI 7 layer architecture and mapping to IoT architecture, Introduction to proximity networking technologies (ZigBee, Bluetooth, Serial Communication), Industrial network protocols (Modbus, CANbus), Communicating with cloud applications (web services, REST, TCP/IP and UDP/IP sockets, MQTT, WebSockets, protocols. Message encoding (JSON, Protocol Buffers).

UNIT –V

IoT Data Processing and Storage: Time Series Data and their characteristics, time series databases, basic time series analytics, data summarization and sketching, dealing with noisy and missing data, anomaly and outlier detection.

a) IoT Applications

- Smart Cities
- Connected Vehicles and Telematics
- Smart Grids
- Smart Homes

b) IoT data visualization
c) Survey of cloud based IoT platforms
d) Low power wide area networks for IoT
e) IoT device management
f) Survey of chips, embedded modules and development boards for IoT devices
g) Embedded and real-time operating systems for IoT
h) IoT Security
- Security risks in IoT
- Securing IoT endpoint devices and secure communication protocols for IoT
- Security and Privacy of IoT data

Text Books:

1. The Internet of Things, Samuel Greengard, MIT Press Essential Knowledge Series,

IV SEMESTER

L	T	P	C
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DATA ANALYTICS

Course Outcomes:

After completion of this course students will be able to

- Understand the impact of data analytics for business decisions and strategy
- Carry out data analysis/statistical analysis
- To carry out standard data visualization and formal inference procedures
- Design Data Architecture
- Understand various Data Sources

UNIT-I

Data Management: Design Data Architecture and manage the data for analysis, underst and various sources of Data like Sensors/Signals/GPS etc. Data Management, Data Quality (noise, outliers, missing values, duplicate data) and Data Processing & Processing.

UNIT-II

Data Analytics: Introduction to Analytics, Introduction to Tools and Environment, Application of Modeling in Business, Databases & Types of Data and variables, Data Modeling Techniques, Missing Imputations etc. Need for Business Modeling.

UNIT-III

Regression – Concepts, Blue property assumptions, Least Square Estimation, Variable Rationalization, and Model Building etc. Logistic Regression: Model Theory, Model fit Statistics, Model Construction, Analytics applications to various Business Domains etc.

UNIT-IV

Object Segmentation: Regression Vs Segmentation – Supervised and Unsupervised Learning, Tree Building – Regression, Classification, Overfitting, Pruning and Complexity, Multiple Decision Trees etc. Time Series Methods: Arima, Measures of Forecast Accuracy, STL approach, Extract features from generated model as Height, Average Energy etc. and Analyse for prediction.

UNIT-V

Data Visualization: Pixel-Oriented Visualization Techniques, Geometric Projection Visualization Techniques, Icon-Based Visualization Techniques, Hierarchical Visualization Techniques, Visualizing Complex Data and Relations.

TEXT BOOKS:

1. Student's Handbook for Associate Analytics – II, III.
2. Data Mining Concepts and Techniques, Han, Kamber, 3rd Edition, Morgan Kaufmann Publishers.

Reference Books:

1. Introduction to Data Mining, Tan, Steinbach and Kumar, Addision Wisley, 2006.
2. Data Mining Analysis and Concepts, M. Zaki and W. Meira
3. Mining of Massive Datasets, Jure Leskovec Stanford

IV SEMESTER

LOGISTICS AND SUPPLY CHAIN MANAGEMENT

S. No	Course Code	SUBJECT TITLE
1	ELS-401	Enterprise Resource Planning
2	ELS-402	Shipping and Maritime law
3	ELS-403	International Logistics Management
4	ELS-404	Green Supply Chain Management

ENTERPRISE RESOURCE PLANNING

Objectives:

To familiarize the students with ERP, ERP Module, SCM and CRM and its application in business related decisions.

UNIT I:

Overview of enterprise systems: Evolution - Risks and benefits - Fundamental technology - Issues to be consider in planning design and implementation of cross functional integrated ERP systems.

UNIT II:

Overview of ERP software solutions: Small medium and large enterprise vendor solutions, BPR, Business Engineering and best Business practices - Business process Management. Overview of ERP modules -sales and Marketing, Accounting, Finance, Materials and Production management etc

UNIT III:

Planning Evaluation and selection of ERP systems: Implementation life cycle – ERP implementation, Methodology and Frame work- Training – Data Migration. People Organization in implementation – Consultants, Vendors and Employees-Case studies.

UNIT IV:

Maintenance of ERP: Organizational and Industrial impact – Success and Failure factors of and ERP Implementation -case studies.

UNIT V:

Extended ERP systems and ERP bolt –on -CRM, SCM, Business analytics etc-Future trends in ERP systems-web enabled, Wireless technologies so on-Case studies.

Outcome: Students gaining knowledge of concepts of ERP and its application in Logistics and Supply Chain Management.

REFERENCES

1. Alexis Leon, Enterprise Resource Planning, second edition, Tata McGraw-Hill, 2008.
2. Summer, ERP, Pearson Education, 2008.
3. Jagan Nathan Vaman, ERP in Practice, Tata McGraw-Hill, 2008
4. Alexis Leon, ERP demystified, second Edition Tata McGraw-Hill, 2006. .
5. Mahadeo Jaiswal and Ganesh Vanapalli, ERP Macmillan India, 2006.

SHIPPING AND MARITIME LAW

Objective: Students will gain insights into the various shipping laws pertaining to Indian exports and imports.

UNIT I

Introduction: Indian Contract Act, 1872 - Contract – Meaning – Essential Elements – Offer and Acceptance – Consideration – Capacity – Consent – Legality of object – Quasi contract – Discharge of Contract – Breach of Contract – Remedies. Contract of Indemnity and Guarantee - Bailment: Rights and Duties of Bailor and Bailee – Contract of Agency: – Creation of Agency – Rights and Duties of Agent and Principal – Termination of Agency

UNIT II

Indian Sale of Goods Act - Contract of Sale: Essentials – Sale and Agreement to Sell – Conditions and Warranties: Caveat Emptor – Sale by non-owners – Delivery of Goods – Rights and Duties of the Buyer and Seller. International Sales of Goods - Contracting Parties - Charter Parties - The Types Of Charter - Ship-Owners Obligations In Getting To The Load Port - Express &Implied Contract On Loading – Payment Of Freight - Special Clauses - Remedies For Non-Payment

UNIT III

Laws on Carriage of Goods: The Bills Of Lading Act 1855 And The Carriage Of Goods By Sea Act 1992 - Non-Contractual Actions - Functions Of The Bill Of Lading – Contracts Of Carriage - Modifications To The Traditional Carriage Contract Model- Third-Party Rights Under The Initial Carriage Contract At Common Law And In Equity - Statutory Transfers.

UNIT IV

The Cargo Claim Enquiry - Duties, Rights and Liabilities of Common Carriers under: (i) The Carriers Act, 1865. (ii) The Railways Act, 1989, (iii) The Carriage By Road Act, 2007 (iv) The Carriage by Air Act, 1972– Indian Consumer Protection Act, 1986: Objects – Rights of Consumers – Consumer Dispute – Procedure of Filing Complaint – Procedure for redressal of Complaints.

UNIT V

Proving Loss Or Damage In Transit—The Evidential Hierarchy Of Lading Statements—Bill Of Lading Statements And Contractual Actions Against The Carrier—Tort Actions Against The Carrier - Actions Against The Person Who Actually Signed The Bill Of Lading.Limitation Of Liability -- Claims Subject To Limitation -- The Right To Limit–Jurisdiction -- Other Limitation Regimes.

Outcome: Students knowledge of maritime laws will help shipping organizations in gaining profitability and sustenance

REFERENCES:

1.M.C. Shukla, Mercantile Law, S. Chand & Co., New Delhi, 2011. M.S.Pandit and ShobhaPandit, Business Law, HPH, Mumbai, 2010.

2. N.D. Kapoor, Mercantile Law, Sultan Chand & Sons, New Delhi, 2010 Relevant Bare Acts.

INTERNATIONAL LOGISTICS MANAGEMENT

Objectives: 1. marketing logistics concept, objective, scope and its elements.
2. Interface between international marketing and logistics & supply chain management.
3. Role of transport in logistics.

Learning Outcomes:
1. Assess logistical organizations in terms of functional aggregation and the shift in emphasis from function to process.
2. Students will be aware of logistics concepts and basic activities.

UNIT-I
International Trade: Need and Importance – Recent Trends in World Trade – Leading players – India's Foreign Trade – Commodity Composition and Destination - Overview of International Logistics- Components, Importance, Objectives; Logistic Subsystem;- Integrated Logistics; - Barrier to Internal Integration – Logistics Documents for International Trade.

UNIT-II
Marketing and Logistics Customer Focused Marketing; International Marketing: International Marketing Channel: Role of Clearing Agent, Various Modes of Transport, Choice and Issues for Each Mode, Transport Cost Characteristics

UNIT-III
Basics of Transportation - Functionality and Principles; Multimodal Transport: Modal Characteristics; Modal Comparisons; Legal Classifications; International Air Transport; Air Cargo Tariff Structure; Freight: Definition, Rate; Freight Structure and Practice

UNIT-IV
Containerization and Chartering Containerization: Genesis, Concept, Classification, Benefits and Constraints; Inland Container Depot (ICD): Roles and Functions, CFS, Export Clearance at ICD; CONCOR; ICDs under CONCOR; Chartering: Kinds of Charter, Charter Party, and Arbitration.

UNIT-V
Inventory Management and Packaging Inventory Management: Introduction, Characteristics, Functionality, Components, Planning; Packaging and Packing: Labels, Functions of Packaging, Designs, Kinds of Packaging; Packing for Transportation and Marking: Types of Boxes, Container, Procedure, Cost, Types of Marking, and Features of Marking -Dynamic Component for Continuous Internal Assessment only: Contemporary Developments Related to the Course during the Semester concerned

REFERENCES

1. International Marketing by SakOnkvisit& John J. Shaw, Publisher: Prentice Hall of India
2. International Marketing by Gupta and Varshing, Publisher: Sultan Chand and Sons
3. Logistic Management and World Sea Borne Trade by MultiahKrishnaveni, Publisher: Himalaya Publication
4. Logistic and Supply Chain Management by Donald J. Bowerson, Publisher: Prentice Hall of India

GREEN SUPPLY CHAIN MANAGEMENT

UNIT I

Introduction – Traditional Supply Chain and Green Supply Chain – Environmental Concern and Supply Chain – Closed-loop Supply Chain – Corporate Environmental Management – Green Supply Chain (GSCM): Definition, Basic Concepts – GSCM Practices

UNIT II

ECO-DESIGN : Design for the Environment (DFE) or Eco-Design – Eco-Design and Supplier Relationships – Definitions of Eco-Design – Tools of Product Eco-Design – Involving suppliers in product ecodesign: Drivers, Challenges and Successful factors

UNIT III

Green Purchasing: Green Procurement and Purchasing – Definitions of green purchasing – Drivers of green purchasing – Green purchasing strategies – Green purchasing performance measurement –Green Supplier Development and Collaboration.

UNIT IV

Green Manufacturing: Green Manufacturing or Production: Evolution, Definitions – 4Re‘s: recycling, remanufacturing, reuse and reduction – Closed-loop Manufacturing – ISO 14000 systems – Life Cycle Analysis (LCA) – Lean Manufacturing for Green Manufacturing or Production.

UNIT V

Green Logistics And Transportation: Green Logistics and Transportation – Definitions of Green Logistics – Critical drivers of Green Logistics – Green transportation and logistics practices – Environmental impacts of transportation and logistics – Closing the Loop: Reverse Logistics.

TEXT BOOKS:

1. Joseph Sarkis, Yijie Dou. Green Supply Chain Management: A Concise Introduction, Routledge, 2017.
2. Charisios Achillas, Dionysis D. Bochtis, Dimitrios Aidonis, Dimitris Folinas. Green Supply Chain Management, Routledge, 2018.

REFERENCE BOOKS:

1. Hsiao-Fan Wang, Surendra M. Gupta. Green Supply Chain Management: Product Life Cycle Approach, McGraw Hill publishing, 2011
2. Stuart Emmett, Vivek Sood. Green Supply Chains: An Action Manifes by Stuart Emmett, Wiley publications, 2010

IV SEMESTER
TRAVEL AND TOURISM MANAGEMENT

S. No	Course Code	SUBJECT TITLE
1	ETT-401	Travel Media and Journalism
2	ETT-402	Eco Tourism Practices
3	ETT-403	Information Technology and Tourism
4	ETT-404	Event Management

TRAVEL MEDIA AND JOURNALISM

UNIT-I

Travel Writing: Articles and Short Pieces of Travel Writing, Magazines, Travel Newsletters, Short Pieces for Books - The Internet - Researching and Approaching Markets - Travel Books - Guide Books - Accommodation Guides - Business Travel - Coffee Table Books, Autobiographical Tales - Anthologies.

UNIT-II

Media management: Electronic Media in documenting destinations, travel and transport, hospitality and tourism resources - Nature of media coverage: webcast and telecast - Script writing for travel programs - Identifying points for visual support - Conducting interviews - Virtual tourism.

UNIT-III

Research Topics: Sources of Information - Research on the Internet - Researching on the spot - Organizing research material.

UNIT-IV

Developing Ideas for Travel Articles - Journey Pieces - Activity Pieces - Special Interest Pieces - Side-trips – Reviews - Ideas from own travel experiences - Ideas from other sources.

UNIT-V

How to portray the experiences: Practical tips- Choosing the right words - Verbs, Adjectives and Clichés, Illustrations - The Practicality of taking photographs, Non-photographic illustrations.

TEXT BOOKS

1. Janet Macdonald (2000), Travel Writing, Robert Hale, London.

REFERENCES

1. Brunt.P. (1997), Market Research in Travel and Tourism, Butterworth and Heinemann, UK.
2. Clark, Riley,M., Wood,R.C. (1998), Researching and Writing Dissertations in Hospitality and Tourism, UK.
3. Neilson C. (2001), Tourism and the Media: Tourist Decision Making, Information and Communication, Hospitality Press, Melbourne.
4. Arvaham E. &Ketter E. (2008), Media Strategies for Marketing Places in Crisis, Elsevier, UK.

ECO TOURISM PRACTICES

Objective:
Understand the significance of ecotourism; comprehend the theories and practices of ecotourism;

UNIT-I
Fundamentals of Ecology- Basic Laws & ideas in Ecology- Function and Management of Ecosystem-Biodiversity and its Conservation-Pollution-Ecological Foot Prints - Relationship between Tourism & Ecology. Eco- tourism - Evolution, Principles, Trends. Functions of Ecotourism - Mass Tourism Vs Ecotourism -Typology of Eco-tourists - Ecotourism Activities & Impacts -Western Views of Ecotourism. Eco- tourism travel essentials. Eco- tourism and protected areas: visitor management for sustainability. Major Eco tourism destinations of India.

UNIT-II
Ecotourism- Evolution, Principles, Trends and Functions of Ecotourism - Mass Tourism Vs Ecotourism -Typology of Eco-tourists - Ecotourism Activities & Impacts - Approaches of Sustainable Tourism- Standardization and Certification – Alternative Tourism - Responsible Tourism - Collaboration and Partnership - Waste Management – Eco-friendly Practices - Basic Laws & ideas in Ecology- Function and Management of Ecosystem-Biodiversity-and its Conservation-Pollution-Ecological Foot Prints - Relationship between Tourism & Ecology, Sustainable Tourism and Poverty Alleviation - Pro-poor Tourism and Community Participation.

UNIT-III
Ecotourism Development - Sustainable Ecotourism - Resource Management - Socioeconomic Development - Ecotourism Policies, Planning and Implementation - Eco-friendly Facilities and Amenities - Carrying Capacity - Alternative Tourism -Responsible ecotourism Ecotourism Programming. Planning for Sustainable Tourism: - Topographical Analysis - Analysis of Local Resources - Land Use Pattern – Environmental Impact Assessment (EIA), Environmental Information System (EIS), Environmental Management System (EMS) & Community Participation and Types of Community Participation and Socio- Economic and Cultural Conditions - Evaluation of Impact of Tourism Site - Zoning System - Carrying capacity & its Type

UNIT-IV
Conservation of Ecotourism - Protected Area Management through Ecotourism - Stakeholder Engagement - Community Participation - Types of Participation, Issues and Challenges - Ecotourism Projects - Case Studies on Periyar National Park, ThenmalaEcoProject, Similipal Ecotourism Project, Sunderban Ecotourism Project, Kaziranga National Park, Run of Kutch, Nandadevi Biosphere Reserve, Corbett National Park, Gulf of Mannar, Kruger National Park, South Africa.

UNIT-V

Ecotourism Development Agencies- Role of the International Ecotourism Society - the UNWTO, UNDP, WWF - Department of Forest and Environment - Government of India, ATREE, EQUATIONS.Sustainable Tourism Development: Meaning- Principles - 10 Rs-Agenda 21 for Travel and Tourism Industry - World Conference on Sustainable Tourism 1995 - Globe 90 Conference - Berlin Declarations - Bali Declarations 2005 - Cape Town Declarations 2002 and Kerala Declarations, Ecotourism- Quebec Declaration 2002 - Kyoto Protocol 1997 - Oslo Declaration 2007

REFERENCES

1. Weaver, D. (2001), the Encyclopedia of Ecotourism, CABI Publication.
2. Fennel, D. A. (2002), Ecotourism Policy and Planning, CABI Publishing, USA.
3. Sukanta K Chaudhury, Cultural, Ecology and Sustainable Development, Mittal, New Delhi.
4. Ralf Buckley (2004), Environment Impacts of Ecotourism, CABI, London.
5. Ramesh Chawla (2006), Ecology and Tourism Development, Sumit International, New Delhi

INFORMATION TECHNOLOGY AND TOURISM

UNIT-I

Understanding the Hardware: Bit and related measuring terms, I/O and storage devices; components of desktop; buying a computer Lab; demonstrate on open computer and explain its components.

UNIT-II

Operating systems: Basic functions and types of an operating systems; comparative illustrations from popular operating systems

UNIT-III

Communication and Protocols; working knowledge of Internet protocols; application of electronic communication tools in business; collaborative tools.

UNIT-IV

Understanding database basic terminology; types of databases Lab; creating and relating tables in a micro database; basic queries for data analysis; import / export of data in different formats; link with other products like word processors, database, spreadsheets etc.

UNIT-V

Electronic commerce-Overview-Business to Government, Business to consumers, Business to business, consumers to consumers, online Stock trading & Market Features, Capabilities and Limitations.

Suggested Readings:

1. Laudon, K.C & Laudon, Jane P.management Information System
2. Kishore, Swapna and Naik Rajesh, SQL for Professional
3. Anderson, Virginia, Access 2002-the complete reference.

EVENT MANAGEMENT

UNIT-I

Introduction to Events: Scope - Nature and Importance – Types of Events - Unique features and similarities – Practices in Event Management - Key steps to a successful event.

UNIT-II

The Dynamics of Event Management: Event Planning and organizing – Problem Solving and Crisis Management – Leadership and Participants Management – Managing People and Time – Site and Infrastructure Management.

UNIT-III

Introduction to MICE: Planning MICE, Components of the Conference Market, Characteristics of Conferences and Conventions, MICE as a supplement to Tourism, the nature and demand of Conference markets- The Economic and Social significance of Conventions, process of Convention Management.

UNIT-IV

Event Marketing: Event marketing, definition, importance – Customer care – Marketing equipment and tools – Promotion, Media Relations and Publicity - Event Co- ordination - Visual and Electronic Communication – Event Presentation – Event Evaluation – Case Studies of events of National and International importance.

UNIT-V

Event promotions: Travel Industry Fairs – Benefits of Fairs - ITB, WTM, BTF, TTW, FITUR, KTM, IITM, CII-Events, PATA Travel Mart.

TEXT BOOKS

1. Leonard H. Hoyle (2002), Event Marketing, John Wiley and Sons, New York.
2. Anton Shone & Bryn Parry (2002), Successful Event Management, Cengage Learning.

REFERENCES

1. Bhatia A.K. (2001), Event Management, Sterling Publishers, New Delhi.
2. David C. Watt (1998), Event Management in Leisure and Tourism, Pearson, UK.
3. Joe Gold Blatt (1997), Special Events- Best Practices in Modern Event Management, John Wiley and Sons, New York.
4. Avrich Barry (1994), Event and Entertainment Marketing, Vikas, New Delhi.
5. Panwar J.S. (1998), Marketing in the New Era, Sage, New Delhi.

IV SEMESTER
HEALTH CARE AND HOSPITAL MANAGEMENT

S. No	Course Code	SUBJECT TITLE
1	EHH-401	Health Analytics
2	EHH-402	Managed Health Care and Insurance
3	EHH-403	Health Laws, Ethics and Regulations
4	EHH-404	Patient Care & Services Management

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HEALTH ANALYTICS

Objective: the role of data analytics in quality and performance improvement efforts, the tools and techniques used for data analytics in health care organizations.

UNIT-I

Quality Improvement and Data Analytics – Meaning – Drivers for health care transformation - Identify quality initiatives that have shaped the national health care landscape - Health care quality and value - background and evolution of quality and performance improvement - Quality improvement frameworks that utilize analytics .

UNIT-II

Health Care Data as an Organizational Asset - Data information, knowledge and wisdom hierarchy- organizational asset - sources of health care data – challenges for quality and performance improvement - organizational approach for effective use of data analytics

UNIT-III

Working with Data - information value chain - importance of data context and relevance to business processes - common data types - basic statistical terms - Recognize common patterns or distributions in statistics - distributions using numerical measures such as mean, median and standard deviation - common graphical representations of data including histograms, bar charts and scatterplots

UNIT-IV

Data Analytics Tools and Techniques – Definitions - Process steps of data analytics and the tools - role of the data analyst - tools and techniques used to analyze and interpret healthcare data effectively - various types of databases and how they are structured - data warehouse concepts - enterprise data architecture in health care organizations.

UNIT-V

Solve Problems- measures, metrics, and indicators- purpose and use of Key Performance Indicators (KPI‘s) - health care organizations use the IHI Triple Aim to prioritize performance goals - DMAIC problem-solving model and the tools and techniques used in each step of the process - Apply the DMAIC methodology to a health care issue.

Suggested Readings:

Trevor L. Strome (2013). Healthcare Analytics for Quality and Performance Improvement. John Wiley & Sons, Inc

MANAGED HEALTH CARE AND INSURANCE

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IV SEMESTER

HEALTH LAWS, ETHICS AND REGULATIONS

Objective: To get acquainted with the legal provision and issues related to health care, to familiarize with the medical terminologies and to understand the ethical issues in health care system.

UNIT-I

Laws relating to Hospital formation: Promotion-Forming society-The Companies Act- Law of Partnership-A Sample Constitution for the Hospital-The Tamil Nadu Clinics Act – Medical Ethics.

UNIT-II

Laws relating Purchases and funding: Law of contracts-Law of Insurance-Export Import Policy-FEMA-Exemption of Income Tax for Donations-Tax Obligations: Filing Returns and Deductions at Source. Laws pertaining to Health: Central Births and Deaths Registration Act, 1969- Recent amendments – Medical Termination of Pregnancy Act, 1971 – Infant Milk Substitutes, Feeding Bottles and Infant Food Act, 1992.

UNIT-III

Laws pertaining to Hospitals: Transplantation of Human Organs Act, 1994 – Pre-natal Diagnostic Techniques (Regulation and Prevention of Misuse) Act, 1994 – Medical Negligence – Medico Legal Case – Dying Declaration-MCI act on medical education. The Biomedical Waste (Management and Handling) Rules-Radiation Safety System.

UNIT-IV

Medical Terminology- Glossary of medical terms: major Diseases and medical specialties-Roots, Prefixes, Suffixes, Abbreviations and symbols-Common roots: element referring to, usage and definition-Common prefixes and suffixes-Common abbreviations: departments, time, general healthcare, routes of medication and laboratory-Symbols.

UNIT-V

Illness- Classification and description of diseases-Infection Control- Medical asepsis, Nosocomial infection and communicable diseases, Reservoir, carrier and mode of transmission- Overview of Hospital Services -Intensive care unit – Coronary care Unit – Burns, paraplegic & Malignant disease treatment – Hospital welfare services – Hospital standing services – Indian red cross society – Nursing services- Pharmacy – Medical Stores – Housekeeping – Ward Management – Central sterile supply department-Medical Records – Fatal documents – Medical Registers – Statutory records.

Suggested Readings:

1. BM Sakharkar, Principles of Hospital Administration and Planning, Jaypee brothers Publications.
2. Francis CM,Mario C de Souza ; Hospital Administration – Jaypee brothers Medical Publishers.

IV SEMESTER

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PATIENT CARE AND SERVICES MANAGEMENT

Objective: To understand the importance of patient care management and acquainted with the disaster, safety and Security Management in Hospitals.

UNIT-I

Patient centric management - Concept of patient care, Patient-centric management, Organization of hospital departments, Roles of departments/managers in enhancing care, Patient counseling & Practical examples of patient centric management in hospitals-Patient safety and patient risk management.

UNIT-II

Quality in patient care management-Defining quality, Systems approach towards quality, towards a quality framework, Key theories and concepts, Models for quality improvement & Variations in practice

UNIT-III

Patient classification systems and the role of casemix-Why do we need to classify patients, Types of patient classification systems, ICD 9 (CM, PM), Casemix classification systems, DRG, HBG, ARDRG, Casemix innovations and Patient empowering classification systems.

UNIT-IV

Medical ethics & auditory procedures-Ethical principles, Civic rights, Consumer Protection Act, Patient complaints powers & procedures of the district forum, State and National commission, Patient appeals, Autopsy, Tort liability, Vicarious liability, Medical negligence, Central & state laws, Use of investigational drugs, Introduction/need & procedures for medical audit, Audit administration & Regulating committees-Confidentiality and professional secrecy, ethics of trust and ethics of rights – autonomy and informed consent, under trading of patient rights – universal accessibility – equity and social justice, human dignity

UNIT-V

Disaster preparedness-Policies & procedures for general safety, fire safety procedure for evacuation, disaster plan and crisis management. Policies & procedures for maintaining medical records, e-records, legal aspects of medical records, its safety, preservation and storage.

Suggested Readings:

1. Goel S L & Kumar R. HOSPITAL CORE SERVICES: HOSPITAL ADMINISTRATION OF THE 21ST CENTURY 2004 ed., Deep Deep Publications Pvt Ltd: New Delhi
2. Gupta S & Kant S. Hospital & Health Care Administration: Appraisal and Referral

IV SEMESTER

ENTREPRENEURSHIP AND SMALL ENTERPRISE MANAGEMENT

S. No	Course Code	SUBJECT TITLE
1	EES-401	Venture Valuation and Accounting
2	EES-402	Finance and Accounting for Small Business
3	EES-403	Technology Appreciation and Intellectual Property Rights
4	EES-404	Marketing for Small Business

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IV SEMESTER

VENTURE VALUATION AND ACCOUNTING

UNIT-I

Joint Ventures: Concept and Meaning of Joint Ventures, Features, Need, growth and Types of Joint Ventures, Structures, process and Legal aspects – Advantages and Problems faced in Joint Ventures, Prospects of Joint Ventures and Strategic Alliance - Relevant case study of successful and failed joint ventures.

UNIT-II

Mergers and Acquisitions: Introduction to mergers, types of mergers, theories of mergers & acquisitions; Cross-border mergers and acquisitions, issues and challenges in cross border M&A. Handling cross-culture and taxations issues in cross-brder M&A. Analysis of Post-Merger Performance. Demerger, types of demerger, reverse merger, buyback of shares, leverage buy-out strategy, merger strategy - growth, synergy, operating synergy, financial synergy, diversification. Takeover and its types, takeover strategy, takeover bids, legal framework for mergers and acquisitions, leverages and buyouts.

UNIT-III

Deal Valuation and Evaluation: Factors affecting valuation basics, methods of valuation, cash flow approaches, economic value added (EVA), sensitivity analysis, valuation under takeover regulation, valuation for slump sale, cost-benefit analysis and swap ratio determination

UNIT-IV

Post-Merger Evaluation: Financial Evaluation of Mergers & Acquisitions, Impact on shareholders_ Wealth; Methods of payment and financing options in mergers & acquisitions, financing decision, Merger, Acquisition and Competition law 2002, SEBI (Securities & Exchange Board of India) Takeover Code 2011 and criteria for negotiating friendly takeover.

UNIT-V

Consignment Accounts: Important terms; Accounting records; Valuation of unsold stock; Conversion of consignment into branch Joint Venture Accounts: Meaning of joint venture; Joint venture and partnership; Accounting records Branch Accounts: Partnership Accounts Essential characteristics of partnership; Partnership Deed; Final Accounts; Adjustment after closing the accounts; Fixed and fluctuating capital; Goodwill; Joint Life Policy; Change in Profit Sharing Ratio Reconstitution of a partnership firm- Admission of a partner, Retirement of a partner‘ Death of a partner; Amalgamation of partnership firms; Dissolution of a partnership firm;- Modes of dissolution of a firm; Accounting entries; Insolvency of Partners;

References

1. Gupta. R.L.and Radhaswamy. M: Financial Accounting; Sultan Chand and Sons, New Delhi.
2. Monga J.R., Ahuja Girish, and Sehgal Ashok: Financial Accounting; Mayur Paper Nokia.
3. Shukla. M.C., Grewal T.S., and Gupta, S.C.: Advanced Accounts: S. Chand & Co. New Delhi.
4. .Weston, Fred; Chung, Kwang S. &Siu, Jon A.: Takeovers, Restructuring and Corporate Governance, (2nd ed.). Pearson Education
5. Gupta, Manju (2010): Contemporary Issues in Mergers and Acquisitions. Himalaya Publishing House.
6. Sundarsanam (2006); Creating Value from Mergers and Acquisitions, (1st ed.) Pearson Education.
7. Ramanujan. S. (1999); Mergers: The New Dimensions for Corporate Restructuring, McGraw Hill
8. Narayankar, Ravi, (2013): Merger and Acquisitions Corporate Restructuring, Strategy

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IV SEMESTER

FINANCE AND ACCOUNTING FOR SMALL BUSINESS

UNIT-I

Accounts - Accounting Process - Accounting Concepts & Conventions - Accounting equation - Basic Accounting Procedure - Single Entry System : an admixture - Double Entry System - Accounting Elements - Classification of Accounts - Golden Rules - Journal - Classification of Journal - Ledger : Principal Books of Accounts - Cash Book - Vouchers-The documents to the transactions - Trial Balance - Depreciation - Preparation of Final Accounts and Balance Sheet - Techniques of Preparation of Final Accounts -The Balance Sheet

UNIT-II

Finance: Understanding Balance Sheet – It‘s Use - Profit and Loss Account (P/L A/c) - Understanding Financial Statement - Ratio Analysis - Cash Flow Statements - Cash Budget - Working Capital : Determination & Calculation - Operating Cycle - Computation of Working Capital - Framework for Regulation of Bank Credit - Long-Term Source of Finance - Retained Earnings - Equity Capital / Equity Share - Debenture - Preference Shares.

UNIT-III

Costing: Introduction - Classification Cost - Use of Cost Data - Marginal Costing - Cost-Volume Profit Relationship - Mathematical Relationship between Cost-Volume Profit - Margin of Safety -BEP Analysis : Graphical Analysis - Use of Marginal costing in decision making- pricing decision, make or buy etc.

UNIT-IV

Taxation: Income Tax - Definitions - Residential Status - How to Compute Total Income - Profit and Gains of Business or Profession - Deduction Under Chapter VIA - Central Sales Tax Act, 1956 - Preliminary - Formulation of Principles for Determining when a Sale or Purchase of Goods Taken Place in the Course of Inter-state Trade or Commerce or Outside a State or in the Course of Import or Export - Inter-State Sales Tax - Goods of Special Importance in Inter-State Trade or Commerce - Liability in Special Cases - Central Excises Act, 1944 - Preliminary - Levy and Collection of Duty -Powers and Duties of Officers and Landholders - Transport by Sea - Adjudication of Confiscations and Penalties - Appeals - Presumption as to Documents - Supplemental Provisions.

UNIT-V

Goods and Services Tax (GST): – concept and status – Genesis - GST and Centre-State Financial Relations - Constitution (One Hundred and First) Amendment Act, 2016 - Goods and Services Tax Council (GSTC) - Salient Features of GST - Benefits of GST - Goods and Services Tax Network – GST Registration process of business enterprises – GST HSN – SAC Cods and tax rates.

References:

1. Dhanesh K Khatri, Financial Accounting, Mc Graw Hill.
2. Asish K. Bhattacharyya, Financial Accounting for Business Managers, 3rd Edition, PHI, Eastern Economy Edition.
3. Dr. V K Goyal, Financial Accounting, 3rd Edition, EB (Excel Books).
4. S N Maheswari, Suneel K Maheshwari and Sharad K Maheshwari, Financial Accounting, 5th Edition, Vikas Publications.
5. Horngren, Sundem, Stratton, Burgstahler and Schatzberg, Introduction to Management Accounting, 14th Edition, Pearson Hall.
6. Charities An Exhaustive Treatise for Tax and Other ....by S Rajaratnam , M. Natarajan , C.P. Thangaraj
7. Laws of Trade Tax Central Sales Tax and Tax on Ent.by O S Vatsa
8. Trade Tax, Central Sales Tax & Tax on Entry of Goo.by Arvind Agarwal , Adarsh K Gupta GST official website: https://www.gst.gov.in

IV SEMESTER

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TECHNOLOGY APPLICATION AND INTELLECTUAL PROPERTY RIGHTS

UNIT I

Introduction , Definitions, Role and importance , Technology developments, implications of Technology Management, Technology change, TLC, Diffusion and Growth of Technologies - Technological Transformation alternatives, Technology Policy and Planning, Technology development-Options & Strategies, Socio-Economic planning, production functions & Technological Change, Macro effects of Technology change.

UNIT II

Technology Transfer - Models, Modes, Technology search strategy, Dimensions of Technology Transfer, Features & Routes of Technology Transfer, Technology absorption capabilities, Pricing of Technology Transfer agreements, Code of conduct for Technology transfer , Government initiative, Technology transfer and absorption process at unit level.

Unit III

Technology cycles, innovation streams, Managing through cycles of technological change - Planned innovation, planned innovation systems, Market driven innovation: Commercialization of Intellectual Property: Traditional IP and Evolving IP - Assignment – Licensing – Cross License – Patent Pool – Negotiations – Defensive Publications – Technical Disclosures – Patent Pooling – Patent Trolling - Brand Management- Brand and Pricing Strategies – Patent Mining – Patent Landscaping and Patent Mapping

Unit IV

Strategic Management of Intellectual Property: Defensive & Offensive Strategies – Intellectual Asset Management - Intellectual Property Audit – Identification & Grouping of Intangible Assets into Bundles - Intangible Asset Management Plan – Value Maximization Strategies – Value Extraction Strategies – Licensing Process and Management

Unit V

Valuation of Intellectual Property: Need for IP Valuation – Approaches of IP Valuation – Cost Approach – Income Approach – Market Approach – Methods of IP Valuation – "25% Rule" Method - Industry Standards Methods - Ranking Method - Surrogate Methods - Disaggregation Methods - Monte Carlo Method - Real Options Methods - The CAV Method - Market Value Method -Collateralization of IPA

References:

1. Sunita K. Sreedhararn , An Introduction to Intellectual Asset Management.
2. Patrick H. Sullivan, Profiting from Intellectual Capital: Extracting Value from Innovation
3. Tulika Rastogi, IP Audit: Your Way to Healthy Organisation
4. Gordon V. Smith and Russell L. Parr, Valuation of Intellectual Property and Intangible Assets, 3rd Edition
5. Bruce Berman, From Assets to Profits: Competing for IP Value and Return (Intellectual Property-General, Law, Accounting & Finance, Management, Licensing, Special Topics).
6. Loganathan, E.T. ―IPR‖ (IPRS), TPIPS Agreement and Indian Laws.
7. Dasgupta. S: Technology and Creativity & Creativity, Oxford University Press, New York, 1996.
8. Proctor. T: The Essence of Management Creativity, Prentice - Hall, New Delhi, 1997.
9. Richards. T: Creativity and Problem Solving Network, Gower, Hampshire, 1997.
10. Ceserani. J & Greatwood. P: Innovation & Creativity, Kogan Page, London, 1995.
11. Ziman. J: Technological Innovation as an Evolutionary Process, Cambridge University Press, Cambridge, 2000

IV SEMESTER

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MARKETING FOR SMALL BUSINESS

UNIT-I

Introduction to Marketing for small business – Nature and Characteristics – Distinction between corporate marketing and marketing for small business – small business Marketing: Concept and Scope – Nature – Characteristics, Taxonomy – Composition of Small Business Market – small business Requirements – Consumer Durables and Non-Durables – Problems of Small Business Marketing – Attractiveness of Market – Factors affecting for Small business Marketing – Value Addition to Small Business Marketing - Characteristics of Successful Small Businessmen – Different Stages of Small business – Crisis Management in Business.

UNIT-II

Small Business Market Environment: Factors in Small Business Market Environment: Social, Economic, Ethical, Political, Physical, Technological, and Demographic – Occupational Pattern – Income Generation – Expenditure Pattern – Small Business Market Infrastructure - Dynamics of Small Business Concepts and Definitions of Small Scale Industries (SSIs) – Role of SSIs – Government Policy and Development of SSIs – Growth and Performance – SSI Sector and Committee Report – Reservation of items for SSI.

UNIT-III

Small Business Marketing Channels Small Business Marketing Channels – Old Set-up – New Players – New Approaches – Marketing and Distribution Trends, New Dynamics – Marketing Channels for Food grains: Oil Seeds – Egg – Live Poultry – Social Marketing - Opportunity for Retail Trading.

UNIT-IV

Small Business Marketing Promotional Strategies: Small Business Market Segmentation – Targeting – Selection of Segments – Coverage of Segments – Positioning – Product, Pricing, Distribution and Promotional Strategies - Global Opportunities for Small Business Small Enterprises in International Business – Export Documents and Procedures for Small Enterprises – E-commerce and Small Enterprises.

UNIT-V

Marketing of Small Business Inputs and Outputs: Small Business Inputs: Market Mechanism of inputs for agriculture and Allied industries - Small Business Outputs: Marketing of agricultural produces – concepts of marketable and marketed surplus – market mechanism: unregulated and regulated – Marketing of Small Business industrial products – Mechanism, opportunities and challenges.

REFERENCES

1. Shukla M.B. Entrepreneurship and Small Business Management, Kitab Mahal, 2003, Agra.
2. Ashis Gupta Indian Entrepreneurial Culture, Wishwa Prakashan Ltd., Surrey, UK.,1994.
3. Colombo Plan Entrepreneurship Development, Staff College Tata McGraw-Hill, New Delhi, 1998 for Technician Education.
4. Malli D.D. Training for Entrepreneurship and Self-Employment. Mittal, New Delhi, 1999
5. Khanka S.S. Entrepreneurial Development, S Chand & Co., New Delhi
6. Bedi R.V. and Bedi N.V., Rural Marketing, Himalaya, Mumbai, 2006
7. Datt, Ruddar and Sundharam K.P.M., Indian Economy, S.Chand, New Delhi, 2006.
8. Krishnamacharyulu C.S.G. and Lalitha Ramakrishnan, Rural Marketing : Texts and Cases, Pearson Education, New Delhi, 2006.
9. Barrow C. The Essence of Small Business, Prentice Hall of India, New Delhi, 1997.
10. Bedapatai Mohanty, Economics of Small Scale Industries, Ashish, New Delhi, 1986
11. Charantimath P.M., Entrepreneurship Development and Small Business Enterprises, Pearson Education, New Delhi, 2006.
12. Cormon J and Lussier R.N., Small Business Management: A Planning Approach, IRWIN, London, 1996

IV SEMESTER
AGRO-BUSINESS MANAGEMENT

S. No	Course Code	SUBJECT TITLE
1	EAB-401	Food Processing Management
2	EAB-402	Disaster Management
3	EAB-403	Food Retail Management
4	EAB-404	Agro- Technology Management

FOOD PROCESSING MANAGEMENT

Objective: To acquaint the students with different food processing techniques and their management.

UNIT I

Present status of food industry in India; Organization in food industry; Introduction to operations of food industry; Deteriorative factors and hazards during processing, storage, handling and distribution.

UNIT II

Basic principles of food processing and food preservation by manipulation of parameters and factors and application of energy, radiations, chemicals and biotechnological agents; Packaging of foods.

UNIT III

Quality Management: TQCM (Total quality control management), control of raw materials, process and finished products, quality standards: BlS, PFA, HACCP, ISO etc", Food plant sanitation.

UNIT IV

Analysis of costs in food organization; Risk management- Post Harvest process, losses and management for loss reduction, Management for value addition in food products, Laws and regulations related to food industry and food production and marketing; Quality management - quality standards, PFA, lSO, etc.

UNIT V

Case studies on project formulation in various types of food industries - milk and dairy products, cereal milling, oil-seed and pulse milling, sugarcane milling, honey production, baking, confectionery, oil and fat processing, fruits and vegetable storage and handling, processing of fruits and vegetables, egg, poultry, fish and meat handling and processing, etc.

Suggested Readings:

1. Acharya SS & Aggarwal NL. 2004. Agriculturol Marketing in Indio. Oxford & lBH. Earfy R. 1995. Guide to Quality Monogement Systems for Food lndustries.
2. Blackie. Jef en P. 1985. lntroduction to Food Processing. Reston Publishing. Potly VH & Mulky MJ. 1993. Food Processing. Oxford & lBH

DISASTER MANAGEMENT

Objective: To introduce learners to the key concepts and practices of natural disaster management; to equip them to conduct thorough assessment of hazards, and risks vulnerability; and capacity building.

UNIT-I

Natural Disasters- Meaning and nature of natural disasters, their types and effects. Floods, Drought, Cyclone, Earthquakes, Landslides, Avalanches, Volcanic eruptions, Heat and cold Waves, Climatic Change: Global warming, Sea Level rise, Ozone Depletion.

UNIT-II

Man Made Disasters- Nuclear disasters, chemical disasters, biological disasters, building fire, coal fire, forest fire. Oil fire, air pollution, water pollution, deforestation, Industrial wastewater pollution, road accidents, rail accidents, air accidents, sea accidents.

UNIT-III

Disaster Management- Efforts to mitigate natural disasters at national and global levels. International Strategy for Disaster reduction.

UNIT-IV

Concept of disaster management, national disaster management framework; financial arrangements; role of NGOs, Community based organizations, and media.

UNIT-V

Central, State, District and local Administration; Armed forces in Disaster response; Disaster response: Police and other organizations.

Suggested Readings

1. Gupta HK. 2003. Disaster Management. Indian National Science Academy. Orient Blackswan. Hodgkinson PE and Stewart M. 1991.
2. Coping with Catastrophe: A Handbook of Disaster Management. Routledge. Sharma VK. 2001.
3. Disaster Management. National Centre for Disaster Management, India.

FOOD RETAIL MANAGEMENT

Objective: To assist students in understanding the structure and working of food marketing system in India, to examine how the system affects farmers, consumers and middlemen and to illustrate the response of this dynamic marketing system to technological, socio-cultural, political and economic forces over time.

UNIT-I

Introduction to International Food market, India's Competitive Position in World Food Trade, Foreign Investment in Global Food Industry, Retail management and Food Retailing, The Nature of Change in Retailing, Organized Retailing in India, E-tailing and Understanding food preference of Indian Consumer, Food consumption and Expenditure pattern, Demographic and Psychographic factors affecting Food Pattern of Indian Consumer.

UNIT-II

Value Chain in Food Retailing, Principal trends in food wholesaling and retailing, food wholesaling, food retailing, the changing nature of food stores, various retailing formats, competition and pricing in food retailing, market implications of new retail developments, value chain and value additions across the chain in food retail, food service marketing.

UNIT-III

4 Ps in Food Retail Management, Brand Management in Retailing, Merchandise pricing, Pricing Strategies used in conventional and nonconventional food retailing, Public distribution system, Promotion mix for food retailing, Management of sales promotion and Publicity, Advertisement Strategies for food retailers.

UNIT-IV

Managing Retail Operations, Managing Retailers' Finances, Merchandise buying and handling, Merchandise Pricing, Logistics, procurement of Food products and Handling Transportation of Food Products.

UNIT-V

Retail Sales Management, Types of Retail Selling, Salesperson selection, Salesperson training, Evaluation and Monitoring, Customer Relationship Management, Managing Human Resources in retailing, Legal and Ethical issues in Retailing.

Suggested Readings

1. Berman and Evans. 2008. Retail Management: A Strategic Approach. 10th Ed. Prentice Hall of

AGRO- TECHNOLOGY MANAGEMENT

Objective: To acquaint the students in latest advances in fertilizer technology management.

UNIT-I

Basic principles of food processing and food preservation by manipulation of parameters and factors and application of energy, radiations, chemicals and biotechnological agents; Packaging of foods

UNIT-II

Fertilizer development – concept, scope, need, resource availability; import and export avenues for fertilizer; types of fertilizers, grading and chemical composition, role of fertilizers in agricultural production, production and consumption of fertilizer in India.

UNIT-III

Raw material needed, technology and use of straight, complex, liquid and suspension fertilizers. Fertilizer use efficiency. Production efficiency and capacity utilization; quality control and legal aspects - fertilizer control order; Fertilizer pricing policy.

UNIT-IV

Field trials and demonstration. Importance of renewal wastes and their recycling; Scope of biofertilizer; environmental pollution due to fertilizer use. Testing facilities; constraints in fertilizer use and emerging scenario of fertilizer use; assessment of demand and supply of different fertilizers, fertilizer distribution, fertilizer storage

UNIT-V

Quality Management: TQCM (Total quality control management), control of raw materials, process and finished products, quality standards: BlS, PFA, HACCP, ISO etc", Food plant sanitation-Laws and regulations related to food industry and food production and marketing; Quality management – quality standards, PFA, ISO.

Suggested Readings

1. Brady NC and Weil RR. 2002. The Nature and Properties of Soils. 13th Ed. Pearson Edu. Fertilizer Control Order (different years).
2. Fertilizer Association of India, New Delhi. Fertilizer Statistics (different years).
3. Tisdale SL, Nelson WL, Beaton JD and Havlin JL. 2002. Soil Fertility and Fertilizers. .
4. Acharya SS & Aggarwal NL. 2004. Agricultural Marketing in India. Oxford & IBH.

IV SEMESTER - BUSINESS ANALYTICS

S. No	Course Code	SUBJECT TITLE
1	EBA-401	Econometrics and Business Forecasting
2	EBA-402	Data Mining & Machine learning
3	EBA-403	Financial Analytics
4	EBA-404	HR Analytics

ECONOMETRICS AND BUSINESS FORECASTING

UNIT-I

Introduction: Broad classification of economic relations-- stochastic and non-stochastic relations-- econometrics versus mathematical economics-- econometrics versus statistics-- concepts of econometric and mathematical models and their essential ingredients-- functions of econometrics-- essential steps of an empirical study.

UNIT-II

The simple linear regression model: ordinary least squares (OLS) estimators and their properties-- goodness of fit and tests of hypotheses-- effect of changing scale and units of measurement of variables. - testing of hypotheses-- testing individual coefficients-- testing several coefficients jointly-- testing linear combination of coefficients-- computing R2 -- R2 and F- statistic when there is no intercept term-- effect of omitting intercept term-- effect of inclusion of irrelevant and exclusion of relevant variable in the model.

UNIT-III

Stationary time series models: stochastic difference equation models-- ARMA models—stationarity-- the autocorrelation function-- the partial autocorrelation function-- sample autocorrelations of stationary series-- Box-Jenkins model selection-- and seasonality.-- Modeling Economic Time Series: Trends and Volatility-- ARCH process-- GARCH model-- ARCH-M model-- Testing for Trends and Unit Roots: Unit root processes, Dicky-Fuller tests, Augmented Dicky-Fuller test, Phillips Perron test. Introduction to VAR model-- estimation and identification-- the Impulse response function-- structural VAR-- Co-integration and Error Correction Models-- Testing for co-integration-- The Engle Granger methodology-- Johansen methodology-- ARDL bounds-testing approach.

UNIT-IV

First Generation Forecasting Model – The Deterministic Trend/Deterministic Seasonal (DTDS) Model A. The Simple Trend Model – A Deterministic Trend -- Trend Model with Seasonal Dummies -- DTDS plus Auto correlated Errors -- Tests for Trend and Seasonality – F- tests. Some Important Concepts Leading up to Box-Jenkins Modelling -- Mean, Variance, and Autocorrelation in Time Series --- Definition of Covariance Stationarity -- Example of a Stationary Time Series: the AR(1) model

i. AR(1) Time Series Model $yytt$ = Ø0 + Ø1$yytt$−1 + $aatt$ when |Ø1| < 1

ii. Mean, Variance, Auto covariance, and Autocorrelation

iii. The Special Case of Ø1 = 1. The Random Walk model.

iv. The Random Walk Model in not Stationary

v. Differing Prediction Profiles for the two cases: |Ø1| < 1 versus Ø1 = 1

vi. Do Stock Prices follow a Random Walk?

UNIT-V

Box Jenkins Models for Stationary-- Non-Seasonal Time Series -- Some Simple Box-Jenkins Models and Their Properties i. ARMA(0,0) ii. MA(1) iii. AR(1) iv. ARMA(1,1) v. General Notation vi. Concepts of Stationarity and Invertibility-- Identification Tools -- Autocorrelation

Function (ACF) --Partial Autocorrelation Function (PACF) -- Pattern Table -- Sample Counterparts -- Information Criteria -- P/Q Box -- Box-Jenkins Models – Forecasting for Stationary, Non-Seasonal Time Series-- Box-Jenkins Models for Non-Seasonal, Stochastically-Trending Time Series - The Transfer Function Model --- The Equal-Lag Length Vector Autoregressive Model -- System-Wide Goodness of Fit Measures to Help Choose the Lag-Length E. Using Out-of-Sample Forecasting Experiments to Detect Useful ―Extra‖ Variables for use in Forecasting a Variable of Interest -- Diebold-Mariano Test for Significant Differences in Forecasting Accuracies-- Combination Forecasting --Some Basic Theorems on Diversification of Forecasts -- Nelson Combination Method -- Granger-Ramanathan Combination Method -- Combinations with Time-Varying Weights --- Application to Economic Time Series.

References

1. Berndt, E.R. (1991) ―The Practice of Econometrics‖, Reading, Mass: AddisonWesley,
2. Gujrati, Damodar, N. (1995), Basic Econometrics, Mc Graw Hill, New Delhi.
3. Intriligator, M., R.G. Bodkin, and C. Hsiaq. (1996), Econometric Models, Techniques and Applications. Prentice Hall,
4. Johnson, J. (1984), Econometric Methods. New York: Mc Graw-Hill.
5. Kmenta, J. (1986), Elements of Econometrics. New York: Macmillan,
6. Krishna, K.L. ((1997) (Ed), Econometric Application in India Oxford University Press, New Delhi.
7. Lott, W., and S.C. Ray. (1992), Applied Econometrics: Problems and Data Sets. Fort Worth, Tex: The Dryden Press.
8. Maddala, G.S. (1977), Econometrics. Mc Graw-Hill, Inc.
9. J. Holton Wilson and Barry Keating(2009). Business Forecasting, Sixth Edition McGraw-Hill/Irwin

DATA MINING & MACHINE LEARNING

FINANCIAL ANALYTICS

UNIT-I

Financial analytics: Concept and Practices- Data science - What is R and its application - Language features: functions-- Assignment-- Arguments and types. Financial Statistics: Concept and mathematical expectation - Probability - Mean; SD and Variance - Skewness and Kurtosis - Covariance and correlation - Capital Asset Pricing model.

UNIT-II

Financial Securities: Bond and Stock investments - Housing and Euro crisis - Securities Datasets and Visualization - Plotting multiple series. Time Series and Sharpe ratio: Examining and Stationary - Auto Regressive and integrated moving average Processes-- Time periods and Annualizing - Ranking investment candidates - Sharpe Ratio for Income Statement growth.

UNIT-III

Markowitz means - variance optimization - Optimal Portfolio of two risky assets - Data mining with Portfolio optimization- Cluster Analysis - K -means Clustering and Algorithm - Covariance and Precision matrices - Usage of Regression.

UNIT-IV

Ganging the market Sentiment: Mark ov Regime Switching model - Bayesian reasoning - Beta distribution. Stimulating Trading Strategies: Foreign exchange markets - Chart analytics - Initialization and finalization - Bayesian Reasoning within Positions. Black - Scholes model and option - Implied volatility: Black - Scholes model: Concept and applications - Derivation - Algorithm for - Implied volatility.

UNIT-V

Prediction using fundamentals and binomial model for options: Best income statement Portfolio - obtaining Price Statistics - combining the income statement with Price statistics - Prediction using classification trees and Recursive Partitioning. Applying Computational finance - risk Neutral Pricing and No Arbitrage - High Risk - Free Rate Environment.

Reference Book

Financial Analytics with R _ Mark J. Bennets, Cambridge University Press.

HR ANALYTICS

UNIT-I

HR Analytics in Perspective: Role of Analytics, Defining HR Analytics, The Third Wave for HR value creation, HR Measurement journey in tune with HR maturity journey Understanding the organizational system (Lean), Locating the HR challenge in the system, Valuing HR Analytics in the organizational system, Typical problems. Case Studies

UNIT-II

HRA Frameworks: Current approaches to measuring HR and reporting value from HR contributions, Strategic HR Metrics versus Benchmarking, HR Scorecards & Workforce Scorecards and how they are different from HR Analytics, HR Maturity Framework: From level 1 to level 5, HR Analytics Frameworks: (a) LAMP framework; (b) HCM: 21 Framework and (c) Talentship Framework, 5 overarching components of an effective Analytics framework.

UNIT-III

Basics of HR Analytics: Basics of HR Analytics, what is Analytics, Evolution, Analytical capabilities, Analytic value chain, Analytical Model, Typical application of HR analytics. Insight into Data Driven HRA: Typical data sources, Typical questions faced (survey), Typical data issues, Connecting HR Analytics to business benefit (case studies), Techniques for establishing questions, Building support and interest, Obtaining data, Cleaning data (exercise), Supplementing data.

UNIT-IV

HR Matrics: Defining metrics, Demographics, data sources and requirements, Types of data, tying data sets together, Difficulties in obtaining data, ethics of measurement and evaluation. Human capital analytics continuum. HR Dashboards: Statistical software used for HR analytics: MS-Excel, IBM- SPSS, IBMAMOS, SAS, and R programming and data visualization tools such as Tableau, Ploty, Click view and Fusion Charts.

UNIT-V

HR Scorecard: Assessing HR Program, engagement and Turnover, Finding money in Analytics, Linking HR Data to operational performance, HR Data and stock performance. Creating HR Scorecard, develop an HR measurement system, guidelines for implementing a HR Scorecard.

References

1. Moore, McCabe, Duckworth, and Alwan. The Practice of Business Statistics: Using Data for Decisions, Second Edition, New York: W.H.Freeman, 2008.
2. Predictive analytics for Human Resources, Jac Fitz- enz, John R. Mattox, II, Wiley, 2014.
3. Human Capital Analytics: Gene Pease Boyce Byerly, Jac Fitz-enz, Wiley,2013.
4. The HR Scorecard: Linking People, Strategy, and Performance, by Brian E. Becker, Mark A. Huselid, Mark A Huselid, David Ulrich, 2001.
5. HR Analytics: The What, Why and How, by Tracey Smith

IV SEMESTER - INTERNATIONAL BUSINESS

S. No	Course Code	SUBJECT TITLE
1	EIB-401	International Advertising & Brand Management
2	EIB-402	International Supply Chain Management
3	EIB-403	Global HR Management
4	EIB-404	Green Business Management

INTERNATIONAL ADVERTISING & BRAND MANAGEMENT

UNIT-I

International Advertising: Its importance and nature; International communication model; Integrated international marketing communications; Meaning and nature of advertising; International advertising complexities and issues; Major international advertising decisions and influencing factors; Determination of target audience in international markets; Determining advertising international objectives; DAGMAR Approach; Determining advertising budget.

UNIT-II

Developing International Advertising Campaign: Determining international advertising message and copy - Headline, body copy, logo, illustration and layout; Creative styles and advertising appeals; International Media planning –Types of media, media selection and scheduling Advertising through Internet

UNIT-III

Organization and Evaluation of International Advertising Efforts: In-house arrangements; Using advertising agencies– selection, compensation and appraisal of advertising agency; Evaluating Advertising Effectiveness- Before and after advertising tests and techniques; Complexities and issues; Ethical issues in international advertising.

UNIT-IV

Basics of Branding: Importance of branding; Basic branding concepts- Brand personality, brand image, brand identity, brand equity and brand loyalty; Product vs. corporate branding: Major branding decisions. Brand Creation and Development: Identifying and selecting brand name; Building brand personality; International Brand positioning and re-launch; Brand extension; Enhancing brand image through sponsorship and event management; Building brands through Internet.

UNIT-V

Developing International Brands: Local, foreign and global brands; Pre-requisites and process; Country-of-origin effects and global branding; Building Indian brands for global markets.

REFERENCES

1. Mooij, M. D. (2010). Global Marketing and Advertising: Understandung Cultural Paradoxes. Sage Publications.
2. Moorthi, Y. L. (2009). Brand Management: The Indian Context. Vikas Publishing House Pvt Limited.
3. Jones, J. P. (2000). International Advertising: Realities and Myths. London: Sage Publications Inc.

INTERNATIONAL SUPPLY CHAIN MANAGEMENT

Objectives:

1 To understand the strategic role of logistics management

2 To study the important modes of logistics operations

3 To Know supply chain techniques in an international perspective.

Learning Outcomes:

1. Able to Understand the strategic role of Logistics and Supply chain Management in the cost reduction and offering improved service to the customers.

2. Combining the traditional physical distribution activity with modern Information Technology to have sustainable competitice advantage to the organization Globaly.

UNIT-I

Logistics Management: Concepts – Elements of the logistic System – Marketing and logistic mix – Logistics and marketing interface – Value-chain and production efficiency.

UNIT-II

Types of shipments – Shipping systems: linear, Tramp, conference, chartering, Baltic freight exchange – Shipping intermediaries: agents , forwarders, brokers and others – containerization – types of containers – ICDs – CFS – CONCOR. Air Transport: Air transport – Air freight – IATA – Cargo handling – Designing the International Information system – system modules – Distribution and Transportation.

UNIT-III

Distribution Operations and Performance Measurement - Order Processing, Picking Strategies and Packing Methods - Key Performance Indicators (KPIs) for Distribution and Warehouse Management - Continuous Improvement and Lean Principles in Distribution - Challenges and Future Trends - Sustainability in Distribution and Warehouse Operations - Omni-Channel Distribution and E-Commerce Implications - Reverse Logistics and Handling Returns.

UNIT-IV

Supply chain: supply chain drivers and metrics - Efficient and responsive supply chain - Designing supply chain network: Distribution network – Factors influencing distribution - Transportation decision in supply chain management

UNIT-V

Forecasting and planning in supply chain management – Pricing in supply chain management- Role of IT in supply chain management - co-ordination in supply chain management.

Textbooks

1. Rama Gopal C. (2007). Export Import Procedures - Documentation and Logistics: New Age International.

2. Usha KiranRai. (2007) Export-Import and Logistics Management: PHI Learning Pvt. Ltd. 3. Justin Paul & Rajiv Aserkar (2010). Export Import Management: Oxford University Press.

GLOBAL HR MANAGEMENT

GREEN BUSINESS MANAGEMENT

The objective of the course is to impart students in understanding of green business, its advantages, issues and opportunities and to provide knowledge over the strategies for building eco-business.

UNIT-I

Introduction to Green Management: The Concept of Green Management; Evolution; nature, scope, importance and types; Developing a theory; Green Management in India; Relevance in twenty first century

UNIT-II

Organizational Environment; Indian Corporate Structure and Environment; How to go green; spreading the concept in organization; Environmental and sustainability issues for the production of high-tech components and materials, Life Cycle Analysis of materials, sustainable production and its role in corporate environmental responsibility (CER).

UNIT-III

Approaches from Ecological Economics; Indicators of sustainability; Eco- system services and their sustainable use; Bio-diversity; Indian perspective; Alternate theories

UNIT-IV

Environmental Reporting and ISO 14001; Climate change business and ISO 14064; Green financing; Financial initiative by UNEP; Green energy management; Green product management

UNIT-V

Green Techniques and Methods; Green tax incentives and rebates (to green projects and companies); Green project management in action; Business redesign; Eco-commerce models

Text Books:

1. Green Management and Green Technologies: Exploring the Causal Relationship by Jazmin SeijasNogarida , ZEW Publications.
2. The Green Energy Management Book by Leo A. Meyer, LAMA books

References:

1. Green Marketing and Management: A global Perspective by John F. Whaik, Qbase Technologies.
2. Green Project Management by Richard Maltzman And David Shiden, CRC Press Books.
3. Green and World by Andrew S. Winston, Yale Press

IV SEMESTER
ARTIFICIAL INTELLIGENCE

S. No	Course Code	SUBJECT TITLE
1	EAI-401	Natural Language Processing
2	EAI-402	Augmented Reality & Virtual Reality
3	EAI-403	Deep Learning
4	EAI-404	Data Visualization

NATURAL LANGUAGE PROCESSING

Course Objectives:

This course introduces the fundamental concepts and techniques of natural language processing (NLP).

1. Students will gain an in-depth understanding of the computational properties of natural languages and the commonly used algorithms for processing linguistic information.
2. The course examines NLP models and algorithms using both the traditional symbolic and the more recent statistical approaches.
3. Enable students to be capable to describe the application based on natural language processing and to show the points of syntactic, semantic and pragmatic processing.

UNIT-I

INTRODUCTION: Origins and challenges of NLP – Language Modeling: Grammar-based LM, Statistical LM – Regular Expressions, Finite-State Automata – English Morphology, Transducers for lexicon and rules, Tokenization, Detecting and Correcting Spelling Errors, Minimum Edit Distance.

UNIT-II

WORD LEVEL ANALYSIS: Unsmoothed N-grams, Evaluating N-grams, Smoothing, Interpolation and Backoff – Word Classes, Part- of-Speech Tagging, Rule-based, Stochastic and Transformation-based tagging, Issues in PoS tagging – Hidden Markov and Maximum Entropy models.

UNIT-III

SYNTACTIC ANALYSIS: Context-Free Grammars, Grammar rules for English, Treebanks, Normal Forms for grammar – Dependency Grammar – Syntactic Parsing, Ambiguity, Dynamic Programming parsing – Shallow parsing Probabilistic CFG, Probabilistic CYK, Probabilistic Lexicalized CFGs – Feature structures, Unification of feature structures

UNIT-IV

SEMANTICS AND PRAGMATICS: Requirements for representation, First-Order Logic, Description Logics – Syntax-Driven Semantic analysis, Semantic attachments – Word Senses, Relations between Senses, Thematic Roles, selectional restrictions – Word Sense Disambiguation, WSD using Supervised, Dictionary & Thesaurus, Bootstrapping methods – Word Similarity using Thesaurus and Distributional methods.

UNIT-V

DISCOURSE ANALYSIS AND LEXICAL RESOURCES: Discourse segmentation, Coherence – Reference Phenomena, Anaphora Resolution using Hobbs and Centering Algorithm – Coreference Resolution – Resources: Porter Stemmer, Lemmatizer, Penn Treebank, Brill's Tagger, WordNet, PropBank, FrameNet, Brown Corpus, British National Corpus (BNC).

Text Books:

1. Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech, 2ndEdition, Daniel Jurafsky, James H. Martin - Pearson Publication,2014.
2. Natural Language Processing with Python, First Edition, Steven Bird, Ewan Klein and Edward Loper, OReilly Media,2009.

Reference Books:

1. Language Processing with Java and Ling Pipe Cookbook, 1stEdition, Breck Baldwin, Atlantic Publisher, 2015.
2. Natural Language Processing with Java, 2ndEdition, Richard M Reese, OReilly Media,2015.
3. Handbook of Natural Language Processing, Second, NitinIndurkhya and Fred J. Damerau, Chapman and Hall/CRC Press, 2010.Edition
4. Natural Language Processing and Information Retrieval, 3rdEdition, TanveerSiddiqui, U.S. Tiwary, Oxford University Press,2008.

IV SEMESTER

L	T	P	C
3	0	0	3

AUGMENTED REALITY & VIRTUAL REALITY

Objectives:

- Provide a foundation to the fast growing field of AR and make the students aware of the various AR concepts.
- To give historical and modern overviews and perspectives on virtual reality. It describes the fundamentals of sensation, perception, technical and engineering aspects of virtual reality systems.

UNIT - I

Introduction to Augmented Reality: Augmented Reality - Defining augmented reality, history of augmented reality, Examples, Related fields

Displays: Multimodal Displays, Visual Perception, Requirements and Characteristics, Spatial Display Model, Visual Displays

Tracking: Tracking, Calibration, and Registration, Coordinate Systems, Characteristics of Tracking Technology, Stationary Tracking Systems, Mobile Sensors

UNIT - II

Computer Vision for Augmented Reality: Marker Tracking, Multiple-Camera Infrared Tracking, Natural Feature Tracking by Detection, Outdoor Tracking.

Interaction: Output Modalities, Input Modalities, Tangible Interfaces, Virtual User Interfaces on Real Surfaces, Augmented Paper, Multi-view Interfaces, Haptic Interaction

Software Architectures: AR Application Requirements, Software Engineering Requirements, Distributed Object Systems, Dataflow, Scene Graphs

UNIT - III

Introduction to Virtual Reality: Defining Virtual Reality, History of VR, Human Physiology and Perception

The Geometry of Virtual Worlds: Geometric Models, Axis-Angle Representations of Rotation, Viewing Transformations

Light and Optics: Basic Behavior of Light, Lenses, Optical Aberrations, The Human Eye, Cameras, Displays

UNIT - IV

The Physiology of Human Vision: From the Cornea to Photoreceptors, From Photoreceptors to the Visual Cortex, Eye Movements, Implications for VR

Visual Perception: Visual Perception - Perception of Depth, Perception of Motion, Perception of Color Visual Rendering: Visual Rendering -Ray Tracing and Shading Models, Rasterization, Correcting Optical Distortions, Improving Latency and Frame Rates, Immersive Photos and Videos

UNIT - V

Motion in Real and Virtual Worlds: Velocities and Accelerations, The Vestibular System, Physics in the Virtual World, Mismatched Motion and Vection

Interaction: Motor Programs and Remapping, Locomotion, Social Interaction

Audio: The Physics of Sound, The Physiology of Human Hearing, Auditory Perception, Auditory Rendering

Text Books:

1. Augmented Reality: Principles & Practice by Schmalstieg / Hollerer, Pearson Education India;First edition (12 October 2016),ISBN-10: 9332578494
2. Virtual Reality, Steven M. LaValle, Cambridge University Press, 2016

Reference Books:

1. Allan Fowler-AR Game Development‖, 1st Edition, A press Publications, 2018, ISBN 978-1484236178
2. Understanding Virtual Reality: Interface, Application and Design, William R Sherman and Alan B Craig, (The Morgan Kaufmann Series in Computer Graphics)". Morgan Kaufmann Publishers, San Francisco, CA, 2002
3. Developing Virtual Reality Applications: Foundations of Effective Design, Alan B Craig, William R Sherman and Jeffrey D Will, Morgan Kaufmann, 2009
4. Designing for Mixed Reality, Kharis O'Connell Published by O'Reilly Media, Inc., 2016, ISBN:9781491962381
5. Sanni Siltanen- Theory and applications of marker-based augmented reality. Julkaisija – Utgivare Publisher. 2012. ISBN 978-951-38-7449-0
6. Gerard Jounghyun Kim, "Designing Virtual Systems: The Structured Approach", 2005

IV SEMESTER

L	T	P	C
3	0	0	3

DEEP LEARNING

Course Objectives: The main objective of the course is to make students:

- Learn deep learning methods for working with sequential data,
- Learn deep recurrent and memory networks,
- Learn deep Turing machines,
- Apply such deep learning mechanisms to various learning problems.
- Know the open issues in deep learning, and have a grasp of the current research directions.

UNIT-I

Fundamentals of Deep Learning: Artificial Intelligence, History of Machine learning: Probabilistic Modeling, Early Neural Networks, Kernel Methods, Decision Trees, Random forests and Gradient Boosting Machines, Fundamentals of Machine Learning: Four Branches of Machine Learning, Evaluating Machine learning Models, Overfitting and Underfitting. [Text Book 2]

UNIT-II

Introducing Deep Learning: Biological and Machine Vision, Human and Machine Language, Artificial Neural Networks, Training Deep Networks, Improving Deep Networks. [Text Book3]

UNIT-III

Neural Networks: Anatomy of Neural Network, Introduction to Keras: Keras, Tensor Flow, Theano and CNTK, Setting up Deep Learning Workstation, Classifying Movie Reviews: Binary Classification, Classifying newswires: Multiclass Classification. [Text Book 2]

UNIT-IV

Convolutional Neural Networks: Nerual Network and Representation Learing, Convolutional Layers, Multichannel Convolution Operation, Recurrent Neural Networks: Introduction to RNN, RNN Code, PyTorch Tensors: Deep Learning with PyTorch, CNN in PyTorch. [Text Book 3]

UNIT-V

Interactive Applications of Deep Learning: Machine Vision, Natural Language processing, Generative Adversial Networks, Deep Reinforcement Learning. [Text Book 1]

Deep Learning Research: Autoencoders, Deep Generative Models: Boltzmann Machines Restricted Boltzmann Machines, Deep Belief Networks. [Text Book 1]

Text Books:

1. Deep Learning- Ian Goodfellow, Yoshua Bengio and Aaron Courvile, MIT Press, 2016
2. Deep Learning with Python - Francois Chollet, Released December 2017, Publisher(s): Manning Publications, ISBN: 9781617294433
3. Deep Learning Illustrated: A Visual, Interactive Guide to Artificial Intelligence - Jon

Krohn, Grant Beyleveld, Aglaé Bassens, Released September 2019, Publisher(s): Addison-Wesley Professional, ISBN: 9780135116821

4. Deep Learning from Scratch - Seth Weidman, Released September 2019, Publisher(s): O'Reilly Media, Inc., ISBN: 9781492041412

Reference Books:

1. Artificial Neural Networks, Yegnanarayana, B., PHI Learning Pvt. Ltd, 2009.
2. Matrix Computations, Golub, G.,H., and Van Loan,C.,F, JHU Press,2013.
3. Neural Networks: A Classroom Approach, Satish Kumar, Tata McGraw-Hill Education, 2004.

Web Link:

Swayam NPTEL: Deep Learning: https://onlinecourses.nptel.ac.in/noc22_cs22/preview

IV SESMETER

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DATA VISUALIZATION

Course Objectives:

• To understand the fundamentals of data visualization.
• To know the working principles of various information visualization depth tools.
• To acquire knowledge about the issues in data representation.
• To visualize the Data using tools Tableau
• To gain skill in designing real time interactive information visualization system.

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

• Apply mathematics and basic science knowledge for designing information visualizing System.
• Collect data ethically and solve engineering problem in visualizing the information.
• Implement algorithms and techniques for interactive information visualization.
• Conduct experiments by applying various modern visualization tool and solve the space layout problem.
• Analyze and design system to visualize multidisciplinary multivariate Data individually or in teams.

Develop a cost effective and a scalable information visualization system.

UNIT-I

Context of data visualization – Definition, Methodology, Visualization design objectives. Key Factors – Purpose, visualization function and tone, visualization design options – Data representation, Data Presentation, Seven stages of data visualization, widgets, data visualization tools. Mapping - Time Series - Connections and Correlations - Scatterplot Maps - Trees, Hierarchies, and Recursion - Networks and Graphs

UNIT-II

VISUALIZATION TECHNIQUES FOR TIME-SERIES, TREES & GRAPHS Mapping - Time series - Connections and correlations – Indicator-Area chart-Pivot table- Scatter charts, Scatter maps - Tree maps, Space filling and non-space filling methods Hierarchies and Recursion - Networks and Graphs-Displaying Arbitrary Graphs-node link graph-Matrix representation for graphs- Info graphics

UNIT-III

TEXT AND DOCUMENT VISUALIZATION : Acquiring data, - Where to Find Data, Tools for Acquiring Data from the Internet, Locating Files for Use with Processing, Loading Text Data, Dealing with Files and Folders, Listing Files in a Folder ,Asynchronous Image Downloads, Web Techniques, Parsing data - Levels of Effort, Tools for Gathering Clues, Text Markup Languages, Regular Expressions, Grammars and BNF Notation, Compressed Data, Vectors and Geometry, Binary Data Formats, Advanced Detective Work.

UNIT-IV

INTERACTIVE DATA VISUALIZATION: Drawing with data – Scales – Axes – Updates, Transition and Motion – Interactivity - Layouts – Geomapping – Exporting, Framework – D3.js, Tableau Dashboards

UNIT-V

SECURITY IN DATA VISUALIZATION : Port scan visualization - Vulnerability assessment and exploitation - Firewall log visualization - Intrusion detection log visualization - Attacking and defending visualization systems – Creating secured visualization system..

REFERENCES:

1) Colin Ware, "Information Visualization Perception for Design", Third edition, Margon Kaufmann Publishers, 2012.
2) Robert Spence, "Information Visualization Design for Interaction", Second Edition, Pearson Education.
3) Matthew O. Ward, George Grinstein, Daniel Keim, "Interactive Data Visualization: Foundation, Techniques and Applications

IV SEMESTER
BANKING AND INSURNACE MANAGEMENT

S. No	Course Code	SUBJECT TITLE
1	EBI-401	International finance
2	EBI-402	Retail banking
3	EBI-403	Management and Regulation of Banking and Insurance Companies
4	EBI-404	Information Technology in Banking and Insurance Business

IV SEMESTER

L	T	P	C
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INTERNATIONAL FINANCE

Course Objective: The course focuses to provide an understanding of both the key features of foreign exchange markets and the actual problems of Multinational Corporation within an environment of free flows of foreign capital and floating exchange rates. Course Outcomes: On successful completion of this course, the students will be able: CO1: To revise the Concept of International Financial Management CO2: To discuss the Concept of International Financial Markets CO3: To identify with the Concept of International Financial Institutions CO4: To recognize the concept of International Financial Instruments and FDI CO5: To assess multinational corporate decisions in Global Markets

UNIT-1

Introduction to International Finance International Financial Environment: Overview, Nature and Scope of International Finance Evolution of international financial system–gold standard, Breton woods standard, floating exchange rate; International Finance Management VS Domestic Financial Management.

UNIT-1I

International Financial Markets Eurocurrency market, international bond market, international equity market, international money market.

UNIT-1II

International Financial Institutions IMF, Bank for International Settlements; international banking-euro bank, types of banking offices-correspondent bank, representative office, foreign branch, subsidiary bank, offshore bank.

UNIT-1V

International Financial Instruments Introduction to International Financial Instruments Types of International Financial -Euro CP, Eurobonds, foreign bonds, global bonds, euro equity, ADR, GDRs.

UNIT-V

Multinational Corporate Decisions in Global Market Foreign investment decision- Foreign direct investment (FDI)–motives, FDI theories-theory of comparative advantage, OLI paradigm of FDI in India. FII's Definition, role of FII's, Different Between FDI & FII.

Text Books:

1. O P Agarwal International Financial Management, 3rd Edition 2014 HPH
2. Gupta Shashi K., Rangi Praneet International Finance 2nd Edition 2017, Kalyani Publishers

Reference Books:

1. Eun C.S., Resnick B.G., "International Financial Management", 2010, Tata McGraw Hill Education Pvt. Ltd., 4th Ed. Special Indian Edition
2. Shailaja G, "International Finance", 2010, 2nd Ed. Orient Black'swan.
3. Hendrik Van den Berg, "International Finance and Open Economy Macro Economics", 2009, 1st Ed. Cambridge.
4. Sharan V., "International Financial Management", 2009, 5th Ed. PHI, EEE.
5. Madura J., "International Financial Management", 2010, 4th Ed. Cengage Learning.
6. Apte P.G., "International Finance", 2008, 2nd Ed. McGraw Hill.
7. Madhu Vij, "International Financial Management", 2010, 3rd Ed. Excel Books.
8. Vyuptakesh Sharan, International Financial Management, , 4th Ed, 2006, PHI Learning Pvt. Ltd.

IV SEMESTER

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RETAIL BANKING

Objective: To enable the students familiarizing with operational aspects of retail banking products and developing suitable strategies to broaden the retail client base.

UNIT-1

Concept of Retail Banking-Distinction between Retail and Corporate wholesale Banking; Retail Products Overview: Customer requirements, products development process. Liabilities and Assets Products, Approval process for retail loans, credit scoring.

UNIT-1I

Important Retail asset' products: Home loans, Auto/vehicle loans, Personal loans. Educational loans -Study of these products in terms of Eligibility, Purpose, Amounts, Margin. Security, Disbursement, Moratorium, Prepayment issues, Repayments/Collection; Credit/Debit Cards- Eligibility, Purpose, Amounts, Margin, Security, Process of using the cards, Billing Cycle, Credit Points; Other products/Remittances/Funds Transfer

UNIT-1II

Retail Strategies: Tie-up with institutions for retail loans; Delivery Channels-Branch. Extension counters, ATMs, POS, Internet Banking, M-Banking; Selling process in retail products; Customer Relationship Management-Role and impact of customer relationship management. stages in CRM process; Technology for retail banking

UNIT-1V

Trends in Retailing-New products like insurance, Demat services, online/phone banking, property services, investment advisory/wealth management, Reverse Mortgage-Growth of e-banking, Cross selling opp011unities

UNIT-V

Recovery of Retail Loans-Defaults, Rescheduling, recovery process-SARAFAESI Act. ORT Act, use of Lok Adalat forum, Recovery Agents- RBI guidelines (Case Studies are compulsory)

Suggested Readings:

1. Agarwal, O.P., Fundamentals of Retail Banking, Himalaya Publishing House, Mumbai.
2. Jha, SM, Banking Marketing, Himalaya Publishing House, Mumbai
3. Khan, MY, Indian Financial System,; Tata McGraw Hill Publishing Company Ltd., NewDelhi
4. Uppal;, RK, & Bishnupriya N, Modern Banking in India, New Century Publications, NewDelhi
5. Uppal, RK, Banking Services and IT, New Century Publications, NewDelhi
6. Guruswamy,S., Banking in the New Millenium, New Century Publications, NewDelhi
7. Indian Institute of Banking & Finance, Retail Banking,Mumbai

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IV SEMESTER

MANAGEMENT AND REGULATIONS OF BANKING AND INSURANCE COMPANIES

Objective: To provide the students an understanding about the management of insurance and its legal environment in India.

To provide the students an understanding about the management and regulation of banks and its applications in India.

Outcome: After completion of the course a student will acquaint with the management of insurance and its legal environment in India.

After completion of the course a student will acquaint with the management and regulation of banks and its applications in India.

UNIT-I

Organization and structure of Banks – Branch banking & Unit Banking; Investment banking & Mixed Banking; Universal Banking & virtual banking; Mobile Banking & Tele- Banking; Public Sector and Private Sector Banks; Nationalization of Commercial Banks – Objectives – Progress.- Underwriting & claim management: Meaning, definition, objectives and principles of underwriting; underwriting in life & non-life insurance; Claimmanagement in life and non-life insurance.

UNIT-II

Management of Bank: Structure & role; Asset classification &Management; customer management-Types of customers; Relationship with customer; Management of accounts; Types of accounts; NPA; Pass Book; Cheque; Features, Crossing, Endorsements.-Insurance pricing & Insurance marketing: Fundamental of insurance pricing, pricing objectives, rating, life Vs non-life insurance pricing; marketing of insurance products, distribution channels, marketing strategies of Indian insurance products

UNIT-III

Banking Legislation and supervision: Banking Laws and Reforms- Banking Regulation Acts-1949; CRR, Bank rate, SLR; economic and prudential regulation; Establishment of banking institutions; expansion of branches; merger and acquisition in banks.

UNIT-IV

Regulatory authority of bank- Reserve Bank India-Evolution; RBI Act - 1935- main features; regulatory methods; Bank Ombudsman-Function and role; Changing Dimensions of Regulatory and Supervisory Framework.

UNIT V:

Insurance Intermediaries & Reinsurance: Insurance intermediaries and their functioning; Surveyors and loss assessors; third party administrators; Meaning of Reinsurance; role of reinsurer; techniques of reinsurance; reinsurance in Indian perspective. -Regulation of Insurance Business: Legislative & Regulative matters- Aim, Objective & Areas of regulation; Main features of-Insurance Act- 1938, IRDA Act 1999, LIC Act 1956, Consumer Protection Act 1986; Insurance Ombudsman; Malhotra Committee; Insurance Advisory Committee.

Reference Books:

1. Basu : Theory and Practice of Development Banking
2. Muranjan S.K. : Modern Banking in India
3. Reddy &Appanniah : Banking Theory and Practice
4. Natarajan&Gordon : Banking Theory and Practice
5. Shekar&Shekar : Banking theory and practice, Vikas publishing house Pvt. Ltd.
6. Insurance and Risk Management- P.K. Gupta
7. Risk Management- G. Kotreshwar
8. Principle and Practices of Insurance: P Periaswamy
9. Principles of Risk Management & Insurance– George E. Rejda.
10. Risk Management &Insurance- Scott Harington
11. Risk Management & Insurance- C. Arthur Williams

IV SEMESTER

L	T	P	C
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INFORMATION TECHNOLOGY IN BANKING AND INSURANCE BUSINESS

Objective: To provide the students a basic knowledge about the role of Information Technology in Banking and Insurance sector and the scenario of present development. Outcome: After completion of the course a student will acquaint with the role of Information Technology in Banking and Insurance sector and the scenario of present development.

UNIT-1

Information Technology: Meaning; Role of IT in business; Limitations; Internet Meaning, Basic Internet Terminology; Search Engines, Usage of Internet to society, E – Commerce –meaning, Characteristics, Advantages and limitations, Types, Difference between traditional commerce and e-commerce.

UNIT-1I

E-Banking and Retail Banking: E-banking – Definition; Services Provided; Facets of E-banking; Types; Benefits; Drawbacks; Banking Services through Internet. Retail Banking; Difference between Core banking and Retail banking; Advantages and disadvantages of retail banking; Services Offered in Retail Banks; Opportunities and Challenges for Retail Banking; Types of Internet Banking Risk.

UNIT-1II

IT in Insurance Sector: Importance of IT in Insurance Sector in India; Companies offering insurance through internet in India; Apply insurance online-process; Growth of online insurance services in India.

UNIT-1V

Cyber Law in India: Genesis of IT Legislation in India, Objectives of IT Legislation in India, IT Amendment Act 2008, ITA vs. ITAA, Other Acts amended by the IT Ac

UNIT-V

Accounting in Banking: An Introduction to Books, Ledgers and Registers of Banking Companies; Calculation-Rebate on Bills Discounted, NPAs and Capital Adequacy Ratio; Format of Financial Statements of Banking Companies. - Accounting in Insurance Companies: Accounting for Insurance CompaniesIntroduction; Classes of Insurance Business; Insurance Terminologies; Format of financial statement of Insurance Companies.

References:

1. Corporate Accounting : S.N. Maheshawari& S.K. Maheshawari, Vikas Publishing.
2. Corporate Accounting :Tulsian, Tata Mcgraw Hills Education.
3. Financial statement Analysis :DebanandaBaruah, Balaji Publication, New Delhi-110093
4. Corporate Finance –Satyanrayana , Discovery Publishing House, new Delhi
5.E-Banking Management: Issues, Solutions, and Strategies - Mahmood Shah & Steve Clarke - Information Science Reference (an imprint of IGI Global)
6. Banking and Finance on the Internet – Mary J Cronin

IV SEMESTER
BIG DATA ANALYTICS

S. No	Course Code	SUBJECT TITLE
1	EBD-401	Natural language processing
2	EBD-402	Deep learning
3	EBD-403	Cloud computing
4	EBD-404	Data Visualization with Power BI

NATURAL LANGUAGE PROCESSING

Course Objectives:

This course introduces the fundamental concepts and techniques of natural language processing (NLP).

- Students will gain an in-depth understanding of the computational properties of natural languages and the commonly used algorithms for processing linguistic information.
- The course examines NLP models and algorithms using both the traditional symbolic and the more recent statistical approaches.
- Enable students to be capable to describe the application based on natural language processing and to show the points of syntactic, semantic and pragmatic processing.

UNIT I

INTRODUCTION: Origins and challenges of NLP – Language Modeling: Grammar-based LM, Statistical LM – Regular Expressions, Finite-State Automata – English Morphology, Transducers for lexicon and rules, Tokenization, Detecting and Correcting Spelling Errors, Minimum Edit Distance.

UNIT II

WORD LEVEL ANALYSIS: Unsmoothed N-grams, Evaluating N-grams, Smoothing, Interpolation and Backoff – Word Classes, Part- of-Speech Tagging, Rule-based, Stochastic and Transformation-based tagging, Issues in PoS tagging – Hidden Markov and Maximum Entropy models.

UNIT III

SYNTACTIC ANALYSIS: Context-Free Grammars, Grammar rules for English, Treebanks, Normal Forms for grammar – Dependency Grammar – Syntactic Parsing, Ambiguity, Dynamic Programming parsing – Shallow parsing Probabilistic CFG, Probabilistic CYK, Probabilistic Lexicalized CFGs – Feature structures, Unification of feature structures

UNIT IV

SEMANTICS AND PRAGMATICS: Requirements for representation, First-Order Logic, Description Logics – Syntax-Driven Semantic analysis, Semantic attachments – Word Senses, Relations between Senses, Thematic Roles, selectional restrictions – Word Sense Disambiguation, WSD using Supervised, Dictionary & Thesaurus, Bootstrapping methods – Word Similarity using Thesaurus and Distributional methods.

UNIT V

DISCOURSE ANALYSIS AND LEXICAL RESOURCES: Discourse segmentation, Coherence – Reference Phenomena, Anaphora Resolution using Hobbs and Centering Algorithm – Coreference Resolution – Resources: Porter Stemmer, Lemmatizer, Penn Treebank, Brill's Tagger, WordNet, PropBank, FrameNet, Brown Corpus, British National Corpus (BNC).

Text Books:

1. Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech, 2ndEdition, Daniel Jurafsky, James H. Martin -Pearson Publication,2014.
2. Natural Language Processing with Python, First Edition, Steven Bird, Ewan Klein and Edward Loper, OReilly Media,2009.

3. Reference Books:
4. Language Processing with Java and Ling Pipe Cookbook, 1stEdition, Breck Baldwin, Atlantic Publisher, 2015.
5. Natural Language Processing with Java, 2ndEdition, Richard M Reese, OReilly Media,2015.
6. Handbook of Natural Language Processing, Second, NitinIndurkhya and Fred J. Damerau, Chapman and Hall/CRC Press, 2010.Edition
7. Natural Language Processing and Information Retrieval, 3rdEdition, TanveerSiddiqui,
8. U.S. Tiwary, Oxford University Press,2008.

IV SEMESTER

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DEEP LEARNING

Course Objectives: The main objective of the course is to make students:

- Learn deep learning methods for working with sequential data,
- Learn deep recurrent and memory networks,
- Learn deep Turing machines,
- Apply such deep learning mechanisms to various learning problems.
- Know the open issues in deep learning, and have a grasp of the current research directions.

UNIT I

Fundamentals of Deep Learning: Artificial Intelligence, History of Machine learning: Probabilistic Modeling, Early Neural Networks, Kernel Methods, Decision Trees, Random forests and Gradient Boosting Machines, Fundamentals of Machine Learning: Four Branches of Machine Learning, Evaluating Machine learning Models, Overfitting and Underfitting. [Text Book 2]

UNIT II

Introducing Deep Learning: Biological and Machine Vision, Human and Machine Language, Artificial Neural Networks, Training Deep Networks, Improving Deep Networks. [Text Book3]

UNIT III

Neural Networks: Anatomy of Neural Network, Introduction to Keras: Keras, TensorFlow, Theano and CNTK, Setting up Deep Learning Workstation, Classifying Movie Reviews: Binary Classification, Classifying newswires: Multiclass Classification. [Text Book 2]

UNIT IV

Convolutional Neural Networks: Nerual Network and Representation Learing, Convolutional Layers, Multichannel Convolution Operation, Recurrent Neural Networks: Introduction to RNN, RNN Code, PyTorch Tensors: Deep Learning with PyTorch, CNN in PyTorch. [Text Book 3]

UNIT V

Interactive Applications of Deep Learning: Machine Vision, Natural Language processing, Generative Adversial Networks, Deep Reinforcement Learning. [Text Book 1]

Deep Learning Research: Autoencoders, Deep Generative Models: Boltzmann Machines Restricted Boltzmann Machines, Deep Belief Networks. [Text Book 1]

Text Books:

1. Deep Learning- Ian Goodfellow, Yoshua Bengio and Aaron Courvile, MIT Press, 2016
2. Deep Learning with Python - Francois Chollet, Released December 2017, Publisher(s): Manning Publications, ISBN: 9781617294433
3. Deep Learning Illustrated: A Visual, Interactive Guide to Artificial Intelligence - Jon Krohn, Grant Beyleveld, Aglaé Bassens, Released September 2019, Publisher(s): Addison-Wesley Professional, ISBN: 9780135116821
4. Deep Learning from Scratch - Seth Weidman, Released September 2019, Publisher(s): O'Reilly Media, Inc., ISBN: 9781492041412

Reference Books:

1. Artificial Neural Networks, Yegnanarayana, B., PHI Learning Pvt. Ltd, 2009.
2. Matrix Computations, Golub, G.,H., and Van Loan,C.,F, JHU Press,2013.
3. Neural Networks: A Classroom Approach, Satish Kumar, Tata McGraw-Hill Education, 2004.

Web Link:

1. Swayam NPTEL: Deep Learning: https://onlinecourses.nptel.ac.in/noc22_cs22/preview

IV SEMESTER

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CLOUD COMPUTING

Course Objectives:

- To explain the evolving utility computing model called cloud computing.
- To introduce the various levels of services offered by cloud.
- To discuss the fundamentals of cloud enabling technologies such as distributed computing, service-oriented architecture and virtualization.
- To emphasize the security and other challenges in cloud computing.
- To introduce the advanced concepts such as containers, serverless computing and cloud-centric Internet of Things.

UNIT–I

Introduction to Cloud Computing Fundamentals: Cloud computing at a glance, defining a cloud, cloud computing reference model, types of services (IaaS, PaaS, SaaS), cloud deployment models (public, private, hybrid), utility computing, cloud computing characteristics and benefits, cloud service providers (Amazon Web Services, Microsoft Azure, Google AppEngine).

UNIT-II

Cloud Enabling Technologies: Ubiquitous Internet, parallel and distributed computing, elements of parallel computing, hardware architectures for parallel computing (SISD, SIMD, MISD, MIMD), elements of distributed computing, Inter-process communication, technologies for distributed computing, remote procedure calls (RPC), service-oriented architecture (SOA), Web services, virtualization.

UNIT-III

Virtualization and Containers: Characteristics of virtualized environments, taxonomy of virtualization techniques, virtualization and cloud Computing, pros and cons of virtualization, technology examples (XEN, VMware), building blocks of containers, container platforms (LXC, Docker), container orchestration, Docker Swarm and Kubernetes, public cloud VM (e.g. Amazon EC2) and container (e.g. Amazon Elastic Container Service) offerings.

UNIT-IV

Cloud computing challenges: Economics of the cloud, cloud interoperability and standards, scalability and fault tolerance, energy efficiency in clouds, federated clouds, cloud computing security, fundamentals of computer security, cloud security architecture, cloud shared responsibility model, security in cloud deployment models.

UNIT–V

Advanced concepts in cloud computing : Serverless computing, Function-as-a-Service, serverless computing architecture, public cloud (e.g. AWS Lambda) and open-source (e.g. OpenFaaS) serverless platforms, Internet of Things (IoT), applications, cloud-centric IoT and layers, edge and fog computing, DevOps, infrastructure-as-code, quantum cloud computing.

Text Books:

1. Mastering Cloud Computing, 2nd edition, RajkumarBuyya, Christian Vecchiola, ThamaraiSelvi, ShivanandaPoojara, Satish N. Srirama, Mc Graw Hill, 2024.
2. Distributed and Cloud Computing, Kai Hwang, Geoffery C. Fox, Jack J. Dongarra, Elsevier, 2012.

Reference Books:

1. Cloud Computing, Theory and Practice, Dan C Marinescu, 2nd edition, MK Elsevier, 2018.
2. Essentials of cloud Computing, K. Chandrasekhran, CRC press, 2014.
3. Online documentation and tutorials from cloud service providers (e.g., AWS, Azure, GCP)

IV SEMESTER

DATA VISUALIZATION

Course Objectives:

- To understand the fundamentals of data visualization.
- To know the working principles of various information visualization depth tools.
- To acquire knowledge about the issues in data representation.
- To visualize the Data using tools Tableau
- To gain skill in designing real time interactive information visualization system.

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

- Apply mathematics and basic science knowledge for designing information visualizing System.
- Collect data ethically and solve engineering problem in visualizing the information.
- Implement algorithms and techniques for interactive information visualization.
- Conduct experiments by applying various modern visualization tool and solve the space layout problem.
- Analyze and design system to visualize multidisciplinary multivariate Data individually or in teams.
- Develop a cost effective and a scalable information visualization system.

UNIT-1

Context of data visualization – Definition, Methodology, Visualization design objectives. Key Factors – Purpose, visualization function and tone, visualization design options – Data representation, Data Presentation, Seven stages of data visualization, widgets, data visualization tools. Mapping - Time Series - Connections and Correlations - Scatterplot Maps - Trees, Hierarchies, and Recursion - Networks and Graphs

UNIT-1I

VISUALIZATION TECHNIQUES FOR TIME-SERIES, TREES & GRAPHS Mapping - Time series - Connections and correlations – Indicator-Area chart-Pivot table- Scatter charts, Scatter maps - Tree maps, Space filling and non-space filling methods Hierarchies and Recursion - Networks and Graphs-Displaying Arbitrary Graphs-node link graph-Matrix representation for graphs- Info graphics

UNIT-1II

TEXT AND DOCUMENT VISUALIZATION : Acquiring data, - Where to Find Data, Tools for Acquiring Data from the Internet, Locating Files for Use with Processing, Loading Text Data, Dealing with Files and Folders, Listing Files in a Folder ,Asynchronous Image Downloads, Web Techniques, Parsing data - Levels of Effort, Tools for Gathering Clues, Text Markup Languages, Regular Expressions, Grammars and BNF Notation, Compressed Data, Vectors and Geometry, Binary Data Formats, Advanced Detective Work.

UNIT-1V

INTERACTIVE DATA VISUALIZATION: Drawing with data – Scales – Axes – Updates, Transition and Motion – Interactivity - Layouts – Geomapping – Exporting, Framework – D3.js, Tableau Dashboards

UNIT-V

SECURITY IN DATA VISUALIZATION: Port scan visualization - Vulnerability assessment and exploitation - Firewall log visualization - Intrusion detection log visualization - Attacking and defending visualization systems – Creating secured visualization system.

REFERENCES:

1. Colin Ware, “Information Visualization Perception for Design”, Third edition, Margon Kaufmann Publishers, 2012.
2. Robert Spence, “Information Visualization Design for Interaction”, Second Edition, Pearson Education.
3. Matthew O. Ward, George Grinstein, Daniel Keim, “Interactive Data Visualization: Foundation, Techniques and Applications”, Second Edition, A. K. Peters/CRC Press 2015

IV SEMESTER
PHARMACEUTICAL MANAGEMENT

S. No	Course Code	SUBJECT TITLE
1	EPHM-401	Pharmaceutical Advertising & Services Management
2	EPHM-402	Ethical Issues in Pharmaceutical Management
3	EPHM-403	
4	EPHM-404	

PHARMACEUTICAL ADVERTISING & SERVICES MANAGEMENT

Course Objectives:

1. To Develop skills and knowledge to create effective pharmaceutical advertising strategies, considering target audiences, messaging, branding, and compliance with regulatory requirements.
2. Analyze the Opposition- pre-grant opposition and post-grant opposition in pharma sector.
3. Applying the ethical considerations in pharmaceutical advertising, including transparency, accuracy, fair balance, and the promotion of responsible use of medicines.
4. Identify the principles of marketing and branding specific to the pharmaceutical industry, including market analysis, positioning, and differentiation of products and services.
5. Understand the insights into managing pharmaceutical services, such as patient support programs, adherence initiatives, and customer relationship management, to enhance patient satisfaction and improve healthcare outcomes.

Syllabus:

UNIT-1

Advertisement Management: Nature and scope of advertising, advertising methods, advantages and disadvantages of advertising,Purpose of advertising, Advertising planning and decision making, Planning framework, communication and persuasion process, Social, legal, and regulatory factors in advertising, Group influence and word of mouth advertising in pharma industry.

UNIT-1I

Role of media, selection of media for advertising, formulation of message, art of copywriting, Branding and packaging strategies, Brand equity, image and personality, packaging decisions, perceptual mapping of customers, control aspects of advertising, advertising budget in pharma sector.

UNIT-1II

Services marketing - meaning - nature of services - Types and importance - Relationship marketing, Mission, strategy, elements of service, service marketing plan & market segmentation.

UNIT-1V

Marketing mix decisions — unique features of developing, pricing, promoting, and distributing services — positioning and differentiations strategies quality of service industries — achievement and maintenance, customer support service.

UNIT-V

Nature and Pharmaceutical Services: — Understanding the pharma services and clinics. Understanding after sales services for any medical and pharmaceutical instruments. Services provided in hospitals and offered by charities - Educational Services - Miscellaneous Services.

Textbook:

1. Batra, R. Myers J.G. and Aeker D.A., Advertising Management, PHI Publications, Delhi.
2. Still R.R., Cundiff E.W., Govoni N.P., Sales Management, Decision Strategies and Cases, Prentice Hall India, Delhi.
3. Sangade C.H., Frybenger V. and Rotzoll K., Advertising Practice and Theory, AITBS Publisher & Distributors, Delhi.
4. Wells W., Burnett J., Moriatry S., Advertising Practice & Principles, PHI Publications, Delhi.
5. Arens W.F., Contemporary Advertising McGraw Hill/Irwin, New York.
6. Services Marketing: Valarie A. Zeithaml & Mary Jo Bitner, Integrating Customer Focus Across the Firm, Third Edition, 2004.
7. Services Marketing: Christopher H. Lovelock, Jochen Wirtz, Jayanta Chatterjee, People, Technology, Strategy (A South Asian Perspective) Fifth Edition 2017; Pearson Education
8. Services Marketing- love lock — Prentice Hall, 2021

Reference Books:

1. Mohan M., Advertising Management, Tata McGraw Hill, New York. Khan M., Sales and Distribution Management, Excel Books, Noida.
2. Gupta S.L., Sales and Distribution Management, Excel Books, Noida.
3. Ingramn T.N., La Forge R.W. and Avila R.A., Sales Management Analysis and Decision Making, Harcourt College Publishers, California.
4. Stanton W.J. and Spiro R., Management of Sale Force, McGraw Hill/Irwin, New York.
5. Services Marketing- S.M. Jha, Himalaya Publishing Company, 1998, Mumbai
6. Services Marketing- Principles and Practice - palmer, Prentice Hall, 1995

ETHICAL ISSUES IN PHARMACEUTICAL MANAGEMENT

Course Objectives:

1. Understanding the Various types of Intellectual Property Rights, Patentable Subject History of Indian Patent Protection.
2. Analyze the Opposition- pre-grant opposition and post-grant opposition in pharma sector.
3. Applying the Patent filing procedure in India, Patent filing procedure under PCT, sector in India.
4. Identify the impacts and opportunities from globalization in pharma sector.
5. Understand the importance and advantages of knowledge of Intellectual Property Right, and Salient features of Indian Patents.

Syllabus:

UNIT-1

Social responsibility and managerial ethics, improving ethical behaviour and ethical leadership, Ethical decision making and decision-making process, Theories of Business Ethics.

UNIT-1I

Ethics in Marketing: Product safety and Pricing-Ethical responsibility in Product- Advertising and Target Marketing Ethics of sales, advertising and product placement and Consumer Autonomy.

UNIT-1II

Ethics in HRM & Finance — HR related ethical issues - Institutional Culture — Frauds in drugs - Measures against Frauds in drugs — Frauds in Pharma sector.

UNIT-1V

Corporate social responsibility, Corporate Governance, Whistle blower and Whistle blower policy, managing diversity wart gender, race, ethnicity etc.

UNIT-V

Indian model of Governance- Good Corporate Governance — Land marks in emergence of Governance OECD Principles, Role of Government in Ensuring Corporate Governance — Governance issues relating to Board of Directors - Role of Media

Textbook:

1. S.K. Mandal: "Ethics in Business and Corporate Governance", TMH, New Delhi, 2012.
2. Marianne M Jennings: "Cases in Business Ethics", Cengage Learning, New Delhi, 2012.
3. S. Prabhakaran: "Business Ethics and Corporate Governance", Excel Books, New Delhi, 2011.
4. N. Balasubramanyam: "A Case Book on Corporate Governance and Stewardship", TMH, New Delhi, 2011.

Reference Books:

1. A.C. Fernando: "Business Ethics and Corporate Governance", Pearson Publishers, New Delhi, 2013.
2. Ethics in Human Resource Management, Dr. Srinju Kapoor, Prof Kotta Ramesh, Discovery Publishing, 2020

IV SEMESTER DIGITAL MARKETING

S. No	Course Code	SUBJECT TITLE
1	EDM-401	E – BUSINESS MANAGEMENT
2	EDM-402	SYSTEM ANALYSIS AND DESIGN
3	EDM-403	CONTENT MARKETING
4	EDM-404	AI IN DIGITAL MARKETING

E – BUSINESS MANAGEMENT

COURSE OBJECTIVE**:** To understand the practices and technology to start an online business.

UNIT-1

INTRODUCTION TO e-BUSINESS 8 e-business, e-business vs e-commerce, Economic forces – advantages – myths – e-business models, design, develop and manage e-business, Web 2.0 and Social Networking, Mobile Commerce, S-commerce

UNIT-1I

TECHNOLOGY INFRASTRUCTURE 10 Internet and World Wide Web, internet protocols - FTP, intranet and extranet, information publishing technology- basics of web server hardware and software.

UNIT-1II

BUSINESS APPLICATIONS 10 Consumer oriented e-business – e-tailing and models - Marketing on web – advertising, e-mail marketing, affiliated programs - e-CRM; online services, Business oriented e-business, e-governance, EDI on the internet, Delivery management system, Web Auctions, Virtual communities and Web portals – social media marketing

UNIT-1V

e-BUSINESS PAYMENTS AND SECURITY E-payments - Characteristics of payment of systems, protocols, e-cash, e-cheque and Micro payment systems- internet security – cryptography – security protocols – network security.

UNIT-V

LEGAL AND PRIVACY ISSUES 8 Legal, Ethics and privacy issues – Protection needs and methodology – consumer protection, cyber laws, contracts and warranties, Taxation and encryption policies.

REFERENCES

1. Efraim Turban, Jae K. Lee, David King, Ting Peng Liang, Deborrah Turban, Electronic Commerce A managerial perspective, Pearson Education Asia, 2010.

2. Parag Kulkarni, SunitaJahirabadkao, Pradeep Chande, e business, Oxford University Press, 2012.

3. Hentry Chan &el , E-Commerce – fundamentals and Applications, Wiley India Pvt Ltd, 2007.

4. Gary P. Schneider, Electronic commerce, Thomson course technology, Fourth annual edition, 2007

5. Bharat Bhasker, Electronic Commerce – Frame work technologies and Applications, 3rd Edition. Tata McGrawHill Publications, 2009

6. KamleshK.Bajaj and Debjani Nag, Ecommerce- the cutting edge of Business, Tata McGraw Hill Publications, 7th reprint, 2009.

SYSTEM ANALYSIS AND DESIGN

UNIT-1

System Analysis Fundamentals: Introduction to System, System Analysis and Design, Need for System Analysis and Design, Role of the System Analyst System Development Strategies: SDLC, Structured Analysis Development Method, System Prototype Method.

UNIT-1I

Case Tools: Benefits of Computer-Assisted Tools, Categories of Automated Tools, Case Components Organizations as System: Interrelatedness and Interdependence of System, System Process, Boundaries, System Feedback, Managing Project 29

UNIT-1II

Review and Selection Fact-Finding Techniques: Interview, Questionnaire, Record Review, Observation Data Flow Diagram: Advantages, Notations, Rules, Leveling, Logical and Physical DFD. Data Dictionary: Importance, Data Elements, Describing Process Specification Structured Decisions: Decision Tree, Decision Tables, Structured English.

UNIT-1V

The Essentials of Design Designing Effective Output: Objectives, Types of Output, Method, Factors to consider - Designing Effective Input: Objectives, Guideline for Form design, Screen and Web Forms, Designing User Interface: Objectives, Types of user interface, Designing Accurate Data – Entry Procedures: Objectives, Effective coding, Data-Entry Method, Ensuring data quality through input validation

UNIT-V

Quality Assurance through Software Engineering - Design of Software, Software design and documentation: Structured Flowcharts, HIPO, Warnier/Orr Diagrams Managing Quality Assurance: Level of Assurance, Level of Test Implementation of Information System: Training Strategies, Conversion, Post Implementation Review - Case Studies - Financial Accounting System - Payroll System - Library System - Inventory System - Online Banking System - Railway Reservation system (Input, Output, DFD)

Reference Books

1. Goyal, Systems Analysis and Design, PHI Learning, 2011.
2. Hoffner, J., Modern System Analysis and Design, 6thEdition, Pearson, 2009.
3. Kendall and Kendall, System Analysis and Design, 4th Edition,PHI Private Learning Ltd., 2011.
4. Langer, Analysis and Design of Information Systems, 3rdEdition,Springer India, 2008.
5. Satzinger, J.W., System Analysis and Design, Cengage Learning India, 2007.
6. Senn, J.A., Analysis and Design of Information Systems, 2ndEdition, Tata McGraw-Hill, 2008.

CONTENT MARKETING

UNIT-1

Introduction to Content Marketing and Management: Why and how content is important to business – use of content marketing, Content strategy and planning, Forming mission statement and its importance, selection of Niche Markets.

UNIT-1I

Business goals and planning for websites -Naming primary and lover level goals-CMS overview and concepts, Intro to Word Press - Word Press design, navigation and site structure,

UNIT-1II

Adding and managing content - Adding and managing functionality on the site. Writing for the Web-Refining content – design, brand guidelines - Tools for developing visual content - HTML and CSS, overview for CMS

UNIT-1V

Competitive analysis -Collecting content ideas, Tools and resources for creating and managing content -Social media channels – community and communication, distributing content.

UNIT-V

Tools for social media management -Establishing metrics -Evaluating data- Capstone Project

Note: Capstone projects are designed to apply the skills and knowledge learned in the course and will include the following elements as projects are shared:

1. Explain the criteria that guided your content development.
2. Present your website and other media channels that highlight that content.
3. Give a summary of your plan for developing, managing, and distributing future content.

AI IN DIGITAL MARKETING

UNIT-1

An Introduction to Artificial Intelligence: Definition of AI, Features of AI, Scope of AI, types of AI, History of Artificial Intelligence, How is Artificial Intelligence Changing the face of Digital Marketing? , Importance of AI in DM, AI in Advertising.

UNIT-1I

AI applications: AI applications include advanced web search engines (e.g., Google Search), recommendation systems (used by YouTube, Amazon, and Netflix), understanding human speech (such as Siri and Alexa), self-driving cars (e.g., Waymo), generative or creative tools (Chat GPT and AI art), automated decision-making, and competing at the highest level in strategic game systems (such as chess and Go).

UNIT-1II

AI in Marketing: Publica, Affectiva, EliseAI, Google Ads, IBM, RTB House, Salesforce, Yext , Conversica, Mutiny.

UNIT-1V

AI applications in DM: Generating Content, Product Recommendation and Content Curation, Use of AI Chatbots, Chatbot Marketing, Predictive Analysis, Digital Advertising, Online Searches, Email Marketing.

UNIT-V

AI and SEO, ML,NLP: Improved Keyword Research, Content Optimization, Enhanced User Experience, Predictive SEO, Voice Search Optimization, Visual Search Optimization; Machine Learning- Definition, Importance; how Natural Language Processing (NLP) Influencing Digital Marketing?

References:

1. Melanie Mitchell, Artificial Intelligence: A Guide for Thinking Humans
2. Stuart Russell & Peter Norvig, Artificial Intelligence: A Modern Approach ,Third Edition, By Pearson
3. Mosim Khan (2020), Artificial Intelligence In Digital Marketing
4. Alex Ferreira do Prado, Artificial Intelligence allied to Digital Marketing
5. Parth Dixit(2023) "Digital Marketing in the Age of Artificial Intelligence"

ENTREPRENEURSHIP & VENTURE CREATION

Course Objectives:

1. Inspired; develop entrepreneurial mind-set and attributes; entrepreneurial skill sets for venture creation and intrapreneurial leadership
2. Analyse Customer and Market segmentation, estimate Market size, develop and validate Customer Persona.
3. Initiate Solution design, Prototype for Proof of Concept. Understand MVP development and validation techniques to determine Product-Market fit
4. Understand and develop Go-to-Market strategies with a focus on digital marketing channels.
5. Understand and apply story telling skills in presenting a persuasive and defensible Venture Pitch.

Course Outcomes

1. Develop an entrepreneurial mindset and appreciate the concepts of entrepreneurship, cultivate essential attributes to become an entrepreneur or Intrapreneur and demonstrate skills such as problem solving, team building, creativity and leadership
2. Comprehend the process of problem-opportunity identification through design thinking; identify market potential and customers while developing a compelling value proposition solution
3. Analyse and refine business models to ensure sustainability and profitability
4. Build Prototype for Proof of Concept and validate MVP of their practice venture idea
5. Create business plan, conduct financial analysis and feasibility analysis to assess the financial viability of a venture
6. Prepare and deliver an investible pitch deck of their practice venture to attract stakeholders

Unit I: Entrepreneurship Fundamentals & Context

Meaning and concept, attributes and mindset of entrepreneurial and intrapreneurial leadership, role models in each and their role in economic development. An understanding of how to build entrepreneurial mindset, skillsets, attributes and networks while on campus.

Core Teaching Tool: Simulation, Game, Industry Case Studies (Personalized for students – 16 industries to choose from), Venture Activity

Unit II: Problem & Customer Identification

Understanding and analysing the macro-Problem and Industry perspective, technological, socio economic and urbanization trends and their implication on new opportunities. Identifying passion, identifying and defining problem using Design thinking principles. Analysing problem and validating with the potential customer. Iterating problem-customer fit. Understanding customer segmentation, creating and validating customer personas. Competition and Industry trends mapping and assessing initial opportunity.

Core Teaching Tool: Several types of activities including Class, game, Gen AI, 'Get out of the Building' and Venture Activity.

Unit III: Solution design, Prototyping & Opportunity Assessment and Sizing

Understanding Customer Jobs-to-be-done and crafting innovative solution design to map to customer's needs and create a strong value proposition. Developing Problem-solution fit in an iterative manner. Understanding prototyping and MVP. Developing a feasibility prototype with differentiating value, features and benefits. Initial testing for proof-of-concept and iterate on the prototype. Assess relative market position via competition analysis, sizing the market and assess scope and potential scale of the opportunity. Core Teaching Tool: Venture Activity, no-code Innovation tools, Class activity

Unit IV: Business & Financial Model, Go-to-Market Plan

Introduction to Business model and types, Lean approach, 9 block lean canvas model, riskiest assumptions to

Business models. Importance of Build - Measure – Lean approach.

Business planning: components of Business plan- Sales plan, People plan and financial plan. Financial Planning: Types of costs, preparing a financial plan for profitability using financial template, understanding basics of Unit economics and analysing financial performance.

Introduction to Marketing and Sales, Selecting the Right Channel, creating digital presence, building customer acquisition strategy.

Choosing a form of business organization specific to your venture, identifying sources of funds: Debt & Equity, Map the Start-up Lifecycle to Funding Options.

Core Teaching Tool: Founder Case Studies – Sama and SecurelyShare; Class activity and discussions; Venture Activities.

Unit V: Scale Outlook and Venture Pitch readiness

Understand and identify potential and aspiration for scale vis a vis your venture idea. Persuasive Storytelling and its key components. Build an Investor ready pitch deck.

Core Teaching Tool: Expert talks; Cases; Class activity and discussions; Venture Activities.

Suggested Reading:

• Robert D. Hisrich, Michael P. Peters, Dean A. Shepherd, Sabyasachi Sinha (2020). Entrepreneurship, McGrawHill, 11th Edition.

• Ries, E. (2011). The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. Crown Business

• Osterwalder, A., & Pigneur, Y. (2010). Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. John Wiley & Sons.

• Simon Sinek (2011) Start with Why, Penguin Books limited

• Brown Tim (2019) Change by Design Revised & Updated: How Design Thinking Transforms Organizations and Inspires Innovation, Harper Business

• Namita Thapar (2022) The Dolphin and the Shark: Stories on Entrepreneurship, Penguin Books Limited

• Saras D. Sarasvathy, (2008) Effectuation: Elements of Entrepreneurial Expertise, Elgar Publishing Ltd

Web Resources

• Learning resource- Ignite 5.0 Course Wadhwani platform (Includes 200+ components of custom created modular content + 500+ components of the most relevant curated content)

RESEARCH METHODOLOGY AND IPR

Course Outcomes:

- Understand research problem formulation.
- Analyze research related information, Follow research ethics
- Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
- Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.
- Understand that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.

Unit 1:

Meaning of research problem, Sources of research problem, Criteria Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem, Approaches of investigation of solutions for research problem, data collection, analysis, interpretation, Necessary instrumentations

Unit 2:

Effective literature studies approaches, analysis Plagiarism , Research ethics, Effective technical writing, how to write report, Paper Developing a Research Proposal, Format of research proposal, a presentation and assessment by a review committee

Unit 3:

Nature of Intellectual Property: Patents, Designs, Trademarks and Copyright. Process of Patenting and Development: technological research, innovation, patenting, development. International Scenario: International cooperation on Intellectual Property. Procedure for grants of patents, Patenting under PCT

Unit 4:

Patent Rights: Scope of Patent Rights, Licensing and transfer of technology, Patent information and databases, Geographical Indications.

Unit 5:

New Developments in IPR: Administration of Patent System. New developments in IPR; IPR of Biological Systems, Computer Software etc, Traditional knowledge Case Studies, IPR and IITs

TEXT BOOKS

1. Stuart Melville and Wayne Goddard, "Research methodology: an introduction for science& engineering students'".
2. Wayne Goddard and Stuart Melville, "Research Methodology: An Introduction"

REFERENCE BOOKS

1. Ranjit Kumar, 2nd Edition , "Research Methodology: A Step by Step Guide for beginners"
2. Halbert, "Resisting Intellectual Property", Taylor & Francis Ltd,2007.
3. Mayall , "Industrial Design", McGraw Hill,1992.