Institute of Management Sciences

University of Lucknow

Course Structure

2 Years full-time Master's Degree

Program in Management

MBA (Business Analytics)

(To be effective from the session 2023-2024)

PREAMBLE

The reorganization and revision curriculum for the Institute of Management Sciences (IMS) has been developed keeping in view the needs of the current industry in terms of skill sets being sought in new business environments. It also seeks to align program structure and curriculum with student aspirations and corporate expectations.

A regular review of the Choice Based Credit System will help students to growwith their career dimensions and develop better understanding for the requisiteindustry aspirations. The course restructuring deals with PG program 1st and 2nd year comprising of four semesters. The course redesign will surely motivatestudents to be successful managers as well as guide to become a successful entrepreneur.

Need for Revision and Restructure

- The Current Scenario Changing global facets of businesses andeconomies
- Dynamism in industry practices and evolution of technology
- Emergence of new businesses and business practices
- Thrust on Application oriented and experiential learning
- Expectations of Key stakeholders viz. students, industry and academician

Programme Objectives:

- MBA (Business Analytics) programme intends to provide students with a comprehensive understanding of the key concepts, methods, and tools used in business analytics, including data mining,statistical analysis, machine learning, and data visualization. The students would be able to analyze large sets of data using variety of tools and techniques and to interpret the results of data analysis to make data-driven decisions. The programme aims to develop the students' skills, to make them capable of using industry-standard software and programming languages, such as R, Python, SQL, and Tableau, for data analysis and visualization. The students develop an understanding of the ethical and legal considerations surrounding data analysis, and the laws and regulations that govern data privacy and security. The student's communication and presentation skills, particularly in data-driven insights and recommendations, and the ability to create effective data visualizations can be groomed. The students would be able to solve business problems using data. They can apply business analytics to real-world business problems and make data-driven decisions in various industries and domains.

Programme Specific Outcomes

The programme enables the students to:

- Develop an in-depth understanding of the key concepts, methods, and tools used in business analytics, including data mining, statistical analysis, machine learning, and data visualization.
- Analyze large sets of data using a variety of tools and techniques, and to interpret the results of data analysis to make data-driven decisions.

- Develop proficiency in using industry-standard software and programming languages, such as R, Python, SQL, and Tableau, for data analysis and visualization.
- Grasp Knowledge of the ethical and legal considerations in the context of data analysis, and the laws and regulations that govern data privacy and security.
- Develop strong communication and presentation skills, particularly concerning data-driven insights and recommendations, and the ability to create effective data visualizations.
- Learn to solve business problems using data.
- Apply business analytics tools to real-world business problems and make data-driven decisions in various industries and domains.

Course Structure
(To be effective from the session 2023-2024)
MBA (Business Analytics)

Paper Code	Name of the Subject	Credit	Remarks
	Semester I		
IMS(CC)-101	Principles of Management	**04**	**Core Course**
IMS(CC)-102	Quantitative Techniques for Business	**04**	**Core Course**
IMS(CC)-103	Financial and Management Accounting	**04**	**Core Course**
IMS(CC)-104	Marketing Management	**04**	**Core Course**
IMS(CC)-105	Managerial Economics	**04**	**Core Course**
IMS(VC)-101	Human Resource Management	**04**	**Value added course (Credited)**
IMS(FNC)- 111	Information Technology Skills (IT Skills)	**00**	**Foundation Course (Non-Credited)**
	Semester Total	**24**	
	Semester II		
IMS(CC)-201	Organisational Behaviour	**04**	**Core Course**
IMS(CC)-202	Financial Management	**04**	**Core Course**
IMS(CC)-203	Legal Aspects and Business Environment	**04**	**Core Course**
IMS(CC)-204	Production and Operations Management	**04**	**Core Course**
IMS(CC)-205	Research Methods for Business	**04**	**Core Course**
IMS(CC)-206	Management Information Systems	**04**	**Core Course**
IMS(VNC)- 201	Business Ethics and Corporate Governance	**00**	**Value added course (Non- Credited)**
	Semester Total	**24**	
	Semester III		
IMS(CC)-301	Innovation and Entrepreneurship/ MOOCs	**04**	**Core Course**
IMS(BA)-301	Data Modelling and Analysis using R	**04**	**Core Course Domain**
BA(EL)-301A	Advanced Technologies for Business	**08**	**Elective (Choose any two)**
BA(EL)-301B	Decision Sciences		
BA(EL)-301C	Business Applications of Multivariate Methods		
BA(EL)-301D	Digital Transformation Management		
IMS(IN)-301	Summer Internship Project	**04**	**Summer Internship Project**
IMS(ID)-301A	Business Analytics	**04**	**Inter-Departmental Course**
IMS(ID)-301B	Inter-Departmental Course		
IMS (FL)-333	Foreign Language (French/German)	**00**	**Foreign Language (French/German) (Non-Credit Course)**
	Semester Total	**24**	
	Semester IV		
IMS(CC)-401	Strategic Management/ MOOCs	**04**	**Core Course**
IMS(BA)-401	Business Intelligence and Data Visualization	**04**	**Core Course Domain**
BA(EL)-401A	Marketing Analytics	**08**	**Elective (choose any two)**
BA(EL)-401B	Finance and Risk Analytics		
BA(EL)-401C	HR Analytics		
BA(EL)-401D	Web and Social Media Analytics		
IMS(MT)-401	Master Thesis/Dissertation	**04**	**Master Thesis/Dissertation**
IMS(ID)-401A	Artificial Intelligence in business	**04**	**Intra-Departmental Course**
IMS(ID)-401B	Intra-Departmental Course		
	Semester Total	**24**	
	GRAND TOTAL	**96**	

Detailed Course Outline

Semester I

Course No.	Name of the Couse	Credit	Remarks	Marks		
				Theory/ External	Internal Assessment	Total
IMS(CC)-101	Principles of Management	04	Core Course	70	30	100
IMS(CC)-102	Quantitative Techniques for Business	04	Core Course	70	30	100
IMS(CC)-103	Financial and Management Accounting	04	Core Course	70	30	100
IMS(CC)-104	Marketing Management	04	Core Course	70	30	100
IMS(CC)-105	Managerial Economics	04	Core Course	70	30	100
IMS(VC)-101	Human Resource Management	04	Value added course (Credited)	70	30	100
IMS(FNC)- 111	Information Technology Skills (IT Skills)	00	Foundation Course (Non-Credited)	70	30	100
	Semester Total	**24**		**420**	**180**	**600**

IMS(CC)-101: PRINCIPLES OF MANAGEMENT

Course Objective: The objective of this course is to introduce the students to the intricacies of management. It elaborates on the various theories, principles, skills, functions and significance of management in today's global era.

Learning Outcome: Students incorporate managerial knowledge and skills after attending this course. They develop the competencies to implement these in the real business world.

Unit I

Management: Concept, Nature & Importance; Managerial Roles & Skills; Levels of Management; Principles of Management; Management Process. Classical theories-Taylor Scientific Management, Fayol's Administrative Management, Bureaucracy. Neo classical theories-Hawthorne Experiment & Human relations Approach; System approach; Social System Approach; Decision Theory Approach; Behavior Science Approach; Contingency theory; McKinsey-7-S theory; Quantitative Approach.

Unit II

Nature, Scope, Objectives and Significance of Planning; Types of Planning; Process of Planning; Barriers to Effective Planning; Planning Premises and Forecasting; Decision Making - Conditions of Certainty, Risk and Uncertainty, Bounded rationality (Herbert Simon); Management By Objective; Management Information System.

Unit III

Concept of Organizing; Organization Theories; Formal & Informal Organizations; Forms of Formal Organizational Structure; Departmentation; Span of Management; Authority, Responsibility and Accountability; Power; Delegation, Centralization & Decentralization.

Unit IV

Concepts and significance of Staffing, Direction & Supervision. Types & importance of Control; Techniques of control; Management by Exception; Co-ordination: Essence of management; Coordination Vs. Co-operation; Types of coordination; Techniques of coordination.

Unit V

Forms of Business Organizations; Company and its various forms; Formation of a company; Memorandum of Association; Articles of Association; Prospectus; Shares and Share Capital; Promoters, Trusts & Societies; Issues of Consumer Protection.

Suggested Readings:

- *Stoner, Freeman & Gilbert Jr (2011); Principle & Practice of Management in Business; Prentice Hall of India; 6th Edition.*
- *Koontz H., Weihrich H. (2009) ; Principles of Management; Tata McGraw Hill; 8th Edition.*
- *Robbins, Decenzo David & Coulter (2012); Fundamental of Management; Prentice Hall of India; 8th Edition.*
- *Williams C (2009) Principles of Management; South-Western/Cengage Learning; 5th Edition.*
- *Weihrich Heinz and Koontz Harold (2013); Management: A Global, Innovative, and Entrepreneurial Perspective; McGraw Hill; 14th Edition.*
- *Andrew Leigh (2012); The Essentials of Management: Everything you need to succeed as a new manager; Pearson UK; 2nd Edition.*

IMS(CC)-102: QUANTITATIVE TECHNIQUES FOR BUSINESS

Course Objective: The objective of this course is to acquaint the students with various statistical toolsand techniques used in business decision making.

Learning Outcomes: On completion of this course, the students will be able to understand various quantitative statistical methods. Understand data and draw inference from data, Calculate andinterpret statistical values by using statistical tool & demonstrate an ability to apply various statisticaltools to solve business problems.

Unit-I

Introduction to Statistics: Basic concepts, Classification & Tabulation, Data measurement, Uses of Statistics in business. Descriptive Statistics: Measure of Central Tendency - Mean, Median, Mode, Percentiles, Quartiles.

Unit-II

Measures of Variation: Range, Inter-quartile range, Mean Absolute Deviation, Variance and Standarddeviation. Measures of Association Correlation: Methods of Correlation study - Karl Pearson's coefficient of correlation, Rank correlation.

Unit-III

Simple Regression Analysis: Introduction to regression analysis, regression lines, Coefficient of Determination & Estimation, Develop Trend line Probability: Introduction, Methods of assigning probabilities, Structure of probability, Joint and Conditional probabilities, Addition and Multiplication Laws, Baye's Theorem

Unit-IV

Analysis of Categorical Data: Chi–Square- Test of Independence, Test of Goodness of Fit.

Probability Distributions: Discrete Distributions –Binomial Distribution, Poisson Distribution, Continuous Distributions - Normal Distribution

Unit-V

Introduction to Matrices: Types of Matrices, Matrix Operations-Addition, Subtraction & Multiplication of Matrices, Adjoint and Inverse of a Matrix, Solving Linear Equations using Matrix Method, Business Applications of Matrices.

Suggested Readings:

- *Levin &Rubins, (2017) Statistics for Business, Prentice Hall of India, 8th Edition, N.Delhi.*
- *Bhardwaj, R.S.(2009) Business Statistics, Excel Books,2nd edition.*
- *Gupta,S.C. &Kapoor VK, (2002) Fundamentals of Mathematical Statistics, Sultan Chand & SonsReprint Edition.*
- *Arulmozhi ,G. and Muthulakshmi ,S(2009),Statistics for Management, The McGraw-Hill Education, ISBN: 9780070153684.*
- *Medhi,J.(2013),Statistical Methods-An Introductory Text,New Age InternationalPublishers, ISBN: 978-81-224-1957-3.*

IMS(CC)-103: FINANCIAL AND MANAGEMENT ACCOUNTING

Course Objective: The basic objective of this course is to enable the students to learn, explain and integrate the fundamental concepts, principles and techniques of accounting.

Learning Outcomes: Successful Application of financial and accounting information for planningdecision-making and control in real business situations

Unit I

Introduction to Accounting -Basic Concepts, Purpose, Importance, Scope and Limitations of Accounting Users of Accounting, Information, Generally Accepted Accounting Principles (GAAP) and Accounting Standards (AS), International Financial Reporting Standards (IFRS) –need and significance. Ethical Dimensions in Reporting of Accounting Information

Unit II

Financial Statements Preparation and Analysis- Preparation of Income Statements and Balance Sheet,Contents of Corporate Annual Reports, Financial Statement Analysis – Ratio Analysis, Trend Analysis

Unit III

Preparation of Cash Flow Statement, Direct Method-Cash Flow from Operating, Investing and Financing Activities; Indirect Method of Preparing Cash Flow Statement Reconciliation of Net Incometo Net Cash Provided by Operations,

Unit IV

Costing Techniques- Introduction to Costs and Costs Behaviour, Absorption and marginal costing, Applications of marginal costing techniques in managerial decision making

Unit V

Accounting for Planning and Control- Budgets and Budgetary Control, Various Types of Operating Budgets, and Financial Budgets, Flexible Budgeting, Rolling Budget and Zero Based Budgeting Variance Analysis, Management Control System and Responsibility Accounting.

Suggested Readings

- *Khan, M. Y., & Jain, P. K. (2006). Management Accounting, McGraw-Hill Education, 4th Edition.*
- *Ananthanrayanan, P.S. (2014). Management Accounting, Oxford Publication.*
- *Larson, Kermit D., & Miller, Paul B. W. (1994) Financial Accounting, McGraw-HillEducation*
- *Narayanaswamy, R. (2014). Financial Accounting: A Managerial Perspective, Prentice Hall India, 6th Edition.*
- *Maheshwari, S.N., Maheshwari, S.K. &Maheshwari, S.K. (2018), Financial Accounting, Vikas Publishing, 6th Edition.*

IMS(CC)-104: MARKETING MANAGEMENT

Course Objective: The course seeks to familiarize the students with marketing principles and theories and develop an understanding of their practical applications in the contemporary business environment. The students would understand that companies are now customer-and-market driven. Segmentation, targeting and positioning are the basic fundamentals involved in value creation, deliveryand promotion.

Learning Outcomes: The students will grasp how the concept of marketing is changing with times and companies are developing newer forms of communication as well as strategies to leverage on theirunderstanding of customers.

Unit I:
Meaning, Scope, Nature, Importance, Recent Trends & Challenges in Marketing, Core Concepts of Marketing, Company's Orientations towards the Marketplace, Concept of Value, Value Creation andDelivery.

Unit II:
Marketing Plan and Strategy, Ansoff Market Expansion Grid, BCG Matrix, Role of Technology in Marketing, Environmental Variables of Marketing, Market Segmentation, Bases for Segmentation, Market Targeting, Developing and Communicating Positioning Strategy.

Unit III:
Consumer and Business Markets, Product Classification, Product life cycle – stages and strategies, Product Differentiation, Developing Pricing Strategies and Programs, Adapting the Price, Pricing techniques for Promotion, Responding to Price Changes.

Unit IV:
Dealing with Competition, Role of Marketing Channels, Channel levels, Channel Design Decision andManaging Channel Conflict.

Unit V:
Characteristics of Marketing Communication Mix, Integrated Marketing Communication, Macro Models of Communication, Micro Models of Consumer Response, Communication Objectives, Personal and Non-Personal Communication Channels, New Forms of Communication (viral marketing, experiential marketing), Marketing Control, Emerging trends in marketing.

Suggested Readings:

- *Kotler, P., & Keller, K., Koshi, A. &Jha,(2012) M. Marketing Management: South Asian Perspective ,Pearson(14th edition.).*

- *Rama0swamy, V.S.,&Namakumari, S. (2018), Marketing Management: GlobalPerspective Indian Context Sage Pub.(6th edition.).*
- *Grewal, D., Levy,(2016) M. Marketing McGrawHill(5th edition.).*
- *Saxena, Rajan.(2009) Marketing Management McGraw Hill (6th edition).*
- *Dutta, Debraj&Dutta, Mahua,(2011) Marketing Management., Vrinda Publication,(2nd Edition)*
- *Kamal Y. (2020), Marketing Management, NRBC, (1st Edition).*

IMS(CC)-105: MANAGERIAL ECONOMICS

Course Objective: The objective of this course is to acquaint the students with insights of EconomicTheory as used in managerial decision making. Emphasis is given to changes in the nature of businessfirms in the context of globalization.

Learning Outcomes: Managerial Economics will help the students strengthen the foundations of analytical approach to managerial decision- making and understand theeconomic behaviour of several economic agents including a single firm. They should be able to analyse various market structures and the strategic behaviour of firms related to pricing and output decisions. Students will also learn how the changing Macroeconomic environment impacts the prospects of various businesses.

Unit I:
Nature and Scope of Managerial Economics, Demand-Supply Framework, Elasticity types and applications, Demand Forecasting, Marginal Analysis and Optimization.

Unit II:
Analysis of Production Function, Theory of Cost, Law of Variable Proportion, Laws of Returns to Scale,Economies of Scope, Optimal Combination of Inputs,

Unit III:
Managerial Theories and Goal(s) of a Firm; Information Economics and its Business Applications, Environmental Economics.

Unit IV:
Market Structures and Strategic Behavior of Firms, Pricing and out-put strategies in different Market Structures, Price Discrimination, Game Theory Applications.

Unit V: National Income Analysis, Theories of Inflation and Deflation, Theories of Business Cycles and Stabilization Policies, Monetary Policy, Fiscal Policy and the Budget.

Suggested Readings:
- *Thomas & Maurice (2016); Managerial Economics; McGraw-Hill. 8th Edition.*
- *Salvatore & Rastogi (2016); Managerial Economics: Principles & Worldwide Applications; Oxford University Press, 8th Edition.*
- *J.V. Vaishampayam (2008); Managerial Economics; NRBC, 1st Edition.*
- *A Koutsoyiannis (2003); Modern Microeconomics; Palgrave MacMillan, 2nd Edition.*
- *G S Gupta (2017); Managerial Economics; McGrawHill Education, 2nd Edition.*

IMS(VC)-101: HUMAN RESOURCE MANAGEMENT

Course Objective: To develop student competency on theories and practices dealing with factors influencingpeople at workplace. It teaches the basic techniques of how an organization acquires, rewards, motivates, and manages its people effectively.

Learning Outcomes: On completion of the course the student should be able to understand the importance of human resources (HR) in organization, link organization strategy with human resourcepractices in an organization, learn the techniques of HR practices and its implementation aspects to motivate employees for performance and their retention and to learn the implementation of HR practices thorough discussion of real examples with case studies.

Unit I:
Introduction to Human Resource Management (HRM), Evolution of HRM, Trends shaping HRM, Strategic Human Resource Management, HRM Models-Harvard model, Guest model, Ulrich's HR model, AMO framework, Line and Staff aspects of HRM.

Unit II:
Job Analysis- process and methods, Job Description, Job Specification, Human Resource Planning and Forecasting, Employee Recruitment- Sources, Application Forms, Employee Selection- Types ofTests, Management Assessment Centers, Types of Interviews, Placement.

Unit III:
Employee Orientation- Purpose, Process, Training Process- Analysing the training need & designing the training program, implementation and evaluation of training program, Management Development Programs, Employer Life-cycle Career Management- Promotion, Transfers, Retirements, Career Planning, Talent Management.

Unit IV:
Concept of Performance Management and Appraisal, Techniques for Appraising Performance, Appraisal related Problems, Appraisal Interview, Succession Planning Factors in determining pay rates, Process of establishing Pay rates- Salary survey, Job Evaluation, Pricing Managerial and Professional Jobs, Competency-Based Pay, Variable Pay, Employee Incentives, Benefits.

Unit V:
Employee Relations: Concept and Types of Employment Relationship, Industrial relations, Collective bargaining, Psychological Contract, Ethical behaviour at work, Employee well- being.

Suggested Readings:

- *Dessler, G. &Varkkey, B. (2015); Human Resource Management; New Delhi:Pearson; 14th Edition.*
- *Armstrong, M. & S. Taylor. (2017); Armstrong's Handbook of HumanResource Management Practic;e London: Kogan Page; 14th Edition.*
- *Aswathappa, K. (2010); Human Resource and Personnel Management; TataMcGraw- Hill Education; 6th v*
- *Rao, P. S., & Rao, V. S. P. (2009); Personnel and Human ResourceManagement; Himalaya Publishing House; 5th Edition.*
- *Bernardin, John H. (2012); Human Resource Management; McGraw Hill; 6th Edition.*

IMS(FNC)-111: INFORMATION TECHNOLOGY SKILLS (IT Skills)

Course Objective: This course has been designed to impart basic IT skills required for a business executive. It provides students with an overview of the business application software and problem-solving using that software. Topics include computer systems, microcomputer operating systems, word processing, electronic spreadsheets, business graphics, networks, database management, and integrated packages. Industry accepted office software will be used.

Learning Outcomes: Students acquire skills of using end-user software for communication,data transformation, collaboration, and problem-solving. They also acquire understanding of software and hardware components, information structures, basic business processes, information system security, and networks.

Unit I:
Computer Systems -An Introduction, Elements of a Computer System, Input, Output and storage devices. Processing and CPUs. Operating system – Basics, functions and types., Concepts of Networking and Data Communication. Basics and Features of Internet. Methodsof Accessing the Internet, Handling Graphics and Multimedia,

Unit II:
Text processing software: creating and saving a document, previewing and printing a document, editing, proofreading and formatting of documents. Presenting information in columns and tables, using graphics, symbols, diagrams and charts. Creating and modifying table of contents, index, bookmarks, cross references, hyperlinks, foot notes, end notes and bibliography. Crating form letters, e-mail messages and labels. Collaborating using tracking ofchanges, adding and reviewing comments, comparing and merging documents, password protecting of documents. Creating documents in alternate formats.

Unit III:
Presentation software: Creating and managing slides and presentation, entering and editing content onslides, presenting content in tables, inserting, creating and managing graphics, adding sound and animation to slides, reviewing, preparing and delivering presentation, customizing and sharing presentations.

Unit IV:
Spreadsheet Software: Creating workbooks, working with data and tables, formatting and changing workbook appearance, managing and hiding worksheet data, ordering and summarising data, combining data from multiple sources, creating charts and graphs,

Unit V:
Performing calculations using Formulas and Functions, analysing alternate data sets, creating dynamic worksheets, printing worksheets and charts. Automating repetitive tasks, using workbooks for collaborative working. Performing business intelligence analysis.

Suggested Readings:

- *Peter Norton,(2008), Introduction to computers, 9th reprint Edi. (Tata Mcgraw Hill)*
- *Leon Alexis, Introduction to computers 1st edition, (Vikas Publishing), ISBN: 9788182092341*
- *Saxena S.& Chopra P.(2006) Computer Application in Management, Vikas Publication*
- *Gupta Vikas,(2008) 14 in one computer course kit, Dreamtech Publication*
- *Tannenbaum,(2013) computer networks, 5e, PHI publication*

Semester II

Paper Code	Name of Subject	Credits	Remarks	Theory/ External	Internal Assessment	Total
IMS(CC)-201	Organisational Behaviour	04	Core Course	70	30	100
IMS(CC)-202	Financial Management	04	Core Course	70	30	100
IMS(CC)-203	Legal Aspects and Business Environment	04	Core Course	70	30	100
IMS(CC)-204	Production and Operations Management	04	Core Course	70	30	100
IMS(CC)-205	Research Methods for Business	04	Core Course	70	30	100
IMS(CC)-206	Management Information Systems	04	Core Course	70	30	100
IMS(VNC)-201	Business Ethics and Corporate Governance	00	Value Added Course (Non-Credited)	70	30	100
	Semester Total	**24**		**420**	**180**	**600**

IMS(CC)-201: ORGANISATIONAL BEHAVIOUR

Course Objective: The objective of this paper is to help the students understand how individuals, groups and structure interact to influence behaviour of people working in an organization.

Learning Outcomes: Students are expected to develop an understanding of their own perceptions, attitudes and behaviours as well as of those expected from an OB Manager. They are expected to develop comprehensive understanding of interplay among human nature, group dynamics, technology and organizational environment and its implications on organizational performance.

Unit I

Introduction to OB: Meaning and Nature of Organisational Behaviour, OB as an Interdisciplinary Subject, Significance of OB for Managers, OB as an Open System, Robbin's Model of OB, Changing Context, Challenges for an OB Manager.

Unit II:

Perception: Meaning, Significance of Perception for Understanding Human Behaviour, Factors Influencing Perception, Attribution Theory. Attitude: Meaning, Concept, Significance of attitude for Understanding Human Behaviour, Values and attitude, Attitude formation, Measurement of Attitude,Cognitive Dissonance theory, Attitude Change, Learning: Concept, Learning Theories: Classical, Operant, Social, Learning, OB Modification, Steps in OB Modification Process.

Unit III:

Motivation: Motivation and Goal Directed Nature of Human Behaviour, Process, Theories of Motivation, Maslow's Need Hierarchy, Herzberg's Two Factor Theory, Theory X, Y and Z, Work Redesign for Creating Motivating Job, Applications of Motivation. Meaning, Functions and Types ofGroup, Reasons for Joining Group, Stages of Group Development, Characteristics, Advantages, and Disadvantages of Informal Groups.

Unit IV:
Concept of Group Dynamics, Group Norms, Group Cohesiveness, Group Shift and Group Decision Making Techniques, Conflict, Dysfunctional Groups, Groups vs. Team, Types of Team, Concept of Leadership, Fiedler's Contingency Model, Hershey and Blanchard's Model, Transactional and Transformation Leadership.

Unit V:
Organizational Conflict: Reasons, Consequences and Handling. Organizational Culture: Concept, Forming, Sustaining and Changing a Culture, OCTAPACE Model, Hofstede Model, Organizational Change: Forces of Change, Resistance to Change, Change Model-Lewin's model. Case Studies: Somecases of real business world to supplement learning from the course.

Suggested Readings:

- *Robbins, Judge, and Vohra (2013); Organizational Behavior; Prentice Hall Inc.; 15th Edition.*
- *Fred, Luthans (2005); Organisational Behavior; UK: McGraw Hill; 10th Edition.*
- *G, Moorhead & Griffith. (2007). Organizational Behavior. Houghton Muffin Co.*
- *Newstrom J (2007); OB: Human Behaviour at Work. McGraw Hill Inc.; 12th Edition.*
- *PareekUdai (2016); Understanding Organizational Behaviour; Oxford University Press; 4th Edition.*
- *Rao, V.S.P. (2009); OrganisationBehaviour; Excel Book.*

IMS(CC)-202: FINANCIAL MANAGEMENT

Course Objective: The objective of this course is to provide the basic understanding of corporate financial concepts. To enable the students synthesize and explain the corporate financial functions anddecision making dynamics in the broad framework of a financial system.

Learning Outcome: To demonstrate the application of the course concepts in capital structure and project investment decisions. To demonstrate the application of financial understanding in varying situations of risk return analysis, cash, credit and inventory management.

Unit I:
Nature of Financial Management: Scope and objectives of finance, role and functions of finance manager, risk-return trade off, shareholders' wealth maximization, agency problem, General awareness of financial environment-financial instruments, regulation and markets.

Unit II:
Investment Decisions: Analysis of Capital budgeting decisions, application of discounted and non-discounted techniques in capital budgeting, time value of money, capital rationing, risk analysis in capital budgeting.

Unit III:
Financing Decisions: Cost of Capital and & Dividend Decision: Optimum capital structure, financial and operating leverages, sources of long-Term Finance, cost of capital-components' costs and Combined Cost (WACC), capital structure theories.

Unit IV:
Dividend theories, Irrelevance of dividend, MM Hypothesis, relevance of dividend and Walter's model, dividend policy determinants, share repurchase or buyback, Issue of bonus share and its implications,

Unit V:
Working Capital Management: Principles of working capital management, Accounts Receivable management, Inventory management and Cash management, factors influencing working capital requirement, computation of working capital required in business firm.

Suggested Readings

- *Gitman, Lawrence J., & Chad J. Zutter (2017). Principles of Managerial Finance,Pearson Publication, 13th Edition*
- *Van Horne, James C, &Dhamija, Sanjay (2011), Financial Management and Policy, Pearson Publication*
- *Rustagi, R.P. (2019), Fundamentals of Financial Management, Taxman's 14th Edition*
- *Kishore, Ravi M (2016). Financial Management, Taxman's, 8th Edition.*
- *Khan, M.Y., & Jain, P.K. (2018). Financial Management: Text, Problems and Cases, McGraw Hill Publication, 8th Edition*

IMS(CC)-203: LEGAL ASPECTS AND BUSINESS ENVIRONMENT

Course Objective: To help students develop an appreciation of the evolution of the global economy and of current topical debates surrounding 'globalization' and a range of associated issues and laws. Provide background knowledge of the institutional, economic, political, cultural and technological environments that constitute today's global business environment. Provide a strong foundation to students of basic economic theories and regulations underlying the importance of the transnational corporation, of international trade, and of competitiveness.

Learning Outcomes: Aims to equip the students with an analytical framework to scan the national and global business environment. Provide students a framework to calculate the implications of their business decisions on different segments of the economy and legal issues.

Unit I
Indian Contract Act, 1872 Contract- Meaning, Essentials, Kinds, Offer and Acceptance, Contractual Capacity, Free Consent, Consideration, Void Agreements, Quasi Contracts. Modes of discharge of contract and remedies for breach of contract. Contract of Indemnity and Guarantee. The Sale of GoodsAct, 1930 Meaning of Contract of sale, Difference between Sale and Agreement to Sell. Conditions and Warranties, Transfer of Property in Goods, Unpaid Seller and his Rights.

Unit II
Indian Partnership Act, 1932. Meaning and test of Partnership, Implied Authority of a partner, Position of a minor in partnership. The Negotiable Instruments Act, 1881 Meaning, and characteristics of promissory note, bill of exchange and cheque. Negotiation and assignment. Crossing of cheque, bouncing of cheques.

Unit III
Concept of Business Environment, Nature and Factors in Business Environment, Role of Planning ina Market Economy, India's Growth Experience, Performance & Challenges, Unemployment & Employment, Population Change, and Economic Environment, Agricultural Growth, Performance &Policies, Industrial Growth & Policies.

Unit IV

Economic role of Government; Contemporary Economic Reforms, Role of Industry in Economic Development, Stock Exchange of India, Role of Regulatory Institutions in Indian financial system– RBI and SEBI, Balance of Payment.
Global Business Environment– Political, Economic, Social, Cultural, Legal, Technological, Theories of International Trade; Adam Smith, Ricardo and Ohlin & Heckscher, Indian Economy and GATT, WTO,

Unit V

Emerging issues, Regional Economic Integration, European Union. Corporate Social Responsibility;Environmental and Sustainability issues in Development.

Suggested Readings:

- *M C Kuchhal, Business Law, Vikas Piblications*
- *Akhileshwar Pathak, Legal Aspects of Business, Tata Mc GRAW HILL*
- *Cherunilum F. (2017); Business Environment; Himalaya Publishing House, 4th Edition.*
- *B.N. Ghosh (2014); Business Environment; Oxford University Press1st Edition.*
- *Rao P.S. (2013); International Business; Himalaya Publishing House1st Edition.*

IMS(CC)-204: PRODUCTION AND OPERATIONS MANAGEMENT

Course Objective: The objective of this subject is to introduce the students with the intricacies of Operations Management. The course discusses the importance of planning, organizing and controllingaspects in Operations Management. It also elaborates on the significance of Quality Management in theorganizations.

Learning Outcomes: Students will be able to formulate and evaluate Operational decisions in any organization – Production based and/or Service Based.

Unit I

Introduction to Operations Management; Historical Evolution; Strategic role of Operations; Systems view of Operations Management; Functions of Operations manager; Recent Trends; DesigningProducts; Services and Processes; Flexible Manufacturing System.

Unit II

Facility Location Planning; Facility Layout Planning; Job Design; Work Study; Work Measurement; Method Study; Financial Analysis of Operating Plans; Ergonomics; Environmental Consideration – Green manufacturing; Ethical issues in OM.

Unit III

Production Planning & Control, Master Scheduling; Aggregate Planning; Rough Cut Capacity Planning; Gantt Charts & Sequencing. Just in Time (JIT); Lean Production System; Total Productive Maintenance (TPM).

Unit IV

Fundamentals of Inventory Management; Inventory Control Techniques; Material Requirement Planning (MRP); Manufacturing Resource Planning (MRP II); Enterprise Resource Planning; ProjectManagement – PERT/CPM.

Unit V

Introduction to Quality Management; TQM; Contributions of Quality Gurus - Demings, Juran, PhilipCross by & Ishikawa; Techniques of Quality Control; ISO 9000 & ISO 14000; Statistical Process Control; Quality Circles; Kaizen; Six Sigma Approach; 7 QC tools; Service Quality & Service

QualityManagement

Suggested Readings:

- *Heizer and Render, (2010) Operations Management, 10th edition, Prentice Hall,.*
- *Ashwathappa K &Bhat K. Shridhara (2019) - Production & operation Management, 2nd Edition,Himalaya Publication.*
- *S N Chary (2019) Production and Operations Management, 6th Edition, Tata McGraw Hill,.*
- *William J Stevenson (2018) Operations Management, McGraw Hill, 13th edition.*
- *Adam JrEveretl E. & Ebert R J, (1992) Production and Operations Management, 5th Edition, Prentice-Hall.*
- *Dilworth James B (1996) Operations Management, 2nd edition, McGraw Hill,.*

IMS(CC)-205: RESEARCH METHODS FOR BUSINESS

Course Objective: The objective of this paper is to impart knowledge about various stages of the research processes and their application in decision making.

Learning Outcomes: Develop understanding on various kinds of research, objectives of doing research, research process, research designs and sampling. Have basic knowledge on qualitative research techniques, and adequate knowledge on measurement & scaling techniques as well as the quantitative data analysis. Basic awareness of data analysis-and hypothesis testing procedures

Unit-I

Concept, Objectives and Significance of Research, Research Process, Research Design: Exploratory Research Design, Descriptive Research Designs- Cross-sectional & Longitudinal, Experimental Design: Pre-Experimental, Quasi Experimental, True Experimental & Statistical Design.

Unit-II

Measurement and Scaling: Primary Level of Measurement- Nominal, Ordinal, Interval, Ratio, Comparative and Non-competitive Scaling Techniques, Questionnaire Design, Sampling-Sampling Process, Sampling Techniques-Probability and Non-Probability Sampling, Sample Size Decision.

Unit-III

Data Collection: Primary & Secondary Data; Survey Method of Data Collection, Classification of Observation Method; Fieldwork and Data Preparation. Hypothesis: Null Hypothesis & Alternative Hypothesis; Type-I & Type-II Errors; Hypothesis Testing: T-Test, ANOVA,

Concepts of Multivariate Techniques-Multiple Regression Analysis, Discriminant Analysis etc.

Unit-IV

Qualitative Research: Data Collection of Qualitative Research- Interviews, Observation & Documents,Qualitative Research Procedure: Focus Group Interview, Online Focus Group, Depth Interview, Projective Techniques, Other Methods of Qualitative Research: Narrative, Phenomenological, Grounded Theory, Ethnography & Case Study Method.

Unit-V

Meaning, Types and Layout of Research Report; Steps in Report Writing, Tabular & Graphical Presentation of Data, Citations, Bibliography and Annexure in Report, Avoid Plagiarism; Use of Statistical Software to Analysis the Data.

Suggested Readings :

- *Satyabhushan D., Malhotra NK.,(2015) Marketing Research: An Applied Orientation,7th Edition, Pearson publisher.*
- *Bajpai N., (2011) Business Research Methods:, Pearson publisher.*
- *Cooper & Schindler (2015) Business Research Methods,12th Edition, Mcgraw-Hill.*
- *Green, Tull&Albaum (2010) Research for Marketing Decisions,5th Edition, PHI Pvt. Ltd, New Delhi.*
- *Leveine ,Khrehbiel& Berenson (2013) Business Statistics,6th Edition, Pearson Education.*
- *Luck D. & Rubin D. (2006) Marketing Research, 7th edition, PHI, New Delhi.*

IMS(CC)-206: MANAGEMENT INFORMATION SYSTEMS

Course Objective: For an organization to thrive in today's increasingly rapid pace of change in environment, managers and functional specialists in all areas must perform their jobs effectively, efficiently, and ethically. Information technology provides the tools that enable all organizational personnel to solve increasingly complex problems and to capitalize on opportunities that contribute tothe success of the organization. This course provides students with solid grounding in business uses of information technology in a rapidly changing environment, and to understand critical issues surrounding the use of IT in organizations.

Learning Outcomes: Students will be able to understand and articulate fundamental concepts of information systems management. Apply IT to solve common business problems. Plan and implementeffective IT solutions to business problems. Apply the ethical aspects of information technology use inthe organization.

Unit I:
Information Systems: Concept & Technologies, Role of information Systems in Business. Influence of Information Systems in Transforming Businesses. Global E-Businesses and Collaborations, Strategic roles of Information Systems. Behavioural, Technical and Socio-technical approaches. Enhancing Business Processes through Information Systems. Types of Business Information Systems.TPS, MIS, DSS and EIS. Organising the Information Systems function in Business. Ethical and Socialissues of Information Systems.

Unit II:
Using Information Systems to Achieve Competitive Advantage: Porter's Competitive Forces Model and The Business Value Chain Model. Aligning Information Systems with Business. Decision Makingand Information Systems: Types of Decisions and the Decision-Making Process, Business Value of Improved Decision Making. Decision Support for Operational, Middle and Senior Management. Concepts of Database and Database Management System.

Unit III:
Functional Information Systems: Marketing, Human Resource, Financial and Operational InformationSystems. Cross Functional Information Systems, Enterprise Systems. Supply Chain Management Systems. Customer Relationship Management Systems. Business Value of Enterprise applications andchallenges in Implementing, Knowledge Management.

Unit IV:
E-Commerce: Fundamentals and Concepts: Digital Markets and Digital Goods. Types of E-commerce and E-commerce Business Models. B2B E-Commerce: New Efficiencies and Relationships. Conceptof Mobile E-Commerce. Security and Control of Information Systems.

Unit V:
Implementing Information Systems as Planned Organisational Change. Business Process Reengineering. Systems Analysis and Systems Design. Modeling and Designing Systems: Structuredand Object-Oriented Methodologies, Traditional Systems Life Cycle, Prototyping, End-User Development, Application Software Packages and Outsourcing. Implementing Information Systems. Introduction to Change Management.

Suggested Readings:

- *Laudon Kenneth C. and Laudon Jane P.,(2018), Management Information SystemsManaging the Digital Firm by : Pearson Publication, 15e*
- *James A O'Brien, Behl Ramesh, George M.Marakas, (2019), Management Information Systems,McGraw Hill*
- *JawadekarWaman S., (2013) Management Information Systems A Global DigitalEnterprise Perspective; McGraw Hill*
- *Dr.S.Shajahan, R.Priyadharshini, (2004) Management Information Systems, New Age International Publishers*
- *Boris Shishkov,(2020) Designing Enterprise Information Systems, Springer Publication,, ISBN 978-3-030-22441-7*

IMS(VNC)-201: BUSINESS ETHICS & CORPORATE GOVERNANCE

Course Objectives: The objective of this course is to study the major concepts, principles & theories of business ethics, corporate governance, corporate social responsibility and sustainability in today's business world.

Learning Outcomes: Students will be able to incorporate importance of ethics in business world today and it will help them take ethical decisions in the organization. They will have a better understanding of CSR, Corporate Governance and Sustainability issues faced by the organizations.

Unit I: Introduction

Opening Case: Subprime lending
Concept of Business Ethics, Elements of Business Ethics, History and development of Business Ethics,Can Ethics be taught?,Bad Apple Theory, Why Ethics matters in Business? Ethics and Law, Ethical Behavior, Relationship between Business and Ethics: Unitarian View of Ethics, Separatist View of Ethics, Integration View of Ethics, Why be ethical in business? Who cares?,Pressure Points for EthicalBehaviour.

Emerging Ethical Issues and Dilemmas in Business- Lying, Bullying, Discrimination, Sexual Harassment, Fraud, Corporate Espionage, Insider Trading, Environmental Issues, Sexual Harassment,Misuse of Organizational resources, Privacy Concerns, Employee Theft, Conflict of Interest etc.

Ethical issues related to Marketing, Ethical issues related to Finance, Ethical issues related to HR, Ethical issues related to IT, Ethics of Net neutrality, Ethical dimensions of artificial intelligence, Ethical Issues in Capitalism, Socialism and Communism.

Closing Case Study: Bhopal Gas tragedy

Unit II: Business Ethics Philosophies

Opening Case: Turing Pharmaceutical price hike controversy

Institutionalization of Business Ethics in India: Environment Laws, Antitrust Laws, Consumer Protection Laws, Investor Protection, Intellectual Property Right Laws, Corruption Prevention Laws,and Laws Promoting Equity and Safety at Workplaces.

Traditional and Contemporary Moral Philosophies: Teleology: Egoism, Utilitarianism, Deontology: Categorical Imperative of Kant, Hypothetical Imperative, Divine Command Theory, Machiavellian Theory, Darwinism, Justice Theory of Rawls', Virtue Theory of Aristotle, Ethical Relativism.

Contemporary Moral Philosophies: Contractarianism, Prisoner's Dilemma, Kohlberg's Cognitive Moral Development Theory and Heinz Dilemma, Feminist care ethics, Integrated Social Contract Theory (ISCT).

Closing Case: Johnson & Johnson Tylenol Crisis

Unit III: Ethical Decision Making: Individual and Organizational Factors

Opening Case: Enron scandal

Individual Ethics Management: Ethical Dilemma; Ethical Decision Making Models- Utility, Rights, Justice and Caring (URJC) Model, Janus Headed Model, Steps for Taking Good Ethical Decision; White Collar Crimes and Reason for its Growth.

Organizational Ethics Management: Organizational Culture and Ethical Climate, Danger Signs of Ethical Risk in Organization, Whistleblowing in Organisations: Tips for whistleblowing and the process of handling whistleblowing in organisations, Discussion of case related to murder of whistle-blowers Satyendra Dubey and Shanmugam Manjunath.
Leadership and Ethics, Leadership and use of power to shape an ethical corporate culture, Use of Developing, Managing and Controlling Good Ethics Program in an Organization, Ethics Audit, Mechanism to Resolve Ethical issues in Organization.

Global Ethics Management: Avoiding, Forcing, Persuasion or education, Infiltration, Negotiation orCompromise, accommodation and Collaboration.

Closing Case: Galleon Group Insider trading fraud.

Unit IV: Corporate Social Responsibility Opening Case: Merck and River blindness
Definition of CSR, Importance and Limitations of CSR, Identifying and Defining Social Problems, Preventing and Solving Social Problems, Historical Evolution of CSR, Development of CSR in Modern India, Trusteeship Theory of Mahatma Gandhi, Types of CSR: Carroll's Pyramid, Triple Bottom Line and Environmental Sustainability, Cause Related Marketing, CSR Standardization, Developing an Effective CSR Strategy.

Theological Ethics and Philanthropy: Philanthropy in Hinduism, Buddhism, Islam, Christianity, Islam and Sikhism.

Closing Case: The pesticide controversy and its impact upon the CSR strategy of Coca- Cola

Unit V: Corporate Governance: Theories and Models Opening Case: Punjab National BankScam
Definition of Corporate Governance, Importance of Corporate Governance, Principles of

Corporate Governance, and Models of Corporate Governance: Anglo-American Model, German Model, Japanese Model, Issues in Corporate Governance. Development of Corporate Governance in US, UKand India.

Theories of Governance: Agency Theory, Shareholder Theory, Stakeholder Theory, Stewardship Theory.

Closing Case: Satyam Scam

Suggested Readings:

- *Linda K. Trevino, Katherine A. Nelson (2017); Managing Business Ethics: Straight Talk about*
- *How to Do It Right, Wiley Publishing House, 6th Edition*
- *Kumar, Shailendra, RaiAlok K (2019); Business Ethics; Cengage Learning, 1st edition.*
- *O. C. Ferrell , John Fraedrich , Ferrell (2017); Business Ethics: Ethical Decision Making &Cases; Cengage Publishing House*
- *Thomas Donaldson , Thomas W. Dunfee,(1999); Ties That Bind: A Social ContractsApproach to Business Ethics; Harvard Business School Press.*
- *Norman E. Bowie, (2015); "Business Ethics," in New Directions in Ethics, ed. Joseph P. DeMarco and Richard M. Fox, New York: Routledge&Kegan Paul, 2015*
- *Elkington. John, (1997) Cannibals with Forks: The Triple Bottom Line of 21st(Capstone/John Wiley, hardcover, 1997)*
- *Gandhi M.K. Trusteeship (Ahmedabad Navjivan Publishing house, 1960) pp 5.*
- *Callahan, D. (2004), The Cheating Culture: Why More Americans are Doing Wrong to Get Ahead (Harcourt, Inc., Orlando, FL).*
- *Mallin. Chris A.(2011) ; Handbook on International Corporate Governance: Country Analyses; Edward Elgar. pp 421*
- *Kanungo, R. N., and M. Mendonca (1996); Ethical dimensions of leadership, Sage Publications Thousand Oaks, CA.*

Semester III

Paper Code	Name of the Subject	Credit	Remarks	Theory/ External	Internal Assessment	Total
IMS(CC)-301	Innovation and Entrepreneurship/MOOCs	04	Core Course	70	30	100
IMS(BA)-301	Data Modelling and Analysis Using R	04	Core Course Domain	70	30	100
BA(EL)-301A	Advanced Technologies for Business	08	Elective (Choose Any Two	70	30	100
BA(EL)-301B	Decision Sciences			70	30	100
BA(EL)-301C	Business Applications of Multivariate Methods			70	30	100
BA(EL)-301D	Digital Transformation Management			70	30	100
IMS(IN)-301	Summer Internship Project	04	Summer Internship	70	30	100
IMS(ID)-301A	Business Analytics	04	Inter-Departmental Course	70	30	100
IMS(ID)-301B	Inter-Departmental Course			70	30	100
IMS (FL)-333	Foreign Language (French/German)	00	Non-Credit	-	-	-
	Semester Total	**24**		**420**	**180**	**600**

IMS(CC)-301: INNOVATION AND ENTREPRENEURSHIP

Course Objective: The course is designed as a broad overview of entrepreneurship, including identifying a winning business opportunity, gathering funding for and launching a business, growing the organization and harvesting the rewards. It is an integrative course—one that combines material introduced to the students in core courses and applies it to the design and implementation of new ventures. The students are expected to have completed courses in Management Principles, Marketing,HRM, Productions & Operations, Economics, Accounting& Finance.

Learning Outcomes: Appreciate and develop entrepreneurial attitude and prerequisites for becoming an entrepreneur. Demonstrate creativity in identifying opportunities for business venture. Distinguishbetween suitability of alternative forms of business organisations for chosen venture. Familiarize with the procedures for establishing a business venture and necessary documentary and regulatory compliances and tax issues. Familiarize and identify sources of finance available for the venture. Display insights into procedure for and advantages of different IPR's. Relate and apply different strategies in support of a venture. Develop and display soft skills for managing a team and provide leadership. Prepare projected financial statements and ratios for key indicators. Prepare a comprehensive business plan. Recognize the need for social entrepreneurial opportunity and ways to organise the same through own venture

Unit I:

Entrepreneurship: Meaning and objective. Entrepreneurship and its role in Economic Development. Entrepreneurial Traits and Mindset. Misconceptions and Myths about Entrepreneurship. Motivation for becoming an Entrepreneur. Entrepreneurship as a Career Option. Entrepreneurial Leadership.

Creativity and Innovation. Bottlenecks to Creativity and innovation. Disruptive Technology and

generating commercial value from Innovation; Sources of New Ideas, Techniques for generating Ideas. Accessing Business Potential of an Idea. Idea to Opportunity: Sources of Opportunity, Opportunity Recognition.

Unit II:
Types of New Ventures, Tax implications of various forms of Ventures. Procedures for setting up a Business in India. Entrepreneurship and Intellectual Property Rights (IPR): Patents, Trademarks and Copyrights. Business Plan: Purpose and Contents of a Business Plan. Marketing Plan: Need for Marketing Research, Industry Analysis, Competitor Analysis, Market Segmentation, Target Markets,Market Positioning, Marketing Mix, Marketing Plan and Market Strategy. Operation and Production Plan: Product Design and Specifications.

Unit III:
Types of Production Systems, Location and Layout Decisions, Plant and Technology Choices, Production Planning and Commercialization.

Financial Plan: Assumptions underlying the Financial Statements. Budgeting. Preparation of projectedFunds Flow and Cash Flow Statement, Profit and Loss Accounts / Income Statement and Balance Sheet.Key Financial Indicators: Break-Even Analysis, Ratio Analysis, Valuation Methods, Sensitivity analysis. Financing of New Ventures: Stages of Financing, Sources of Finance – Seed Funding, Venture Capital Funding, Bank Funding, Lease Financing. Funding opportunities and Institutional Support in India for New Ventures. Managing Cash and Liquidity, Record Keeping, Performing DueDiligence

UNIT IV:
Launching a New Venture: Preparing Implementation Plan, Raising Resources, Leveraging Intellectual property, Organisation Plan: Team Building for the New Venture, Designing Organisational Structure and Systems Building a Winning Team, Motivating and Inspiring the Team Members, Monitoring the Technological Trends, Pilot Testing, Understanding Markets, MarketStrategies and Positioning. Managing Growth: Managerial Issues and Growth Strategies for New Ventures. Revival and Exit: Turnaround Strategies, Liquidation and Exit Strategies for Entrepreneurs.

Unit V:
Introduction to social enterprises, Social entrepreneurship – need, definition, characteristics and models. Social leadership, networks and external relationships, revenue models, Measures of performance of social enterprises, ISO 26000, Local problems and local solutions, Social audit, Issuesin management of Social Enterprises.

Suggested Readings:

- *Kumar A (2012); Entrepreneurship; Pearson, 3rd Edition.*
- *Poornima M.CH (2006); Entrepreneurship Development: Small Business Enterprises;Pearson, 1st Edition.*
- *Kumar A., S.C. Poornima, M.K. Abraham, K. Jayashree (2011); Entrepreneurship Development; New Age International Publishers, 1st Edition.*
- *A.Sahay, M. S. Chhikara (2007); New Vistas of Entrepreneurship: Challenges &Opportunities; Excel Books, 1st Edition.R.K.R. Kummitha (2016); Social Entrepreneurship: Working towards Greater Inclusiveness; Sage Publications, 1st Edition.*

IMS(BA)-301: DATA MODELLING AND ANALYSIS USING R

Learning Objectives:

Understand the basic concepts of R programming language and its data structures. Learn how to create and manipulate vectors, matrices, and data frames in R. Gain an understanding of data visualization techniques using R and how to manage missing andoutlier data. Develop knowledge of hypothesis testing, regression analysis, time series analysis, factoranalysis, and cluster analysis using R. Gain practical skills in reproducible research using R and R studio.

Learning Outcomes:

Analyze data and create various data structures in R for business applications. Perform data visualization techniques and effectively manage missing and outlier data using R. Apply hypothesis testing, regression analysis, time series analysis, factor analysis, and clusteranalysis techniques to business data. Create reproducible research using R and Rstudio to effectively communicate results to stakeholders. Develop proficiency in R programming language for analyzing and presenting business data.

Unit I

Introducing to R – R Data Structures – Help functions in R – Vectors – Scalars – Declarations – recycling – Common Vector operations – Using all and any – Vectorised operations – NA and NULL values – Filtering – Vectorised if-then else – Vector Equality – Vector Element names

Unit II

Creating matrices – Matrix operations – Applying Functions to Matrix Rows and Columns –Adding and deleting rows and columns – Vector/Matrix Distinction – Avoiding Dimension Reduction – Higher Dimensional arrays – lists – Creating lists – General list operations – Accessing list components and values – applying functions to lists – recursive lists

Unit III

Creating Data Frames – Matrix-like operations in frames – Merging Data Frames – Applying functions to Data frames – Factors and Tables – factors and levels – Common functions used with factors – Working with tables - Other factors and table related functions - Control statements – Arithmetic and Boolean operators and values – Default values for arguments - Returning Boolean values – functions are objects – Environment and Scope issues – Writing Upstairs - Recursion – Replacement functions – Tools for composing function code – Math and Simulations in R

Unit IV

R Object and Class Object, Data visualization in R & Data Management: R object and Class Object and Class: R S3 Class, R S4 Class R Reference Class, R Inheritance, Data visualization in R and Data Management: Bar Chart, Dot Plot, Scatter Plot (3D), Spinning Scatter Plots, Pie Chart Histogram (3D)[including colorful ones], Overlapping Histograms, Boxplot, Plotting with Base and Lattice Graphics Missing Value Treatment, Outlier Treatment, Sorting Datasets Merging Datasets, Binning variables

Unit V

Hypothesis Testing – I (Parametric) – Hypothesis Testing – II (Non-Parametric) – Analysis of Variance (One way ANOVA, Two way ANOVA) – Simple and Multiple Linear Regression Analysis – Logistic Regression – Time Series Analysis – Factor Analysis – Cluster Analysis -Reproducible

Research using R and Rstudio (knitr, rmarkdown, bookdown, interactive document, shiny presentation, shiny web application)

Suggested Readings:

- *Chang, Winsto (2018) R Graphics Cookbook,* O'Reilly; 2nd edition
- *Phil, Spector (2008) Data Manipulation with R,* Springer-Verlag New York Inc
- *Kabacof, Robert, R in Action: Data Analysis and Graphics with R,* Manning Publications
- *Wickham, Hadley (2019), Advanced R, Routledge, Taylor & Francis*

BA(EL)-301A: ADVANCE TECHNOLOGIES FOR BUSINESS

Course Objectives:

To introduce students to the fundamentals of Artificial Intelligence (AI) and Machine Learning (ML) and their application in the industry. To familiarize students with the concept of big data and its platforms and challenges. To provide an understanding of cloud computing and its services in developing, deploying, andmonitoring applications in the cloud. To introduce students to the Internet of Things (IoT) architecture and its application in cloudcomputing. To provide an understanding of blockchain technology, its building blocks, types, and applications.

Learning Outcomes:

Understand the fundamentals of AI, machine learning, big data, cloud computing, IoT, and blockchain, and their potential applications in a managerial context. Develop a critical understanding of the ethical, legal, and social implications of using AI, machinelearning, big data, cloud computing, IoT, and block chain in organizations. Learn how to implement data-driven decision-making strategies by leveraging AI, machinelearning, big data, cloud computing, IoT, and blockchain technologies.

Unit -1

Introduction for AI, Knowledge acquisition, Knowledge representation, Introduction of Machine Learning. Supervised and Unsupervised learning, Machine Learning Approaches – (Artificial NeuralNetwork, Clustering, Reinforcement Learning, Decision Tree Learning, Bayesian networks, Support Vector Machine, Genetic Algorithm), Issues in Machine Learning, Data Science Vs Machine Learning

Unit II

Introduction to Big Data: Big Data Platform – Challenges of Conventional Systems. Hadoop: Historyof Hadoop, the Hadoop Distributed File System, Components of Hadoop. Map Reduce Application- How Map Reduce Works, Map Reduce Types and Formats- Map Reduce Features - Hadoop environment.

Unit III

Introduction to Cloud Computing, Virtual Machines in the Cloud, Storage in the Cloud – Containers in the Cloud, – Applications in the Cloud – Developing, Deploying and Monitoring in the Cloud, Cloud services, Big Data and Machine Learning in the Cloud, Introduction to Google, AWS and AzureCloud.

Unit IV

Internet of Things (IOT)- An overview, Characteristic, Application and challenges. IoT Architecture,IoT and Cloud Application,

UNIT V

Blockchain: Introduction, feature and Application, Technical, Business, Behavioral/ Educational Challenges, Legal Barriers, Building Blocks of Blockchain, Type of Blockchain, Concept of Distributed system, Distributed Ledger, Cryptography, Blockchain vs Traditional architecture, Database Vs. Ledger, Bit coin, Ethereum etc.

Suggested Readings:

- *Stuart Russell and Peter Norvig (2010); Artificial Intelligence: A Modern Approach,* Pearson
- *Kim H. Pries and Robert (2015); Big Data Analytics: A Practical Guide for Managers,* Auerbach Publications
- *Toby Velte, Anthony Velte, and Robert Elsenpeter (2009); Cloud Computing: A Practical Approach,* McGraw Hill; 1st edition
- *Daniel Drescher (2017); Blockchain Basics: A Non-Technical Introduction in 25 Steps*

BA(EL)-301B: DECISION SCIENCES

Course Objective:

To understand the applications and scope of Operations Research in managerial decision-making. To learn about the different decision-making environments and approaches, such as the decisiontree approach. To learn about game theory, including two-person zero-sum games, pure and mixed strategygames, and different methods for solving mixed strategy games. To understand the concept of queuing theory and its applications in estimating arrival and service rates, as well as the characteristics of M/M/I Queue model.

Learning Outcomes:

Apply Operations Research techniques to make effective managerial decisions in different decision-making environments. Develop and use decision tree models to analyze and solve business problems in uncertain andrisky situations.

Unit -I

Operations Research: Uses, Scope and Applications of Operation Research in managerial decision- making. Decision-making environments: -Decision-making under certainty, uncertainty and risksituations; Decision tree approach and its applications.

Unit- II

Linear programming: Mathematical formulations of LP Models for product-mix problems; graphical and simplex method of solving LP problems; sensitivity analysis; duality. Transportation problem: Various methods of finding Initial basic feasible solution and optimal solution.

Unit -III

Assignment model: Algorithm and its applications. Game Theory: Concept of game; Two-person zero- sum game; Pure and Mixed Strategy Games; Saddle Point; Odds Method; Dominance Method and Graphical Method for solving Mixed Strategy Game.

Unit -IV

Sequencing Problem: Johnsons Algorithm for n Jobs and Two machines, n Jobs and Three Machines,Two jobs and m - Machines Problems. Queuing Theory: Characteristics of M/M/I Queue model; Application of Poisson and Exponential distribution in estimating arrival rate and service rate; Applications of Queue model for better service to the customers.

Unit -V

Dynamic Programming ,Nature of Dynamic Programming Problem, Dynamic Programming Solutionsfor Knap Sack, Traveling Salesman (Stage Coach), Assignment of Salesmen to Sales Area

and CapitalBudgeting. Integer linear programming: Meaning, Application, integer programming algorithm (branch and bound algorithm, cutting plan algorithm)..

Suggested Readings:

- *Taha, H. A. (2014); Operations Research: An Introduction, 10th Edition, Pearson*
- *Winston, W. L. (2004); Operations Research: Applications and Algorithms, 4th Edition, CengageLearning, Thomson Brroks*
- *Hillier, F. S., & Lieberman, G. J. (2017); Introduction to Operations Research, 10th Edition, McGrawHill*

BA(EL)-301C: BUSINESS APPLICATIONS OF MULTIVARIATE METHODS

Course Objectives:

To introduce students to the concept of multivariate analysis and its importance in business analytics. To develop students' skills in applying multivariate techniques to real-world business problems. To enhance students' understanding of multivariate regression analysis, multivariate analysis of variance, factor analysis, structural equation modeling, cluster analysis, and discriminant analysis. To enable students to interpret multivariate data and communicate the results to stakeholders in aclear and concise manner.

Learning Outcomes:

Students will be able to describe the applications of multivariate analysis in business analytics and explain its importance in decision-making. Students will be able to perform descriptive statistics and exploratory data analysis on multivariatedata to gain insights into patterns and relationships. Students will be able to select appropriate multivariate regression models, validate their assumptions, and interpret the results to make business decisions.

Unit I

Introduction to Multivariate Methods: Overview of multivariate methods and their applications in business analytics, Descriptive statistics and exploratory data analysis for multivariate data, Measuresof association and dependence for multivariate data, Interpretation of multivariate data through visualization techniques.

Unit II

Multivariate Regression Analysis: Multiple linear regression analysis for business applications, Modelselection and validation techniques in multivariate regression analysis, Extensions of multiple linear regression - logistic regression and multinomial regression, Interpretation of results and business implications of multivariate regression models.

Unit III

Multivariate Analysis of Variance (MANOVA): Understanding the concept of analysis of variance (ANOVA) and its business applications, Multivariate analysis of variance (MANOVA) for testing differences between multiple groups on multiple continuous response variables, Post-hoc tests and interpretation of results in MANOVA, Business implications and applications of MANOVA in marketing, operations, and finance

Unit IV

Factor Analysis and Structural Equation Modeling: Factor analysis for dimension reduction and identifying underlying latent constructs in business data, Confirmatory factor analysis and structural equation modeling for hypothesis testing and model validation, Interpretation of

results and business applications of factor analysis and structural equation modeling.

Unit V

Cluster Analysis and Discriminant Analysis: Cluster analysis for identifying groups of similar objectsin business data, Discriminant analysis for classifying objects into predefined groups based on a set ofpredictor variables, Interpretation of results and business applications of cluster analysis and discriminant analysis.

Suggested Readings:

- *Richard A. Johnson and Dean W. Wichern* (2012); *Applied Multivariate Statistical Analysis,* Prentice Hall India Learning Private Limited
- *Joseph F. Hair Jr., G. Tomas M. (2010); Multivariate Data Analysis: A Global Perspective, Pearson Education*
- *Andy Field (2019); Discovering Statistics Using IBM SPSS Statistics,* SAGE Publications India Pvt Ltd; Fourth edition
- *Bryan F.J. Manly (2016); Multivariate Statistical Methods: A Primer,* Chapman and Hall/CRC; 4th edition
- *J. F. Hair, W. C. Black, B. J. Babin, and R.E. Anderson (2009); Multivariate Analysis for the Behavioral Sciences,* Pearson; 7th edition

BA(EL)-301D: DIGITAL TRANSFORMATION MANAGEMENT

Course Objectives:

To develop an understanding of the concept of digital transformation and its impact on businessand society. To identify the key drivers and challenges of digital transformation and assess the organization'sdigital maturity and readiness for digital transformation. To develop a digital transformation strategy aligned with business goals and objectives. To explore the emerging digital technologies and platforms that enable digital transformation andevaluate the benefits and risks of adopting these technologies and platforms. To monitor and evaluate the progress and impact of digital transformation initiatives.

Course Outcomes:

Understand the concept of digital transformation and its impact on business and society. Develop a digital transformation strategy aligned with business goals and objectives. Identify the key competencies and skills required for digital leaders and develop effective communication and collaboration strategies. Develop and implement effective digital transformation projects.

Unit I:

Introduction to Digital Transformation Management

Definition and significance of digital transformation, Key drivers and challenges of digital transformation, Digital technologies and platforms enabling digital transformation, Organizational andcultural aspects of digital transformation.

Unit II:

Strategy and Planning for Digital Transformation

Developing a digital transformation strategy, Business model innovation and value proposition design, assessing digital maturity and readiness for transformation, Creating a digital transformation roadmap

Unit III:

Digital Leadership and Change Management
Competencies and skills for digital leaders, Change management in digital transformation, Challengesand opportunities of leading digital transformation initiatives, Communication and collaboration strategies for digital transformation.

Unit IV:
Digital Technologies and Platforms
Emerging digital technologies and platforms for digital transformation, Benefits and risks of adoptingdigital technologies and platforms, Implications of digital technologies and platforms for business models and value chains, Impact of digital technologies and platforms on customer experience and engagement

Unit V:
Implementation and Evaluation of Digital Transformation
Agile and iterative approaches to digital transformation, Effective project planning and implementation, Monitoring and evaluating progress and impact of digital transformation, Key successfactors and lessons learned from digital transformation projects

Suggested Readings:

- *Jo Caudron and Dado VanPeteghem (2018); Digital Transformation: A Model to Master Digital Disruption,* BookBaby
- *Janet S., Digital Leadership: Changing Paradigms for Changing Times*
- *Alexander (2016); Digital Strategy: A Guide to Digital Business Transformation,* Createspace Independent Pub
- *LindsayHerbert (2017); Digital Transformation: Build Your Organization's Future for the Innovation Age,* Bloomsbury Business
- *Thomas M. Siebel (2019); Digital Transformation: Survive and Thrive in an Era of Mass Extinction,* RosettaBooks
- *George Westerman,Didier Bonnet, and Andrew McAfee (2014); Leading Digital: Turning Technology into Business Transformation,* Harvard Business

IMS(IN)-301: SUMMER INTERNSHIP PROJECT

IMS(ID)-301A: BUSINESS ANALYTICS

Course Objectives: Understand the conceptual foundations of relevant business analytics methodologies. Understand the nature and scope of analytics in business management decisions. Understanding the application of various analytical tools including interpreting the input and communicating the output from these tools and models with their advantages and limitations Understand the application of theseanalytical tools to assist business decisions. Support Business decisions with analytical, research and managerial skills.

Learning Outcomes: The Students would be able to understand the benefits provided by analytical methods in business management. Manage technical challenges to plan, gather, analyse and interpret research information. Be able to access the appropriateness of analytical methods for different applications. Have gained hands-on analytical application skills utilizing relevant software. Be able toproperly interpret and communicate methodological results. Resolve marketing decision problems andmake sound business decisions using analytics.

Unit I:
Overview of Business Analytics, Analytical Methods and Models, Use of Analytics in Business Practices, Concept of Big Data, Types of Data, Hands on Practice on Data in Excel.

Unit II:
Concept of Data Visualization, Data visualization and Storytelling Through data, Data Visualization Techniques, Data Visualization Through Advanced Chart, Time Series Data Analysis and forecasting.

Unit III:
Data Mining and Management, Data Mining Tools, Data Mining Process, Data Mining Through Social Media, Summarize Marketing Data, Data Reduction methods, Metrics for Business Management, Pricing Analytics.

Unit IV:
Introduction to R and R-Studio software, Data Analysis Through R, Web and Social Media Analytics,Sentiment Analysis, Social Network Analytics, Text Analytics, Hands on practice on Data Analysis using R

Unit V:
Optimization Techniques, Linear Optimization Models, Sensitivity Analysis, Decision Analysis, Decision Analysis without Probabilities, Decision Analysis with Probabilities.

Suggested Readings:

- *Lilien, G. L., Rangaswamy, A., & De Bruyn (2007); Principles of Marketing Engineering; TraffordPublishing, 3rd edition.*
- *Linoff, G. S., & Berry, M. J. (2011); Data mining techniques for marketing, sales, and customerrelationship management; John Wiley & Sons, 3rd Edition.*
- *S. Scheps (2011); Business Intelligence; For Dummies; 1 Edition.*
- *E. Siegel& T.H. Davenport (2013); Predictive Analytics: The Power to Predict Who Will Click,Buy, Lie, or Die; Wiley, 1st Ediction.*
- *Pochiraju, Bhimasankaram, Seshadri& Sridhar (2019); Essentials of Business Analytics; SpringerInternational Publishing, 1st Edition*.

IMS (ID)-301B: INTER-DEPARTMENTAL COURSE

IMS (FL)-333: FOREIGN LANGUAGE

French Language

Course Objectives: To develop listening, speaking, reading & writing skills in French and also to introduce the learner to different aspects of life and culture of the people who speak the language.

Learning Objectives: This course will enable the students to listen and comprehend elementary structures of the spoken language, participate in simple conversations in various day to day situations. Further the students will be able to develop the creative aspect of language learning.

Unit-I : Elements of Functional Grammar

1. Organisation générale de la grammaire
2. Article indéfini, défini, contracté
3. Nom, adjectif, masculin, féminin, singulier et pluriel
4. Qui est-ce, qu'est-ce quec'est

5. Les verbes- la conjugison de verbes reguliers et irreguliers
6. Le temps -Présent,
7. Prépositions-à,de, l'article contrcté
8. Négation, interrogation : Inversion, est-ce que, qu'est-ce que, comment,
9. Adjectifs
10. Le mode impératif

Unit-II : Composition & Comprehension
Textes recommandés lus et expliqués et écoutes orales suivies de questions de compréhension avec fecilitateur , Rédiger des phrases simples sur des sujets de la vie quotidienne.
Faire des projets de week-end/ de vacances
Rédiger la reponse, l'invitation,le message, un petit annonce, fiche d'identité, la carte postale

Unit-III : Translation &Communication skills
Traduction en français-anglais et vice-versa de passages du texte et de phrases simples Se présenter, présenter quelqu'un, faire la connaissance des autres, formules de politesse, rencontres parler de soi : parler du travail, de ses activités,
Donner/demander des informations sur une personne, premiers contacts, exprimerses goûts et ses préférences

Unit-IV: Lexical acquisition through Culture and Civilization
La vie en France, monuments, architecture, sculptures, montagnes, rivières, sports, fromages, vins, cuisine, gastronomie, journaux et magazines

Unit-V: Elements of Business French

Suggested Readings:
Le livre à suivre : Nouveau Sans Frontière: Niveau 1 : Alter Ego :Collins Gem French-English/English-FrenchDictionary

German Language

Course Objectives: To develop listening, speaking, reading & writing skills in German and also to introduce the learner to different aspects of life and culture of the people who speak the language.

Learning Objectives: This course will enable the students to listen and comprehend elementary structures of the spoken language, participate in simple conversations in various day to day situations. Further the students will be able to develop the creative aspect of language learning.

Unit I
Introduction to Germany, Basic grammar structure, Nouns (singular, plural), Numbers, Days, Months, Seasons, Colours.

Unit II
Personal pronouns, Verbs, Conjunctions, Prepositions, Articles, Adjectives

Unit III
Tenses, Sentence Construction, Interrogative Sentences, Affirmative Sentences, Negative Sentences

Unit IV
Comprehension Texts

Unit V
Paragraph Writing

SEMESTER IV

Paper Code	Name of Subject	Credit	Remarks	Theory/ External	Internal Assessment	Total
IMS(CC)-401	Strategic Management/ MOOCs	04	Core Course	70	30	100
IMS(BA)-401	Business Intelligence and Data Visualization	04	Core Course	70	30	100
BA(EL)-401A	Marketing Analytics	08	Elective (Choose Any Two	70	30	100
BA(EL)-401B	Finance and Risk Analytics			70	30	100
BA(EL)-401C	HR Analytics			70	30	100
BA(EL)-401D	Web and Social Media Analytics			70	30	100
IMS(MT)-401	Master Thesis/Dissertation	04	Master Thesis/ Dissertation	70	30	100
IMS(ID)-401A	Artificial Intelligence in Business	04	Intra-Departmental Course	70	30	100
IMS(ID)-401B	Intra-Departmental Course			70	30	100
	Semester Total	**24**		**420**	**180**	**600**

IMS(CC)-401: STRATEGIC MANAGEMENT

Course Objective: The objective of this course is to develop a holistic perspective of enterprise, critical from the point of view of the top management and to acquaint with strategic management process and develop competencies to understand competitive posture of own and competing firms in various industries with a view to successfully implement strategy with effectiveness.

Learning Outcomes:

Relate vision and mission with the current business of the organization. Define business in terms of need/ functions, customers and alternative Technologies. Distinguish between ability, capability, competence and competitive advantage. Interpret trends and developments in the environment and implications for business in terms of opportunities, challenges and threats. Perform SWOT analysis of organisation and competitors. Justify the chosen strategy with the conditions and prerequisites for success. Construct businessportfolio and understand strategic implication. Distinguish a mechanist organization with a learning organization. Assess an organization's readiness to change. Address the issues in implementation of strategy ina given situation. Apply value chain to identify core competencies required to be developed. Discriminate between variants of organisation structure and recommend suitable organisationstructure to support strategy execution. Identify and recommend best practices for ensuring effectiveness in strategy execution. Decipher characteristics of culture in an organisation and recommend required attributes and actions for changing the problematic /unhealthy culture. Identify performance metrics for strategic performance management Recommend strategic and operational effectiveness techniques for evaluation and perform strategic audit. Demonstrate ethical behavioural orientation and cultural sensitivity.

Unit I:

Nature and Scope of Strategic Management, Process of Strategic planning and Implementation,

Strategic Management Process, Strategists and their Role in Strategic Management, Hierarchy of Strategic Internet: Vision, Mission, Goals and Objectives, Business Definition. Environmental Appraisal: Environmental Scanning, Appraising the Environment, Organizational Appraisal: Organisational Capability Factors, Considerations in Organisational Appraisal, Methods and Techniques used for Organisational Appraisal, Structuring Organisational Appraisal.

Unit II:

Company level strategies: Grand, Stability, Expansion, Retrenchment and Combination Strategies, Business Level strategy: Cost, Differentiation, Focus, Organisational perquisites for implementing chosen business strategy, Implications for strategic alignment, tailoring strategy to fit specific industryand company situation.

Strategic Analysis and Choice: Business Portfolio, Portfolio balance, choice, Construction and analysis of business portfolio, Strategic imperatives of portfolio choice, Competitive advantage: Sources, drivers and routes to Competitive advantage

Unit III:

Strategies for entering new business, choosing a diversification path-related vs unrelated business, International diversification and. Strategies for managing a group of business, Corporate Restructuring. The challenge of Strategic Implementation, Levels of organizational change andassociated approaches to strategic management of change, Organizational learning, leadership for organizational change, assessment of readiness to change, Integrating formulation and implementation, role of implementers at different levels, Principal managerial components of strategy execution process, building a capable organization, staffing, building core competencies and competitive capabilities, matching organization structure to strategy, organization structures of the future

Unit IV:

Generic model of core processes and systems, Context levers, systems levers – information resourcing,human resourcing , capital resourcing and control systems, systems as action levers, Managing internal operations and actions to promote better strategy execution: Marshalling resources, instituting best practices, adopting best practices and continuous improvement, TQM, Installing Information systemsand operating systems, corporate culture and leadership as keys to successful execution

Unit V:

Functional and Operational Implementation, operational effectiveness, Strategy Evaluation and Control, Techniques of operational and strategic control the leader as a role model, Everyday actions shaping organizational outcomes, Strategic Management in an International Firm;

Navigating and managing disruptions and innovation. Strategy and Corporate Evolution in Indian Context.

Suggested Readings:

- *Thompson, A A, Strickland, A. J and Gamble, J E, Jain A K, 19 ed, Crafting and Executing Strategy, McGraw Hill/Irwin*
- *Dess, G G, and Miller, A, Strategic Management, 2nded, McGraw Hill,*
- *Pearce I, J A. Robinson, R B. Jr., Mital, A McGraw-Hill Education, (2018); Strategic Management:Planning for Domestic and Global*
- *David, F., 15/ed 2015, Strategic Management*
- *Kazmi, A, Business Policy and Strategic Management, Tata McGraw Hill, 3rd edition*

IMS(BA)-401: BUSINESS INTELLIGENCE AND DATA VISUALIZATION

Course Objectives:

To introduce the concepts and techniques of business intelligence and data visualization. To familiarize students with the different architectures, tools, and techniques of business intelligence. To provide students with an understanding of database systems, data models, and normalization. To develop skills in SQL and its application in database management. To teach students how to work with data in Power BI and Tableau and create interactivevisualizations. To equip students with knowledge and skills to develop dashboards and reports that support data-driven decision-making.

Learning Outcomes:

Explain the framework and benefits of business intelligence. Identify the architecture and major vendors of business intelligence systems. Design and develop a business intelligence solution by acquiring or developing a BI system. Develop skills in database systems, data models, and normalization. Use SQL to manage databases, perform queries, and apply constraints. Create interactive visualizations in Power BI and Tableau. Develop dashboards and reports to support data-driven decision-making.

Unit 1

Business Intelligence – Introduction, Framework of Business Intelligence- Definition, History, Architecture of BI, benefits of BI, Intelligence creation and use of BI governance, Transaction processing versus analytic processing, BI implementation – Developing or acquiring BI, Justificationand Cost-benefit analysis, Security and protection of privacy, Integration of systems and applications,BI tools and techniques, Major vendors.

Unit 2

Introduction Database system concept and architecture, data model schema and instances, data independence and database language and interfaces, DDL, DML, Overall Database Structure. ER model concepts, notation for ER diagram, mapping constraints

Relational data Model and Language: keys, Concepts of Super Key, candidate key, primary key, Relational data model concepts, integrity constraints, entity integrity, referential integrity, Keys constraints, Domain constraints,. Normalization

Unit III

Introduction on SQL: Characteristics of SQL, advantage of SQL. SQL data type and literals. Types ofSQL commands. SQL operators and their procedure. Tables, views and indexes. Queries and sub queries. Aggregate functions. Insert, update and delete operations, Joins, Unions, Intersection, Minus, Cursors, Triggers, and Procedures in SQL/PL SQL

UNIT-IV

Introduction to PowerBI – Working with data – Importing from flat files, excel files, other sources – PowerPivot data types – Column operations - Table relationship – PowerPivot data analysis – PivotTable and PivotChart – Slicers – Dashboard Implementation – Dates, hierarchies, and perspectives – Data Analysis Expressions – Introduction to Power Query – Introduction to Power View – Power View visualizations – Power View filtering options – Introduction to Power Map – Preparinggeospatial data – Publish from Power BI desktop – Publish Dashboard to Web

UNIT V

Introduction to Tableau – Installation – Tableau Interface – Data Importing (live vs extract) –

Continuous and discrete data – Different kinds of plots and their usage (bar chart, line chart, scatter plot, histogram, dual axis) – Parameters – Functions and calculated field – Row and aggregate calculations – Time series analysis – Bin & group – Forecast & clusters – Joins and blends – Dashboardand interactive plots – Data interpretation – Connecting to real time database

Suggested Readings:

- *Rick Sherman (2014); Business Intelligence Guidebook: From Data Integration to Analytics,* Morgan Kaufmann
- *Kristen Sosulski (2018); Data Visualization Made Simple,* Routledge
- *Molly Monsey and Paul Sochan , (2015); Tableau For Dummies,* For Dummies
- *Ken Withee (2010); Power BI for Dummies,* John Wiley & Sons
- *Kieran Healy (2018); Data Visualization: A Practical Introduction,* Princeton University Press

BA(EL)-401A: MARKETING ANALYTICS

Course Objectives:

To introduce students to the concepts, tools, and techniques of marketing analytics for effectivedecision-making. To provide an overview of popular software tools that are used for marketing analytics. To teach students how to use marketing analytics to address complex business problems andenhance the organization's performance. To develop students' skills in data cleaning, data preparation, exploratory data analysis, and advanced forecasting techniques.

Course Outcomes:

Understand the importance of marketing analytics and its role in the decision-making process. Apply pricing and forecasting techniques, including estimating demand curves, nonlinear pricing, and advanced forecasting methods, to analyze and predict consumer behavior. Use marketing analytics to analyze and optimize marketing channels, customer acquisition andretention, and product analytics. Understand market segmentation, retail analytics, advertising analytics, and media selectionmodels and learn to apply them in a business context. Develop the ability to analyze data and draw meaningful insights from it to inform marketingstrategies and improve organizational performance.

Unit-I:

Introduction to Marketing Analytics

Understanding the importance of Marketing Analytics,
An overview of R and SPSS for Marketing Analytics, Data Cleaning and Preparation for Marketing Analytics, Exploratory Data Analysis (EDA) using R.

Unit-II:

Pricing and Forecasting

Estimating Demand Curves and Using Solver to Optimize Price, Price Bundling, Nonlinear Pricing, and Price Skimming, Time Series Analysis and Forecasting, Advanced Forecasting Techniques: Ratioto Moving Average, Winter Method, Neural Networks.

Unit III:

Product Analytics

Product Attribute Analysis [Conjoint Analysis], Logistic Regression, Discrete Choice Analysis & Random Utility Theory.

Unit-IV:

Customer Relationship Management Analytics

Customer Relationship Management Analytics, Benefits of CRM Analytics, Common CRM Metrics, Calculating Lifetime Customer Value, Using Customer Value to Value a Business, Monte Carlo Simulation, and Marketing Decision Making, Allocating Marketing Resources between Customer Acquisition and Retention

Unit-V:

Marketing Channels Analytics

Market Segmentation using Clustering and Classification Trees with R and SPSS, Retail Analytics: Market Basket Analysis and Lift, Allocating Retail Space and Sales Resources, Identifying the Sales to Marketing Effort Relationship. Advertising Analytics: Measuring the Effectiveness of Advertising,Media Selection Models, Pay per Click Advertising.

Suggested Readings:

- *Rai, Alok Kumar, Customer Relationship Management: Concepts and Cases, PHI Learning*
- *Wayne L. Winston (2014); Marketing Analytics: Data-Driven Techniques with Microsoft Excel,* Wiley
- *Mike Grigsby (2015); Marketing Analytics: A Practical Guide to Real Marketing Science,* Kogan Page
- *Stephan Sorger (2013); Marketing Analytics: Strategic Models and Metrics,* Amazon Digital Services

BA(EL)-401B: FINANCE AND RISK ANALYTICS

Course Objectives:

To introduce the importance of financial analytics and its relevance in the current financial landscape and to explore the different types of financial analytics and understand their applications in corporatefinancial analytics, investment financial analytics, and financial analytics for current financial challenges. To introduce the fundamental analysis and technical analysis and explain their features and implementation in financial analytics. To introduce financial data analytics and its various types such as market data, business data, andprocess automation. To explore credit risk modeling and provide an overview of consumer credit products, credit rating agencies, external analysis for credit information, and verification frameworks.

Learning Outcomes:

Understand the importance of financial analytics and its relevance in the current financial landscape. Analyze and apply different types of financial analytics in corporate financial analytics, investmentfinancial analytics, and financial analytics for current financial challenges. Evaluate fundamental analysis and technical analysis and their features and implementation infinancial analytics. Analyze financial data analytics and its various types such as market data, business data, and process automation. Evaluate credit risk modeling and provide an overview of consumer credit products, credit ratingagencies, external analysis for credit information, and verification frameworks.

Unit I

Introduction to Financial Analytics: Importance of Financial Analytics, Types of Financial Analytics, Fundamental Analysis, Technical Analysis, Component of Financial Analytics, Features of Financial Analytics, Implementation of Financial Analytics, Corporate Financial Analytics, Investment Financial Analytics, Financial Analytics and Current Financial Challenges – Fraud – Risk – Profitability – Portfolio Management.

Unit II

Financial Data Analytics: Types of Data, Financial Data, Market Data, Business Data, Process Automation, Risk and Security, Underwriting and Credit scoring, Algorithmic trading, Time Series, Meaning and Components, Trend Analysis, Seasonality and cyclical behaviour, Moving Average, Exponential smoothing methods – Single exponential, double exponential, HOLT-WINTERS, ARIMA**.**

Unit III

Credit Risk Foundation: Overview of Consumer Credit Products, Credit Risk Fundamentals, Credit Rating Agencies, External Analysis for Credit Information, Verification Frameworks Risk modeling–Fundamentals-Different approaches for risk modeling-Binomial Logistic, Multinomial Logistic, Survival Analysis, Penalized Models, Hazard Models.

Unit IV

Credit Risk Regulations: BASEL II Concepts - Pillar 1, 2 and 3, BASEL II vs BASEL III, IFRS9 standards, Comparison between requirements by FSA and APRA, Comparison between IFRS9standard and CECL (FASB), CCAR, Regulation and calculation overview, Asset Classes, Business case studies.

Unit V

Model Validation-Regulation's Context: Data Cleaning & Model Diagnostics, Variable Selection, Candidate Models, Residual Diagnostics, Holdout / OOT Sample Testings - SR 11-7 Requirements, Detailed understanding (Conceptual Soundness, Outcome Analysis, and Model Monitoring), Model Documentation.

Suggested Readings:

- *Victoria Lemieuz (2013); Financial Analysis and Risk Management, Springer Publication.*
- *Jimmy Skoglund (2015); Weichen, Financial Risk Management, John Wiley & Sons Inc.*
- *Richard Apostolik (2015); Foundations of Financial Risk: An Overview of Financial Risk and Risk-based Financial Regulation, Wiley*
- *Harald Scheule, Credit Risk Analytics: Measurement Techniques, Applications, and Examples in SAS, Wiley andSAS Business Series, Bart Baesens, Daniel Roesch,* Wiley*.*
- *AnthonySaunders and Linda Allen (2002); Credit Risk Measurement: New Approaches to Value at Risk and Other Paradigms,* John Wiley & Sons; 2nd edition

BA(EL)-401C: HR ANALYTICS

Course Objectives:

Understand the concepts of human resources data and metrics for reporting. Analyze data effectively to communicate results for effective talent management. Develop an ability to track, store, retrieve, analyze and interpret HR data to support decision- making. Analyze data related to Human Resource Management and prepare reports to present findings and recommendations. Understand concepts of HR Dash-boarding for effective data visualization. Use Tableau for creating graphical representation of data.

Course Outcomes:

Apply concepts of HR analytics for measuring Human Resource Management effectiveness. Create visually attractive and interactive dashboards in Microsoft Excel and Tableau for data visualization. Examine HR data to identify trends and other actionable performance information. Examine the effectiveness of HR processes and interventions to transform the HR function from service provider to business enabler. Apply HR metrics for achieving human resource

effectiveness.

Unit I:

Introduction to HR Analytics

Meaning and Definition of HR Analytics, Need for HR Analytics in modern HR practices, Leading practices for improved organizational performance, Contribution of HR Analytics to business strategy Approaches and applications of HR Analytics, Role of HR in building organizational capabilities.

Unit II:

HR Intelligence Framework

Human Capital Maturity Framework for leadership, engagement, and knowledge practices, People research and analytics practices, HR Intelligence cycle and Organizational Intelligence Model (OIM) Implementing HR Intelligence with HR Scorecard and Workforce Scorecard, Constructing HRscorecard with key metrics and indicators.

Unit III:

Staffing Analytics

Recruiting tools and practices for measuring the quality of hire and applicants, Measuring the costs ofhiring and onboarding with recruitment analytics, Performance and skill gap analytics for identifyingtraining needs and improving productivity, Attrition metrics and manpower planning models for managing turnover, Diversity and inclusion metrics for promoting a diverse workforce.

Unit IV:

Talent Development Analytics

Training ROI and evaluation models for measuring the effectiveness of training programs, Career management measurement and performance metrics using EFQM and Baldridge criteria, Non-analytic framework for performance management and targeted analytics for talent decisions, Succession planning metrics and strategies for talent retention and development.

Unit V:

Compensation and Benefits Analytics

Calculating wage/salary measures and designing variable pay systems, Types of executive compensation and quantitative application in compensation using percentiles and comp ratios, Employee benefits metrics and incentive calculation for employee motivation, Monitoring absencemetrics and cost impact of unplanned absences, Designing effective compensation packages andavoiding common compensation mistakes.

Suggested Readings:

- *Banerjee. P., Pandey, J. and Gupta, M .(2019) Practical Applications of HR Analytics: A step bystep guide Sage Texts, Sage Publications Inc.*
- *Nigel, G., Jonathan, F. and Sheri, F. (2018) The Power of People, Pearson India Education Services Pvt. Ltd.*
- *Laurie Bassi, Rob Carpenter, and Dan McMurrer (2010); HR Analytics Handbook,* Reed Business
- *Bernard Marr (2018); Data-driven HR: How to Use Analytics and Metrics to Drive Performance,* Kogan Page;

BA(EL)-401D: WEB AND SOCIAL MEDIA ANALYTICS

Course Objectives:
Understand the role of web analytics for mapping business needs. Use data across all digital marketing functional teams. Analyze concepts of web analytics such as KPI‟s, funnels for product analysis. Understand strategic and operational aspects of Web analytics tools and technologies. Understand the management of the social media listening process. Understand the role, characteristics and calculation of social media metrics.

Course Outcomes:
Examine the use of web/social/mobile analytics platforms for mapping business needs. Deploy web intelligence to improve the outcomes of marketing and business plan. Analyse information from multiple data sources and draw meaningful strategic insights and conclusions from the process. Examine social media listening process for decision-making. Analysis social media metrics for evaluation and control. Create metrics for evaluating social media.

Unit 1: Introduction to Web and Social Media Analytics
Definition and importance of Web and Social Media Analytics, Social Media Landscape and AnalyticsKey terms in Web Analytics, Overview of R packages for Web and Social Media Analytics

Unit 2: Data Collection and Analysis for Web and Social Media

Capturing data for Web Analytics: Web logs, web Beacons, java script tags, packet sniffing, Capturingdata for Social Media Analytics: APIs, scraping, mining, Data Collection Techniques: Web Logs, WebBeacons, Java Script Tags, Packet Sniffing, Outcome Data, A/B Testing and Multivariate Testing withR

Unit 3: Metrics for Web and Social Media Analytics
Web Metrics and KPIs: Hits, Page views, visits, unique page views, Bounce, Bounce rate, Average time on site, Real-time report, traffic source report, custom campaigns, content report, Google Analytics, Social Media Metrics and KPIs: Reach, Engagement, Sentiment Analysis, Calculation and interpretation of Web and Social Media metrics using R packages, Usability Metrics: Performance Metrics, Issues-Based Metrics, Self-Reported Metrics, HEART Metrics: Happiness, Engagement, Adoption, Retention, and Task Success, PULSE Metrics: Page Views, Uptime, Latency, Seven-Day Active Users

Unit 4: Advanced Web and Social Media Analytics
Application of Web Analytics and Social Media Analytics in Small and Large organizations Network Analysis and Social Network Analysis (SNA) with R packages, Text Analytics and Natural Language Processing (NLP) for Micro-text Analysis, Performing Social Media Analytics: Business Goals, KPIs, Data Gathering, Analysis, Measure and Feedback

Unit 5: Web and Social Media Analytics Tools (6hrs)
Overview of web analytics and social media analytics tools: Google Analytics, Hootsuite, Moz, SEMrush, etc., Introduction to R packages for Web and Social Media Analytics: RGoogle Trends, twitteR, ggplot2, Shiny, etc., Facebook Analytics: Introduction, Parameters, Demographics, Analyzing Page Audience, Reach and Engagement Analysis

Suggested Readings:

- *Matthew Ganis (2015) Social Media Analytics: Techniques and Insights for Extracting*

Business Value Out of SocialMedia, IBM Press
- *Kaushik, Avinash (2009). Web Analytics 2.0: The Art of Online Accountability and Science of Customer Centricity,* Sybex
- *Beasley, Michael (2013); Practical Web, Analytics for User Experience: How Analytics Can Help You Understand YourUsers,* Morgan Kaufmann Publishers In;
- *MaksimTsvetovat and Alexander Kouznetsov (2011); Social Network Analysis for Startups: Finding Connections on the Social Web,* O'Reilly Media
- *Hadley Wickhamand Garrett Grolemund (2017); R for Data Science: Import, Tidy, Transform, Visualize, and Model Data,* Shroff/O'Reilly

IMS(MT)-401: MASTER THESIS/DISSERTATION

IMS(ID)-401A: ARTIFICIAL INTELLIGENCE IN BUSINESS

Course Objective: The objective of the course is to give the student a conceptual understanding of how AI works and how is it different from the human mind. It is further sought to enlighten the studenton how the traditional business tools and practices will be affected by the AI systems. The important points regarding the challenges and the ethical dimension are also incorporated. Finally, the future ofAI and the interface between consciousness and AI is brought out succinctly.

Learning Outcomes: The conceptual understanding of AI system and its difference with the human mind will help student appreciate the gravity of the implications for the business in the coming decades.Going through the instructions on the utility of AI as business tools the student would stand out as a valuable asset to their future employers. The ethical dimensions involved should also sensitize the students on the challenges involved for value-based business practices. In the frightening and uncertaintimes of AI era the student should find solace in the infallibility and supremeness of human consciousness and take the AI challenge boldly and positively.

Unit I: HUMAN VERSUS MACHINE
What matters to a machine; What makes a mind; Looking into the Future; Programs that Write Programs; Four Basic Drives; The Intelligence Explosion; The Point of No Return; The Law of Accelerating Returns; The Singularitarian; The End of Human Era; The Cyber Ecosystem; Telemigration, Automation and the Transformation; Digitech Impulse.

Unit II: USING AI TO ATTRACT, PERSUADE, AND RETAIN CUSTOMER
Market Research; Marketplace Segmentation; Raising Awareness; Social Media Engagement; In RealLife; The B2B World; The In-Store Experience; On the Phone; The Onsite Experience—Web Analytics; Merchandising; Closing the Deal; Back to the Beginning: Attribution; Growing Customer Expectations; Retention and Churn; Many Unhappy Returns; Customer Sentiment; Customer Service;Predictive Customer Service; The AI Business Platform

Unit III: SOLVING THE BUSINESS PROBLEMS
Application of AI: Finance, Manufacturing, Transportation, Energy, Healthcare, Communication, Law, and Defence. One-to-One Marketing; One-to-Many Advertising; The Four *P*s; The Customer Journey; Branding; Your Bot Is Your Brand; Marketing Mix Modelling; Econometrics; Customer Lifetime Value

Unit IV: THE CHALLENGES
Machine Mistakes; Human Mistakes; The Ethics of AI; What Machines Haven't Learned Yet; How toTrain a Dragon; The Human Advantage; AI to Leverage Humans; Collaboration at Work; Your

Roleas Manager; AI for Best Practices.

Unit V: THE FUTURE

The Path to the Future; Machine-Train Thyself; Intellectual Capacity as a Service; Data as a Competitive Advantage; How Far Will Machines Go; Computing Tomorrow; Consciousness and AI: What is Consciousness; is Consciousness beyond Science; Experimental clues about Consciousness; Theories of Consciousness; How might AI Consciousness Feel?

Suggested Readings:

- *James Barrat (2015) Our Final Invention; Pan Macmillan India, 1st Edition.*
- *Garry K &Mig G. (2017) Deep Thinking: Where Machine Intelligence Ends and Human Creativity Begins; John Murray Publications, 1st Edition.*
- *Kamal Y. (2020) Marketing Management; NRBC, 1st Edition.*
- *Jim Sterne, G.A. Poe &Gildan M. (2018) Artificial Intelligence for Marketing; Gildan Media-Audible Book, 1st Edition.*
- *Max Tegmark (2017) Life 3.0: Being Human in the Age of AI; Knopf, 1st Edition.*

IMS(ID)-401B: INTRA-DEPARTMENTAL COURSE