

 **Open and Distance Learning**

# Master of Business Administration

## Semester I

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| **Course No.** | **Course Code** | **Course Title** | **Course Credit** |
| 1 | MBA-OD-101 | Principles of Economics and Markets | 4 |
| 2 | MBA-OD-102 | Managerial Effectiveness and Ethics | 4 |
| 3 | MBA-OD-103 | Accounting and Finance | 4 |
| 4 | MBA-OD-104 | Organizational Behavior and Human Resources Management | 4 |
| 5 | MBA-OD-105 | Quantitative Techniques and Analytics | 4 |

**Total Credit 20**

# Syllabus - Semester I

### Course: Principles of Economics and Markets Course Code: MBA-OD-101 Course Credits: 4 Learning Hours: 120

**Course Outcomes**

CO1: Identify the relationship between economic theories and business decisions. CO2: Evaluate business decisions based on Demand and Supply concepts.

CO3: Assess market competition and structure for different products.

CO4: Interpret various macroeconomic policies for better understanding of the economy. CO5: Apply financial market norms towards investment decisions.

### Unit 1: The Economic Way of Thinking

Introduction to economics: concept of scarcity- trade-offs, opportunity cost, basic economic problems, microeconomics and macroeconomics, managerial economics- meaning and nature

***Learning Outcome:*** *To understand basic economic principles and concepts business.*

### Unit 2: Demand & Supply Analysis and Estimation

Demand Analysis- meaning of demand, determinants of demand, demand equation, Law of Demand, elasticity of demand, types of elasticity (numerical), measurement of elasticity, Demand forecasting-meaning, types and measurement, supply- meaning, determinants, Law of Supply, market equilibrium

***Learning Outcome:*** *To discuss the micro level economic theories of demand and supply analysis.*

### Unit 3: Production Analysis & Cost Analysis

Production-meaning, production function, laws of production-law of variable proportions and laws of returns to scale, isoquants, economies of scale;

Cost analysis- Meaning of cost, Cost concepts, (problems), cost function- SR & LR, LAC curve; Breakeven analysis- BEP (numerical), Cost & Economies of scale

***Learning Outcome:*** *To discuss microeconomic theories of production as cost and producer equilibrium.*

### Unit 4: Profit-Maximization under Competitive Markets

Types of markets: perfect competition, monopoly, monopolistic competition and oligopoly; profit-maximization-alternative forms of organization; marginal revenue, marginal cost, and profit maximization, profit maximization by a competitive firm: short- run profit maximization by a competitive firm and long-run profit maximization ***Learning Outcome:*** *To discuss the micro level economic theories of output and price determination under various market structures.*

### Unit 5: Oligopoly Market

Oligopoly-price searchers-meaning, cartels, conditions for cartel success; advanced pricing- extensions of oligopolistic pricing: limit entry pricing, price rigidity and kinked demand; price leadership, volume pricing

***Learning Outcome:*** *To explain the theories of oligopoly and discuss competitive pricing.*

### Unit 6: Introduction to Indian Economy

Characteristics of Indian economy as developing economy, Economic growth vs Economic development, causes and solutions for economic development, Measurement of Development- Human Development Index (HDI) and other measurements

***Learning Outcome****: To understand key stages in the history of the Indian economy and identify challenge to its development.*

### Unit 7: Policy and Economic Reforms in India

Economic Policies- New Economic Policy (LPG); monetary policy, fiscal policy; Industrial Policy, Foreign Trade Policy, FDI, Economic reforms*-* current economic reforms (SAP- Structural Adjustment Programs), privatization, disinvestment, Demonetization, GST ***Learning Outcome****: To discuss the economic policy framework of the Indian economy and understand economic reforms in India.*

### Unit 8: Economic Planning in India

Need for Finance Commission, Role and functions of Finance commission of India, need and importance of NITI Aayog, Functions of NITI Aayog

***Learning Outcome****: To describe the economic planning system in India and understand policy implications.*

### Unit 9: Business Cycle

Business Cycle- Features, Phases, Causes and Measures for Controlling Business Cycles. Concept of Inflation, Deflation, FDI, National Income- Concepts and Measurements ***Learning Outcome****: To understand macroeconomic variables and business cycle effects in the economy.*

### Unit 10: Sectoral Composition of Indian Economy

Contribution of Agriculture, industry and services sector towards economic development, Government Initiatives to boost up each sector

***Learning Outcome:*** *To discuss the sectoral composition of the Indian economy.*

### Unit 11: Over view of the Indian Financial System

Over view of the Financial System, Financial Institutions, Financial Markets, Financial Instruments and Services, Role of financial Intermediaries, Source of Funds, Application of Funds***,*** Role of Financial Regulatory and Promotional Institutions like RBI, SEBI, IRDA, PFRDA

***Learning Outcome:*** *To recognize the initiatives in strengthening the financial infrastructure by Regulators.*

### Unit 12: Financial Markets-I

Monetary policy-Tools, Goals and Targets, structure of interest rates – Nominal and real interest rate, Money Market- instruments, utility, eligibility: Call, Notice & Term Money Market, Commercial Bills, Commercial Paper, Certificate of Deposits, T-Bills issue & yield- computation, Repo, market for financial Guarantees, Discount market, Government (Gilt- edged) Securities Market & design, Commercial Banks, Cooperative banks, Insurance companies

***Learning Outcome:*** *To identify various products of money market and utility.*

### Unit 13: Financial Markets-II

Equities Market-Primary Markets –SEBI norms (ICDR regulations), exit routes, introduction to public issues, types of issues, appointing Merchant Bankers & other intermediaries, their role & responsibilities, Filing DRHP & types of prospectus, book building mechanism, types of investors, ASBA

Secondary Markets- Purpose & procedures for listing (post-IPO); SEBI framework, role of stock exchanges-NSE, BSE, role of secondary market intermediaries, Depositories, Overview of Bond market and recent developments

***Learning Outcome:*** *To appreciate the operations of equity market.*

### Unit 14: Financial Services

Small Savings, Provident Funds, Pension Funds, Insurance Companies, Mutual Funds and NBFC Non-Bank Financial intermediaries -Leasing, Hire purchase, Credit rating, Factoring, Forfaiting, Non-Bank Statutory Financial Organizations

***Learning Outcome:*** *To assess the impact of financial services on investment decisions.*

### Unit 15: Technology in Financial Services

Digital currencies, Emerging technologies in financial market and their benefits, FinTech operational, technology, and regulatory risks, Block chain, Cryptocurrency and Bit coins, Cyber-security law in India, Big data and Chat bots, Role of Artificial Intelligence ***Learning Outcome:*** *To understand emerging trends in financial services*

### Course: Managerial Effectiveness and Ethics Course Code: MBA-OD-102 Course Credits: 4 Learning Hours: 120

**Course Outcomes**

CO1: Explain the competencies and skillsets needed for an effective manager.

CO2: Demonstrate effective reading, writing, speaking, listening and presentation skills to communicate effectively to audience in business situations.

CO3: Analyze and integrate leadership skills for organizational building. CO4: Create strong teams with the necessary skills to achieve results.

CO5: Assess contribution of Indian culture and ethos to service, leadership and management.

### Unit 1: Effective Communication

Introduction, importance of communication, process of communication, types of communication, principles of effective communication, technology and business communication, addressing the barriers to communication

***Learning Outcome:*** *To apply the principles for effective communication.*

### Unit 2: Oral and Non-verbal Communication

Oral communication, public speaking, non-verbal communication, business etiquette

***Learning Outcome:*** *To understand and practice effective business communication.*

### Unit 3: Listening & Reading Skills

Listening: importance and need, types, active and empathic listening, developing skills, listening and understanding, characteristics of a good listener*;* reading: objectives, purpose, reading as a skill, types of reading

***Learning Outcome:*** *To improve listening skills and develop reading skills for effective business communication.*

### Unit 4: Written Communication

Written communication: memos, proposals, letter writing, circulars, notices, agenda and minutes of the meetings, report writing. CV and resume writing, Email writing and etiquette

***Learning Outcome:*** *To write business documents with the use of appropriate business style.*

### Unit 5: Assertiveness

Increase self-awareness; Deal more confidently and professionally with conflict and anger; make, refuse and accept requests more effectively; Handle inter-personal issues more confidently and effectively; three main categories of behaviour within the assertiveness model: passive, aggressive and assertive, give and receive feedback more effectively

***Learning Outcome****: To enable to develop assertive communication techniques which will be invaluable in a wide range of situations.*

### Unit 6: Emotional Intelligence

Elements of Emotional Intelligence – Self Awareness, Managing Self, Motivation, Empathy, Social Skills; Review of your interpersonal skills, how to adapt and mange particular situations, use your emotions to your advantage, build stronger relationships, how to empathize with others, how to manage your stress levels, how to overcome challenging situations

***Learning Outcome:*** *To enhance your relationships in work and life by increasing your understanding of social and emotional behaviours.*

### Unit 7: Leadership Skills for Effectiveness

Understand the leadership skills necessary for effective managers; meaning of organization culture; building an organization culture; meaning of networking; building networking across various business functions, similarities and differences between leadership and management, Key managerial skills- Motivating others, delegating effectively, giving feedback

***Learning Outcomes:*** *To understand the key aspects managerial skills and appreciate the importance of networking for managers.*

### Unit 8: Leadership Challenges

Understand leadership theories, leadership challenges and strategies, negotiation: meaning, importance, mapping leadership styles, expanding professional and personal networks

***Learning Outcomes:*** *To appreciate the challenges that come with managerial leadership and understand how to strategize and handle negotiations.*

### Unit 9: Presentation Skills

Learn to design effective & engaging presentations; Select the most suitable delivery method based on the audience, the environment & the message being delivered; Master powerful & effective verbal & non-verbal communication techniques; Gain insight into effective techniques for calming nerves; Create compelling PowerPoint presentations; Use videos and audio to enhance the experience

***Learning Outcomes:*** *To deliver creative ideas convincingly to audience and keep them engaged which is essential as a leader to influence others and customers.*

### Unit 10: Team Building

Meaning of team building; explain the main features and roles of a team; Tuckman’s stages of team development: forming, storming, norming, performing and adjourning, recognizing behaviours at every stage, team building through management games, how to handle a team, characteristics of high performing team, leadership resourcing and developing a team, why teams fail, work teams – cross functional team, virtual team, self- managed team

***Learning Outcomes:*** *To understand what a team is and the importance of team building; Tuckman’s stages of team development.*

### Unit 11: Conflict Resolution

Gain a thorough understanding of the sources, causes and types of conflict; master all six phases of the conflict resolution process; understand the five main approaches to conflict resolution; apply conflict resolution approaches; use parts of the conflict resolution process to recognise and prevent conflict before it escalates; develop communication tools such as agreement frames and open questions

***Learning Outcome:*** *To recognise and resolve conflict; to develop conflict resolution strategies.*

### Unit 12: Indian Ethos

History and relevance; meaning, principles practiced by Indian companies; role of Indian ethos in managerial practices; management lessons from Vedas, Mahabharata, the Bible, from the Quran and Kautilya’s Arthasasthra; Indian heritage in business management, production and consumption; work ethos and values for Indian managers; ethics v/s ethos; Indian management v/s western management

***Learning Outcome:*** *To understand Indian Ethos with relevance to modern Indian management practices and business strategies.*

### Unit 13: Ethos and Work Culture

Meaning, features, values for Indian, relevance of value based management in global change; impact of values on stakeholders: employees, customers, government, competitors and society; values for managers, trans-cultural human values in management and management education; secular v/s spiritual values in management; importance of value system in work culture; stress management through meditation and yoga; leadership changing scenario from Karta in a joint family to managers today; contemporary approaches to leadership; Karma, Laws of Karma

***Learning Outcome:*** *To evaluate the impact of the Indian value system in stakeholder management and work culture.*

### Unit 14: Business Ethics in Management

Definition and nature of business ethics; need and benefit of business ethics; ethical values; myths and ambiguity; ethical principles in business; theories of Ethics, Absolution vs Relativism, Theological approach, Deontological Approach, Kohlberg’s 6 stages of moral development; Understand the need for ethics in businesses

***Learning Outcome:*** *To understand the theoretical dimensions of ethics in business.*

### Unit 15: Managing the Ethical Dilemma

What is ethical dilemma, characteristics; ethical decision making, reasoning, and resolution process; ethical culture in organizations; developing codes of ethics and conduct; ethical value based leadership; understanding ethics in the context of Indian business; ethical dilemma in areas of Finance, HRM, Marketing and International Business ***Learning Outcome:*** *To interpret conflicts and ethics in functional domains and to understand the ethical dimensions of decision making.*

### Course: Accounting and Finance Course Code: MBA-OD-103

**Course Credits: 4 Learning Hours: 120**

### Course Outcomes

CO1: Explain the accounting cycle.

CO2: Preparation of financial statements.

CO3: Examine and interpret financial statements.

CO4: Describe the central ideas and theories of modern finance.

CO5: Recommend decisions on financial, investment, dividend and working capital management.

### Unit 1: Introduction to Financial Accounting

Conceptual framework of Financial Accounting, users of accounting statements**,** terminology, accounting concepts, assumptions and conventions, accounting equations, Introduction to Indian GAAP, Ind AS and IFRS

***Learning Outcome:*** *Explain conceptual framework of accounting including GAAP.*

### Unit 2: Accounting Cycle

Accounting process: Books of Accounts, Journal, Ledger, Cash book, preparation of trial balance

***Learning Outcome:*** *Identify various processes in accounting cycle leading to trial balance.*

### Unit 3: Depreciation

Concept, need and factors affecting depreciation, depreciation methods, accounting treatment

***Learning Outcome:*** *Understand how to depreciate assets.*

### Unit 4: Financial Statements

Preparation of Statement of Profit and Loss and Balance sheet, Outstanding expenses, Treatment of closing stock, prepaid expense, tax provision, dividend and reserves, finding EPS

***Learning Outcome:*** *Develop the skill of preparing the Statement of P&L and Balance sheet.*

### Unit 5: Bank reconciliation statement

Need for a reconciliation statement, preparing a bank reconciliation statement

***Learning Outcome:*** *To reconcile difference between bank balance as per cash book and pass book.*

### Unit 6: Ratio Analysis

Introduction to ratios: types of ratios, liquidity, solvency, activity, profitability and market test ratios. simple problems with analysis

***Learning Outcome:*** *Able to anlayse financial health through ratios.*

### Unit 7: Cost-Volume-Profit Analysis (CVP)

Introduction, calculations for CVP analysis, achieving a desired profit, break-even analysis

***Learning Outcome:*** *Understand the relationship between sales volume costs and profit.*

### Unit 8: Financial Statement Analysis

Analysis of Statement of P&L and balance sheet through common size, trend and comparative statements

***Learning Outcome:*** *Appreciate the common size, trend and comparative techniques to analyse financial statements.*

### Unit 9: Introduction to Corporate Finance

Financial decisions in a firm, objectives of financial management- profit maximization and wealth maximization, finance function, CFO role, Treasury & Controller, Emerging role of financial manager in India

***Learning Outcome****: Understand the basics of financial management.*

### Unit 10: Time Value of Money

Introduction to time value of money, Time lines and notation, future value of a single account, future value of an Annuity, present value of a single account, present value of an Annuity, present value of a perpetuity, Intra-year compounding and discounting ***Learning Outcome****: Understand the concepts of compounding and discounting.*

### Unit 11: Long Term Investment Decisions

Capital Budgeting – importance and process – Techniques of evaluating projects, Net present value, Internal rate of return, MIRR, Profitability Index, Payback period and discounted payback period, Accounting rate of return, concept of different cash flows ***Learning Outcome****: Understand the methods of capital budgeting and implement.*

### Unit 12: Cost of Capital

Concept and measurement of cost of capital, measurement of specific costs, computation of overall cost of capital, cost of capital practices in India

***Learning Outcome****: To be able to compute cost of funds.*

### Unit 13: Working Capital Management

Overview of working capital management, factors influencing working capital management, Working capital estimation, working capital financing, operating cycle and cash cycle. Inventory Management – EOQ, Levels of Inventory, JIT

***Learning Outcome****: Ability to take Working capital management decisions.*

### Unit 14: Financing Decisions

Financing alternatives – Equity, preferences, Debentures, Capital Structure, Leverages

***Learning Outcome****: Ability to take all financial Decisions.*

### Unit 15: Dividend Decision

Why firms pay dividends, Dimensions of Dividend policy, Dividend policy formulation, forms of dividend, Factors influencing dividend decisions, Bonus shares and stock split ***Learning Outcome****: Ability to take Dividend Decisions.*

### Course: Organizational Behavior and Human Resources Management Course Code: MBA-OD-104

**Course Credits: 4 Learning Hours: 120**

### Course Outcomes

CO1: Identify the challenges and opportunities in applying organizational behavior and develop understanding of self and others’ behavior in organizations.

CO2: Describe the implications of motivational theories and the influence of different leadership styles on employees.

CO3: Develop an understanding of the principles and theory of organization; examine the reciprocal relationship between the organizational structure, strategies, and systems and the factors that impact organizational structures and design.

CO4: Comprehend the basic principles of strategic human resource management, and practices of talent acquisition and its management.

CO5: Develop the components of employee rewards and analyze the changing scenario of industrial relations and emerging trends in International Human Resource Management.

### Unit 1: Introduction to Organizational Behavior

Introduction to Organizational Behavior, Meaning and Importance of OB, Historical developments, the importance of Interpersonal skills, Contributing Disciplines to OB, OB model, Challenges and Opportunities for OB, Workforce Diversity, Dynamics of diversity. Application of OB in organisations, OB in Global Context

***Learning Outcome:*** *To appreciate the levels of understanding of Organizational Behavior at Individual, Group and Organizational level.*

### Unit 2: Individual behavior

The basis for understanding Work Behavior. Factors responsible for Individual differences at workplace

Attitudes- Meaning, components, does behavior follow attitudes? Values- Meaning, Types of values, the importance of values in organisation. Attitude, components, Factors affecting attitude formation, Ways to change employee attitude, Types of job related attitudes, Job Satisfaction-Meaning, measurement, causes of job satisfaction, application at workplace. Personality – Meaning, Contributing factors to personality, Theories of personality, Individual differences arising out of Personality traits that influence Work Behavior

***Learning Outcome:*** *To understand individual behavior influencing work behavior.*

### Unit 3: Motivation and Group dynamics

Motivation- Definition and importance, Theories of motivation - Content Theories - Need Hierarchy Theory, Hygiene Motivation Theory, Existence Relatedness Growth (ERG) Theory, Theory X-Y**,** Three needs theory**.** Process Theories- Equity Theory, Expectancy Theory, Application of motivation concepts at workplace settings – Discussion

Groups- Defining and classifying groups, Need for group formation, Tuckman’s stages of group development, Group properties – Norm, Status, Size, Composition, Cohesiveness, Group decision making Techniques, Cost of working in groups, Teams v/s Groups, Importance of teams in contemporary workplace

***Learning Outcome:*** *To evaluate the applicability of motivation theories and identify the stages of group development.*

### Unit 4: Leadership

Leadership: Meaning and importance, Leader v/s Manager, Traits of a leader\*

Trait Approach to leadership – Traits of a leader, are leaders born or made? Behavioral Approach, Ohio and Michigan studies, Managerial Grid; Situational Approach - Fiedler’s Contingency model, Hersey Blanchard situational leadership theory, Path Goal Theory, Contemporary leadership theories - Transactional, Transformational, Charismatic, Visionary Leadership. Leadership challenges in current context

***Learning Outcome:*** *To develop an understanding to compare and contrast the contingency theories of leadership and challenges faced to be an effective leader.*

### Unit 5: Power and Politics; Managing Conflict

Power – Meaning, Bases of power, Dependence – The key to power, consequences of power, Power tactics, Political tactics for increasing power base, Organizational Politics, Causes and consequences, Impact of power and politics in organizations

Meaning and importance of conflict in organizations***,*** traditional and interactional View of conflict, functional and dysfunctional conflict, Conflict process and conflict handling styles, functional and dysfunctional conflicts, Conflict process

***Learning Outcome:*** *To identify power tactics and their contingencies and to be aware of personal conflict handling styles***.**

### Unit 6: Organizations and Organization Theory

Introduction to organizations, importance, evolution of organization theory and design, dimensions of organizational design, characteristics and design, and organizational configuration, Mintzberg’s Organisational types, contemporary design Ideas

***Learning Outcome:*** *To provide an overview of organization theory, its design and configuration.*

### Unit 7: Strategy, Organization Design and Effectiveness

The role of strategic direction in organization design, organizational purpose, strategic intent, operative goals, importance; SWOT framework for selecting strategy; Porter’s competitive forces and strategies; strategies and organization design; other factors affecting organization design; The Balanced Scorecard Approach to Effectiveness; identifying company strategies and effectiveness criteria

***Learning Outcome:*** *To understand the dimensions of organizational structure and role of strategy in the design of organization.*

### Unit 8: Fundamentals of Organization Structure

Organization structure; information-sharing perspective on structure vertical information sharing, horizontal information sharing; organization design alternatives, reporting relationships; departmental grouping options, functional, divisional, geographic, and matrix structure, conditions for the matrix, horizontal structure characteristics; virtual networks and outsourcing; external and internal factors impacting organization structure, hybrid structure, applications of structural design, structural alignment, symptoms of structural deficiency, Organization design essentials

***Learning Outcome:*** *To differentiate between the structure and design across business contexts.*

### Unit 9: Organizational Culture

Meaning, defnition of organization culture, and importance of organizational culture; uniform cultures; strong *vs* weak cultures, creating and sustaining culture, creating an ethical and positive organizational culture; Internal and external conflict management, progressive corporate culture that enables Innovation and change

***Learning Outcome:*** *To understand organizational culture and its characteristics.*

### Unit 10: Introduction to HRM, and Manpower Planning

Introduction to Human Resource Management, Evolution of HRM, Importance, HRM functions, Forces changing HRM, Human Resource Planning - Meaning, Process, HRP Models, Human Resource Forecasting methods, Challenges and relationship with other Human resource functions, Job analysis, Job Description, Job evaluation, Features of the competitive business environment (Globalization, Technology, E-commerce, Demographic changes, Diversity), Global Human Resource Planning, Quality of work life. Cultural awareness – Iceberg Model of Culture. Business trends in HR

***Learning Outcome:*** *To familiarize learner with challenges of manpower planning in dynamic business environment and understand the need of Job Analysis, Job Description and Job Evaluation.*

### Unit 11: Recruitment and Selection

Recruitment - meaning and process, Purpose of Recruitment, Types of Recruitment - Internal - Job postings, Employee Referral Programs, Temporary worker pools and External recruitment – Virtual Job Fairs, Executive Search Firms, Employment agencies, Recruitment advertising. Factors affecting Recruitment, Recent Trends in Recruitment. Human Capital Management – Meaning and definition, ROI of HCM – Human capital ROI, Training Investment Value, Turnover Rates, Selection- meaning, selection procedure, Types of tests used in Selection, Consequences of selection decisions, Interview and Types of interviews. Placement and Induction

***Learning Outcome:*** *To understand the latest types of recruitment and selection and its affecting factors.*

### Unit 12: Talent Management

Training- meaning, need and importance of training, Distinction between training and development, methods of training – On the Job & Off the Job, process of training, recent developments in training, Succession Planning, Strategies for Accelerating Development for succession, Performance appraisal, meaning, importance, various performance appraisal methods, Drawbacks of Performance Management System, challenges and limitations. HR Metrics – Meaning, Key HR metrics, 5 W’s of measuring ROI (Who, When, What, Where, Why), ROI of L&D

***Learning Outcome:*** *To understand employee learning and development concepts and ability to appreciate the importance of performance management systems and succession planning in organization.*

### Unit 13: Employee Rewards

Employee Rewards -meaning, concepts and definitions, Objectives of giving compensation to employees, Components of remuneration, types of employee benefits, financial and non-financial benefits, factors affecting wage and salary, salary components, salary structure, employee welfare, safety issues in organizations, work life balance and factors attributing to increased awareness for work life balance, Work Life Balance Intervention

***Learning Outcome:*** *To understand the importance of compensation and benefits and sensitize the learner about employee welfare issues and work life balance.*

### Unit 14: Basics of Industrial Relations and HR Analytics

Basics of Industrial Relations – meaning and importance, trade unions, workers participation in management, collective bargaining, HR Analytics – Introduction, Evolution, Steps in HRA, Applications of HRA, How analytics helps in negotiation and bargaining

***Learning Outcome:*** *To understand the overview of industrial relations scenario in Indian context and importance of IR and HR Analytics components.*

### Unit 15: International HRM and Emerging Horizons of HRM

Concept, importance, an models of International HRM; Challenges of International HR Managers; Global HR practices; E-HRM; HRIS (Human Resource Information System); Measuring intellectual capital; Impact of HRM practices on organizational performance; contemporary issues in Human Resource Management

***Learning Outcome:*** *To analyse International HRM in the current scenario.*

### Course: Quantitative Techniques and Analytics Course Code: MBA-OD-105 Course Credits: 4 Learning Hours: 120

**Course Outcomes**

CO1: Employ descriptive statistical techniques in managerial decision making. CO2: Develop hypotheses and interpret the results of a hypothesis test.

CO3: Describe the use of operation research techniques to make better decisions. CO4: Assess various prescriptive analytics techniques to solve business problems. CO5: Use the Microsoft Office suite effectively.

### Unit 1: Data Visualization

Introduction to statistics and analytics, need for analytics, data types and scales, sources of data, types of classification of data. Frequency distribution, grouped and ungrouped, frequency distribution, continuous distribution-diagrammatic and graphic representation: line diagram, bar diagram, rectangle diagram and pie diagram, Graphs- Histogram, frequency polygon, cumulative frequency curves, tabulation-one way and two way tables ***Learning Outcome:*** *To differentiate the types of data and use techniques of organizing data in tabular and graphical forms in order to enhance data analysis and interpretation.*

### Unit 2: Measures of Central Tendency

Various measures of central tendency, concepts and applications of Mean, Median, Mode, Geometric Mean and Harmonic Mean

***Learning Outcome:*** *To use measures of central tendency to describe the characteristics of a data set.*

### Unit 3: Measure of Variation

Different measures of dispersion, significance of dispersion, requisites of a good measure of variation. Range, Inter-Quartile Distance, Standard Deviation, mean deviation, quartile deviation, Coefficient of variation

***Learning Outcome:*** *Understand the importance of the concept of variability.*

### Unit 4: Introduction to Probability and Sampling

Basic Concepts, relevance to management decisions, rules of probability, relevance of permutation and combinations to probability, theoretical Probability Distributions: Binomial, Poisson and normal Distributions

Sampling and Sampling Distributions, Population and Samples, Types of Sampling: Simple Random, Stratified, Systematic and Cluster Sampling, Sampling Distributions, Standard Errors, Sampling from Normal Populations, Central Limit Theorem

***Learning Outcome:*** *Understand uncertainty and probability concepts, applications of discrete distributions in solving business problems, types of sampling techniques.*

### Unit 5: Measures of Association

Correlation analysis: significance of measuring correlation, correlation and causation. Karl Pearson’s coefficient of correlations, rank correlation. Regression analysis: need for regression, types of regression models, simple linear regression, concepts of multiple regression

***Learning Outcome:*** *Express quantitatively the degree and direction of the association between two variables.*

### Unit 6: Hypothesis Testing

Basic Concepts, One Tailed and Two Tailed Tests, Type I and Type II Errors, One Sample Tests, Hypothesis Testing of Means when Population Standard Derivation is Known and when Unknown, Hypothesis Testing of Proportions for Large Samples, Two Sample Tests for Equality of Means for Large and small Samples, Equality of Means for Dependent Samples, Difference between Proportions for Large Samples

***Learning Outcome:*** *Develop hypothesis methodology for accepting or rejecting null hypothesis.*

### Unit 7: Chi-Square Test and Analysis of Variance

Concepts and applications, Chi-square as a test of (a) independence (b) goodness of fit Analysis of variance (ANOVA) - one way and two-way classifications

***Learning Outcome:*** *Use non-parametric test and ANOVA hypothesis testing procedure.*

### Unit 8: Linear Programming Problem (LPP)

Introduction to Operations Research, Application of LPP in Management, Advantages of LPP, Problem Formulation, Graphical Solution Procedure, Special Cases, Sensitivity Analysis

***Learning Outcome:*** *To understand and solve linear programming problems.*

### Unit 9: Transportation Model

Transportation Problem: General Structure, Various methods for finding initial solution, Optimal Solution: Modified Distribution method; Variations: Unbalanced Transportation Problem, maximization case

***Learning Outcome:*** *To use transportation model for planning and distribution of goods.*

### Unit 10: Assignment Model

Assignment Problem: General Structure, Finding Optimal Solution, Maximization problem, Restrictions on Assignments, Alternate Optimal solutions

***Learning Outcome:*** *To use assignment model to allocate organizational resources to tasks.*

### Unit 11: Project Scheduling: PERT/CPM

Terminology; Networking Concepts; Rules for drawing network diagram; CPM Computations: CPM Terminology, Finding critical path – Different Floats; PERT Computations: Computation of earliest and latest allowable times, Probability of meeting the scheduled dates; Concept of Project Crashing, Time-Cost Tradeoff

***Learning Outcome:*** *To be able to use PERT/CPM techniques to plan, schedule and control projects.*

### Unit 12: Fundamentals of Information Systems

Overview, introduction to computers– Hardware, Software (Operating Systems, Application software, Programming Languages, Packages), I/O devices, impact of IS in business, digital divide, concept of systems, components of IS

***Learning Outcome:*** *Understand transformations brought by adoption of business process information systems.*

### Unit 13: MS Word

Introduction, Insert Menu options, Formatting, Tables and borders, Mail-merge (normal and using excel), Image handling, Header and Footer, Inserting date & time, Inserting breaks – page & column, Inserting symbols, objects, Inserting pictures, Inserting Auto text, Hyperlink, Spelling & grammar, Using Thesaurus, Track changes, Formatting & editing restrictions, Mail merge, Macro, Using Templates, Effective use of tables, Print Preview & Page setup, Print options, Document Protection, Bibliography, Citation, Table of contents, Insert foot notes

***Learning Outcome:*** *Demonstrate the use of basic functions and formulae to organize data using MS Office.*

### Unit 14: MS PowerPoint

Exploring the PowerPoint Window, Slide layouts – text and contents, Formatting background, Design template, Outline and slide sorter views, Speakers notes, Header & footer, Master Slide, Inserting slide from file, Inserting picture, Inserting movies and sound, Inserting tables and charts, Slide transition, Animation Schemes, Custom animation, Action Buttons, Custom Show, Set up Show, Keyboard tips during slide show ***Learning Outcome:*** *Demonstrate the use of basic functions and formulae to organize data using MS Office.*

### Unit 15: MS Excel

Introduction, Custom fill, File level protection, Sheet level protection, Mathematical operations, Range, Formulas, linking worksheets - workbooks, short cut methods, Tables and Graphs, Formatting (Auto format, Conditional formatting), Data Operations (Filters, Sorting, Pivot tables and Charts)

Functions in MS Excel - Functions in excel (Mathematical, Text, Date/time, Financial, Statistical, Logical functions, VLOOKUP and HLOOKUP, Situation Analysis (Scenario), Creation of Trial balance, P&L Accounts and Balance sheets

***Learning Outcome:*** *Demonstrate the use of basic functions and formulae to organize data using MS Office.*