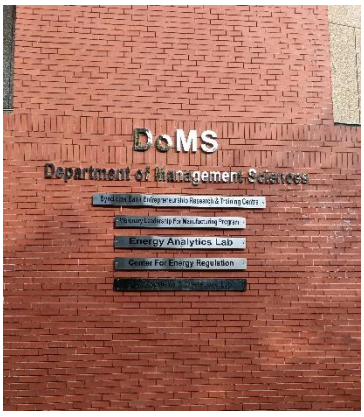
Department of Management Sciences

Indian Institute of Technology Kanpur

COURSES OF STUDY









Indian Institute of Technology Kanpur
KANPUR-208016

DEPARTMENT OF MANAGEMENT SCIENCES			
Course ID	**Course Title**	**Credit L-T-P-D[C]**	**Content**
DMS201	INTRODUCTION TO MANAGEMENT	3-0-0-0[9]	Module-1: Basic features of an organization, Organizational purpose and performance, structures and systems, activities and processes, Evolution of OB/HRM, Leadership and other critical human attributes, Key HR processes, Emerging work arrangements, Evolution of marketing, Strategic marketing (STP) and marketing mix, Consumer behaviour and marketing intelligence, value communication, Marketing in a digital world Module-2: Introduction to microeconomics: Demand and supply analysis, Introduction to macroeconomics: GDP, inflation, real vs. nominal variables, Inter-linkage between economic concepts and financial market: Fiscal and monetary policies, Introduction to financial markets and institutions, Characteristics of equity and debt instruments, Financing an enterprise: Banking and capital markets, Time value of money, Discounted cash flow approach to valuation of securities, Introduction to financial statement analysis Module-3: Introduction to Operations Management, Capacity planning and process analysis, Aggregate production planning, Materials requirement planning, Sequencing and scheduling, Production of services, Inventory control for deterministic demand, Stochastic demand and safety stock, Supply chain network design, Logistics management, Operations research modelling, Linear models and their solution, Modelling with integer variables
DMS602	PROBABILITY AND STATISTICS	3-0-0-0[9]	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
DMS603	INTRODUCTION TO COMPUTING	3-0-0-0[9]	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 an appropriate programming language.
DMS605	OPERATIONS RESEARCH FOR MANAGEMENT	3-0-0-0[9]	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.
DMS609	ENERGY, ENVIRONMENT AND CLIMATE: ECONOMICS AND POLICY MODELLING FOR CLEAN ENERGY	3-0-0-0[10]	The Energy System and Its Environmental Footprint, International Climate Policy Developments, Energy Supply Chain, Primary and Secondary Energy, Types of energy sources and their usage, Energy Data Source, Sankey Diagram, Cost Concepts, Welfare, consumer and producer surplus, Markets, impact of taxes and quotas, Abatement Cost Curve, Market failure and externalities, Economics of Energy and Exhaustible Resources, Pigouvian taxes and subsidies, Pareto efficiency / optimality, Coase theorem, Environmental Kuznets Hypothesis, Price and Quantity Based Instruments, Emission Tax, Quota, Cap & Trade, Contingent Valuation, Production, consumption, trade and energy flow in economic modelling, Integrated environmental and economic accounting. Top down and bottom-up models., Understanding General Algaebric Modelling System (GAMS), Setting up policy models in GAMS and other Environment, LEAP, MARKAL, IMAGE, MESSAGEix, AIM/GCE, GCAM etc., Design of Market of RECs, relevance, experience so far and further development, Perform, Achieve and Trade (PAT) Mechanism, Market for EScerts, Clean Development Mechanism, Emission Trading System: International Experience and Indian Developments, International market for carbon and RECs, Setting up of a small Energy-Economy-Environmental Policy Model using GAMS.
DMS611	FINANCIAL ENGINEERING	3-0-0-0[9]	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.
DMS612	INTERACTIVE DECISIONS AND	3-0-0-0[9]	Business strategy is the study of plans, actions, and proposition to help the decision makers achieve the goals of the organization. The ideas employed can be

	BUSINESS STRATEGIES		from the domains of economics, management science (marketing, finance, operations research, organization behaviour), human psychology, game theory, war strategy, etc. The aim of the course is to use the fundamental techniques and ideas of game theory, war strategy and different areas of management science to gain an insight into business strategy. War, as we know, is conflict between human beings, races, countries, ethnicity, etc., where one set of individuals want to impose their hegemony, based on culture, history, religion, economic dominance, territorial dominance, etc., over other group of people. Game theory on the other hand is study of quantitative models based on which individuals or organizations interact as rational agents. Finally, management science is an umbrella of different concepts based on which problem solving is undertaken for decision making in different spheres of an organization. This course aims to utilize the body of knowledge from these different domains to help the students make better decisions. Both theoretical as well as practical concepts (with real life examples) will be dealt with, which will ensure a good balance as well as rationale development among students to appreciate the relevance of this field in an ever-changing business environment.
DMS613	INTRODUCTION TO MATHEMATICAL FINANCE	3-0-0-0 [9]	This introductory course on Mathematical finance focuses on. the principle of pricing contingent claims under absence of arbitrage. The course will build a working knowledge of topics in Stochastic calculus with respect to Brownian motion and convex analysis and use them to rigorously build the theory of no arbitrage pricing. Special emphasis will be on the characterization of no-arbitrage, in terms of its existence and relation to pricing. The course will apply the theory to hedging and pricing financial derivatives. The course will also discuss topics relevant in contemporary research and practice, including pricing-hedging duality and pricing in incomplete markets.
DMS621	THEORY AND APPLICATIONS OF MULTI CRITERIA DECISION MAKING	3-0-0-0[9]	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 master's 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.
DMS622	DESIGN AND ANALYSIS OF EXPERIMENTS	3-0-0-0 (10)	This comprehensive semester-long course provides introduction to the principles, methods, and applications of Design of Experiments (DOE) and its implementation using R. Students will develop theoretical understanding and hands-on skills to design, analyze, and interpret experimental data across engineering, industrial, and behavioral science contexts. The learning objectives are as follows: • Design and analyze different types of experiments tailored to research or industrial needs. • Apply appropriate statistical models and interpret the results. • Use R effectively to manage, analyze, and visualize experimental data. • Implement DOE for optimization and process improvement.
DMS624	COMPUTER AIDED DECISION SYSTEMS	3-0-0-0[9]	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.
DMS625	INDRODUCTION TO STOCHASTIC PROCESSES AND THEIR APPLICATIONS	3-0-0-0[9]	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.

DMS631	MARKETING MODELS	3-0-0-0[9]	Review of optimization – calculus, linear programming, multi-objective optimization; Review of probability and statistical models – estimation, regression, risk; Decision support system for risk; Basic concepts in marketing; Modeling consumer behavior – purchase incidence, perceptual evaluation, attitude and preference; Modeling organizational behavior – Sheth, Webster-Wind, Choffray-Lilien, bargaining, negotiation; Modeling prices – microeconomic models; Decision models for product; Modeling of advertising and promotion – selection, scheduling; Modeling distribution system – network and logistics; Marketing planning and strategy decisions – product life cycle, marketing-mix analysis, competition
DMS634	MANAGEMENT DECISION ANALYSIS	3-0-0-0[9]	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
DMS636	INTRODUCTION TO GAME THEORY	3-0-0-0[9]	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.

DMS637	ADVANCED DECISION MODELS	3-0-0-0[9]	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.
DMS638	STOCHASTIC MODELS AND SIMULATION	3-0-0-0[9]	Review of Probability: Events and probability; Random variables; Conditional distribution; Sum of random variables. Markov Chain: Transition probability matrix; Chapman-Kolmogorov equation; Classification of states; Long-run behavior. Poisson Process: Poisson process; Inter-arrival and waiting times; Poisson combining and splitting. Continuous-time Markov Chain: Kolmogorov forward and backward equations; Birth & death process; 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.
DMS639	ANALYTICS IN TRANSPORT AND TELECOM	3-0-0-0[9]	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, Floyds 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
DMS640	INFORMATION SYSTEMS THEORY	3-0-0-0[9]	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.
DMS641	PRODUCTION MANAGEMENT	3-0-0-0[9]	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 & 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.
DMS642	OPERATIONS MANAGEMENT	3-0-0-0[9]	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, Reverse logistics. 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.
DMS643	FRONTIERS IN OPERATIONS MANAGEMENT	3-0-0-0[9]	Modelling the competing agents in the operations management setting, Impact of horizontal and vertical competitions on the performance, Supply chain network design, Analysis of policies and regulations on supply chain performance, The role of financing in supply chain performance, Impact of competition in supply chains, Analysis of contracts in financially constrained supply chains, Reverse logistics network

			design, Impact of environmental and social aspects on supply chain performance, multi-objective optimization models in sustainable supply chain management. Closed loop supply chain management. Introduction to system dynamics modeling, Modeling the complex ecosystem interactions for understanding the dynamics of behavior of the supply chain system and the agents, Healthcare operations and supply chain management, Vaccine supply chain management, Network design in supply chain management, Contracts for the healthcare supply chain. Scheduling in healthcare operations, Deviation of operations decisions from normative models, Decision bias in operations management, Behavioral models in operations management, Prospect theory and other theoretical frameworks and heuristics in describing the behavior in operations management.
DMS644	DATA VISUALIZATION FOR BUSINESS ANALYSIS AND DECISIONS	3-0-0-1[10]	Data visualization, the visual representation of data, is more scientific than artistic in our modern world. This course provides an introduction as well as hands-on experience in data visualization. It introduces students to design principles for creating meaningful displays of quantitative and qualitative data to facilitate managerial decision-making. The main goal of data visualization is effectively, efficiently, elegantly, accurately as well as meaningfully communicating information which can provide a basic podium for the business decisions. Sophistically designed data visualization systems can greatly assist users with proper reasoning and decision making. It fulfils its objectives only if it encodes the given input in such a manner that our eyes can recognize and our brain can comprehend. Information visualization lies in that area where design, math, statistics and human visual perception intersect. Ever since human beings need to understand their environment, they have been developing visual tools to gain knowledge of abstract information. Since the early citizens when dealing with field crops to the sailors when conquering new worlds both have been using information visualization to better understand key questions. This comprehensive semester-long course is designed for students pursuing business analytics, emphasizing exploratory data analysis through advanced data visualization techniques using programming language like R and/or utilities like Excel/Tableau/Power BI programming language. The course combines theoretical foundations, best practices, and hands-on applications to empower students in visually exploring and interpreting complex datasets with objective of business analysis and decisions support. Emphasis is

			placed on practical applications in the context of business analytics, equipping students with the skills necessary for effective communication and decisionmaking in data-driven business environments. The course objectives are as follows: Develop a deep understanding of the principles of exploratory data analysis. Master R/Excel/Tableau for creating intricate and insightful visualizations. Learn recommended practices and critical thinking skills for evaluating and improving visualizations. Explore a wide range of visualization techniques applicable to diverse data structures. Apply EDA techniques to business scenarios.
DMS645	PROBABILITY AND RANDOM PROCESSES	3-0-0-0[9]	Review of Probability: Events and probability; Random variables; Conditional distribution; Sum of random variables. Markov Chain: Transition probability matrix; Chapman-Kolmogorov equation; Classification of states; Long-run behavior. Poisson Process: Poisson process; Inter-arrival and waiting times; Poisson combining and splitting. Continuous-time Markov Chain: Kolmogorov forward and backward equations; Birth & death process; 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.
DMS661	STATISTICAL METHODS FOR MANAGEMENT RESEARCH	3-0-0-0[9]	Random experiment and probability, Conditional probability, Independence Probability mass function, probability density function, distribution function, standard distributions, mean, variance and quantiles Joint distribution, Correlation and independence, Limit theorems Sampling distribution, Maximum likelihood method, Confidence intervals Simple hypothesis testing, Composite hypothesis testing, Standard tests Simple linear regression, Multiple linear regression, Logistic regression Analysis of variance.
DMS662	PRODUCTIVITY AND EFFICIENCY ANALYSIS: THEORY AND BENCHMARKING APPLICATIONS	3-0-0-0[10]	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)
DMS671	SOFTWARE PROJECT MANAGEMENT	3-0-0-0[10]	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's 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.
DMS672	DATA MINING AND KNOWLEDGE DISCOVERY	3-0-0-0[9]	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 item sets, association rules, apriori algorithm, applications
DMS673	APPLIED MACHINE LEARNING	3-0-0-0[9]	Introduction, Supervised Learning: Rationale and Basics, Linear Regression, Logistic Regression for Classification Tasks, Support Vector Machine, Neural Networks, Decision Tree.

DMS692	ADVANCED STATISTICAL METHODS FOR BUSINESS ANALYTICS	3-0-0-0[9]	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.
DMS697	INDUSTRIAL PROJECT	0	A 6 to 8 weeks industrial project for M.Tech. students during the period intervening the II and III semesters on a problem of practical relevance completed in an industrial or service organization. The student will study, analyze and then solve the problem and prepare its implementation details, under the supervision and guidance of an officer/executive of the host organization. On completion of the summer project the student will submit a written report and give a seminar to the IME Department.
IME699/DMS699	M TECH THESIS	9	M. Tech. Thesis
MBA601	ACCOUNTING AND FINANCE	3-0-0-0[10]	Accounting: Accounting Principles, Accounting Mechanics, Accounting Standards, Journal and Ledger Entries, Preparation of Financial Statements & Financial Statement Analysis; Corporate Finance: The Time Value of Money, Stock and Bond Valuation, Capital Budgeting, Risk and Return, CAPM, WACC
MBA606	ECONOMIC ANALYSIS FOR MANAGEMENT	3-0-0-1[10]	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 Decision making, Multiple production facility decision making; Game Theory, Information Economics, Public Economics
MBA607	FINANCIAL MANAGEMENT	3-0-0-1[10]	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	3-0-0-1[10]	Nature of Macroeconomics, Major schools of thoughts in Macroeconomics, National income accounting, consumption function, investment and saving, IS curve and its components, The money market – determinants of money supply and money demand, The bond market, LM Curve and its components, Bringing the goods and financial markets together: the IS-LM model, Derivation of Aggregate demand curve, The labour market, Putting all markets together: The Aggregate Supply-Aggregate Demand model, Causes and cures of inflation, Link between goods market, money market and fiscal deficit, and inflation, Link between employment and inflation – the Phillips curve, Openness in goods and financial Markets, The concepts of exchange Rate, The Mundell-Fleming Model, Introduction to International Trade, Fiscal Policy, Monetary Policy, Exchange rate Policy, Facts of Economic Growth, The Solow Growth Model, Policies for economic growth, Role of expectations in Macroeconomics, Current developments in Macroeconomics.
MBA610	INVESTMENT VALUATION AND REAL OPTIONS	3-0-0-1[10]	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	3-0-0-1[10]	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	3-0-0-1[10]	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, Trade Unions and Industrial Disputes, Public Policy and Collective Bargaining, Due Process, Empowerment and Participation, Technology & HRM, Japanese HRM

MBA617	SOCIO-POLITICAL AND ETHICAL ASPECTS OF BUSINESS	3-0-0-0[10]	Industrial revolution and industrialization, Political economy of under development, Sociology of development, Indian rural and urban society, Influence of religion and karma, Multiplicity of languages, cultures, castes, Feudalism, Work ethic, Constitution of India, Party system, Fundamental rights, Local self-government, Directive principles of state policy, Welfare state and Civil society, Social stratification, Environmental issues and legislation, and social movements, Corporate social responsibility and business ethics, Judicial system, Business law, Contract act, Arbitration, Companies Act, Sale of goods act, partnership act, negotiable instruments act, Income tax Act, Environmental legislation.
MBA618	UNIVERSAL HUMAN VALUES AND ETHICS	3-0-0-0[10]	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	3-0-0-0[10]	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	3-0-0-0[9]	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	3-0-0-0[10]	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.
MBA626	MANAGEMENT OF TECHNOLOGY	3-0-0-0[9]	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.
MBA627	DIGITAL TRANSFORMATION: FROM CONCEPTUALIZATION TO REALIZATION	3-0-0-1[10]	This course provides a comprehensive understanding of digital transformation, exploring the journey from initial conceptualization to successful implementation. Students will delve into the theoretical foundations, strategic approaches, technological advancements, implementation processes, and practical case studies essential for leading digital transformation initiatives. Emergence of Industry 4.0, Smart machines and constantly evolving technology landscape, every single organization is aiming to achieve the full potential of emerging technologies ahead of maturity. This not only ensures that they remain in the efficient frontier of the race but also ensures that they remain relevant to the constantly evolving business landscape. In today's date even the established businesses are constantly abreast of the potential competitions, which may come from any direction, making itself ready for technology backed process reengineering. For instance, an e-commerce firm can challenge the conventional business entity such bank or insurance. All these are possible due to the disruptive capability of digital

			technologies, that not only revamp existing business process often create new business process. This course is designed keeping in mind senior MBA, M. Tech or senior UG's who are going to be the trailblazer of the current digital revolution. This course is highly case based, interactive and small class set up. In this experiential and participatory learning-based course, external senior executives will complement classroom theories. The objective is to ensure that participants are not only involved understanding the nuances of digital transformation, by the end of the course they should be able to think business process from the lens of emerging technologies
MBA629	ECONOMICS OF COMPETITIVE STRATEGY	3-0-0-0[10]	Economic Concepts for Strategy; Review of Economics Principles – Demand curve, price elasticity of demand, marginal revenue, cost function; Fundamentals of non-cooperative games; Economics of Scale and Economics of Scope; Horizontal and Vertical Boundaries of the Firm; Vertical Integration; Competitors and Competition; Static Pricing; Strategic Commitment; Dynamic Pricing; Entry and Exit; Strategic Positioning; Value Creation and sustaining competitive advantage
MBA630	ECONOMICS OF BUSINESS POLICY	3-0-0-0[9]	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	3-0-0-1[10]	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 by the use of 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)
MBA632	RETAIL MANAGEMENT	3-0-0-0[10]	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.
MBA633	MARKETING RESEARCH	3-0-0-1[10]	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. Recent Trends: a. social media for market research b. Bayesian methods for marketing research c. Agent based modeling.
MBA634	CONSUMER BEHAVIOUR	3-0-0-0[10]	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, Ratial 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	3-0-0-1[10]	Introduction, Managing online and on demand multi-tasking multiplexities, 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 Proportion 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. KanoQFD and other models, Service dominant Logic and emerging customer roles in multilayer networks of Services delivery.

MBA636	BRAND MANAGEMENT	3-0-0-0[10]	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	3-0-0-0[10]	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	3-0-0-0[9]	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.
MBA640	INTELLECTUAL PROPERTY MANAGEMENT, VALUE CREATION AND VALUE CAPTURE	3-0-0-1[10]	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 Indexes 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.
MBA641	COMPUTING FOR MANAGEMENT	3-0-0-0[9]	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	3-0-0-0[10]	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.
MBA644	CYBER SECURITY AND PRIVACY FOR MANAGERS	3-0-0-0[10]	Organizations, irrespective of the industry they belong to, are constantly under the threat of security and privacy breaches. These risks are further fuelled by digital transformation and the central role played by customer data processing in business operations and strategy. A single incident of data breach can wipe out an entire business. Therefore, managing security and privacy risks is a business problem. An organization's security and privacy posture is driven by the top management and not by firewalls or biometrics. This course emphasizes that the senior management has a much more significant role to play in protecting their organizations from these digital risks than they may think. The course enables students to understand the current security and privacy landscape, security and privacy concerns of the customer and the management and discusses managerial strategies to handle privacy and security risks and incidents across critical business activities and information systems. Contents:- Key concepts in cyber security; cyber security attacks, cyber frauds, CIA Triad, antecedents and consequences of data breaches and cyber frauds, enterprise cyber security governance; 5 LoA in cyber security, chief information security officer (CISO) role, BoD engagement in cybersecurity, cyber security risk management approach; cybersecurity risk management, relevant standards and frameworks, cyber security strategies for business managers; building a cyber security culture, cyber security response strategies, crisis communication, cyber security policies, SETA, compliance issues, key concepts in privacy; defining privacy, privacy risks and their business impacts, privacy harms, data strategies and privacy impacts, privacy decision making by individuals; privacy decision-making, privacy concerns and their antecedents, privacy paradox, privacy calculus, drivers of protection motivation and privacy protective behaviours, privacy strategies for business managers; data protection regulations and compliance issues, privacy policies, privacy risk analysis, privacy by default, privacy by design, role of interventions in managing customer privacy concerns and decision-making.

MBA645	MANAGEMENT INFORMATION SYSTEMS	3-0-0-1[10]	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	3-0-0-0[9]	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	3-0-0-1[10]	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.
MBA648	DATA ANALYSIS AND BUSINESS MODELLING USING MS EXCEL AND POWERBI	3-0-0-1 [10]	This course aims to equip business students with the essential skills to make data-driven decisions by developing proficiency in business modelling, data analysis, and data visualisation using Microsoft Excel and PowerBI. Emphasizing active and experiential learning, the course integrates hands-on sessions, real-world examples, and case studies of varying complexity. Students will gain practical experience in applying analytical tools, interpreting data insights, and building interactive dashboards, enabling them to solve business problems effectively and support strategic decision-making.
MBA649	E-COMMERCE	3-0-0-0[9]	eBusiness Models, Building; ecommerce infrastructure, eBusiness challenges, Supply chain, Data exchange standards, Returns, Customer Service, ePayments, security and frauds, Outsourcing, Laws pertaining to ecommerce
MBA651	QUANTITATIVE METHODS FOR DECISION MAKING	3-0-0-1[10]	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	3-0-0-1[10]	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	3-0-0-0[9]	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
MBA654	INNOVATION FOR SUSTAINABLE BUSINESS ADVANTAGE	3-0-0-0[9]	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, Break through and Disruptive Innovation, Design based Innovation, Open vs. Closed Innovation; Kotler's 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
MBA655	BLOCKCHAIN FOR BUSINESS APPLICATIONS	3-0-0-1 [10]	Blockchain and distributed ledger technologies have the potential to enable a variety of applications that could disrupt a diverse set of industries. It is set to be a major player of the digital economy and can reshape business and society. This course will introduce students to the basics of this complex technology and provide them a roadmap on the role of blockchains for the present and the future of business. Students will learn how business is using blockchain today in finance, supply chain, creative industries, and other domains and how blockchains can fuel innovations. They will also delve into challenges and uncertainties related to blockchains including privacy, security and ethical issues, scalability, interoperability and governance.
MBA661	PRODUCTION AND OPERATIONS MANAGEMENT	3-0-0-1[10]	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.
MBA662	PUBLIC ADMINISTRATION AND MANAGEMENT	3-0-0-0[10]	Introduction to the course; the basic problem of public administration, democracy, bureaucracy, and public administration, theorizing about public administration, theories of bureaucracy, theories of public organizations, conflicting forces in public organizations, chaos and inertia in public management, functioning of government, measuring, evaluating, and improving public organizations, public budgeting, flexible and deregulated government, policymaking, public management rhetoric, privatization and PPPs, intergovernmental relations, public sector ethics
MBA663	TOTAL QUALITY MANAGEMENT	3-0-0-1[10]	Total Quality Management, quality management Philosophies, Leadership, Employee involvement and customer Value Evaluation, Kaizin, 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	3-0-0-0[10]	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	3-0-0-0[9]	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	3-0-0-1[10]	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

MBA667	INTRODUCTION TO CLIMATE CHANGE ECONOMICS AND POLICY	3-0-0-1[10]	Climate change, emissions, trajectories and targets; Climate change mitigation economics and policy instruments; Climate change mitigation policy and practice; Climate change adaptation principles and policy; Climate change and development, climate change finance; Decision-making on climate change policy
MBA669	INTRODUCTION TO POLICY MAKING	3-0-0-0[10]	What is public policy? Concepts and wicked problems, institutions, how do institutions structure political decision making, actors and interests; governmental actors, nongovernmental actors, ideas and ideologies, how do ideas shape policy framing? Policy stability and policy change, agenda setting and issue framing; venue shifting, policy instruments, policy formulation: voice of experts or citizens? Evidence based policy decisions, decision making, are policy makers rational actors? How are policies implemented? Policy evaluation, democracy and accountability; accountability measures and processes
MBA671	MANAGING SERVICE OPERATIONS	3-0-0-0[10]	Introduction, service vs products, role of services in an economy, significance, nature, scope of managing service operations, decisions; Distinctive characteristics of services, service package, service process matrix, taxonomy of services, challenges in the management of services; Strategic service vision, competitive service strategy, winning customers in the market place, stages in service firm competitiveness; New Service development, Designing and managing service processes, principles and tools of service design, service automation; Location decisions and models, subjective and objective factors, types of layouts and their significance; Quality dimensions, service quality gap model, conformance to the design requirements for a budget hotel, quality service by design, service recovery; Job and work design in services, factors affecting job design, safety and physical environment; Strategies for managing demand and capacity for services; Queuing systems, queuing models, psychology of waiting.
MBA675	INFRASTRUCTURE REGULATION, POLICY & FINANCE	3-0-0-0[9]	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) 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	3-0-0-0[9]	Financial Markets, Investment Alternatives, Risk and Return, Portfolio Theory and Capital Asset Pricing, Capital Asset Pricing Theory and Arbitrate 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	3-0-0-0[10]	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	3-0-0-0[9]	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	3-0-0-0[10]	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.
MBA680	BEHAVIORAL FINANCE	3-0-0-1[10]	This course is aimed at providing the students with an understanding of the influence of behavioral biases in various facets of finance. The course first introduces the important theories in conventional finance based on the assumption of a rational agent, employing the expected utility theory for decision-making. It then demonstrates the idea of irrationality in an agent's behavior and exposes the students to the role of heuristics and biases in judgment under uncertainty. It provides a detailed discussion of the foundational theories in behavioral finance namely, prospect theory, mental accounting and narrow framing. The course includes topics such as disposition effect, overconfidence and optimism, underreaction and overreaction, goal-based investing. The course concludes with an illustration of the state-of-the-art evidence on the influence of investor irrationality and managerial sentiment in asset pricing, risk management and corporate finance.
MBA681	ENERGY AND CARBON MARKETS: ECONOMICS, POLICY AND REGULATION	3-0-0-1[10]	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 Algaebric 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, UNFCC, 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	3-0-0-1[10]	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 electricity sector.
MBA684	SALES AND DISTRIBUTION MANAGEMENT	3-0-0-0[9]	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	3-0-0-0[10]	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,
MBA697	SUMMER PROJECT	3-0-0-0[10]	During the summer after first two semesters, each student will take up a summer project in an industrial or service organization for 810 weeks. During this period, the student will work under the guidance of an executive of the host organization, complete the assignment, prepare a written report, and make a presentation during the third semester
DMS700	RESEARCH METHODOLOGY	3-0-0-0[9]	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
DMS711M	PRICING THEORY	3-0-0-0 [5]	Pricing is one of the most important decisions for a firm. This course aims to provide a rigorous foundation for the strategic and tactical pricing practices adopted by firms. We will approach the course from both a theoretical and applied perspective. On the theory side we will use various analytical models and conceptual framework for formulating pricing strategies. On the application side we will discuss actual pricing strategies undertaken by firms.

DMS712M	REVENUE MANAGEMENT	3-0-0-0 [5]	This course provides an introduction to the theory and practice of Revenue Management. The course uses tools from microeconomics, game theory, and operations research to study how firms should manage production capacity, perishable assets, product availability across different selling channels, and inventory to maximize revenue. Revenue management is applied across diverse industries such as airlines, hospitality, sports, advertising and internet service provision.
DMS792M	INTRODUCTION TO PROGRAMMING FOR DATA SCIENCES AND QUANTITATIVE RESEARCH	3-0-0-0 [5]	Introduction to Programing with R- What is R and R Studio, Data structures in R, Basic mathematical, logical and string operations, Basic data visualization; Data wrangling with R- Basic Data visualization, Loop and conditional statements, Reading, writing, and other basic data processing, Sort merge, filter, select and perform other advanced operations, Advanced data visualization with GGPLOT; Introduction to Regression with R- Basic statistical operations with R (normal distribution, confidence intervals, hypothesis testing), Basics of Regression, R implementation of regression, Regression case study with R; Logistic Regression with R- Basics of classification algorithms, R implementation of logistic regression, Logistic regression case study with R; Panel data regression- Basic of panel data, R implementation of panel data modelling, Panel data case study with R; Quantile Regression- Basic of quantile regression, R implementation of quantile regression, Quantile regression case study with R, Panel data case study with R; Auxiliary quantitative approaches- PCA and clustering analysis with R, Markov regime switch regression with R, Basic text analytics with R
DMS/IME799	PHD THESIS	9	Ph. D. Thesis
DMS802M	FINANCE AND ACCOUNTING RESEARCH SEMINAR	3-0-0-0[5]	This course is designed to provide an exposure of the current research in the area of finance and accounting to doctoral students. This is an introductory course which considers a wide range of topics in theoretical and empirical issues in contemporary finance and accounting literature. Issues concerning certain broad topics include financial markets, asset pricing, market efficiency, capital structure decisions, agency conflicts in the firm, dividend policy, corporate financing, the market for corporate control, corporate governance, and banking among others. The class discussions shall be based on the research papers prescribed, between the participants and the concerned faculty member, relating to the conceptual, methodological and other issues in the context of the topic and the selected research paper. The course is taught using the seminar

			method. The students therefore are required to come up with a perspective on the agenda of discussion issues on the prescribed readings for each session. To aid the discussion, the students may use PowerPoint presentations.
MBA701 /702 / 703 /704	CAPSTONE PROJECT I/II/III/IV	3-0-0-0[9] 3-0-0-0[9] 3-0-0-0[9] 3-0-0-0[9]	Capstone project is created with the motto: 70% learning comes from hands on the job experience. Industry needs leaders who have an eye on technological developments and can utilize them with business analytical insight in this data driven world. Capstone project is designed keeping these two facts in mind and using this opportunity to solve business problems, help develop new products and services making a collaborative effort towards creating well equipped leaders and delivering business value at the same time. The Capstone Project has been implemented after rigorous feedback from industry, faculty and our alumni.
MBA711M	CHANGE MANAGEMENT AND ORGANIZATIONAL DEVELOPMENT	3-0-0-0[5]	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.
MBA712M	ORGANIZATIONAL STAFFING	3-0-0-0[5]	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.
MBA713M	PERFORMANCE MANAGEMENT	3-0-0-0[5]	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.

MBA714M	INTRODUCTION TO BUSINESS MANAGEMENT	3-0-0-0[5]	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
MBA715M	EMPLOYMENT RELATIONS UNDER GLOBALISATION	3-0-0-0[5]	The basic purpose of the course is to learn about the systemic aspects of management - employee relations in the changing framework of labour laws and global economy, especially with respect to India. The course will attempt to frame the rights and obligations of the employees and management with respect to the labour laws in India and how it is changing under the flexible-global regime in contemporary industry, both manufacturing and services. The course will also attempt to relativise the practices and framework in India in its international context
MBA716M	INTRODUCTION TO CORPORATIONS	3-0-0-0[5]	1. Introduction: What is a corporation? Decades Later, Toxic Sludge Torments Bhopal, 2.Corporation as a Property of the Shareholders: The Social Responsibility of Business is to Increase Its Profits Revisiting Friedman's Construct of Corporations, 3.Corporation as an Efficient Governance system: Introduction, The Visible Hand - Chandler Behind the Veil of 'Corporate Efficiency', : The Family that Built an Empire of Pain, 4.Corporations as Markets: The Curious Case of Reliance KG Basin Gas Business, 5.Corporations as a Regulatory System: How Reliance Jio's Entry Tied Regulatory Knots Around India's Telecom Ecosystem, 6. Summary: Telecom Industry in India: Market Forces or Monopoly Finance Capital? Competition Is Dying, and Taking Capitalism With It.
MBA717M	GOVERNANCE OF GLOBAL VALUE CHAINS	3-0-0-0[5]	1.Introduction to the Course: What is a GVC? Why study GVC?, Drivers of Variety of GVCs: Knowledge, Access, Nature, Mfg: Apparel, Commodity: Coffee, 2.Value: An introduction: Value And Value Capture, Evolving Ideas of Value: From Mercantilists to Marginalists, 3.Structural Issues in GVC: Value of Labour, Invisible Value in the GVC, FDI vs Outsourcing, 4.Governance Issues in GVC: Global Architecture of GVC Governance, Conclusion: Measuring Value, Financialisation & GVCs.
MBA718M	HUMAN RESOURCE ANALYTICS	3-0-0-0[5]	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.
MBA723M	ECONOMICS OF COMPETITIVE STRATEGY	3-0-0-0 [5]	Competitive strategy is an action plan developed by a business to create value and sustain that value in order to attain an advantage over its competitors. The study of strategy can be approached in multiple ways. It can be through the mathematical analysis of interactive decision making (game theory), by focusing on choices made by one party in a situation that involves one or more rivals. One can study strategy from an organizational perspective - how behavior of individuals shapes the performance of an organization. In this course, we will study and analyze strategy through the lens of economics. We will focus on (broadly) three issues: 1. Boundaries of the Firm: What should the firm do and what business should it be in? 2. Markets and Competitive Analysis: What is the structure of the market in which a firm operates and what are the interactions it has with its rivals? 3. Positioning: How should the firm position itself to differentiate itself from its rivals?
MBA725M	SUSTAINABLE DEVELOPMENT FOR BUSINESSES	3-0-0-0[5]	Introduction to business sustainability; Institutions, regulations, and policy frameworks for business sustainable development; Sustainable business frameworks, models, and tools; Business sustainability in practice
MBA726M	ECONOMICS AND POLICY FOR INDUSTRIAL DECARBONISATION	3-0-0-0 [5]	This course will introduce students to economics and policy perspective to industrial decarbonisation and equip them with social science perspective in general. While the technological solution is at the centre of the low emission growth objectives of countries and companies, it is increasingly being realised that technology alone will not lead us to the developmental goals. There are commercial aspects and enabling conditions that industries need to understand, respond and adapt for surviving in low carbon world. The course takes a sectoral deep dive into the transition pathways. Using case-based approach the course covers an introduction to social science perspective of decarbonisation, the role of public policy and civil society.

MBA731M	BUSINESS-TO-BUSINESS MARKETING	3-0-0-0[5]	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
MBA732M	PRODUCT STRATEGY AND MANAGEMENT	3-0-0-0[5]	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
MBA733M	BRAND MANAGEMENT	3-0-0-0[5]	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
MBA734M	MARKETING OF SERVICES	3-0-0-0[5]	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 Services capes using validated frameworks 2. Implement Service Processes and measure their efficacy 3. Measure overall Performance of Service Businesses.
MBA735M	STRATEGIC MARKETING	3-0-0-0[5]	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, Services capes and Self-service technologies in Service businesses.

MBA736M	STRATEGIC MARKETING COMMUNICATIONS	3-0-0-0[5]	Orientation of positioning in marketing and business in general: Interlinkages; Share of mind and heart; 6 Cs of positioning (Case studies), PESTEL framework; Social and technological obsolescence; Competitor and customer analysis; Firm's resource and capabilities Application of tools such as cluster analysis, multi-dimensional analysis (MDS), conjoint analysis, discriminant analysis, factor analysis, using SPSS, Consistency of marketing mix elements; Project work, Impact on firm's profitability and customer lifetime value (CLV)
MBA737M	MACHINE LEARNING APPLICATIONS IN FINANCE MARKETS	3-0-0-0[5]	Introduction to Machine Learning Applications in Business and Finance, Supervised and Unsupervised Learning, Bayes' Theorem, inferential statistics, Multi-index models, APT and CAPM, model estimation, residual diagnostics, multicollinearity, heteroscedasticity, Classification applications with Logistic Regression, Linear probability models, Logit functions, Thresholding, Classification matrix, Pseudo-Rsq., ROC Curves, Performance evaluation, and Goodness-of-fit measures, Parameter estimation with MLE; Modelling Unobserved Heterogeneity with Panel Data Algorithms, LSDV and First-Difference models, Fixed vs. Random effects models, model estimation, residual diagnostics, multicollinearity, heteroscedasticity, etc; Non-Linear Modelling with Quantile Regression Algorithm, Time-varying market efficiency, Conditional mean and Conditional quantile based estimation, model estimation, and residual diagnostics; Advanced Time-Series Modelling: ARMA-ARIMA models, Univariate and Bivariate GARCH models, Modelling short-run and long-run relationships, Cointegration and VECM.
MBA739M	DIGITAL MARKETING	3-0-0-0 [5]	Marketers must fish where the fishes are. Customers are spending more time online than traditional mass media, i.e., print, radio, television, etc. Digital Marketing has become a mainstream as in this age of internet, traditional marketing practices of advertising and distribution are not so effective as earlier. It is no longer a choice, but an inevitable part of marketing and it has created a level playing field for big as well as small marketers. In this course, students are going to learn about various online platforms and tools available for a business to leverage upon, e.g., Facebook, Twitter and other forms of social media advertising, YouTube Ads, Google Ads, search engine optimization, data driven advertising, crowd sourcing, etc., to kick start a business idea and a way out to generate initial funds. etc. Along with issues of privacy, copyright and new age cybercrimes in this

			digital world, these issues become extremely relevant as the non-owned media may pose a serious risk to the image of the company/brands altogether.
MBA741M	INTRODUCTION TO E-COMMERCE	3-0-0-0[5]	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. e-Business Models, Building an e-commerce presence, e-commerce marketing, Recommendation engine
MBA742M	ERP: A MANAGERIAL PERSPECTIVE	3-0-0-0[5]	Evolution of ERP systems, Understanding Business Processes, Selecting an ERP solution, Life Cycle of an ERP project, Change Management
MBA744M	BUSINESS PROCESS MODELLING	3-0-0-0[5]	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.
MBA745M	BUSINESS PROCESS PATTERNS	3-0-0-0[5]	Importance of modelling, processes, process identification, modelling issues, scenario-based BPMN, Activities, Events, Gateways, Swimlanes, Artifacts, Connectors, Qualitative process analysis, Advanced concepts.
MBA746M	E-SUPPLY CHAIN MANAGEMENT	3-0-0-0[5]	Concepts and Modeling of E-Supply Chain, E-Supply Chain Technologies and Infrastructure, Best Practices and Performance Management
MBA747M	BUSINESS MANAGEMENT USING CLOUD	3-0-0-0[5]	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
MBA748M	BIG DATA FOR MANAGEMENT	3-0-0-0[5]	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
MBA749M	SOCIAL MEDIA ANALYTICS I	3-0-0-0[5]	Overview of social media analytics, social networks, applications of social data, basics of network analysis, network visualization, hands on with Gephi, network representation and metrics, strength of weak ties, centrality- degree, diameter, path lengths, prestige, influence metrics, Betweenness, PageRank, Eigenvector, Bonacich, Katz, closeness, characteristics of real-world networks, small world, preferential attachment, community detection.
MBA750M	SOCIAL MEDIA ANALYTICS II	3-0-0-0[5]	User generated contents, conference calls, regulatory filings, social media, Web scraping, HTML removal, regex expressions, stemming and lemmatization, feature extraction, bag of words, bigrams, POS tagging, context-free grammar, vector space representation, TF-IDF weighting, probability ranking principle, BIM, confusion matrix, precision-recall, F-measure, ROC, NDCG, multiclass classification, clustering, latent semantic indexing, topic modelling
MBA751M	MARKETING ANALYTICS	3-0-0-0[5]	Summarizing marketing data, Pricing, Forecasting, Understanding customer requirement, Customer lifetime value, Market segmentation, Retailing, Advertising
MBA752M	TIME SERIES MODELING FOR BUSINESS ANALYTICS	3-0-0-0[5]	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).
MBA753M	CAUSAL INFERENCE METHODS FOR BUSINESS ANALYTICS	3-0-0-1[5]	Refresher on multiple regression, Dummy variable regression, Interaction effect, From correlation to causality, True Experiments and Quasi-experiments, Potential Outcomes, Selection bias, ATE, ATT, Difference-in-Differences, Propensity Score Matching, Regression discontinuity, Instrumental variable regression.

MBA754M	FUNDAMENTALS OF MANAGEMENT FOR ENTREPRENEURS (I)	3-0-0-0[5]	Understanding and Undergoing the Ideation Process, Opportunity recognition & validation fundamentals, Bootstrapping Resource acquisition & Management, Design Thinking fundamentals for Modeling Risk, Validating & Monetising Opportunity
MBA755M	FUNDAMENTALS OF MANAGEMENT FOR ENTREPRENEURS (II)	3-0-0-0[5]	Modeling Business Growth & Milestone Tracking, Business Development, Marketing Strategies & Legal Constraints, IP Creation, Protection & Management, Introduction to Business Canvas, Creating & Implementing a viable Business Plan
MBA761M	MANUFACTURING PLANNING AND CONTROL I	3-0-0-0[5]	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.
MBA762M	MANUFACTURING PLANNING AND CONTROL II	3-0-0-0[5]	Facility Layout and Location Problems, PERT/CPM, Term Paper on advanced topics, case studies
MBA765M	STRATEGIC ISSUES IN MANUFACTURING I	3-0-0-0[5]	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.
MBA766M	STRATEGIC ISSUES IN MANUFACTURING II	3-0-0-0[5]	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
MBA770M	SECURITY ANALYSIS FOR INVESTMENT	3-0-0-0[5]	Financial Market Operations, Market infrastructure, money markets and capital markets, instruments and interest rates, Measures of Risk and Return, Financial Market Microstructure, Limit order books and quote-driven markets, Market quality, price discovery, and liquidity, Introduction to Fixed Income Securities, Yield-to-maturity computation, valuation of fixed income securities, Term structure of interest rates, introduction to forward contracts
MBA771M	SECURITY ANALYSIS & PORTFOLIO MANAGEMENT	3-0-0-0[5]	Financial Markets, Investment Alternatives, Risk and Return, Portfolio Theory and Capital Asset Pricing, Capital Asset Pricing Theory and Arbitrate Pricing Theory, Efficient Market Hypothesis, Security Analysis and Valuation, Valuation of equity and Fixed income securities, Fundamental Analysis, Technical Analysis, Investment Strategies

MBA772M	DERIVATIVE CONTRACTS	3-0-0-0[5]	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 and option portfolio risk management, Swaps and FRAs
MBA773M	FINANCIAL INTERMEDIATION & COMMERCIAL BANKING	3-0-0-0[5]	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
MBA774M	CREDIT RISK MANAGEMENT & MODELLING	3-0-0-0[5]	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.
MBA775M	ADVANCED CORPORATE FINANCE	3-0-0-0[5]	Advanced topics in Capital Budgeting, Capital Structure Theories (MM Theory, Pecking Order Theory and others), Dividend Policy, Working Capital Management (Cash Management, Receivable Management, Payable Management and Working Capital Management)
MBA776M	MERGERS AND ACQUISITIONS	3-0-0-0[5]	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)
MBA777M	ADVANCED VALUATION	3-0-0-0[5]	Homogeneity and Temporal Independence of return variation, Contagious variation of return and tools for assessing the same, Monte Carlo Simulation and Embedded optionality, Pricing and Valuation
MBA778M	BASIC FINANCIAL MODELLING	3-0-0-0[5]	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
MBA779M	ADVANCED FINANCIAL MODELING	3-0-0-0[5]	Pricing and Optimisation Frameworks in Financial Economics, Review of Objective Functions & Search Algorithms, Solution Landscape Contours and global optimum, Heuristics and Optimization
MBA780M	PORTFOLIO MANAGEMENT	3-0-0-0[5]	Portfolio Optimization in the Mean-Variance Framework, Correlation, covariance, diversification; Region of feasibility, short-sale constraints, efficient frontier description, techniques for computing efficient frontier; Single Index & Arbitrage Pricing Model, Assumptions and derivation of expected return, variance, and covariance, Arbitrage Pricing Theory (APT); Capital Asset Pricing Model and its variants, Mathematical derivation of CAPM and simple graphical approach to understanding CAPM, non-standard versions of CAPM; Mutual Funds and Portfolio Performance Appraisal, Closed-end and open-end funds, index funds, ETFs; Performance measures (Sharpe ratio, Treynor's measure, Jensen's alpha), performance measurement with downside risk, Selection, and timing, Fixed Income Portfolio Management, Duration and convexity, portfolio immunization, active and passive portfolio management.
MBA781M	PUBLIC PRIVATE PARTNERSHIP IN INFRASTRUCTURE	3-0-0-0[5]	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).
MBA782M	RENEWABLE ENERGY - ECONOMICS, POLICY AND REGULATION	3-0-0-0[5]	Evolution of Renewable Energy Development, Economics of Renewable Energy, Electricity Act 2003 and other relevant legislations policies, Policy and

			Regulatory Framework for Renewable Energy Development: RPO, FiT, RECs, Regulated Tariff Determination for Renewable Energy, Competitive Bidding for RE procurement, Developing a Market for Renewable Energy Certificates (RECs), Designing and Implementing a Rooftop SPV Program: Net Metering vs Gross Metering, Solaralisation of Agricultural Pumps, RE Procurement in Practice: GTAM, GDAM and Beyond, Challenges to RE integration, Renewable Energy Scheduling, Forecasting, Dispatch and Deviation Settlement Regulations, PAT Mechanism and ESCerts, Mini Project/Assignment
MBA783M	BEHAVIORAL ECONOMICS IN MANAGEMENT	3-0-0-0[5]	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
MBA784M	DERIVATIVE AND RISK MANAGEMENT FOR THE ENERGY AND ENVIRONMENTAL MARKETS	3-0-0-0 [5]	Dynamic policy, regulatory, operational and financial environment exposes the energy/power sector participants to a variety of risks. These risks need to be identified, quantified and hedged for. Derivatives provide a means to hedge some of the risks in energy and environmental markets. The course would provide an understanding of the derivatives and its applications in mitigation of risk in the energy/environmental markets.
MBA785M	INVESTMENT BANKING: CAPITAL MARKET OPERATIONS	3-0-0-0 [5]	Choice between debt and equity, Equity Capital Markets (IPOs, FPOs, Rights Issue, Private Placement, Share Buy Back, Delisting), Debt Capital Markets (Bond Issues, Loan Syndication, Project Finance, Securitization)
MBA787M	STRATEGIC COST MANAGEMENT	3-0-0-1[5]	Analysing the cost behaviour of the product offerings or services delivered by a company is crucial to many managerial decision-making scenarios such as a) break-even analysis, b) outsourcing decision: decision to make versus buy, c) pricing of a joint-product or a by-product, d) pricing of export or special orders, e) decision to shut down ailing product lines/service verticals, f) optimising the right product-mix, g) profit planning, h) new product development (NPD) etc. This

			course aims to foster such decision-making and analytical skills by showing students how managers use accounting information to make business decisions in companies. The course first introduces the different costing techniques in a manufacturing/service company, such as job order, process, activity-based, and standard costing. It then dwells extensively on various approaches to analysing cost and volume data for profit planning. Further, the course covers topics such as strategic planning, identifying budget key factors, budget preparation and variance analysis for performance benchmarking. The course concludes with some advanced topics related to financial planning & analysis (FP&A), balanced scorecard (BSC), structure of management information systems (MIS) and decision analytics & reporting tools.
MBA788M	MONTE CARLO METHODS IN FINANCE	3-0-0-0 [5]	This course focuses on the implementation of Monte Carlo algorithms to solve a variety of problems in finance and insurance. It begins with a brief introduction to no-arbitrage pricing and the dynamics of asset prices. The course also covers statistical inference for asset price models using real-world data. Students will study the pricing of standard and exotic financial derivatives across asset classes, along with model calibration and sensitivity analysis. Additionally, the course explores various loss-reserving techniques in life and non-life insurance.
MBA789M	ADVANCED STOCK VALUATION	3-0-0-0 [5]	Relative Valuation (Priced based multiples, earnings-based multiples), Structure of DCF Valuation, Estimating Cashflows (Dividends, FCFE and FCFF), Estimating discount rates (asset pricing models, WACC), Estimating Expected Returns in emerging markets where data is scarce, Real Option Valuation, Valuing unlisted firms, startups and banks
MBA790M	PRIVATE EQUITY, VENTURE CAPITAL AND OTHER ALTERNATIVE ASSETS	3-0-0-0 [5]	Introduction to Alternate Asset Classes, PE and VC landscape in India, Fund structuring and GP-LP exchange, Deal Lifecycle Management, Deal Structuring, Startup Valuation, Fund raising issues from founder perspective, Investing and harvesting from fund's perspective
MBA791M	THE POLITICAL ECONOMY OF CLIMATE CHANGE	3-0-0-0 [5]	Climate Change as a political problem; History of the International Climate Negotiations; Empirical Political Science: Why is a political solution to climate change so difficult?; Public opinion challenge; Coordination challenge; Economic challenge; Interest Groups and Advocacy; Politics of climate change denial; Role of Media; Expertise and democracy; Ethical dimensions of climate change; Distribution and economic inequality; What we owe to the future generations; Proposed policy solutions: Environmental

			federalism and its critics, ecomodernism and its critics, market-based approach and its critics, regulation approach and its critics, geo-engineering and its critics.
MBA793M	POLICY PARADIGM FOR CUTTING EDGE TECHNOLOGIES	3-0-0-0 (5)	The advent of cutting-edge technologies in various areas like, electric mobility/vehicles, artificial intelligence, new & renewable energy, 5G-6G, cyber security, advanced cell chemistries etc., with their disruptions and impact on a citizen's life, the role of scientists, researchers and policy makers becomes not only critical but also extremely difficult. This course would be providing a micro level perspective on current policy regime and exposure to various aspects of policy formulation. The disruptions caused by these technologies and the pace at which these changes take place coupled with the quick adoption of these technologies by the masses make them even more challenging. Disruptions caused by these on different parts of the eco system and how the policy is expected to handle it, what the policy ought to be and what it is, few examples will be taken up to discuss the issues in formulating a public policy. How a policy is made, handling the diversities of the country particularly arising out of the federal democratic set-up in India along with the global perspectives & implications of a policy. Stages in making a policy, taking up examples from the actual policies framed by practitioners.
DMS801/IME698 /MBA698/DMS698	RESEARCH SEMINAR	0	Research Seminar
MBA801	MANAGEMENT SEMINAR	0	Management Seminars

Inter-departmental Courses

Course ID	**Course Title**	**Credit L-T-P-D[C]**	**Content**
IDC607 (With HSS-Philosophy)	DEMYSTIFYING CONSPIRACY THEORIES	3-0-0-0[9]	Introduction: weird ideas and their popularity, anatomy of a conspiracy theory, salient features, are conspiracy theories necessarily irrational?, climate of misinformation, trust and expertise, echo chambers and epistemic bubbles, political beliefs and misinformation, social media and online misinformation, psychology of false beliefs, perspectives on gullibility, motivated reasoning, blind spot bias, rhetoric and mechanisms of conspiracy theories, social isolation and community disconnection, scientism and the rhetorical claims to expertise, propaganda and dog-whistling, implications for democracy, climate change, health, medicine, and vaccine hesitancy, gender and demography, countering misinformation and conspiracy theories, fact checking: does it work?, media literacy approaches, critical thinking and its limitations.

DES627 (Design)	MANAGEMENT OF DESIGN AND INNOVATION	3-0-0-0 [9]	Identification of Opportunities and the creative mind, Problem Based ideation, Creative Problem solving, Design Thinking, Market Innovation and Brands, Strategy and Organization for the Creative Business, Networks and Collaboration for Design Innovation and cultural Industries, Competitive Design performance Management for the Design Business over the Life Cycle