

Department of Management Sciences

**Summary of Courses**

**Full-Semester Courses**

IME602: PROBABILITY AND STATISTICS

Axioms of probability; Conditional probability; Discrete and continuous random variables; Functions of random variables; Moments of random variables; Generating functions; Limit theorems; Jointly distributed random variables; Sufficiency and completeness; Descriptive and inferential Statistics; Sampling theory and sampling distributions, Method for statistical inference; Theory of point estimation and estimation of parameters; Theory of interval estimation; Theory of hypotheses testing; Analysis of variance; Multivariate Analysis; Linear and multiple linear regression; Introduction to statistical Packages

IME603: INTRODUCTION TO COMPUTING

Computing Computer Organization, Data Representation, Data Structures such as Arrays, Stacks, Queues and Trees, Algorithms for Searching and Sorting, Complexity, File Processing, Structured Programming, Lab exercises on Data Structure, Algorithms and File Management using any appropriate programming language.

IME605: OPERATIONS RESEARCH FOR MANAGEMENT

Introduction, Mathematical modeling, Linear programming formulations, Graphical method, Theory of simplex, Computations in simplex, Sensitivity analysis, Duality theory, Transportation problem, Assignment problem, Integer programming formulations, Branch and bound technique, Network models, Shortest path problem, Maximum flow problem, Min-cost flow problem.

IME611: FINANCIAL ENGINEERING

Basic Elements of Financial Systems and Financial Management, Fixed Income Markets: Valuation and risk management, Equity Markets: Mechanics of Portfolio Theory, Performance Evaluation of Mutual Funds, Pricing Models, Mathematical Background: Introduction to Stochastic Calculus, Numerical procedures, Options and Futures Markets: Valuation and Trading Strategies, Greek letters: Definitions and how they are used.

IME624: COMPUTER AIDED DECISION SUPPORT SYSTEMS

System Analysis: Information System Analysis and Design, Decision Support System, Database Management Systems, Query Languages, Emerging Areas like communication network distributed systems and knowledge based systems, Simulation; Methodology Approaches Programming Considerations, Languages and Data Structures, Statistical Considerations, Validation, Simulation Languages, Applications.

### IME625: INTRODUCTION TO STOCHASTIC PROCESSES AND THEIR APPLICATIONS

Introduction to Stochastic Processes; *Markov Chain*: Transition probabilities, Branching chains, Stationary and limiting distributions; *Poisson Process*: Inter-event and waiting times, Thinning and superposition, Renewal phenomena, Elementary renewal theorem; *Continuous-time Markov Chain*: Transition rates, Birth and death processes, Balance equations; Introduction to Random walks, Brownian motion, Markov processes, Stationary processes, Martingales, etc. Applications of stochastic processes in Inventory control, Queueing theory, Finance, Marketing, etc.

### IME631: MARKETING MODELS

Review of optimization, Review of probability and statistical models, Decision support system for risk, Basic concepts in marketing, Modeling consumer behavior, Modeling organizational behavior, Modeling prices, Decision models for product, Modeling of advertising and promotion, Modeling distribution system, Marketing planning and strategy decisions.

### IME634: MANAGEMENT DECISION ANALYSIS

Basic concepts of Linear Programming (LP), Non-Linear Programming (NLP), Quadratic Programming (QP), Reliability Optimization, Robust Optimization, etc; Multiple Objective Decision Making (MODM), Multiple Criteria Decision Making (MCDM); Decisions under uncertainty; Multivariate Data Analysis, Multiple regression models, Principle Component Analysis (PCA), Factor Analysis, Multivariate Analysis of Variance (MANOVA), Conjoint Analysis, Canonical Correlation, Cluster Analysis, Multidimensional Scaling, Structural Equation Modelling, etc. Non-parameter techniques like Data Envelopment Analysis (DEA), Analytical Hierarchy Process (AHP); Statistical Decision Trees; Utility analysis and its significance to MCDM and MODM; Concepts of heuristic approaches with introduction to variety of examples of heuristics methods

### IME636: INTRODUCTION TO GAME THEORY

Description of Game Theory, Representation of games in extensive form and Normal form, Concept of preferences and utility, Introduction to solution concepts for normal and extensive form games, Description of different solution concepts: Dominance, Nash equilibrium, mixed strategy Nash equilibrium, applications; Static model of oligopoly, two-player zero sum games, extensive form games of perfect information, subgame perfect equilibrium, finite and infinite horizon, alternating bargaining models, games with incomplete information; Bayesian games, Bayes Nash equilibrium as a solution concept, finitely and infinitely repeated game; Trigger strategies, cooperative game theory; Nash bargaining solution, Coalition form game; Shapley value, Core, mechanism design, Properties of mechanism and implementation.

### IME637: ADVANCED DECISION MODELS

Review of linear and integer linear programming. Multistage decision models: Dynamic programming. Network flow problems: Shortest path, maximum flow, and minimum cost flow

problems; Network optimization. Multi-objective decision models: Analytic hierarchy and network processes. Data Envelopment Analysis. Nonlinear programming: Unconstrained optimization; Lagrangian relaxation and KKT conditions; Convex optimization; Search, gradient and penalty-based methods; Quadratic programming. Metaheuristics and their applications to combinatorial optimization problems such as scheduling and allocation problems. Stochastic decision models: Markov chains; Queues and queuing networks.

#### IME638: STOCHASTIC MODELS AND SIMULATION

Review of Probability; *Markov Chain*: Transition probability matrix, Chapman-Kolmogorov equations, Classification of states, Long-run behavior; *Poisson Process*: Inter-arrival and waiting times, Superposition and thinning; *Continuous-time Markov Chain*: Transition rate matrix, Birth and death process, Kolmogorov equations, Long-run behavior; *Queueing Models*: Markovian queues, Little's law, Network of queues, General and priority queues; Stochastic Optimization: Robust optimization, Markov decision process; *Simulation*: Generating random numbers and variables; Simulation of queues, production systems, supply chains, etc., Monte Carlo methods, Agent-based modelling, Model verification and validation.

#### IME639: ANALYTICS IN TRANSPORT AND TELECOM

Introduction, Commonality in modeling problems across Transport and Telecom, Introduction to graph Theory, Review of linear and integer linear programming, Minimum Spanning Tree Problem, Steiner Tree Problem, Shortest Path Problem, Dijkstra's algorithm, Bellman Ford Algorithm, All Shortest Paths, Floyd's algorithm, Applications, Introduction to complexity theory and NP completeness, Network Flow Models, Max Flow Min Cut Problem, Minimum Cost Flows Knapsack Problem and applications, Bin Packing and applications, Traveling Salesman Problem with Applications, Vehicle Routing Problem, Large Scale Optimization, Column Generation, Hands on with CPLEX, Set Covering/Partitioning/Packing Models and Applications, Fixed Charge Transportation Problem, Telecom Network Design, Access Networks, Backbone Networks, Design of Survivable Networks, Graph Coloring Model and applications, Chinese Postman Problem with applications.

#### IME640: INFORMATION SYSTEMS THEORY

Introduction: Information and its characteristics including entropy, System and its characteristics. IS Cycle Theories: Delone and McLean's Success Model, Technology Acceptance Model, Unified Theory of Acceptance and Use of Technology, User Resistance Theories, Task Technology Fit Theory, Process Virtualization Theory, Theory of Deferred Action. Strategic and Economic Theories: Resource based view, Theory of Slack Resources, Portfolio Theory, Theory of Lemon Markets, Technology Organization Environment Framework, Porter's Competitive Forces Model, Business Value of IT, Diffusion of Innovations, Institutional Theory, A Multilevel Social Network Perspective, Agency Theory. Socio Psychological Theories: Actor network theory, Theory of Planned Behaviour, Structuration Theory.

### IME641: PRODUCTION MANAGEMENT

Overview of production systems; *Product Decisions*: New product development, Reliability, warranty and maintenance, Product lifecycle management; *Process Decisions*: Process selection, Process analysis, Capacity planning, Line balancing; *Plant layout and location*: Plant layout, Facilities location models, Plant location; *Production planning*: Forecasting, Aggregate planning, MPS, MRP and JIT; *Scheduling*: Single-machine scheduling, Flow-shop scheduling, Job-shop scheduling, Project scheduling.

### IME642: OPERATIONS MANAGEMENT

Introduction; *Inventory Control*: Inventory management under deterministic demand, Single and multi-period problems with stochastic demand, Multi-echelon models, Risk pooling, centralization, and postponement; *Supply Chain Management*: Concepts and design, Bullwhip effect and information sharing, Contracts and coordination, Disruption and supply chain resilience; *Service Operations Management*: New service development, Service process design, Analysis of waiting lines, Revenue management; *Quality Control*: Measurable quality, Control charts, Process capability, Acceptance sampling, TQM, Service quality; Contemporary topics.

### IME671: MANAGING SOFTWARE PROJECT

This course will cover the techniques for managing software projects. It is intended to give the students both knowledge about, and practical experience in, the design and development of production quality software. The techniques taught in the class will be applied to a substantial team project. Course topics will be as follows: Software Process; Software Configuration Management, CMM Levels, Software Project Planning and Costing; Requirements Engineering; Software Project Design; Testing; Software Metrics; Quality, Software Project Management; Human Factor.

### IME672: DATA MINING AND KNOWLEDGE DISCOVERY

Introduction to data mining, knowledge discovery, machine learning, big data, data mining tasks and applications, Data preparation for knowledge discovery - data understanding, data cleaning, data transformation, discretization, feature reduction, learning with unbalanced data, Classification - decision trees, choosing the splitting attribute, information gain and gain ratio, handling numeric attributes (finding best split), pruning (pre-pruning, post-pruning, estimating error rates), from trees to rules, Classification - naive Bayes classifier, neural networks, support vector machines, Evaluation and Credibility - classification with train, test, and validation sets (handling unbalanced data), parameter tuning, predicting performance, Evaluation on "small data" - cross-validation, bootstrap, comparing data mining schemes, Clustering - introduction, partitioned, hierarchical, density based, Associations Rule Mining/ Market Basket Analysis - transactions, frequent itemsets, association rules, apriori algorithm, applications

### IME673: APPLIED MACHINE LEARNING

Machine Learning is the discipline of designing algorithms that allow machines (e.g., a computer) to learn patterns and concepts from data without being explicitly programmed. This course will be an introduction to the design and some analysis of Machine Learning algorithms. Topics: Introduction, Supervised Learning: Rationale and Basics, Linear Regression, Logistic Regression for Classification Tasks, Support Vector Machine, Neural Networks, Decision Tree.

### IME692: ADVANCED STATISTICAL METHODS FOR BUSINESS ANALYTICS

The course is designed to train students on understanding research problems and situations requiring multivariate and Bayesian approaches, selecting appropriate multivariate techniques of data analysis, interpreting the results of analysis, and applying the techniques to business and research problems. The course includes topics dealing with multiple non-interdependence techniques (such as Factor Analysis, Cluster Analysis, Multidimensional Scaling), multiple dependence techniques (such as Multiple Regression Analysis, Discriminant Analysis, Ensemble Techniques), and recent advances in statistics and machine learning research.

### IME700: RESEARCH METHODOLOGY

Introduction to Social Science Research Perspective, Different Approaches to Social Research, Approaches to Theory Building, How to Read an Article, Literature Review vs. Annotated Bibliography, Sampling, Measurement Issues & Scale construction, Research Design , Qualitative Research, Experimental Research, Survey Research, Quantitative Data Analysis Techniques, Research Writing and Presentation, Research Evaluation and Critique, Issues in Current Research Practice.

### IME701: STATISTICAL METHODS FOR MANAGEMENT RESEARCH

This PhD course aims to provide foundations for the statistical techniques used in management research. It starts with probability, random variables, and limit theorems. Then statistical tools such as estimation of parameters, hypothesis testing, regression analysis and analysis of variance are discussed. Detailed course outline is as follows: Basics of probability - Random experiment and probability, Conditional probability, Independence; Random variables - Probability mass, density and distribution functions, Standard distributions, Mean, variance and quantiles; Limit theorems - Joint distribution, Correlation and independence, Limit theorems; Estimation of parameter - Sampling distribution, Maximum likelihood method, Confidence intervals; Test of hypothesis - Simple hypothesis testing, Composite hypothesis testing, Standard tests; Regression analysis - Simple linear regression, Multiple linear regression, Logistic regression; Analysis of variance - Design of experiments, One and two-way analysis of variance.

### IME709: PRODUCTIVITY AND EFFICIENCY ANALYSIS - THEORY AND BENCHMARKING APPLICATIONS

Setting efficiency targets and benchmarks remains one of the key questions faces by the industry, regulators as well as policy makers. This course would provide understanding of fundamentals to efficiency and productivity analysis, non-parametric and parametric methods, and their applications. The course would primarily cover production and cost economics, data envelopment analysis and its variations and stochastic frontier analysis. The course would include hands on applications of the theory through mini project(s).

Concepts of Production and Cost Functions, Concepts of Efficiency and Productivity, Index Numbers and Productivity Measurement, Laspeyres, Passche, Fisher, Tornqvist Index, Total Factor Productivity (TFP) Measurement, Data Envelopment Analyses (DEA), Advance Topics on Data Envelopment Analyses (DEA), Parametric methods for efficiency analysis, introduction to Stochastic Frontier Analyses (SFA), Benchmarking Applications: Setting performance targets and regulatory applications (particularly in electricity, energy and infrastructure sectors), Mini Project(s)

### **Full-Semester MBA Courses**

#### MBA601: ACCOUNTING & FINANCE

Introduction: Forms of Organization & Corporate Reporting, Reporting Fundamentals & Financial Reporting. Financial Accounting: Accounting Principles, Accounting Mechanics, Accounting Standards & Financial Statement Analysis. Management Accounting: Cost Volume Profit (CVP) Analysis, Costing Systems Tools & Techniques, Activity Based Costing (ABC). Corporate finance: The Time Value of Money, Discounted Cashflow Valuation, Introduction to Capital Budgeting

#### MBA606: ECONOMIC ANALYSIS FOR MANAGEMENT

Introduction - the scope of Economic Analysis; Demand and Supply analysis; Consumer Theory; Producer Theory - Cost Function, Profit Maximization, Perfect Competition, Monopoly, Oligopolistic Competition, Oligopoly, Price Discrimination, Multi Product Decisionmaking, Multiple production facility decionmaking; Game Theory, Information Economics, Public Economics.

#### MBA607: FINANCIAL MANAGEMENT

Concept of Time Value of Money, NPV, IRR, MIRR, CBR, Discount Rate, Fund and Cost Flow Analysis, Free Cash Flow to Equity and Firm, Break Even Analysis, Working capital management, Investment Analysis, Cost of Capital, Capital asset pricing models, Leverage, Determination of optimal capital structure, Debt Management, Dividend Policy, Concept of Financial Strategy, Course will be based on case study and journal articles.

### MBA608: MACROECONOMIC ANALYSIS FOR MANAGEMENT

Introduction, Nature of Macroeconomics, National Income Accounting, Economy in the short run, Economy in the medium run, Inflation, Open economy Macroeconomics, Macroeconomic Stabilization Policies, Economy in the long run, Special topics.

### MBA610: INVESTMENT VALUATION AND REAL OPTIONS

Introduction to Valuation methods, Investment Valuation, Estimating Cost of Equity and Cost of Capital, Derivatives, Option Pricing Theory, Option Pricing Applications and Valuation, Real Options in Managerial Decision Making, Binomial Tree Method for Valuing Real Options, Option to Delay, Option to Expand, Option to Abandon, Valuing Natural Resources Using Real Options, Mini Project Identifying Real Options in Practice, Appraising Projects with Real Options.

### MBA611: ORGANIZATION STRUCTURE AND DESIGN

Introduction to Organizations, Work motivation and Organization Goals, Organizations and Markets, Organization Structures and Systems, Strategy, Structure & Technology, Organization Environment and Culture, Various Design Options, Power and Politics, Organization Conflict, Change and Restructuring, Growth and Evolution, Employee empowerment, Learning Organizations and organization Effectiveness, Service Organizations, Organizations as Networks.

### MBA616: HUMAN RESOURCE MANAGEMENT

Meaning of Work and Humans as Resource, Human Resource Planning and Selection, Motivation and Compensation Management, Performance Appraisal, Career Management, Training and HRD, Group Dynamics and Leadership, Empowerment and Participation, Technology & HRM, Organizational culture, tech driven HRM.

### MBA617: SOCIO-POLITICAL AND ETHICAL ASPECTS OF BUSINESS

Business and its relation to society, Socio-political aspects of corporations, Corporate social responsibility and business ethics, Stakeholder theory, Evolution of capitalism and capitalist institutions, Socio-political context of industrialisation in colonial India, Late industrialisation, Globalisation, state and business, Agrarian distress, Political economy of growth, Caste, class, gender and business, Natural resources and business, Environment and business, Financial crisis and business, Resistance, movements and business.

### MBA618: INTRODUCTION TO UNIVERSAL HUMAN VALUES AND ETHICS

This course will help students appreciate that values and skills are complimentary in nature and both are required to ensure sustained happiness and prosperity that are the core aspirations of all human beings. Topics: Human being as a co-existence of the Self and the Body, Harmony of the Self with the Body, Values in Human-to-Human Relationship, Trust – the Foundational Value in

Relationship, Respect – as the Right Evaluation, Understanding Harmony in the Nature, Definitiveness of (Ethical) Human Conduct,. Self-exploration will be used as a process for this course.

#### MBA621: MANAGERIAL COMMUNICATION

The Manager, Interpersonal Communication, Ongoing Communication Process and flow, Organizational Managerial Communication, Personal Language, use and Communication System, The Media and Tools of Communication Climate, Low Structure: One to One Communication, High Structure: One to One Communication, Meetings and Conferences, Interactional Presentation, Keys to Functional Writings, Formats for Business letters and Memos, Exposure to e-Communication, Planning and Producing Effective Business Reports, Business and Managerial Communication Research. There will be at least one case/exercise in each class.

#### MBA622: MANUFACTURING STRATEGY

Product and factory life cycle, strategic dimensions of technology, characteristics of job shops and flow shops, learning curve effects, economies of scale, resolution of conflicts between manufacturing and marketing, concept of PWP, design of organization structure of manufacturing divisions, interactions of design department with manufacturing, marketing, service and purchasing. Concept of aligning of manufacturing and the corporate strategy. Manufacturing strategy making process & green manufacturing. How to evaluate manufacturing? Term paper on advanced topics and case studies.

#### MBA623: STRATEGIC MANAGEMENT

General Management Function, Introduction to the corporate strategy, concept of organizational purpose, environmental scanning and formulation of objectives, strategy for growth such as concentric growth and diversification, role of values in strategy formulation and evaluation, managing diversity and growth, choice of organizational structure and designing control systems to support the implementation of the strategy. Role of implementation issues in strategy formulation. Impact of organizational culture, structure, systems in strategy implementation and Merger and Acquisitions: Conglomerates and Diversified Majors & Horizontal Strategy and Horizontal Structure. Culture as impediment to success of M&A. Term paper on advanced topics.

#### MBA630: ECONOMICS OF BUSINESS POLICY

This course extends the principles of microeconomics and incorporates ideas from game theory, strategy and industrial organization to see how both the external environment as well as the internal structure of a firm affect its success or failure. Contents: Introduction - The scope of Economics of Business Policy; Review of Market structures - Perfect competition, Monopoly, Monopsony, Product Differentiation and Monopolistic Competition; Pricing Strategies;



Collusion, Entry Barriers and Entry Strategies; Vertical Integration; Internationalization; Requirements for Long term Success, Government Policies and their effects.

### MBA631: MARKETING MANAGEMENT

Marketing Environment, Company analysis (strength, weaknesses, opportunities and threats), the concept of marketing mix., four Ps of marketing, and the concept of marketing strategy. The concept of market segmentation and differentiation, product positioning and its applications in demand forecasting, Consumer Behaviour and Marketing Research, International marketing, Marketing economy and public policy issues, E-marketing. In this course, concepts will be elaborated using cases and research papers, Brand Management, Marketing matrix, Assignment based on business databases (quantitative as well as qualitative), Student Project (Field research & Data Interpretation based term projects)

### MBA633: MARKETING RESEARCH

Nature and scope of Marketing research: (a) The marketing research process, (b) Research design and Implementation. Data collection: (a) Secondary sources of marketing data, (b) Standardized sources, (c) Information collection: qualitative and observational methods, (d) Information from respondents, (e) Attitude measurement, (f) Experimentation, (g) Sampling fundamentals. Data Analysis: (a) Hypothesis testing: Basic concepts and tests of associations, (b) Correlation regression analysis, (c) Discriminant and Canonical analysis, (d) Factor and cluster analysis, (e) Multidimensional scaling and conjoint analysis, (f) Presenting the results. Case studies on recent Trends: (a) social media for market research (b) online experimentation (c) agent based modeling.

### MBA634: CONSUMER BEHAVIOUR

Consumers in the Market place: (a) An introduction to Consumer Behaviour, Consumers as individuals: (a) Perception, (b) Learning and Memory, (c) Motivation, Values and Involvement, (d) Attitudes, (e) Attitude change and Persuasive Communication, (f) Self, Consumers as decision Markers: (a) Individual decision Making, (b) The Purchase Situation, Post-purchase Evaluation and Product Disposal, (c) Group Influence, Opinion Leadership, (d) Organizational and Household Decision Making, Consumers and Sub-Cultures: (a) Income and Social Class, (b) Ethic, Racial and Religious Subcultures, Consumers and Cultures: (a) Cultural Influences on Consumer Behaviour, (b) Lifestyles and Global Culture, (c) Sacred and Profane Consumption.

### MBA635: MARKETING OF SERVICES

Service Businesses today are global from inception yet needs intricate localization. Managing online and on demand multi-tasking multiplexities makes Service Marketing challenging and a thriving area of academic pursuit. Hands on field investigation and service prototyping for problem-based learning, Extensive contemporary research findings. Strategic Marketing of Services, Contemporary issues, understanding Customer Requirements, expectations and

complexities of Customer Behaviour in the service domain, Extended Marketing Mix and creating the Service Value Proposition Segmentation and Targeting of Services Positioning and Relationship Marketing. Service Delivery and Service Recovery, Service scapes, Service Quality, aligning Service Design and Standards, Service Pricing, Yield Management. Kano QFD and other models, Service dominant Logic and emerging customer roles in multilayer networks of Services delivery. Besides a number of case studies there will be an extended term project for Case Building.

### MBA636: BRAND MANAGEMENT

‘Brand management’ is the heart of surviving brands in an era when the branding graveyard is getting overcrowded. At such a critical juncture, where we talk less of commodities and products but brands, this course offers a vista of problem solving techniques and decision-making capabilities. The course is best recommended for the interest of Management graduates with ‘Marketing’ as a specialization, however not limited to. The course content covers following topics: Transcendence of marketing: from product to brands, Basics of brand management, Customer based brand equity (CBBE), Creating Mental Maps (Associated network memory model), Brand equity Building Blocks, Brand Positioning model, Brand Resonance model, Brand value chain model, Choosing brand elements to build strong brands; Designing Marketing program to build brand equity (product, pricing and channel strategies), Integrated Marketing Communications, Leveraging secondary associations to build brand equity; Developing a Brand Equity Measurement and Management System: Indirect and Direct Measures of Brand Equity (Qualitative methods, Exploratory Research, Quantitative methods, Tracking Research, Experimental Approaches), Measuring Sources of Brand Equity: Capturing Customer Mind-Set, Measuring Outcomes of Brand Equity: Capturing Market Performance; Corporate Branding Strategy, Brand Hierarchy, Brand Portfolio Management, Brand Extensions: Line Extensions, Category Extensions, Pros and cons of Brand extensions, Managing brands over time: Reinforcing Brands & Revitalizing Brands; Managing Brands Over Geographic Boundaries and Market Segments

### MBA637: BUSINESS TO BUSINESS MARKETING

Business to Business Marketing encompasses those management activities that enable a supplier firm to understand, create, and deliver value to other businesses, governments, and/or institutional customers. In the years past, the topical area applied largely to industrial manufacturing firms. Today, business to business marketing provides practical frameworks, concepts, and tools for organizations as diverse as management consulting firms, investment banks, software solutions providers, and integrated supply management operations, among many other leading-edge technology and service companies. As business to business marketing expands its scope and stature, this course aims at reinvigorating training in marketing beyond the tired old, 4Ps plus industrial examples format. This course will emphasize the interrelatedness of concepts such as multifunctional teams, strategic alliance environmental sensitivity,

interorganizational trust, organizational learning and adherence to ethical principles. Furthermore, with the advent of relationship and network theories, this course emphasises that business marketer must learn not only to create value, but also to equitably share value with customer firms. Understanding of business buying and marketing behaviour within the context of relationship/network theories is the central learning from this proposed elective.

#### MBA639: STRATEGIC MARKETING-CONTEMPORARY ISSUES

Successful Marketing in highly competitive global markets of today needs breakthrough concepts, socially responsible and innovative execution and mastering that blend entails participatory, immersive learning. This practice-oriented course will be based on integrative and investigative projects to consolidate the learning from foundations courses. Course Plan and Modules as follows: 1) Market opportunity recognition and evaluation 2) Generating business models 3) Green and sustainable marketing scenarios 4) Contextual strategies for products, services & brands 5) Emerging perspectives on marketing practices and corporate reputation.

#### MBA641: COMPUTING FOR MANAGEMENT

Computers and Management Function, Introduction to an appropriate high-level language, Introduction to Data Structures, Computer Organization, System Configuration, Introduction to data base management, management information systems, decision support systems and simulation.

#### MBA643: SIMULATION OF BUSINESS SYSTEMS

Simulation Philosophy and Methodologies, Applied Probability and Statistics, Random number Generation, System Modeling, Simulation Languages and Data Structures, Model Verification and Validation, Animation, Input and Output Data Analysis, Non-parametric Statistics, Design and Execution of Simulation Experiments, Applications: Production System Inventories, Project Planning, Logistics System, Queues, Single Machine, Flowshop, Jobshop, Production Scheduling, Continuous Manufacturing, Process Re-engineering.

#### MBA645: MANAGEMENT INFORMATION SYSTEMS

Foundation Concepts: Basic information systems concepts about the components and the operations, managerial, and strategic roles of information systems; Technology: Major concepts, developments, and managerial implications involved in computer hardware, software, telecommunications and database management: technologies; Applications: How the Internet, intranets, extranets and other information technologies are used in modern information systems to support electronic commerce, enterprise collaboration, business operations, managerial decision making, and strategic advantage; Development: Developing information system solutions to business problems using a systems approach to problem solving and variety of business application development methodologies; Management: The challenges of managing

information systems technologies, resources, and strategies, including global IT management, strategic IS planning and implementation, and security and ethical challenges. This course also includes case presentations/discussions along with a final term paper.

#### MBA646: ENTERPRISE INTEGRATION WITH IT

Need for integration, Evolution of ERP, Components of ERP, Enterprise evaluation, Business process mapping, Business Process Reengineering, Understanding and evaluating ERP packages, Technology evaluation, Networking issues, ERP implementation, Human resource issues and change management, SAP system, Project on SAP system, Case studies.

#### MBA647: BUSINESS PROCESS MANAGEMENT

Introduction to Business Process Management (BPM); History; Importance of improving business processes; Drivers and triggers of BPM; Stakeholders; Importance of organizational strategy and process architecture; Selling BPM technology; Critical success factors in a BPM project. Critical implementation aspects for a BPM solution; Importance of a structured approach to implementing BPM; The BPM implementation framework: Organizational strategy phase, process architecture phase, Launch pad phase, Understand phase, Innovate phase, People phase, Develop phase, Implement phase, Realize phase, Sustainable performance phase; Project management; People change management; Leadership. BPM maturity; Embedding BPM within the organization; Methods, tools and techniques of business process modelling, analysis and design. BPM Process Patterns: Basic control patterns, Advanced branching and synchronization patterns, Structural patterns, Multiple instance patterns, State based patterns, cancellation patterns; Business Process Languages. Best practices in BPM; BPM in eBusiness, eCommerce and eGovernment; BPM case studies.

#### MBA649: E -COMMERCE

eBusiness Models, Building ecommerce infrastructure, eBusiness challenges, Supplychain, Data exchange standards, Returns, Customer Service, ePayments, security and frauds, Outsourcing, Laws pertaining to ecommerce.

#### MBA651: QUANTITATIVE METHODS FOR DECISION MAKING

Introduction to probability theory - sample space, events, axioms of probability, conditional probability, Bayes' Theorem, independent events, Random variables - density and distribution functions, expected values and descriptive statistics, moment generating functions, functions of random variables, jointly distributed random variables, Chebychev Inequality, Central Limit Theorem, Standard distributions - Bernoulli, Binomial, Poisson, Geometric, Hypergeometric, Uniform, Exponential and Normal, Statistical Inference - estimation, properties of estimators, maximum likelihood, method of moments, least squares (simple linear regression as an application), confidence intervals, Hypothesis Testing - simple hypothesis, goodness of fit, contingency tables, Introduction to Operations Research - mathematical modeling and

optimization in management, Linear and Integer programming - formulation, solution procedures, duality and sensitivity analysis, Transportation and Assignment problems, Network models - Max-flow, min-cost flow, and shortest path problems, Decision making under uncertainty.

#### MBA652: STATISTICAL MODELLING FOR BUSINESS ANALYTICS

This is an applied econometrics course. Students taking this course will gain skills and experience in data analysis, economic modeling and interpretation of results. Emphasis is on the ability to set up the model correctly and interpret the results of the models. The topics include the following: Economic questions and data, Review of probability, Review of statistics, Hypothesis testing and ANOVA, Linear regression with one regressor, Hypothesis tests and confidence intervals for simple regression, Linear regression with multiple regressors, Hypothesis tests and confidence intervals in multiple regression, Nonlinear regression functions, Regression with binary dependent variable, Regression with panel data, Assessment of Regression Models.

#### MBA653: SOCIAL MEDIA ANALYTICS

Social media and social networks: Different sources of social media data, and challenges related to social data collection. Basics of Network analysis: Graph representation, adjacency matrix, network visualization. Social Network metrics: Degree, Betweenness Centrality, PageRank, Eigenvector, Clustering and community detection in networks. Network generation algorithms: random networks, scale-free networks, simulation models, viral marketing. Recent trends: Topic modeling, Online experimentation, and Personalized recommendation.

#### MBA661: PRODUCTION AND OPERATIONS MANAGEMENT

Introduction to Operations Management—operations strategy, product design; Process Decisions—process selection, process analysis, capacity planning, line balancing; Plant Decisions—plant location, plant layout, facility location; Production Planning & Control—forecasting, aggregate planning, inventory control, push and pull systems, scheduling; Variability—sources of variability and their impact on process performance; Quality Control—control charts, process capability, acceptance sampling; Supply Chain Management—concept, design, information sharing; Service Operations Management— design of service operations, measurement of performance of services.

#### MBA663: TOTAL QUALITY MANAGEMENT

Total Quality Management, quality management Philosophies, Leadership, Employee involvement and customer Value Evaluation, Kaizen, Problem Solving and Quality Management, problem solving Fundamentals, Problem Identification, Definition, Diagnosis, Alternative Generation and Evaluation, Elementary concepts related to 7 Old and 7 New Tools for quality Assurance, Basic Statistical Concepts, Control of Accuracy and Precision, Process Capability, SPC, Process Control Charts, Acceptance Sampling, MILSTD105D. Quality

Management Systems, ISO 9000, Quality Engineering, Quality Function Development, Introduction to Design of Experiments, Process Optimization and Robust Product Design, Steps to Six Sigma, Management of Service Quality, SERVQUAL, Management of Software Quality, Course will include live industry projects and industry case studies.

#### MBA664: SUPPLY CHAIN MANAGEMENT

Supply chain strategy: drivers of supply chain, performance measures, achieving strategic fit; Supply chain network design: network design and operation; Inventory management in a supply chain: managing economies of scale and uncertainty; Risk mitigation in supply chains: risk pooling, postponement, and quick response strategies; Supply chain disruption: preparing the supply chain against disruptions, supply chain resilience; Information sharing in supply chains: strategies to mitigate information distortion and bull-whip effect; Supply chain coordination: achieving coordination through buyback and revenue sharing contracts; Sourcing in supply chains: make or buy decisions, supplier selection; Pricing and revenue management: perishable asset management, handling multiple customer segments; Information technology in a supply chain: role of IT in a supply chain, supply chain IT in practice; Sustainable supply chain management.

#### MBA665: MANUFACTURING PLANNING AND CONTROL

Lot Sizing Models, including some state of art models, scheduling, JIT, MRP, MRP-2, FMS, TOC and OPT, Aggregate and Disaggregate Production Planning, Facility Layout and Location Problems, PERT/CPM, Term Paper on advanced topics, case studies.

#### MBA666: PROJECT MANAGEMENT

Introduction and Characteristics of Projects, Work breakdown, Project management Risk and methods of mitigating the risk, GANTT charts, Decision Tree Analysis, Forward and Backward Scheduling, Precedence Diagram and its concepts, Utility Analysis, Other evaluation techniques for projects like AHP, DEA, Cost Benefit Analysis, Valuation, Cash Flow Problems, Credit Risk in Project Finance , Precedence relationship, Project Planning, PERT, CPM, Slack, Critical paths, Sensitivity Analysis, GERT, Q-GERT, Critical Chain, Theory of Constraints, Activity Network diagram, Budgeting, Resource Management, Crashing of Jobs, Resource leveling, Life Cycle of Projects and Costing, Termination of Projects

#### MBA671: MANAGING SERVICE OPERATIONS

Service as Product, Design of Service Systems, Location and Layout of Service Facilities, Service Engineering including Work Design, Human Factors, Automation and Communication, Productivity and Service Effectiveness, Network Planning including Queuing Networks, Manpower and Resource Scheduling and Distribution Planning; Service and Competitive Strategy; Service delivery systems and IT applications; IT enabled services and Technology Convergence; Managing for World Class; Service Quality and Service Level best practices for

call centers and related services, Cross Cultural issues; Pricing and Transfer Pricing of Connected Services, Project Implementation, Learning, Innovation and Knowledge Management in the Service based business.

#### MBA675: INFRASTRUCTURE REGULATION, POLICY & FINANCE

Role of Infrastructure in Economic Development, Natural Monopoly and Economics of Infrastructure Regulation, Rate of Return Regulation, Performance Based Regulation, Pricing for Infrastructure Sector, Role of Subsidies, Reforms in the Infrastructure Sector (Power, Telecom, Roads, Ports, Urban Services), Recent Policy and Regulatory Developments, Restructuring and Privatisation in Infrastructure Sector, Reform Acts, Competition in Infrastructure Sector (Bulk Power, Telecom, Transportation), Issues in Infrastructure Finance, Modes of Project Financing, Risks in Infrastructure Sector, Development of Infrastructure Projects BOO, BOOT, BOLT etc.

#### MBA676: SECURITY ANALYSIS, DERIVATIVES & PORTFOLIO MANAGEMENT

Financial Markets, Investment Alternatives, Risk and Return, Portfolio Theory and Capital Asset Pricing, Capital Asset Pricing Theory and Arbitrage Pricing Theory, Efficient Market Hypothesis, Security Analysis and Valuation, Valuation of equity and Fixed income securities, Fundamental Analysis, Technical Analysis, Investment Strategies, Derivatives, Options, Futures, Swaps, Black Scholes model, Value at risk, Estimating volatility and correlations, Hedging and Portfolio Management.

#### MBA677: PROJECT FINANCING & MANAGEMENT

Generation and Screening of Project Ideas, Project Appraisal and Evaluation, Financial Projections, Investment Criteria, Cost Benefit Analysis, Project Finance, Evaluating Free Cash Flow to Firm and Free Cashflow to Equity, Debt Security, Debt Service Reserve Fund, Financing Infrastructure Projects, Sources of Finance, Multilateral Project Financing, Consortium Financing, Loan Syndication, Venture Capital, Risk Analysis, Project Life Cycle, XXX-(Techniques for Project Management), Multiple Case Studies.

#### MBA678: MANAGEMENT OF RISK IN FINANCIAL SYSTEM

Introduction and concept of Risk, Return, Different types of Risks (e.g., Systematic Risk, Interest Rate Risk, Liquidity Risk, Operational Risk, Regulatory Risk, Market Risk, Foreign Exchange Risk, Commodity Price Risk, Industry Concentration Risk, Environmental Risk, Counter party Risk, Credit Risk, Legal Risk, Regulatory Risk etc.), How financial products are used for hedging, Interest rate risk, volatility, Correlation and Copulas, Methods of identifying and measuring different types of risks. Use of Risk Models. Methods of Risk control and Management, i.e., requirement of active Risk Management techniques through use of VaR model; CVaR, ER, EL, market risk, credit risk, credit risk losses and credit VaR, credit derivatives, operational risk, model and liquidity risk, monitoring of ALM (Asset Liability

Management); use of derivatives like currency swaps, interest rate futures, forward rate agreements etc.

Special emphasis will be placed on

- a) Credit Risk Management: Introduction of Credit Risk, Credit Rating Analysis, Credit Risk Models, Corporate Risk Models etc. Credit Derivatives.
- b) Interest Rate Risk Management: Introduction of Interest Rate Risk, Valuation Model, Interest Rate Futures, Hedging, Options on Interest Rate Futures, Interest Rate Swaps, etc.
- c) Foreign Exchange Risk Management: Introduction of Foreign Exchange Risk, Translation Risk, Transaction Risk, Economic Risk etc. Spot Market, Forward Currency Market, Currency Swap, Foreign Currency Futures etc.

### MBA679: COMMERCIAL BANKING, RISK MODELING AND RISK MANAGEMENT

The course will deal with the theory, tools and techniques necessary for efficient modeling and management of risk in financial services with emphasis on commercial banking. At the macro level emphasis is placed on the effect of regulatory and country specific factors on the functioning and the adherent risk in the operation of a commercial bank. At the micro level various facets of risk management which include interest rate, credit and market risk are covered in sufficient depth. The course also covers related topics in derivative pricing and hedging and application of option valuation models in modeling and managing the above risk. The course does not have a specific textbook and consists of prescribed readings provided by the instructor. The course requires prior understanding of financial statements analysis. (Students should have preferably done MBA601A.)

### MBA681: ENERGY AND CARBON MARKETS: ECONOMICS, POLICY AND REGULATION

Energy and Economic Development: National and International Perspective, Structure of Energy Demand and Supply,, Energy Value Chain and Energy Accounting, India Energy Scenario 2047, Economics of Energy and Exhaustible Resources , Energy Security, Energy Policy and Planning, Modelling for Energy Markets: Applications in General Algebraic Modelling System (GAMS), International Markets for Energy: Oil, Coal, Natural Gas and Uranium, Indian Energy Markets: Oil & Gas, Coal and Electricity, Private Investment in Energy Sectors: NELP, Coal Policy, Power Policy, Regulation of Indian Energy Sectors Electricity, Oil & Gas and Coal Sectors, Pricing in Energy Markets: Electricity, Coal, Oil and Natural Gas, Functioning of Power Exchange and Commodity Exchanges (Energy), Cross Border Energy Cooperation, Energy and Environment, Climate Change, UNFCCC, Kyoto Protocol and beyond, Clean Development Mechanism and its Process, International Carbon Markets and Carbon Finance, National Action Plan on Climate Change, JNN National Solar Mission, Renewable Energy: Technology, Economics and Policy, Market for Renewable Energy Certificates, Energy Conservation, Market for Energy Efficiency: ESCO and Market for Ecerts (White Certificates). One project work on relevant topic.



### MBA683: POWER SECTOR REFORM & REGULATION: THEORY AND PRACTICE

Electricity value chain and economic development. Structure of Electricity Demand and Supply: Power Sector Scenario in India. Theories of Regulation and Economics of Regulation. Power Sector Reform and Regulation: International and Indian Experience. Electricity Act 2003 and related policies including National Electricity Policy, National Tariff Policy, Rural Electrification Policy. Regulatory Process: Functions of Electricity Regulatory Commissions and APTEL. Rate of Return Regulation and Performance Based Regulation. Determining Aggregate Revenue Requirement and Tariffs for Regulated Entities. Availability Based Tariff and Multiyear Tariff. Principles of Retail Tariff Design Single Part, Multipart, TOD Tariffs etc. Unbundling, Privatization and Franchisee Development. Power Purchase Agreement. Competitive Bidding Guidelines & Ultra Mega Power Projects. Competition in Power Sector: Open Access and Retail Competition. Functioning of Power Exchanges and Market Monitoring. Distribution Reforms and Performance incl. RAPDRP and RGGVY. Regulatory Approach to Promote Renewable Energy: Renewable Portfolio Obligation, Feed in Tariff and Renewable Energy Certificates. Demand Side Management. Consumer issues in the electricity sector.

### MBA684: SALES AND DISTRIBUTION MANAGEMENT

Fundamentals of selling in an open global market, What is a strategic sale? Strategic Analysis, Buying influences, Structuring Key-Win Results, Intra and Inter Company Alliances and Partnerships, Coopetition, Solution Selling, Key Account Management, Sales Forecasting and Sales Information Systems, Introduction to Marketing Channels, Design of Marketing Channels, Channel Implementation, Compensation and Incentive, Channel Institutions, E-Sales and Blended Channels, Emerging Issues in Sales and Distribution.

### MBA685: PRODUCT & BRAND MANAGEMENT

Product strategy: Theoretical foundations; Managing competition and innovation role, Product In theory and buyer behaviour; adoption and diffusion of new products, Product life cycle and product portfolio concepts, New product development models and the factors affecting new products, New product development models strategy; techniques for concept development like conjoint analysis/QFD, Business analysis and product testing, Commercialization and managing growth, Product elimination strategy, Workshop: From Ideation to Rough Prototyping, Introduction to Strategic Brand Management, Customer-based Brand Equity concept and value stages, Identifying and Establishing Brand Positioning, Choosing Brand Elements to build Brand Equity, Brand Marketing Programs for building Brand Equity, Measuring Brand Equity, Corporate Branding Strategy, Brand Hierarchy, Brand Portfolio Management, Brand Extensions: Line Extensions, Category Extensions, Managing brands over time: Reinforcing Brands & Revitalizing Brands, Managing Brands Over Geographic Boundaries and Market Segments,

## **Half-Semester MBA Courses**

### **MBA711: CHANGE MANAGEMENT AND ORGANIZATIONAL DEVELOPMENT**

Understanding Organizational Change: Definition and Types, Systems Perspective, Identification and Assessment of Factors Leading to Change, Change Management Process: An Overview, Resistance to the Process of Change, Reasons and Mitigating Measures, Lewin's Process, Constructive Destruction, Role of IT in Change Management, Business Process Reengineering, Appreciative Inquiry, Change Management through OD Intervention.

### **MBA712: ORGANIZATIONAL STAFFING**

Introduction to Organizational Staffing: Steps and Strategic Linkages; Manpower Planning; Job Analysis Techniques; Competency Based Staffing; Models and Mapping Techniques; External and Internal Recruitment Process; External and Internal Selection Process; Concept of Measurement, Reliability and Validity; Selection Methods and Tools: Utility, Relevance and Applicability; Organizational Socialization and Deployment; Succession Planning and Career Progression; Use of IT in Staffing; Other Emerging Issues.

### **MBA713: PERFORMANCE MANAGEMENT**

Objectives of Performance Management, Historical Account, Performance Planning: Synchronization with Organization's vision, mission, strategy and goals, Issues and Problems, Defining and Measuring Performance, Methods of Performance Appraisal, Communication of Feedback, 360 degree Performance Feedback, Rewards and Recognition, Career Management, Role of Performance Management in fostering Employee Engagement, Re designing Jobs for better Performance, Key Implications of Performance Management, Legal and Ethical Perspectives.

### **MBA714: INTRODUCTION TO BUSINESS MANAGEMENT**

Purpose of Business, Value Chain, External Forces (PESTEL Framework), Markets and Demand-Supply Dynamics, Interpretation of Financial Statements, Primary and Secondary Markets, Corporate Governance, HR Planning, HR Development, Employee Engagement, Segmentation, Targeting and Positioning, Market Mix, Branding, Service Marketing, Identification of Business Processes, Business Process Reengineering, Strategic Perspective in Business, Managerial Decision Making

### **MBA715: EMPLOYMENT RELATIONS UNDER GLOBALISATION**

Meaning of work and contradictions at workplace, Basic legal framework of employment relations in India, Trade unions, Employment relations and global value chains, Flexible employment relations, labour standards & labour organisations, Historical context: Origins of trade unions & HRM, Industrial relations dynamics: Towards Possibilities

### MBA716: INTRODUCTION TO CORPORATIONS

Origins of Early Corporation, Evolving Features of Corporations, Institutional Theory and Corporations, Corporate Governance and Corporate Stakeholders, Policy and Corporations, Corporations as Monopolies, Beyond Corporations

### MBA717: GOVERNANCE OF GLOBAL VALUE CHAINS

Introductions to GVCs, Value distribution across GVCs, Labour in GVCs, Governance of GVCs, Classification of GVCs, GVCs and Economic Growth, GVCs: Policy Implications and its Regulation, Alternatives to GVCs

### MBA718: HR ANALYTICS

HR analytics, an emerging discipline, is about leveraging data-driven insights through quantification, analyses and interpretation of various HR processes within an organization. HR analytics improves an organization's ability to monitor, benchmark and correct HR processes. But perhaps most importantly, it enhances the credibility of HR forecasting and reporting of results. The present course is aimed to achieve all the aforementioned objectives. The participants will learn various methods to diagnose HR-related problems, develop suitable metrics, analyze using statistical tools, and interpret/report results.

### MBA731: BUSINESS-TO-BUSINESS MARKETING

The guiding principles of B2B Marketing, Market Sensing: generating and using Knowledge about the market, Understanding firms as customers, Crafting Marketing Strategy, Managing Market Offerings, New Offering Realization, Business Channel Management, Gaining New Business, Sustaining Reseller Partnerships, Managing Customers.

### MBA732: PRODUCT STRATEGY AND MANAGEMENT

Introduction to Product Marketing : Entrepreneurial & Intrapreneurial Opportunities (Case Studies); Product+Service+Business—Dynamic Management; Opportunity Sensing to Concept Innovation; Voice of Customer /Kano Model /QFD – Tools for Concept Shaping; Mapping Product- Market-Design-Value Positioning; Protocepting and Prototyping : Product Architectures & Platforms; Global Cases : Interactive sessions on what makes a product great; Creating the Business Model; Market Launch Planning and Designing Marketing Collaterals

### MBA733: BRAND MANAGEMENT

Introduction to Strategic Brand Management; Customer-base Brand Equity; Identifying and Establishing Brand Positioning; Choosing Brand Elements to build Brand Equity; Brand Marketing Programs for building Brand Equity; Measuring Brand Equity; Brand Life cycle Management; Brand Portfolio Management; Managing brands over time and boundaries

### MBA734: MARKETING OF SERVICES

The course aims to Enhance the understanding of service themed businesses. Moving away from the goods-centric economies, modern economies are built on Service-dominant businesses and it is reflected among the Fortune 500 list or the companies, or start-ups across the globe. At the end of the course the students will be able to perform the following: 1. Design new Services and Servicescapes using validated frameworks 2. Implement Service Processes and measure their efficacy 3. Measure overall Performance of Service Businesses.

### MBA735: STRATEGIC MARKETING

Linkages between Business and Marketing Strategy, Internal and External Analysis, Identifying and building key Marketing Strategy, Segmentation and Targeting Customers using appropriate statistical tools, Positioning via Differentiation with frameworks, Branding with appropriate framework and tools, Differentiation using Marketing Mix elements, New Product Design and Product Management, Strategic aspects of Pricing and price changes, Strategic aspects of Marketing Communication, Strategic aspects of Distribution Channel, Strategic aspects of People, Process, Servicescapes and Self-service technologies in Service businesses.

### MBA736: STRATEGIC MARKETING COMMUNICATIONS

This course provides insights into market positioning strategies to effectively communicate between consumers and their preferred brands. It emphasizes significance of right positioning and its potential to influence business profitability and sustainability. With its practicum and experiential components, it will be helpful to participants in ascertaining and evaluating effective positioning, and designing appropriate marketing communication so as to positively influence a firm's standing in the markets served.

### MBA741: INTRODUCTION TO E – COMMERCE

Significant advances in Information and Communication Technologies in the past decade have ushered in a new era of Information Technology (IT)-enabled business opportunities. An important development in this regard has been the advent of Internet and mobile phone technologies. New business opportunities and paradigms have emerge as these technologies are being used by the mass. The objective of this course is to learn complete framework for e-commerce and launch an e-business.

#### Course Contents

1. e-Business Models
2. Building an e-commerce presence
3. e-commerce marketing
4. Recommendation engine

### MBA742: ERP: A MANAGERIAL PERSPECTIVE

1. Evolution of ERP systems
2. Understanding Business Processes
3. Selecting an ERP solution
4. Life Cycle of an ERP project
5. Change Management
6. Experimenting with a selected ERP system

### MBA744: BUSINESS PROCESS MODELLING

Stakeholder analysis and modelling, Organizations as systems, Evolution of organization understands of process, BPM maturity model, BPM implementation framework, agile processes, business process integration, change and risk management process, Business process improvement and Business process patterns.

### MBA745: BUSINESS PROCESS PATTERNS

Importance of modelling, processes, process identification, modelling issues, scenario-based BPMN, Activities, Events, Gateways, Swimlanes, Artifacts, Connectors, Qualitative process analysis, Advanced concepts.

### MBA746: E-SUPPLY CHAIN MANAGEMENT

Concepts and Modeling of E-Supply Chain, E-Supply Chain Technologies and Infrastructure, Best Practices and Performance Management

### MBA747: BUSINESS MANAGEMENT USING CLOUD

There is no such thing as Cloud Computing, Welcome to the Human Network, From Information Technology to Business Technology, The Service-Oriented Enterprise in the cloud, Business Process Management in the Cloud, Enterprise cloud computing: The Process, Cloud Computing Use Cases

### MBA748: BIG DATA FOR MANAGEMENT

There are three ways of becoming part of a big data project- one of them is to be a technical person and handle the technology part, the second one is by working with the solution part and the third one is to manage a big data project or initiative. This course is for managing a big data project. After doing this course, a student will know the issues and challenges involved in a big data project. The student will learn to deal with the challenges in a systematic manner. The following topics will be covered. Introduction to big data Characteristics, Evolution, Challenges for Management, Opportunities, Developing a Big Data Strategy, Domains and Industries that will use Big Data, Some sample scenarios, Portfolio & Objectives, Approaches, Manpower, Enabling Technologies for Big Data, Architecture and its components, Components, Ensuring

Success of a Big Data project, Data, Enterprise Orientation for big data, Leadership, Objective, Feedback Mechanism etc., Case studies

#### MBA749: SOCIAL MEDIA ANALYTICS I

Applications of social data, Social media and social networks, Basics of Network analysis: Graph representation, adjacency matrix, diameter, network visualization, Social Network metrics: Degree, Betweenness Centrality, Closeness Centrality, Page Rank, Eigenvector, Bonacich centrality, Clustering and community detection in networks, Ego networks, homophily, reciprocity, Case studies on social data analysis.

#### MBA751: MARKETING ANALYTICS

Summarizing marketing data, Pricing, Forecasting, Understanding customer requirement, Customer lifetime value, Market segmentation, Retailing, Advertising.

#### MBA752: TIME SERIES MODELING FOR BUSINESS ANALYTICS

This is an introductory graduate level course on forecasting and time series modeling. The focus of the course is to understand the specific business applications where each kind of time-series model is useful. The underlying statistical theory will be emphasized to the extent that it helps students set up an appropriate model. Topics covered will include understanding and decomposition of time-series data, unit root and stationarity, moving average and exponential smoothing models, times-series regression models (AR, MA, ARIMA) and dynamic causal regression and volatility modeling (ARCH / GARCH models).

#### MBA753: CAUSAL INFERENCE METHODS FOR BUSINESS ANALYTICS

Introduction - revision of Multiple Regression Analysis, Dummy variable regression, Binary dependent variable regression, interpretation of interaction term; Randomized Trials - concept of counterfactual, selection bias, average treatment effect, omitted variable bias; Difference-in-Differences method, Regression Discontinuity Design technique, Propensity Score Matching, Instrumental Variable method, special topics.

#### MBA761: MANUFACTURING PLANNING AND CONTROL I

Lot Sizing Models, including some state of art models, scheduling, JIT, MRP, MRP-2, FMS, TOC and OPT, Aggregate and Disaggregate Production Planning, Term Paper on advanced topics.

#### MBA762: MANUFACTURING PLANNING AND CONTROL II

Facility Layout and Location Problems, PERT/CPM, Term Paper on advanced topics, case studies.

### MBA765: STRATEGIC ISSUES IN MANUFACTURING I

General Management Function, Introduction to the corporate strategy, concept of organizational purpose, environmental scanning and formulation of objectives, strategy for growth such as concentric growth and diversification, role of values in strategy formulation and evaluation, managing diversity and growth, Term paper on advanced topics.

### MBA766: STRATEGIC ISSUES IN MANUFACTURING II

choice of organizational structure and designing control systems to support the implementation of the strategy. Role of implementation issues in strategy formulation. Impact of organizational culture, structure, systems in strategy implementation and Merger and Acquisitions: Conglomerates and Diversified Majors & Horizontal Strategy and Horizontal Structure. Culture as impediment to success of M&A. Term paper on advanced topics.

### MBA771: SECURITY ANALYSIS & PORTFOLIO MANAGEMENT

Financial Markets, Investment Alternatives, Risk and Return, Portfolio Theory and Capital Asset Pricing, Capital Asset Pricing Theory and Arbitrage Pricing Theory, Efficient Market Hypothesis, Security Analysis and Valuation, Valuation of equity and Fixed income securities, Fundamental Analysis, Technical Analysis, Investment Strategies

### MBA772: DERIVATIVE CONTRACTS

Introduction to the course, Basics of Derivatives Markets, Forward and Futures Markets, Pricing of forwards and futures, Hedging and Risk management using futures, Margin requirements, Basics of options markets, Trading strategies using options, Risk Management using options, Pricing of options using binomial model and Black-Scholes model, Greeks, Swaps and FRAs

### MBA773: FINANCIAL INTERMEDIATION & COMMERCIAL BANKING

The course deals with the theory in financial intermediation with emphasis on commercial banking. At the macro level emphasis is placed on the effect of regulatory and country specific factors on the functioning and the adherent risk factors in the operation of a commercial bank are identified along with the regulatory prescriptions and their impact for the same. At the micro level various facets of risk management which include interest rate, credit and market risk are introduced.

### MBA774: CREDIT RISK MANAGEMENT & MODELLING

This course looks into the various quantification models available for quantifying and addressing the interest rate, credit, operational and market risk with specific focus on interest rate & credit risk including credit scoring and loan appraisal models. The course also covers related topics in derivative pricing for hedging and managing these risks.

### MBA775: ADVANCED CORPORATE FINANCE

Introduction to the course, Basics of Valuation, Capital Budgeting, Investment Decision, Project Analysis, Financing Decision, Capital Structure, Payout Decision, Valuation of Firms, Advanced Topics: Real Options, IPOs

### MBA776: MERGERS AND ACQUISITIONS

Theory of M&As, Different types of restructuring in corporate control market, The process of M&A: Identification, Due Diligence, Evaluation of target, Primer on Valuation of M&A deals, Bid and offer pricing models, Synergy gains, Vertical and Horizontal Integration Models, Different tactics of takeover defense, Governance issues in M&A, Cross-border M&As, Pitfalls in M&A deal making, Current Regulatory and Taxation norms related to deal-making, Discussion of a few recent ongoing or concluded deals (Indian or global)

### MBA777: ADVANCED VALUATION

This course is aimed at providing the student with an insight into advanced techniques for estimating valuation under uncertainty. The course uses real option tools and techniques to model uncertainty in terms of resource, price, cost, foreign exchange, operating leverage and management flexibility. The course combines a qualitative and a quantitative approach to the study of valuation using real options. At the end of this course the student is expected to build a dynamic valuation model capable of arriving at a project value close to the market value. The student also will become familiar with the use of Monte Carlo analysis and decision trees to investigate the impact of operating leverage and management flexibility on project value. Topics: Homogeneity and Temporal Independence of return variation, Contagious variation of return and tools for assessing the same, Monte Carlo Simulation and Embedded optionality,

### MBA778: BASIC FINANCIAL MODELLING

This course is aimed at providing the student with the technical knowledge of building financial models in Excel and VBA in corporate finance and investments. The aim is to bridge the gap between financial theory and practice. The course includes capital budgeting, working capital analysis and short term planning, financial planning, valuation of stocks and bonds issued by a firm, derivative pricing models, and portfolio selection.

Topics: Excel Preliminaries, Valuation Models using Excel, Building a Basic Valuation Model, Incorporating assumption in Valuation Model using Excel, Capital Budgeting, Working Capital Analysis, Portfolio Models using Excel, Building Basic Portfolio Model, VBA Preliminaries, Portfolio Models using VBA, Derivative Pricing Models using VBA

### MBA779: ADVANCED FINANCIAL MODELING

The course intends to provide students an introduction to various techniques drawn both from Operations as well as Information systems with specific application to financial modelling. This involves search and optimization techniques like genetic algorithms, artificial neural networks



and fuzzy logic. This course covers advanced modelling and simulation of the financial models in corporate finance and investments using the above techniques. The aim is to bridge the gap between financial theory and practice. The course includes term structure modelling, distributions of financial asset prices and simulation methods, finance application area of Option pricing, valuation, portfolio selection, default adjusted expected bond returns and risk modelling using Value at Risk (VaR) and bootstrapping. The course does not aim to teach finance models taught in other finance courses but aims to introduce to the students the various tools and techniques available to them from other management areas like systems and operations. The course would be an interdisciplinary course with a focus on the financial applications. This is an advanced level course where the students are expected to have reasonable proficiency in finance and operations.

Topics: Pricing and Optimisation Frameworks in Financial Economics, Review of Objective Functions & Search Algorithms, Solution Landscape Contours and searching global optimum

#### MBA781: PUBLIC PRIVATE PARTNERSHIP (PPP) IN INFRASTRUCTURE

Infrastructure, Economic Development and need for PPP. Definition and scope of infrastructure. Economics of infrastructure Natural Monopoly. Modes of PPP. Policy Framework for Infrastructure Investment in India VGF and its alternatives. Structuring a PPP Project Proposal RPQ & RFP. Selected Case Studies from Power, Roads, WTE, Railways, Metro, Ports, Airports etc. Policy Framework for PPP Across Major Sectors. Global Best Practices for PPP Projects. Dealing with Unsolicited Bids The Swiss Challenge. Projects Caselets - A Case Analysis of a PPP Project (on mutually agreed topic).

#### MBA782: RENEWABLE ENERGY - ECONOMICS, POLICY AND REGULATION

Drivers for Renewable Energy. RES - Wind, Solar, Biomass, SHP, Ocean, WTE etc. RE Development National and International Perspective. Economics of Renewable Energy. Policy and Regulatory Instruments to Promote RE. Electricity Act 2003 and other relevant legislations policies. Renewable Portfolio Obligations and Feed in Tariff. Market for Renewable Energy Certificates (RECs). NAPCC and Jawaharlal Nehru National Solar Mission. Competitive Bidding for Renewable Energy. Developing and Implementing a Solar Rooftop Program. Challenges for VRE integration Forecasting and Solutions. Climate Change and Green Energy Finance: Business Models. Projects/Caselets on mutually agreed topics.

#### MBA783: BEHAVIORAL ECONOMICS IN MANAGEMENT

Economic thought has advanced in recent decades beyond the traditional microeconomic theories that assume that human beings are rational economic agents. The aim of this course is to introduce the concepts of behavioral economics to students who are interested in using these principles in academic research or in understanding human behavior in managerial contexts. Course contents: Introduction to Behavioral Economics, Expected Utility Theory – Utility Maximization, Bounded Rationality, Making Choices Under Risk: Prospect Theory,

Intertemporal Choice and Time-Inconsistency, Mental Accounting, Heuristics and Biases, Behavioral Game Theory, Social Preferences, Nudges: Libertarian Paternalism – Policy Making, Neuroeconomics.

#### MBA626: MANAGEMENT OF TECHNOLOGY

Policy – Technology Choice: Linkage; National Technology Policies; Technology, Competition and Industrial Structure; formulating the technology strategy, Technology Development and Acquisition process; Managing Technologies, Technology in Indian Industries, Strategic R&D management and Technological Consortia; Licensing and joint Ventures, Managing Technology Spillovers; Justification of new technology; management accounting and technology; Integration of New with Old technology, Assimilation of Technology; Intellectual Property Rights and their Implications for Industry Policy and Technology Management.

#### MBA628: INTERNATIONAL BUSINESS MANAGEMENT

This course is relevant to all executives who plan or operationalise business strategies across multiple countries for international marketing, international sourcing, or international ownership. It focuses on learning about the global business environment, strategic opportunities and competences for internationalising, design and marketing of appropriate products and services, and key aspects in operationalising the strategy through organization structure, human resource, international coordination and leadership. While working towards these learning objectives, the course will maintain a close proximity to some themes of particular interest. We shall invite frequent attention to businesses that originate or operate in India/Asia. We will also be conscious of Governance relationships of investors from developed countries that affect their businesses in less developed ones. Cultural patterns as well as the Regulatory environment in different countries will be a recurrent theme in our discussions. And, we shall be conscious of how organizations may, through business without borders, stretch their capacities, and develop new competences and relationships. Much of the course will be through Case discussions. Country and product-based presentations will also be utilised for building specific understanding.

#### MBA640: INTELLECTUAL PROPERTY MANAGEMENT, VALUE CREATION AND VALUE CAPTURE

Module I: Intellectual Property Management. Market Capitalization, Intellectual Capital (IC), Components of Intellectual Capital, Tangible and Intangible Assets of Firms, Goodwill, Linkage between IC, Corporate Strategy, and Profits, Relationship between Intellectual Capital and Intellectual Property, Knowledge Economy and the need for Intellectual Property Management, Various Types of Intellectual Property trademarks, Copyrights, Patents, Trade Secrets, and Industrial Design, International IP Treaties/Agreements on IP Rights, Types of Patents, Patenting Advantage, Offensive and Defensive IP Strategies, Global Innovation Index and IP Management, Intellectual Property Strategies in Indian Context Universities, CSIR and Commercial Firms  
Module II: The Dynamics of Value Creation and Value Capture. Module III: Patent Mapping.

### MBA654: INNOVATION FOR SUSTAINABLE BUSINESS ADVANTAGE

Module I: Innovation Concepts and Principles. Historical Perspectives, Innovation Myths and Realities, Challenges, Triggers and Sources for Creativity and Innovation, Innovation by individuals, communities and Corporations, Innovators Profile, Innovation Cycle, Phases of Innovation Cycle, Differences between Structured and Unstructured Innovation, Link between Corporate Vision, Strategy and Innovation, Components of Strategic Innovation, Organizational Architecture for Strategic Innovation, The Role of Government Policy in Innovation, The Roles of Venture Capitalists and Business Angels in Innovation, Eight Barriers to Innovation, Twelve Principles for Breaking Innovation Barriers, Innovation Principles for Sustainable Competitive Advantage and Generation of Wealth and Value. Module II: Innovation Approaches and Frameworks. Incremental, Breakthrough and Disruptive Innovation, Design based Innovation, Open vs. Closed Innovation; Kotlers Four Levels of Innovation: Business Model Innovation, Process Innovation, Market Innovation and Product/Service Innovation; Innovation Frameworks: Hansen Birkinshaw, Tracy Wiersema, Sawhney Wolcott; Reverse Innovation, Essential Principles and Practice of Reverse Innovation, Changing the Mind and the Management Model; Jugad Innovation, Essential Principles and Practice of Jugad Innovation, Jugad Innovations Future for Emerging Markets, Illustrative commercial examples for Innovation. Module III: Innovation Project. A practical project that illustrates the Innovation principles.

### IME621: THEORY AND APPLICATIONS OF MULTI CRITERIA DECISION MAKING

In all domain of multiple levels decision making considering numerous alternatives and conflicting criteria, it becomes imperative for the decision maker (DM)/set of decision makers (DMs) to come up with the best solution. Ideas of Multi Criteria decision making (MCDM) (comprising of multi objective optimization (MOO) and multi attributive decision making (MADM)) help DMs to make rational as well mathematical well-grounded decision to solve these set of problems. In many cases when stakes are high, and one has non-commensurable units of measurement as well multiple conflicting objectives, MCDM definitely aids better decision making. This course will benefit students in their masters and doctoral programs and working in a variety of areas like engineering (electrical, mechanical, civil, chemical, etc.), mathematics & statistics (Multiple Bayesian Decision making), economics, management (SCM, quantitative finance, etc.) to tackle and solve interesting problems both from theoretical as well as practical viewpoints.

### MBA662:PUBLIC ADMINISTRATION AND MANAGEMENT

This course introduces students to the management of public organizations and provides an overview of the field of public administration. It is an opportunity for students to familiarize themselves with the basic principles, concerns, and methods of public administration. We will look at how public and private organizations are similar and different, and how those differences matter for things that governments do or not do.

### MBA669: INTRODUCTION TO POLICY MAKING

In a democracy, public policy formulation and implementation have both economics as well as political implications. Policies devised by the elected governments/leaders impact the overall welfare of its populace, either directly or indirectly. Governments are, therefore, evaluated by the electorate based on the policy promises they made during election campaigns vis-à-vis the policy choices they made during their term. Public policy choices, thus, are at the heart of democratic politics. This course aims to introduce students to the process of public policy making in a democracy, considering India as a specific setting. At the end of this course, students should be able to have a greater understanding of the trade-offs involved in the policy making process in democratic states, identify the governmental and nongovernmental policy actors, describe the constituent steps in policy cycle, and analyze current policy issues from different perspectives.

### MBA720: RETAIL MANAGEMENT

Retail sector in India provides employment to 8% of its total population (1.3 billion approx.) and contributes to 10% of its GDP. It is expected to grow at the rate of 15 to 20% per year (PWC 2012). In a rapidly growing retail environment, Retail Managers are required to engage in the location, format, environment, product assortment, service design, sales force management, pricing promotion, and a variety of other decisions. In this context, this course will provide the participants an opportunity to understand and deliberate on concepts in retailing.