



**Navsahyadri Education Society's
Group of Institution's**

Sr.No. 69,70 & 71 , Naigaon, Nasrapur, Pune - Satara Road , Dist. - Pune.

Department of First Year Engineering

Course Outcomes (COs)

FE -2019 Pattern

Course Code	Name of Subject/ Course	Course Outcome (COs)
107009	Engineering Chemistry	Apply the different methodologies for analysis of water and techniques involved in softening of water as commodity.
		Select appropriate electro-technique and method of material analysis.
		Demonstrate the knowledge of advanced engineering materials for various engineering applications.
		Analyze fuel and suggest use of alternative fuels.
		Identify chemical compounds based on their structure.
104010	Basic Electronics Engineering	Explain causes of corrosion and methods for minimizing corrosion.
		Explain the working of P-N junction diode and its circuits.
		Identify types of diodes and plot their characteristics and also can compare BJT with MOSFET.
		Build and test analog circuits using OPAMP and digital circuits using universal/basic gates and flip flops.
		Use different electronics measuring instruments to measure various electrical parameters.
110005	Programming & Problem Solving	Select sensors for specific applications.
		Describe basic principles of communication systems.
		Inculcate and apply various skills in problem solving.
110013	Project Based Learning	Choose most appropriate programming constructs and features to solve the problems in diversified domains
		Exhibit the programming skills for the problems those require the writing of well-documented programs including use of the logical constructs of
		Demonstrate significant experience with the Python program development environment.
107002	Engineering Physics	Project based learning will increase their capacity and learning through shared cognition.
		Students able to draw on lessons from several disciplines and apply them in practical way.
		Learning by doing approach in PBL will promote long-term retention of material and replicable skill, as well as improve teachers' and students'
		Develop understanding of interference, diffraction and polarization; connect it to few engineering applications.
		Learn basics of lasers and optical fibers and their use in some applications.
101007	Environmental Studies - 1	Understand concepts and principles in quantum mechanics. Relate them to some applications.
		Understand theory of semiconductors and their applications in some semiconductor devices.
		Summarize basics of magnetism and superconductivity. Explore few of their technological applications.
		Comprehend use of concepts of physics for Non Destructive Testing. Learn some properties of Nano materials and their application.
101011	Engineering Mechanics	Demonstrate an integrative approach to environmental issues with a focus on sustainability.
		Explain and identify the role of the organism in energy transfers in different ecosystems.
		Distinguish between and provide examples of renewable and nonrenewable resources & analyze personal consumption of resources.
		Identify key threats to biodiversity and develop appropriate policy options for conserving biodiversity in different settings.
		Determine resultant of various force systems
107001	Engineering Mathematics-I	Determine centroid, moment of inertia and solve problems related to friction
		Determine reactions of beams, calculate forces in cables using principles of equilibrium
		Solve trusses, frames for finding member forces and apply principles of equilibrium to forces in space
		Calculate position, velocity and acceleration of particle using principles of kinematics
		Calculate position, velocity and acceleration of particle using principles of kinetics and Work, Power, Energy
107008	Engineering Mathematics-II	Mean value theorems and its generalizations leading to Taylors and Maclaurin's series useful in the analysis of engineering problems.
		the Fourier series representation and harmonic analysis for design and analysis of periodic continuous and discrete systems.
		To deal with derivative of functions of several variables that are essential in various branches of Engineering.
102012	Engineering Graphics	to apply the concept of Jacobian to find partial derivative of implicit function and functional dependence. Use of partial derivatives in estimating
		the essential tool of matrices and linear algebra in a comprehensive manner for analysis of system of linear equations, finding linear and orthogonal
		the effective mathematical tools for solutions of first order differential equations that model physical processes such as Newton's law of cooling,
		advanced integration techniques such as Reduction formulae, Beta functions, Gamma functions, Differentiation under integral sign and Error
111006	Workshop Practices	To trace the curve for a given equation and measure arc length of various curves.
		The concepts of solid geometry using equations of sphere, cone and cylinder in a comprehensive manner.
		Evaluation of multiple integrals and its application to find area bounded by curves, volume bounded by surfaces, Centre of gravity and Moment of
102003	Systems in Mechanical Engineering	Draw the fundamental engineering objects using basic rules and able to construct the simple geometries.
		Construct the various engineering curves using the drawing instruments.
		Apply the concept of orthographic projection of an object to draw several 2D views and its sectional views for visualizing the physical state of the
		Apply the visualization skill to draw a simple isometric projection from given orthographic views precisely using drawing equipment.
		Draw the development of lateral surfaces for cut section of geometrical solids.
		Draw fully-dimensioned 2D, 3D drawings using computer aided drafting tools.
		Familiar with safety norms to prevent any mishap in workshop.
		Able to handle appropriate hand tool, cutting tool and machine tools to manufacture a job.
		Able to understand the construction, working and functions of machine tools and their parts.
		Able to know simple operations (Turning and Facing) on a centre lathe.
		Describe and compare the conversion of energy from renewable and non-renewable energy sources
		Explain basic laws of thermodynamics, heat transfer and their applications
		List down the types of road vehicles and their specifications
		Illustrate various basic parts and transmission system of a road vehicle
		Discuss several manufacturing processes and identify the suitable process
		Explain various types of mechanism and its application
		Have an understanding of environmental pollution and the science behind those problems and potential solutions

101014	Environmental Studies - II	Have knowledge of various acts and laws and will be able to identify the industries that are violating these rules. Assess the impact of ever increasing human population on the biosphere: social, economic issues and role of humans in conservation of natural Learn skills required to research and analyze environmental issues scientifically and learn how to use those skills in applied situations such as
103004	Basic Electrical Engineering	Differentiate between electrical and magnetic circuits and derive mathematical relation for self and mutual inductance along with coupling effect. Calculate series, parallel and composite capacitor as well as characteristics parameters of alternating quantity and phasor arithmetic Derive expression for impedance, current, power in series and parallel RLC circuit with AC supply along with phasor diagram. Relate phase and line electrical quantities in polyphase networks, demonstrate the operation of single phase transformer and calculate efficiency and Apply and analyze the resistive circuits using star-delta conversion KVL, KCL and different network theorems under DC supply. Evaluate work, power, energy relations and suggest various batteries for different applications, concept of charging and discharging and depth of charge.



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Department of Civil Engineering

Course Outcomes (COs)

SE (Civil Engineering) -2019 Pattern

Course Code	Name of Subject/	Course Outcome (COs)
SEM-I		
201001	Building Technology and Architectural Planning	Identify types of building and basic requirements of building components. Make use of Architectural Principles and Building byelaws for building construction. Plan effectively various types of Residential Building forms according to their utility, functions with reference to National Building Code. Plan effectively various types of Public Buildings according to their utility functions with reference to National Building Code. Make use of Principles of Planning in Town Planning, Different Villages and Safety aspects. Understand different services and safety aspects
201002	Mechanics of Structures	Understand concept of stress-strain and determine different types of stress, strain in determinate, indeterminate homogeneous and composite Calculate shear force and bending moment in determinate beams for different loading conditions and illustrate shear force and bending moment Explain the concept of shear and bending stresses in beams and demonstrate shear and bending stress distribution diagram. Use theory of torsion to determine the stresses in circular shaft and understand concept of Principal stresses and strains. Analyze axially loaded and eccentrically loaded column. Determine the slopes and deflection of determinate beams and trusses.
201003	Fluid Mechanics	Understand the use of Fluid Properties, concept of Fluid statics, basic equation of Hydrostatics, measurement of fluid pressure, buoyancy & Understand the concept of fluid kinematics with reference to Continuity equation and fluid dynamics with reference to Modified Bernoulli's Understand the concept of Dimensional analysis using Buckingham's π theorem, Similarity & Model Laws and boundary layer theory and apply it Understand the concept of laminar and turbulent flow and flow through pipes and its application to determine major and minor losses and analyze Understand the concept of open channel flow, uniform flow and depth-Energy relationships in open channel flow and make the use of Chezy's and Understand the concept of gradually varied flow in open channel and fluid flow around submerged objects, compute GVF profile and calculate drag
207001	Engineering Mathematics III	Solve Higher order linear differential equations and its applications to modelling and analysing Civil engineering problems such as bending of Solve System of linear equations using direct & iterative numerical techniques and develop solutions for ordinary differential equations using single Apply Statistical methods like correlation, regression and probability theory in data analysis and predictions in civil engineering. Perform Vector differentiation & integration, analyze the vector fields and apply to fluid flow problems. Solve Partial differential equations such as wave equation, one and two dimensional heat flow equations.
207003	Engineering Geology	Explain about the basic concepts of engineering geology, various rocks, and minerals both in lab and on the fields and their inherent characteristics Exploring the importance of mass wasting processes and various tectonic processes that hampers the design of civil engineering projects and its Recognize effect of plate tectonics, structural geology and their significance and utility in civil engineering activities. Incorporate the various methods of survey, to evaluate and interpret geological nature of the rocks present at the foundations of the dams, Assess the Importance of geological nature of the site, precautions and treatments to improve the site conditions for dams, reservoirs, and tunnels. Explain geological hazards and importance of ground water and uses of common building stones.
SEM-II		
201008	Geotechnical Engineering	Identify and classify the soil based on the index properties and its formation process Explain permeability and seepage analysis of soil by construction of flow net. Illustrate the effect of compaction on soil and understand the basics of stress distribution. Express shear strength of soil and its measurement under various drainage conditions. Evaluate the earth pressure due to backfill on retaining structures by using different theories. Analysis of stability of slopes for different types of soils.
201009	Surveying	Define and Explain basics of plane surveying and differentiate the instruments used for it. Express proficiency in handling surveying equipment and analyse the surveying data from these equipment. Describe different methods of surveying and find relative positions of points on the surface of earth. Execute curve setting for civil engineering projects such as roads, railways etc. Articulate advancements in surveying such as space based positioning systems Differentiate map and aerial photographs, also interpret aerial photographs.
201010	Concrete Technology	Able to select the various ingredients of concrete and its suitable proportion to achieved desired strength. Able to check the properties of concrete in fresh and hardened state. Get acquainted to concreting equipments, techniques and different types of special concrete. Able to predict deteriorations in concrete and get acquainted to various repairing methods and techniques.
201011	Structural Analysis	Understand the basic concept of static and kinematic indeterminacy and analysis of indeterminate beams. Analyze redundant trusses and able to perform approximate analysis of multi-story multi-bay frames. Implement application of the slope deflection method to beams and portal frames. Analyze beams and portal frames using moment distribution method. Determine response of beams and portal frames using structure approach of stiffness matrix method. Apply the concepts of plastic analysis in the analysis of steel structures.
		Describe project life cycle and the domains of Project Management.

201012	Project Management	Explain networking methods and their applications in planning and management
		Categorize the materials as per their annual usage and also Calculate production rate of construction equipment
		Demonstrates resource allocation techniques and apply it for manpower planning.
		Understand economical terms and different laws associated with project management
		Apply the methods of project selection and recommend the best economical project.
201017	Project Based Learning	Identify the community/ practical/ societal needs and convert the idea into a product/ process/ service.
		Analyse and design the physical/ mathematical/ ICT model in order to solve identified problem/project.
		Create, work in team and applying the solution in practical way to specific problem.



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TE (Civil Engineering) -2019 Pattern

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SEM-I

301001	Hydrology and water resource engineering.	Understand government organizations, apply & analyze precipitation & its abstractions.
		Understand, apply & analyze runoff, runoff hydrographs and gauging of streams.
		Understand, apply & analyze floods, hydrologic routing & Q-GIS software in hydrology.
		Understand, apply & analyze reservoir planning, capacity of reservoir & reservoir economics.
		Understand water logging & water management, apply & analyze ground water hydrology
301002	Water Supply Engineering	Understand irrigation, piped distribution network and canal revenue, apply and analyze crop water requirement.
		Define identify, describe reliability of water sources, estimate water requirement for various sectors
		Ascertain and interpret water treatment method required to be adopted with respect to source and raw water characteristics
		Design various components of water treatment plant and distribution system.
		Understand and compare contemporary issues and advanced treatment operations and process available in the market, including packaged water
301003	Design of Steel Structures	Design elevated service reservoir capacity and understand the rainwater harvesting.
		Understand the requirement of water treatment plant for infrastructure and Government scheme.
		Demonstrate knowledge about the types of steel structures, steel code provisions and design of the adequate steel section subjected to tensile force.
		Determine the adequate steel section subjected to compression load and design of built up columns along with lacing and battening.
		Design eccentrically loaded column for section strength and column bases for axial load and uniaxial bending.
301004	Engineering Economics and Financial Management	Design of laterally restrained and unrestrained beam with and without flange plate using rolled steel section.
		Analyze the industrial truss for dead, live and wind load and design of gantry girder for moving load.
		Understand the role of components of welded plate girder and design cross section for welded plate girder including stiffeners and its connections.
		Understand basics of construction economics.
		Develop an understanding of financial management in civil engineering projects.
301005.c	Construction Management	Prepare and analyze the contract account.
		Decide on right source of fund for construction projects.
		Understand working capital and its estimation for civil engineering projects.
		Illustrate the importance of tax planning & understand role of financial regulatory bodies
		Understand the overview of construction sector.

SEM-II

301012	Waste Water Engineering	Recall sanitation infrastructure, quantification and characterization of wastewater, natural purification of streams
		Design preliminary and primary unit operations in waste water treatment plant
		Understand theory and mechanism of aerobic biological treatment system and to design activated sludge process
		Understand and design suspended and attached growth wastewater treatment systems
		Explain and apply concept of contaminant removal by anaerobic, tertiary and emerging wastewater treatment systems
301013	Design of RC Structures	Compare various sludge management systems and explain the potential of recycle and reuse of wastewater treatment
		Apply relevant IS provisions to ensure safety and serviceability of structures, understand the design philosophies and behavior of materials: steel & concrete.
		Recognize mode of failure as per LSM and evaluate moment of resistance for singly, doubly rectangular, and flanged sections.
		Design & detailing of rectangular one way and two-way slab with different boundary conditions
		Design & detailing of dog legged and open well staircase
301014	Remote Sensing and GIS	Design & detailing of singly/doubly rectangular/flanged beams for flexure, shear, bond and torsion.
		Design & detailing of short columns subjected to axial load, uni-axial/bi-axial bending and their footings.
		Articulate fundamentals and principles of RS techniques.
		Demonstrate the knowledge of remote sensing and sensor characteristics.
		Distinguish working of various spaces-based positioning systems.
301015 f	Solid Waste Management	Analyze the RS data and image processing to utilize in civil engineering
		Explain fundamentals and applications of RS and GIS
		Acquire skills of data processing and its applications using GIS
		Outline solid waste management systems with respect to its generation rate (quantity), sampling, characteristics and regulatory/legal requirements.
		Explain and suggest relevant method of storage, collection and transportation of solid waste for the given site condition with justification.



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SEM-I		
401001	Foundation Engineering	Perform subsurface investigations for foundations using different methods.
		Estimate the bearing capacity of shallow foundations.
		Calculate immediate and primary consolidation settlement of shallow foundations.
		Decide the capacity of a pile and pile group.
		Understand the steps in geotechnical design of shallow foundations and well foundations.
401002	Transportation Engineering	Analyze problems related to expansive soil and overcome them using design principles, construction techniques in black cotton soil.
		To learn principles and practices of transportation planning
		To describe traffic studies, their analysis and their interpretation.
		To learn Geometric Design of Cross Sectional Elements of pavement.
		To study characteristic, properties and testing procedures of highway materials.
401003	Integrated Water Resources Planning and Management	To enumerate different types of pavements and design of flexible and rigid pavement
		To understand the fundamentals of Bridge Engineering and Railway Engineering
		Understand concerned organizations, IWRP & M objectives, principles, challenges, application & analysis of IWRP&M approaches &
		Understand PIM, WDS, WALMI, agriculture in the concept of integrated water resources, apply and analyse water requirements for food
		Understand assessment of surface and ground water quality, EIA, CPCB regulations, application & analysis of effluent quality standards
401004	Air Pollution and Control	Understand water economics and funding, application & analysis of planning for a sustainable water future
		Understand legal regulatory settings of IWRP & M, application & analysis of inter-basin water transfers and IWRP & M
		Understand flood control & power generation for IWRP & M, application QIGIS for analysis of a basin for IWRP & M
		Recall air pollution, legislation and regulations
		Evaluate air pollutant concentrations as a function of meteorology
SEM-II		
401011	Dams and Hydraulics Structures	Interpret sampling results with prescribed standards
		Assess emission inventory and air quality models
		Compare the air pollution control equipments
		Infer indoor air pollution and its mitigation
		Understand types of dams and instrumentation working
401012	Quantity Surveying, Contracts and Tenders	Execute stability analysis of Gravity Dam
		Understand types of spillways & Design of Ogee spillway
		Illustrate the failures and analyze stability of earthen dam
		Design Canals and understand the canal structures
		Analysis of the Diversion headwork and Cross Drainage work
401013	Irrigation and Drainage	Understand concept of estimates and prepare approximate estimate for various for Civil Engineering works.
		Describe tendering process, construction contracts, and aspects of Arbitration and prepare tender documents.
		Prepare detailed estimate of various items of work by different methods and calculate quantity of steel from Bar bending schedule.
		Apply engineering knowledge to prepare estimate for roads, culverts, and water tank (Elevated storage tank)
		Apply concepts of specification to draft brief specification, detailed specification and prepare detailed rate analysis report.
401014	TQM and MIS	Evaluate depreciation and valuation of property on the basis of present condition, specifications and market trend.
		Summarize types of irrigation methods
		Estimate evapotranspiration and crop-water requirement
		Understand component parts and their design considerations of lift irrigation system
		Design drip and sprinkler irrigation systems
		Understand basics of salt affected soils and estimate leaching requirement.
		Design surface and subsurface drainage systems
		Recognize quality and contribution of quality gurus for evaluation of best practices
		Relate the functioning and application of TQM & Six Sigma in the domain of construction sector
		Recommend ISO 9001 principles in preparation of quality manual to construction business
		Propose MIS for allied fields in construction sector
		Apply management control & certification systems for construction industry
		Choose TQM process implementation and various quality awards for construction sector



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Department of Computer Engineering

Course Outcomes (COs)

SE (Computer Engineering) -2019 Pattern

Course Code	Name of Subject/	Course Outcome (COs)
SEM-I		
210241	Discrete Mathematics	Formulate problems precisely, solve the problems, apply formal proof techniques, and explain the reasoning clearly.
		Apply appropriate mathematical concepts and skills to solve problems in both familiar and unfamiliar situations including those in real-life
		Design and analyze real world engineering problems by applying set theory, propositional logic and to construct proofs using mathematical
		Specify, manipulate and apply equivalence relations; construct and use functions and apply these concepts to solve new problems.
		Calculate numbers of possible outcomes using permutations and combinations; to model and analyze computational processes using combinatorics.
		Model and solve computing problem using tree and graph and solve problems using appropriate algorithms.

		Analyze the properties of binary operations, apply abstract algebra in coding theory and evaluate the algebraic structures.
210242	Fundamentals of Data Structures	Design the algorithms to solve the programming problems, identify appropriate algorithmic strategy for specific application, and analyze the time Discriminate the usage of various structures, Design/Program/Implement the appropriate data structures; use them in implementations of abstract Demonstrate use of sequential data structures- Array and Linked lists to store and process data. Understand the computational efficiency of the principal algorithms for searching and sorting and choose the most efficient one for the application. Compare and contrast different implementations of data structures (dynamic and static). Understand, Implement and apply principles of data structures-stack and queue to solve computational problems.
210243	Object Oriented Programming	Apply constructs- sequence, selection and iteration; classes and objects, inheritance, use of predefined classes from libraries while developing Design object-oriented solutions for small systems involving multiple objects. Use virtual and pure virtual function and complex programming situations. Apply object-oriented software principles in problem solving. Analyze the strengths of object-oriented programming. Develop the application using object oriented programming language(C++).
210244	Computer Graphics	Identify the basic terminologies of Computer Graphics and interpret the mathematical foundation of the concepts of computer graphics. Apply mathematics to develop Computer programs for elementary graphic operations. Illustrate the concepts of windowing and clipping and apply various algorithms to fill and clip polygons. Understand and apply the core concepts of computer graphics, including transformation in two and three dimensions, viewing and projection. Understand the concepts of color models, lighting, shading models and hidden surface elimination. Create effective programs using concepts of curves, fractals, animation and gaming.
210245	Digital Electronics and Logic Design	Simplify Boolean Expressions using K Map. Design and implement combinational circuits. Design and implement sequential circuits. Develop simple real-world application using ASM and PLD. Differentiate and Choose appropriate logic families IC packages as per the given design specifications. Explain organization and architecture of computer system
210250	Humanity & Social Science	Aware of the various issues concerning humans and society. Aware about their responsibilities towards society. Sensitized about broader issues regarding the social, cultural, economic and human aspects, involved in social changes. Able to understand the nature of the individual and the relationship between self and the community. Able to understand major ideas, values, beliefs, and experiences that have shaped human history and cultures.
SEM-II		
207003	Engineering Mathematics III	Solve Linear differential equations, essential in modelling and design of computer-based systems. Apply concept of Fourier transform and Z-transform and its applications to continuous and discrete systems and image processing. Apply Statistical methods like correlation and regression analysis and probability theory for data analysis and predictions in machine learning. Solve Algebraic and Transcendental equations and System of linear equations using numerical techniques. Obtain Interpolating polynomials, numerical differentiation and integration, numerical solutions of ordinary differential equations used in modern
210252	Data Structures and Algorithms	To identify & articulate the complexity goals and benefits of a good hashing scheme for real-world applications. To apply non-linear data structures for solving problems of various domain. To design and specify the operations of a nonlinear-based abstract data type and implement them in a high-level programming language. To analyze the algorithmic solutions for resource requirements and optimization To use efficient indexing methods and multiway search techniques to store and maintain data. To use appropriate modern tools to understand and analyze the functionalities confined to the secondary storage.
210253	Software Engineering	Analyze software requirements and formulate design solution for a software. Design applicable solutions in one or more application domains using software engineering approaches that integrate ethical, social, legal and Apply new software models, techniques and technologies to bring out innovative and novelistic solutions for the growth of the society in all aspects Model and design User interface and component-level. Identify and handle risk management and software configuration management. Utilize knowledge of software testing approaches, approaches to verification and validation. Construct software of high quality – software that is reliable, and that is reasonably easy to understand, modify and maintain efficient, reliable,
210254	Microprocessor	Exhibit skill of assembly language programming for the application. Classify Processor architectures. Illustrate advanced features of 80386 Microprocessor. Compare and contrast different processor modes. Use interrupts mechanism in applications Differentiate between Microprocessors and Microcontrollers. Identify and analyze the tools and techniques used to design, implement, and debug microprocessor-based systems.
210255	Principles of Programming Languages	Make use of basic principles of programming languages. Develop a program with Data representation and Computations. Develop programs using Object Oriented Programming language : Java. Develop application using inheritance, encapsulation, and polymorphism. Demonstrate Multithreading for robust application development. Develop a simple program using basic concepts of Functional and Logical programming paradigm.
210258	Project Based Learning II	Identify the real life problem from societal need point of view Choose and compare alternative approaches to select most feasible one Analyze and synthesize the identified problem from technological perspective Design the reliable and scalable solution to meet challenges Evaluate the solution based on the criteria specified Inculcate long life learning attitude towards the societal problems
210259	Code of Conduct	Understand the basic perception of profession, professional ethics, various moral and social issues, industrial standards, code of ethics and role of Aware of professional rights and responsibilities of an engineer, responsibilities of an engineer for safety and risk benefit analysis. Understand the impact of the professional Engineering solutions in societal and Environmental contexts, and demonstrate the knowledge of, and Acquire knowledge about various roles of engineers in variety of global issues and able to apply ethical principles to resolve situations that arise in



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**Department of Computer Engineering
Course Outcomes (COs)**

TE (Computer Engineering) -2019 Pattern

Course Code	Name of Subject/	Course Outcome (COs)
SEM-I		
310241	Database Management Systems	Analyze and design Database Management System using ER model
		Implement database queries using database languages
		Normalize the database design using normal forms
		Apply Transaction Management concepts in real-time situations
		Use NoSQL databases for processing unstructured data
310242	Theory of Computation	Differentiate between Complex Data Types and analyze the use of appropriate data types
		Understand formal language, translation logic, essentials of translation, alphabets, language representation and apply it to design Finite Automata
		Construct regular expression to present regular language and understand pumping lemma for RE
		Design Context Free Grammars and learn to simplify the grammar
		Construct Pushdown Automaton model for the Context Free Language
310243	Systems Programming and Operating System	Devise Turing Machine for the different requirements outlined by theoretical computer science
		Analyze different classes of problems, and study concepts of NP completeness
		Analyze and synthesize basic System Software and its functionality.
		Identify suitable data structures and Design & Implement various System Software
		Compare different loading schemes and analyze the performance of linker and loader
310244	Computer Networks and Security	Implement and Analyze the performance of process scheduling algorithms
		Identify the mechanism to deal with deadlock and concurrency issues
		Demonstrate memory organization and memory management policies
		Summarize fundamental concepts of Computer Networks, architectures, protocols and technologies
		Illustrate the working and functions of data link layer
310245D	Software Project Management	Analyze the working of different routing protocols and mechanisms
		Implement client-server applications using sockets
		Illustrate role of application layer with its protocols, client-server architectures
		Comprehend the basics of Network Security
		Comprehend Project Management Concepts
SEM-II		
310251	Data Science and Big Data Analytics	Use various tools of Software Project Management
		Schedule various activities in software projects
		Track a project and manage changes
		Apply Agile Project Management
		Analyze staffing process for team building and decision making in Software Projects and Management
310251	Data Science and Big Data Analytics	Analyze needs and challenges for Data Science Big Data Analytics
		Apply statistics for Big Data Analytics
		Apply the lifecycle of Big Data analytics to real world problems
		Implement Big Data Analytics using Python programming
		Implement data visualization using visualization tools in Python programming
310252	Web Technology	Design and implement Big Databases using the Hadoop ecosystem
		Implement and analyze behavior of web pages using HTML and CSS
		Apply the client side technologies for web development
		Analyze the concepts of Servlet and JSP
		Analyze the Web services and frameworks
310253	Artificial Intelligence	Apply the server side technologies for web development
		Create the effective web applications for business functionalities using latest web development platforms
		Identify and apply suitable Intelligent agents for various AI applications
		Build smart system using different informed search / uninformed search or heuristic approaches
		Identify knowledge associated and represent it by ontological engineering to plan a strategy to solve given problem
310254	Software Modeling and Architectures	Apply the suitable algorithms to solve AI problems
		Implement ideas underlying modern logical inference systems
		Represent complex problems with expressive yet carefully constrained language of
		Model the cyber security threats and apply formal procedures to defend the attacks
		Apply appropriate cryptographic techniques by learning symmetric and asymmetric key cryptography
Design and analyze web security solutions by deploying various cryptographic techniques along with data integrity algorithms		
Identify and Evaluate Information Security threats and vulnerabilities in Information systems and apply security measures to real time scenarios		
Demonstrate the use of standards and cyber laws to enhance Information Security in the development process and infrastructure protection		



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SEM-I		

410241	Design and Analysis of Algorithms	Formulate the problem
		Analyze the asymptotic performance of algorithms
		Decide and apply algorithmic strategies to solve given problem
		Find optimal solution by applying various methods
		Analyze and Apply Scheduling and Sorting Algorithms.
410242	Machine Learning	Solve problems for multi-core or distributed or concurrent environments
		Identify the needs and challenges of machine learning for real time applications.
		Apply various data pre-processing techniques to simplify and speed up machine
		Select and apply appropriately supervised machine learning algorithms for
		Implement variants of multi-class classifier and measure its performance.
410243	Blockchain Technology	Compare and contrast different clustering algorithms.
		Design a neural network for solving engineering problems.
		Interpret the fundamentals and basic concepts in Blockchain
		Compare the working of different blockchain platforms
		Use Crypto wallet for cryptocurrency based transactions
410244(A)	Elective III: Pervasive Computing	Analyze the importance of blockchain in finding the solution to the real-world problems.
		Illustrate the Ethereum public block chain platform
		Identify relative application where block chain technology can be effectively used and implemented.
		Demonstrate fundamental concepts in pervasive computing.
		Explain pervasive devices and decide appropriate one as per the need of real
410244(B)	Elective III: Multimedia Techniques	Classify and analyze context aware systems for their efficiency in different ICT
		Illustrate intelligent systems and generic intelligent interactive applications.
		Design HCI systems in pervasive computing environment.
		Explore the security challenges and know the role of ethics in the
		Describe the media and supporting devices commonly associated with multimedia
410244(C)	Elective III: Cyber Security and Digital Forensics	Demonstrate the use of content-based information analysis in a multimedia information system.
		Critique multimedia presentations in terms of their appropriate use of audio, video,
		Implement a multimedia application using an authoring system.
		Understanding of technologies for tracking, navigation and gestural control.
		Implement Multimedia Internet of Things Architectures.
410244(C)	Elective III: Cyber Security and Digital Forensics	Analyze threats in order to protect or defend it in cyberspace from cyber-attacks.
		Build appropriate security solutions against cyber-attacks.
		Underline the need of digital forensic and role of digital evidences.
		Explain rules and types of evidence collection
		Analyze, validate and process crime scenes
410244(E)	Elective III: Digital Signal Processing	Identify the methods to generate legal evidence and supporting investigation reports
		Analyze threats in order to protect or defend it in cyberspace from cyber-attacks.
		Build appropriate security solutions against cyber-attacks.
		Underline the need of digital forensic and role of digital evidences.
		Explain rules and types of evidence collection
410245(A)	Elective IV: Information Retrieval	Analyze, validate and process crime scenes
		Identify the methods to generate legal evidence and supporting investigation reports
		Understand the mathematical models and representations of DT Signals and Systems
		Apply different transforms like Fourier and Z-Transform from applications point of
		Understand the design and implementation of DT systems as DT filters with filter
410245(B)	Elective IV: GPU Programming and Architecture	Demonstrate the knowledge of signals and systems for design and analysis of systems
		Apply knowledge and use the signal transforms for digital processing applications
		To understand Filtering and Different Filter Structures
		Implement the concept of Information Retrieval
		Generate quality information out of retrieved information
410245(C)	Elective IV: Mobile Computing	Apply techniques such as classification, clustering, and filtering over multimedia to
		Evaluate and analyze retrieved information
		Understand the data in various Application and Extensions of information retrieval
		Understand Parallel information retrieving and web structure.
		Describe of C architecture
410245(D)	Elective IV: Software Testing and Quality Assurance	Write programs using CUDA, identify issues and debug them.
		Implement efficient algorithms in GPUs for common application kernels, such as matrix
		Write simple programs using OpenCL
		Identify efficient parallel programming patterns to solve problems
		Explore the modern GPUs architecture and it's Applications.
410245(C)	Elective IV: Mobile Computing	Develop a strong grounding in the fundamentals of mobile Networks
		Apply knowledge in MAC, Network, and Transport Layer protocols of Wireless
		Illustrate Global System for Mobile Communications
		Use the 3G/4G technology based network with bandwidth capacity planning, VLR
		Classify network and transport layer of mobile communication
410245(D)	Elective IV: Software Testing and Quality Assurance	Design & development of various wireless network protocols using simulation tools
		Describe fundamental concepts in software testing such as manual testing, automation
		Design and Develop project test plan, design test cases, test data, and conduct test
		Apply recent automation tool for various software testing for testing software.
		Apply different approaches of quality management, assurance, and quality standard to
		Apply and analyze effectiveness Software Quality Tools.

		Apply tools necessary for efficient testing framework.
410245(E)	Elective IV: Compilers	Design and implement a lexical analyzer using LEX tools
		Design and implement a syntax analyzer using YACC tools
		Understand syntax-directed translation and run-time environment
		Generate intermediate codes for high-level statements.
		Construct algorithms to produce computer code.
		Analyze and transform programs to improve their time and memory efficiency
410248	Project Work Stage I	Solve real life problems by applying knowledge.
		Analyze alternative approaches, apply and use most appropriate one for feasible solution.
		Write precise reports and technical documents in a nutshell.
		Participate effectively in multi-disciplinary and heterogeneous teams exhibiting team work Inter-personal relationships, conflict management and leadership quality.
410249	Audit Course 7:	To acquire additional knowledge and skill.
410249	Audit Course 7: AC7 – II: Entrepreneurship Development	Understand the legalities in product development
		Undertake the process of IPR, Trademarks, Copyright and patenting
		Understand and apply functional plans
		Manage Entrepreneurial Finance
		Inculcate managerial skill as an entrepreneur
410249	Audit Course 7: AC7 – III: Botnet of Things	Implement security as a culture and show mistakes that make applications vulnerable to attacks.
		Understand various attacks like DoS, buffer overflow, web specific, database specific, web
		Demonstrate skills needed to deal with common programming errors that lead to most
410249	Audit Course 7: AC7 – IV: 3D Printing	Understand the basic knowledge of Shop Floor Safety rules and regulations basics of
		Understand the concept of concept of technical sketching, multi-view drawings,
		Identify and Distinguish drafting terminologies and construction of geometrical figures using
		Describe and Explain practical aspects to generate detailed and assembly views with
		Apply concepts and Fabricate the simple mechanical parts, prototype/ end use product for 3D
410249	Audit Course 7: AC7 – V: Industrial Safety and Environment	Develop the plan for Safety performance
		Demonstrate the action plan for accidents and hazards
		Apply the safety and security norms in the industry
		Evaluate the environmental issues of Industrialization
SEM-II		
410250	High Performance Computing	Understand various Parallel Paradigm
		Design and Develop an efficient parallel algorithm to solve given problem
		Illustrate data communication operations on various parallel architecture
		Analyze and measure performance of modern parallel computing systems
		Apply CUDA architecture for parallel programming
		Analyze the performance of HPC applications
410251	Deep Learning	Understand the basics of Deep Learning and apply the tools to implement deep learning applications
		Evaluate the performance of deep learning models (e.g., with respect to the bias-variance tradeoff, overfitting and underfitting, estimation of test
		To apply the technique of Convolution (CNN) and Recurrent Neural Network (RNN)
		To implement and apply deep generative models.
		Construct and apply on-policy reinforcement learning algorithms
		To Understand Reinforcement Learning Process
410252(A)	Elective V: Natural Language Processing	Describe the fundamental concepts of NLP, challenges and issues in NLP
		Analyze Natural languages morphologically, syntactical and semantically OR
		Illustrate various language modelling techniques
		Integrate the NLP techniques for the information retrieval task
		Demonstrate the use of NLP tools and techniques for text-based processing of natural Develop real world NLP applications
410252(B)	Elective V: Image Processing	Apply Relevant Mathematics Required for Digital Image Processing.
		Apply Special and Frequency Domain Method for Image Enhancement.
		Apply algorithmic approaches for Image segmentation.
		Summarize the Concept of Image Compression and Object Recognition.
		Explore the Image Restoration Techniques.
		Explore the Medical and Satellite Image Processing Applications
410252(C)	Elective V: Software Defined Networks	Interpret the need of Software Defined networking solutions.
		Analyze different methodologies for sustainable Software Defined Networkingsolutions.
		Select best practices for design, deploy and troubleshoot of next generation networks.
		Develop programmability of network elements.
		Demonstrate virtualization and SDN Controllers using Open Flow protocol Design and develop various applications of SDN
410252(D)	Elective V: Advanced Digital Signal Processing	Understand and apply different transforms for the design of DT/Digital systems
		Explore the knowledge of adaptive filtering and Multi-rate DSP
		Design DT systems in the field/area of adaptive filtering, spectral estimation and multi-rateDSP
		Explore use of DCT and WT in speech and image processing
		Develop algorithms in the field of speech , image processing and other DSP applications
		Identify Image Processing Techniques
410253(A)	Elective VI: Pattern Recognition	Analyze various type of pattern recognition techniques
		Identify and apply various pattern recognition and classification approaches to
		Evaluate statistical and structural pattern recognition
		Percept recent advances in pattern recognition confined to various applications
		Implement Bellman's optimality principle and dynamic programming Analyze Patterns using Genetic Algorithms & Pattern recognition applications

410253(B)	Elective VI: Soft Computing	Understand requirement of soft computing and be aware of various soft computing
		Understand Artificial Neural Network and its characteristics and implement ANN algorithms
		Understand and Implement Evolutionary Computing Techniques.
		Understand the Fuzzy logic and Implement fuzzy algorithms for solving real life problems.
		Apply knowledge of Genetic algorithms for problem solving.
410253(C)	Elective VI: Business Intelligence	Develop hybrid systems for problem solving.
		Differentiate the concepts of Decision Support System & Business Intelligence
		Use Data Warehouse & Business Architecture to design a BI system.
		Build graphical reports
		Apply different data preprocessing techniques on dataset
410253(D)	Elective VI: Quantum Computing	Implement machine learning algorithms as per business needs
		Identify role of BI in marketing, logistics, and finance and telecommunication sector
		To understand the concepts of Quantum Computing
		To understand and get exposure to mathematical foundation and quantum mechanics
		To understand and implement building blocks of Quantum circuits
410256	Project Work Stage II	To understand quantum information, its processing and Simulation tools
		To understand basic signal processing algorithms FT, DFT and FFT
		To study and solve examples of Quantum Fourier Transforms and their applications
		Show evidence of independent investigation
		Critically analyze the results and their interpretation.
410257	Audit Course 8: AC8 – I: Usability Engineering	Report and present the original results in an orderly way and placing the open
		Link techniques and results from literature as well as actual research and future
		Appreciate practical implications and constraints of the specialist subject
		Describe the human centered design process and usability engineering process and
		Discuss usability design guidelines, their foundations, assumptions, advantages,
410257	Audit Course 8: AC8 – II:	Design a user interface based on analysis of human needs and prepare a prototype system.
		Assess user interfaces using different usability engineering techniques.
		Present the design decisions
		Develop an effective interface for conversation
		Explore advanced concepts in user interface
410257	Audit Course 8: AC8–III: Social Media And Analytics	Develop a far deeper understanding of the changing digital land scape.
		Identify some of the latest digital marketing trends and skill sets needed for
		Successful planning, prediction, and management of digital marketing campaigns
		Assess user interfaces using different usability engineering techniques.
		Implement smart management of different digital assets for marketing needs.
410257	Audit Course 8: AC8 – IV: MOOC-	Assess digital marketing as a long term career opportunity.
		To acquire additional knowledge and skill.
		Expand your knowledge of emotional patterns in yourself and others
		Discover how you can manage your emotions, and positively influence yourself and others
		Build more effective relationships with people at work and at home
410257	Audit Course 8: AC8 – V: Emotional Intelligence	Positively influence and motivate colleagues, team members, managers
		Increase the leadership effectiveness by creating an atmosphere that engages others



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Department of Electrical Engineering

Course Outcomes (COs)

SE (Electrical Engineering) -2019 Pattern

Course Code	Name of Subject/	Course Outcome (COs)
SEM-I		
207006	Engineering Mathematics-III	Solve higher order linear differential equation using appropriate techniques to model and analyze electrical circuits.
		Apply Integral transforms such as Laplace transform, Fourier transform and Z-Transform to solve problems related to signal processing and control
		Apply Statistical methods like correlation, regression and Probability theory as applicable to analyze and interpret experimental data related to
		Perform Vector differentiation and integration, analyze the vector fields and apply to wave theory and electro-magnetic fields.
		Analyze Complex functions, conformal mappings, and perform contour integration in the study of electrostatics, signal and image processing.
203141	Power Generation Technologies	Identify components and elaborate working principle of conventional power plants.
		Recognize the importance and opportunities of renewable energies.
		Calculate and control power output of wind solar, and hydro power plant.
		Describe process of grid interconnection of distributed generation and requirements.
		Interpret the environmental and social impact of various generation technologies.
203142	Material Science	Discuss classification, properties and characteristics of different electrical engineering materials.
		State various applications/measuring methods for parameters of different classes of electrical engineering materials.
		Solve simple problems based on dielectric, magnetic and conducting materials.
		Apply knowledge of Nano-technology to electrical engineering.
		Execute tests on dielectric, insulating, magnetic, conducting, resistive materials as per IS to decide the quality of the materials.
203143	Analog And Digital Electronics	Create learning resource material ethically to demonstrate self learning leading to lifelong learning skills and usage of ICT/ online technology
		Design logical, sequential and combinational digital circuit using K-Map.
		Demonstrate different digital memories and programmable logic families.
		Apply and analyze applications of OPAMP in open and closed loop condition.
		Design uncontrolled rectifier with given specifications

203144	Electrical Measurements and Instrumentation	Define various characteristic and classify measuring instruments along with range extension techniques.
		Apply measurement techniques for measurement of resistance, inductance and capacitance.
		Demonstrate construction, working principle of electro-dynamo type and induction type instruments for measurement of power and energy.
		Make use of CRO for measurement of voltage, current and frequency.
		Classify transducer and apply it for measurement of physical parameters in real time.
SEM-II		
203145	Power System-I	Recognize different patterns of load curve and calculate associated different factors with it and tariff.
		Draft specifications of electrical equipment in power station.
		Design electrical and mechanical aspects in overhead transmission and underground cables.
		Evaluate the inductance and capacitance of different transmission line configurations.
		Analyse the performance of short and medium transmission lines
203146	Electrical Machines-I	Evaluate performance parameters of transformer with experimentation and demonstrate construction along with specifications as per standards.
		Distinguish between various types of transformer connections as per vector groups with application and to perform parallel operation of single/three
		Select and draft specifications of DC machines and Induction motors for various applications along with speed control methods.
		Justify the need of starters in electrical machines with merits and demerits.
		Test and evaluate performance of DC machines and Induction motors as per IS standard.
203147	Network Analysis	Calculate current/voltage in electrical circuits using simplification techniques, Mesh, Nodal analysis and network theorems.
		Analyze the response of RLC circuit with electrical supply in transient and steady state.
		Apply Laplace transform to analyze behaviour of an electrical circuit.
		Derive formula and solve numerical of two port network and Design of filters
		Apply knowledge of network theory to find transfer function, poles and zeroes location to perform stability analysis and parallel resonance
203148	Numerical Methods and Computer Programming	Demonstrate types of errors in computation and their causes of occurrence.
		Calculate root of algebraic and transcendental equations using various methods.
		equation.
		Solve linear simultaneous equation using direct and indirect method.
		Develop algorithms and write computer programs for various numerical methods.
203149	Fundamental of Microcontroller and Applications	Describe the architecture and features of various types of the microcontroller.
		Illustrate addressing modes and execute programs in assembly language for the microcontroller.
		Write programs in C language for microcontroller 8051.
		Elaborate interrupt structure of 8051 and program to handle interrupt and ADC809
		Define the protocol for serial communication and understand the microcontroller development systems.
		Interface input output devices and measure electrical parameters with 8051 in real time.



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Department of Electrical Engineering

Course Outcomes (COs)

TE (Electrical Engineering) -2019 Pattern

Course Code	Name of Subject/	Course Outcome (COs)
SEM - I		
303141	Industrial and Technology Management	Differentiate between different types of business organizations and discuss the fundamentals of economics and management.
		Explain the importance of technology management and quality management.
		Explain the importance of IPR and role of Human Resource Management.
		Understand the importance of Quality and its significance.
		Describe the characteristics of marketing & its types and overview of financial Management.
		Discuss the qualities of a good leader and road map to Entrepreneurship.
303142	Power Electronics	Develop characteristics of different power electronic switching devices.
		Reproduce working principle of power electronic converters for different types of loads.
		Choose the appropriate converter for different applications.
303143	Electrical Machines II	Learn construction, working principle of three phase Synchronous Machines, Induction Motors, A.C. Series Motor and Special Purpose Motors.
		Understand characteristics of three phase Synchronous Machines, Induction Motors, A.C. Series Motor and Special Purpose Motors.
		Select the above machines in Power System, industrial, household & Military Engineering applications.
		Testing of machines to evaluate the performance through experimentation.
303144	Electrical Installation Design and Condition Based Maintenance	Classify different types of distribution supply system and determine economics of distribution system. compare and classify various substations, bus-
		Demonstrate the importance and necessity of maintenance.
		Analyse and test different condition monitoring methods.
		Carry out estimation and costing of internal wiring for residential and commercial installations.
		Apply electrical safety procedures.
303145A	Advanced Microcontroller and Embedded System	Explain architecture of PIC 18F458 microcontroller, its instructions and the addressing modes.
		Use Ports and timers for peripheral interfacing and delay generation.
		Interface special and generate events using CCP module.
		Effectively use interrupt structure in internal and External interrupt mode.
		Effectively use ADC for parameter measurement and also understand LCD interfacing.
		Use Serial Communication and various serial communication protocols.
SEM-II		
303148	Power System II	Solve problems involving modelling, design and performance evaluation of HVDC and EHVAC power transmission lines.
		Calculate per unit values and develop Y bus for solution power flow equations in power transmission networks
		Calculate currents and voltages in a faulted power system under both symmetrical and asymmetrical faults, and relate fault currents to circuit
303149	Computer Aided Design of	Summarize temperature rise, methods of cooling of transformer and consider IS 2026 in transformer design.
		Design the overall dimensions of the transformer.
		Analyse the performance parameters of transformer.

	Electrical Machines	Design overall dimensions of three phase Induction motor Analyze the performance parameters of three phase Induction motor. Implement and develop computer aided design of transformer and induction motor.
303150	Control System Engineering	Construct mathematical model of electrical and mechanical system using differential equations and transfer function and develop analogy between electrical and mechanical systems. Determine time response of systems for a given input and perform analysis of first and second order systems using time domain specifications. Investigate closed loop stability of system in s-plane using Routh Hurwitz stability criteria and root locus. Analyze the systems in frequency domain and investigate stability using Nyquist plot and Bode plot Design PID controller for a given plant to meet desired time domain specifications.
303151A	IoT and Its Applications in Electrical Engineering	Build circuits for signal acquisition and conditioning Experiment with sensors and actuators and choose the right sensor for application Determine the performance of IoT based automated process Design and develop IoT based applications



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Department of Electrical Engineering

Course Outcomes (COs)

BE (Electrical Engineering) -2019 Pattern

Course Code	Name of Subject/	Course Outcome (COs)
SEM -I		
403141	Power System Operation and Control	Identify and analyze the dynamics of power system and suggest means to improve stability of system Suggest the appropriate method of reactive power generation and control Analyze the generation-load balance in real time operation and its effect on frequency and develop automatic control strategies with mathematical
403143A	PLC and SCADA Applications	Formulate objective functions for optimization tasks such as unit commitment and economic load dispatch and get solution using computational Develop and explain the working of PLC with the help of a block diagram. Execute, debug and test the Ladder programs developed for digital and analog operations Implement complex ladder programs for real time operations in industry Reproduce block diagram representation on industrial applications using PLC and SCADA. Develop architecture of SCADA and explain the importance of SCADA in critical infrastructure.
403144B	Electrical & Hybride Vehical	Analyze the Life Cycle Assessment of Li-ion batt ery. Describe the different types of Li-ion charging methods CO mprehend the knowledge of drivetrain hybridization Ev aluate EV motor sizing
403145	Advance Control System	Ex plain compensation networks, common nonlinearities, the concept of state, sampling and reconstru ction, and concepts of advanced controls Det ermine transfer function from state model Tes t controllability and observability properties of the system De sign compensators, state feedback controls, and observers for the system Realize digital control schemes.
403146	Project Stage I	Work in team and ensure satisfactory completion of project in all respect. Handle different tools to complete the given task and to acquire specified knowledge in area of interest. Provide solution to the current issues faced by the society. Practice moral and ethical value while completing the given task.
SEM-II		
403147	Switchgear and Protection	Communicate effectively findings in verbal and written forms. Describe arc interruption methods in circuit breaker. Derive expression for restriking voltage and RRRV in circuit breaker Explain Construction, and working of different high voltage circuit breakers such as ABCB, SF6 CB, and VCB. Classify and Describe different type of relays such as over current relay, Reverse power relay, directional over current relay, Differential relay,
403148	Power Electronic Controlled Drives	Describe transmission line protection schemes. Analyze the steady-state operation and dynamics of a motor-load system Analyze the operation of the converter, chopper fed dc drive. Analyze the operation of classical and modern induction motor drives Design the current and speed controllers for a closed loop solid-state d.c motor drive Select the drives for any particular application
403149	Elective –III: High Voltage Engineering	Demonstrate the Speed control of various drives Reproduce concepts in breadth with various concepts of breakdown phenomenon of solid, liquid and gaseous materials along with various causes of List and reproduce various methods of generation and measurement of DC, AC and impulse high voltage Demonstrate an ability to carry various DC, AC and impulse testing on high voltage equipment and materials.
403150	Elective –IV: Smart Grid	Apply safety measures, earthing, shielding for layout of HV apparatus required in High voltage laboratory. Differentiate Conventional and Smart Grid. Identify the need of Smart Grid, Micro Grid, Smart metering, Smart storage, Hybrid Vehicles, Home Automation, Smart Communication. Get introduced to new upcoming concepts in electrical from Utility to Consumers. Comparing and getting acquainted with emerging technologies and current professional issues in electric Grid. Express the necessity of global smart communication system



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Department of Electronics and Telecommunication

Course Outcomes (COs)

SE (Electronics & Telecommunication Engineering) -2019 Pattern

Course Code	Name of Subject/	Course Outcome (COs)
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SEM-I

207005	Engineering Mathematics - III	Solve higher order linear differential equation using appropriate techniques for modelling, analyzing of electrical circuits and control systems.
		Apply concept of Fourier transform & Z-transform and its applications to continuous & discrete systems, signal & image processing and Obtain Interpolating polynomials, numerically differentiate and integrate functions, numerical solutions of differential equations using single step
		Perform vector differentiation & integration, analyze the vector fields and apply to electromagnetic fields & wave theory.
		Analyze Complex functions, Conformal mappings, Contour integration applicable to electrostatics, digital filters, signal and image processing.
204181	Electronic Circuits	Assimilate the physics, characteristics and parameters of MOSFET towards its application as amplifier.
		Design MOSFET amplifiers, with and without feedback, & MOSFET oscillators, for given specifications.
		Analyze and assess the performance of linear and switching regulators, with their variants, towards applications in regulated power supplies.
		Explain internal schematic of Op-Amp and define its performance parameters.
		Design, Build and test Op-amp based analog signal processing and conditioning circuits towards various real time applications.
204182	Digital Circuits	Understand and compare the principles of various data conversion techniques and PLL with their applications.
		Identify and prevent various hazards and timing problems in a digital design.
		Use the basic logic gates and various reduction techniques of digital logic circuit.
		Analyze, design and implement combinational logic circuits.
		Analyze, design and implement sequential circuits.
204183	Electrical Circuits	Differentiate between Mealy and Moore machines.
		Analyze digital system design using PLD.
		Analyze the simple DC and AC circuit with circuit simplification techniques.
		Formulate and analyze driven and source free RL and RC circuits.
		Formulate & determine network parameters for given network and analyze the given network using Laplace Transform to find the network transfer
204184	Data Structures	Explain construction, working and applications of DC Machines / Single Phase & Three Phase AC Motors.
		Explain construction, working and applications of special purpose motors & understand motors used in electrical vehicles.
		Analyze and select a suitable motor for different applications.
		Solve mathematical problems using C programming language.
		Implement sorting and searching algorithms and calculate their complexity.

SEM-II

204191	Signals & Systems	Identify, classify basic signals and perform operations on signals.
		Identify, Classify the systems based on their properties in terms of input output relation and in terms of impulse response and will be able to
		Analyze and resolve the signals in frequency domain using Fourier series and Fourier Transform.
		Resolve the signals in complex frequency domain using Laplace Transform, and will be able to apply and analyze the LTI systems using Laplace
		Define and Describe the probability, random variables and random signals. Compute the probability of a given event, model, compute the CDF and
204192	Control Systems	Compute the mean, mean square, variance and standard deviation for given random variables using PDF.
		Determine and use models of physical systems in forms suitable for use in the analysis and design of control systems.
		Determine the (absolute) stability of a closed-loop control system.
		Perform time domain analysis of control systems required for stability analysis.
		Perform frequency domain analysis of control systems required for stability analysis.
204193	Principles of Communication Systems	Apply root-locus, Frequency Plots technique to analyze control systems.
		Express and solve system equations in state variable form.
		Differentiate between various digital controllers and understand the role of the controllers in Industrial automation.
		To compute & compare the bandwidth and transmission power requirements by analyzing time and frequency domain spectra of signal required for
		Describe and analyze the techniques of generation, transmission and reception of Amplitude Modulation Systems
204194	Object Oriented Programming	Explain generation and detection of FM systems and compare with AM systems.
		Exhibit the importance of Sampling Theorem and correlate with Pulse Modulation technique (PAM, PWM, and PPM).
		Characterize the quantization process and elaborate digital representation techniques (PCM, DPCM, DM and ADM).
		Illustrate waveform coding, multiplexing and synchronization techniques and articulate their importance in baseband digital transmission.
		Describe the principles of object oriented programming.
204199	Employability Skills Development	Apply the concepts of data encapsulation, inheritance in C++.
		Understand Operator overloading and friend functions in C++.
		Apply the concepts of classes, methods inheritance and polymorphism to write programs C++.
		Apply Templates, Namespaces and Exception Handling concepts to write programs in C++.
		Describe and use of File handling in C++.
204199	Employability Skills Development	Define personal and career goals using introspective skills and SWOC assessment. Outline and evaluate short-term and long-term goals.
		Develop effective communication skills (listening, reading, writing, and speaking), self- management attributes, problem solving abilities and team
		Be a part of a multi-cultural professional environment and work effectively by enhancing inter-personal relationships, conflict management and
		Comprehend the importance of professional ethics, etiquettes & morals and demonstrate sensitivity towards it throughout certified career.



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Department of Electronics and Telecommunication

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TE (Electronics and Telecommunication) -2019 Pattern

SEM-I

Course Code	Name of Subject/	Course Outcome (COs)
304181	Digital Communication	Apply the statistical theory for describing various signals in a communication system.
		Understand and explain various digital modulation techniques used in digital communication systems and analyze their performance in presence of
		Describe and analyze the digital communication system with spread spectrum modulation.
		Analyze a communication system using information theoretic approach
304182	Electromagnetic Field Theory	Use error control coding techniques to improve performance of a digital communication system.
		Apply the basic electromagnetic principles and determine the fields (E & H) due to the given source.
		Apply boundary conditions to the boundaries between various media to interpret behavior of the fields on either sides
		State, Identify and Apply Maxwell's equations (integral and differential forms) in both the forms (Static, time-varying or Time-harmonic field) for
		Formulate, Interpret and solve simple uniform plane wave (Helmholtz Equations) equations, and analyze the incident/reflected/transmitted waves at
304183	Database Management	Interpret and Apply the transmission line equation to transmission line problems with load impedance to determine input and output
		Carry out a detailed study, interpret the relevance and applications of Electromagnetics.
		Ability to implement the underlying concepts of a database system
		Design and implement a database schema for a given problem-domain using data model.
		Formulate, using SQL/DML/DDDL commands, solutions to a wide range of query and update problems
304184	Microcontrollers	Implement transactions, concurrency control, and be able to do Database recovery.
		Able to understand various Parallel Database Architectures and its applications
		Able to understand various Distributed Databases and its applications
		Understand the fundamentals of microcontroller and programming
		Interface various electronic components with microcontrollers
304185	Fundamentals of JAVA Programming	Analyze the features of PIC 18F XXXX.
		Describe the programming details in peripheral support.
		Develop interfacing models according to applications
		Evaluate the serial communication details and interfaces.
		Understand the basic principles of Java programming language
		Apply the concepts of classes and objects to write programs in Java

SEM-II

304192	Cellular Networks	Use Graphics class, AWT packages and manage input and output files in Java
		Various propagation Model and Estimation techniques of wireless communication system
		OFDM and MIMO technologies to explain modern wireless systems.
		Various aspects of mobile communication system
		Various aspects of wireless-system planning.
304193	Project Management	Different Generation of Mobile Networks.
		Diversified issues that can enhance Network Performance.
		Apply the fundamental knowledge of project management for effectively handling the projects.
		Identify and select the appropriate project based on feasibility study and undertake its effective planning.
		Assimilate effectively within the organizational structure of project and handle project management related issues in an efficient manner.
304194	Power Devices & Circuits	Apply the project scheduling techniques to create a Project Schedule Plan and accordingly utilize the resources to meet the project deadline.
		Identify and assess the project risks and manage finances in line with Project Financial Management Process.
		Develop new products assessing their commercial viability and develop skillsets for becoming successful entrepreneurs while being fully aware of
		To differentiate based on the characteristic parameters among SCR, GTO, MOSFET & IGBT and identify suitability of the power device for certain
		To design triggering / driver circuits for various power devices
304195	Advanced JAVA Programming	To evaluate and analyze various performance parameters of the different converters and its topologies
		To understand significance and design of various protections circuits for power devices
		To evaluate the performance of uninterruptible power supplies, switch mode power supplies and battery
		To understand case studies of power electronics in applications like electric vehicles, solar systems etc.
		Design and develop GUI applications using Applets



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Department of Electronics and Telecommunication

Course Outcomes (COs)

BE (Electronics and Telecommunication) -2019 Pattern

SEM-I

Course Code	Name of Subject/	Course Outcome (COs)
404181	Radiation & Microwave Theory	Apply the fundamentals of electromagnetic to derive free space propagation equation and distinguish various performance parameters of antenna.
		Identify various modes in the waveguide. Compare: coaxial line, rectangular waveguides &
		Explore construction and working of principles passive microwave devices/components.
		Explore construction and working of principles active microwave devices/components.
		Analyze the structure, characteristics, operation, equivalent circuits and applications of various
		Know the various microwave systems, device set ups of microwave measurement devices and
		Develop effective HDL codes for digital design.

404182	VLSI Design and Technology	Apply knowledge of real time issues in digital design.
		Model digital circuit with HDL, simulate, synthesis and prototype in PLDs.
		Design CMOS circuits for specified applications.
		Analyze various issues and constraints in design of an ASIC
404183	Cloud Computing	Apply knowledge of testability in design and Build In Self Test (BIST) circuit
		Understand the basic concepts of Cloud Computing.
		Describe the underlying principles of different Cloud Service Models.
		Classify the types of Virtualization.
		Examine the Cloud Architecture and understand the importance of Cloud Security.
404184	Modernized IoT	Develop applications on Cloud Platforms.
		Evaluate distributed computing and the Internet of Things.
		Comprehend and analyze concepts of sensors, actuators, IoT and IoE.
		Interpret IoT Architecture Design Aspects.
		Comprehend the operation of IoT protocols.
404185	Electronic Product Development	Describe various IoT boards, interfacing, and programming for IoT
		Illustrate the technologies, Catalysts, and precursors of IIoT using suitable use cases.
		Provide suitable solution for domain specific applications of IoT.
		Understand and explain design flow of design of electronics product.
		Associate with various circuit design issues and testing.
SEM-II		
404190	Fiber Optic Communication	Inferring different software designing aspects and the Importance of product test & test specifications.
		Summarizing printed circuit boards and different parameters.
		Estimating assorted product design aspects.
		Exemplifying special design considerations and importance of documentation
		Explain the working of components and measurement equipments in optical fiber networks.
404191	Mobile Computing	Calculate the important parameters associated with optical components used in fiber optic
		Compare and contrast the performance of major components in optical links.
		Evaluate the performance viability of optical links using the power and rise time budget
		Design digital optical link by proper selection of components and check its viability using
		Complete technical information related to state of art components, standards, simulation tools
404192	Digital Marketing	Understand concepts of Mobile Communication.
		Analyse next generation Mobile Communication System.
		Understand network layers of Mobile Communication.
		Understand IP and Transport layers of Mobile Communication.
		Study of different mathematical models.
404192	Digital Marketing	Understand different mobile applications.
		Design websites using free tools like Wordpress and explore it for digital marketing.
		Apply various keywords for a website & to perform SEO.
		Understand the various SEM Tools and implement the Digital Marketing Tools.
		Illustrate the use of Facebook, Instagram and Youtube for Digital Marketing in real life.
404192	Digital Marketing	Use Linked in platform for various campaigning.
		Understand the importance of recent trends in digital marketing



**Navsahyadri Education Society's
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Department of Mechanical Engineering

Course Outcomes (COs)

SE (Mechanical Engineering) -2019 Pattern

Course Code	Name of Subject/	Course Outcome (COs)
SEM-I		
202041	Solid Mechanics	DEFINE various types of stresses and strain developed on determinate and indeterminate members.
		DRAW Shear force and bending moment diagram for various types of transverse loading and support.
		COMPUTE the slope & deflection, bending stresses and shear stresses on a beam.
		CALCULATE torsional shear stress in shaft and buckling on the column.
		APPLY the concept of principal stresses and theories of failure to determine stresses on a 2-D element.
202042	Solid Modeling and Drafting	UTILIZE the concepts of SFD & BMD, torsion and principal stresses to solve combined loading application based problems.
		UNDERSTAND basic concepts of CAD system, need and scope in Product Lifecycle Management
		UTILIZE knowledge of curves and surfacing features and methods to create complex solid geometry
		CONSTRUCT solid models, assemblies using various modeling techniques & PERFORM mass property analysis, including creating and using a
		APPLY geometric transformations to simple 2D geometries
202043	Engineering Thermodynamics	USE CAD model data for various CAD based engineering applications viz. production drawings, 3D printing, FEA, CFD, MBD, CAE, CAM, etc.
		USE PMI & MBD approach for communication
		DESCRIBE the basics of thermodynamics with heat and work interactions.
		APPLY laws of thermodynamics to steady flow and non-flow processes.
		APPLY entropy, available and non available energy for an Open and Closed System.
202044	Engineering Materials and	DETERMINE the properties of steam and their effect on performance of vapour power cycle.
		ANALYSE the fuel combustion process and products of combustion.
		SELECT various instrumentations required for safe and efficient operation of steam generator.
		COMPARE crystal structures and ASSESS different lattice parameters.
		CORRELATE crystal structures and imperfections in crystals with mechanical behaviour of materials.
DIFFERENTIATE and DETERMINE mechanical properties using destructive and non-destructive testing of materials.		

202044	Materials and Metallurgy	IDENTIFY & ESTIMATE different parameters of the system viz., phases, variables, component, grains, grain boundary, and degree of freedom. etc. ANALYSE effect of alloying element & heat treatment on properties of ferrous & nonferrous alloy. SELECT appropriate materials for various applications.
203156	Electrical and Electronics Engineering	APPLY programming concepts to UNDERSTAND role of Microprocessor and Microcontroller in embedded systems DEVELOP interfacing of different types of sensors and other hardware devices with Atmega328 based Arduino Board UNDERSTAND the operation of DC motor, its speed control methods and braking DISTINGUISH between types of three phase induction motor and its characteristic features EXPLAIN about emerging technology of Electric Vehicle (EV) and its modular subsystems CHOOSE energy storage devices and electrical drives for EVs

SEM -II

207002	Engineering Mathematics - III	SOLVE higher order linear differential equations and its applications to model and analyze mass spring systems. APPLY Integral transform techniques such as Laplace transform and Fourier transform to solve differential equations involved in vibration theory. APPLY Statistical methods like correlation, regression in analyzing and interpreting experimental data applicable to reliability engineering and PERFORM Vector differentiation & integration, analyze the vector fields and APPLY to fluid flow problems. SOLVE Partial differential equations such as wave equation, one and two dimensional heat flow equations.
202047	Kinematics of Machinery	APPLY kinematic analysis to simple mechanisms ANALYZE velocity and acceleration in mechanisms by vector and graphical method SYNTHESIZE a four bar mechanism with analytical and graphical methods APPLY fundamentals of gear theory as a prerequisite for gear design CONSTRUCT cam profile for given follower motion
202048	Applied Thermodynamics	DETERMINE COP of refrigeration system and ANALYZE psychrometric processes. DISCUSS basics of engine terminology, air standard, fuel air and actual cycles. IDENTIFY factors affecting the combustion performance of SI and CI engines. DETERMINE performance parameters of IC Engines and emission control. EXPLAIN working of various IC Engine systems and use of alternative fuels. CALCULATE performance of single and multi stage reciprocating compressors and DISCUSS rotary positive displacement compressors
202049	Fluid Mechanics	DETERMINE various properties of fluid APPLY the laws of fluid statics and concepts of buoyancy IDENTIFY types of fluid flow and terms associated in fluid kinematics APPLY principles of fluid dynamics to laminar flow ESTIMATE friction and minor losses in internal flows and DETERMINE boundary layer formation over an external surface CONSTRUCT mathematical correlation considering dimensionless parameters, also ABLE to predict the performance of prototype using model
202050	Manufacturing Processes	SELECT appropriate moulding, core making and melting practice and estimate pouring time, solidification rate and DESIGN riser size and location UNDERSTAND mechanism of metal forming techniques and CALCULATE load required for flat rolling DEMONSTRATE press working operations and APPLY the basic principles to DESIGN dies and tools for forming and shearing operations CLASSIFY and EXPLAIN different welding processes and EVALUATE welding characteristics DIFFERENTIATE thermoplastics and thermosetting and EXPLAIN polymer processing techniques UNDERSTAND the principle of manufacturing of fibre-reinforce composites and metal matrix composites
202051	Machine Shop	PERFORM welding using TIG/ MIG/ Resistance/Gas welding technique MAKE Fibre-reinforced Composites by hand lay-up process or spray lay-up techniques PERFORM cylindrical/surface grinding operation and CALCULATE its machining time DETERMINE number of indexing movements required and acquire skills to PRODUCE a spur gear on a horizontal milling machine PREPARE industry visit report UNDERSTAND procedure of plastic processing
202052	Project Based Learning - II	IDENTIFY the real-world problem (possibly of interdisciplinary nature) through a rigorous literature survey and formulate / set relevant aims and ANALYZE the results and arrive at valid conclusions PROPOSE a suitable solution based on the fundamentals of mechanical engineering by possibly integration of previously acquired knowledge CONTRIBUTE to society through proposed solutions by strictly following professional ethics and safety measures USE of technology in proposed work and demonstrate learning in oral and written form DEVELOP ability to work as an individual and as a team member



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Department of Mechanical Engineering

Course Outcomes (COs)

TE (Mechanical Engineering) -2019 Pattern

Course Code	Name of Subject/	Course Outcome (COs)
SEM-I		
302041	Numerical & Statistical Methods	SOLVE system of equations using direct and iterative numerical methods ESTIMATE solutions for differential equations using numerical techniques. DEVELOP solution for engineering applications with numerical integration DESIGN and CREATE a model using a curve fitting and regression analysis APPLY statistical Technique for quantitative data analysis. DEMONSTRATE the data, using the concepts of probability and linear algebra.
302042	Heat & Mass Transfer	ANALYZE & APPLY the modes of heat transfer equations for one dimensional thermal system. DESIGN a thermal system considering fins, thermal insulation and & Transient heat conduction. EVALUATE the heat transfer rate in natural and forced convection & validate with experimentation results. INTERPRET heat transfer by radiation between objects with simple geometries, for black and grey surfaces. ABILITY to analyze the rate of mass transfer using Fick's Law of Diffusion and understands mass diffusion in different coordinate systems. DESIGN & ANALYSIS of heat transfer equipments and investigation of its performance.

302043	Design of Machine Elements	DESIGN AND ANALYZE the cotter and knuckle Joints, levers and components subjected to eccentric loading.
		DESIGN shafts, keys and couplings under static loading conditions.
		ANALYZE different stresses in power screws and APPLY those in the procedure to design screw jack.
		EVALUATE dimensions of machine components under fluctuating loads.
		EVALUATE & INTERPRET the stress developed on the different type of welded and threaded joints.
302044	Mechatronics	APPLY the design and development procedure for different types of springs.
		DEFINE key elements of mechatronics, principle of sensor and its characteristics.
		UTILIZE concept of signal processing and MAKE use of interfacing systems such as ADC, DAC, Digital I/O.
		DETERMINE the transfer function by using block diagram reduction technique.
		EVALUATE Poles and Zero, frequency domain parameter for mathematical modeling for mechanical system.
302045-B	Machining Science & Technology	APPLY the concept of different controller modes to an industrial application. CO6. DEVELOP the ladder programming for industrial application.
		DEFINE metal cutting principles and mechanics of metal cutting and tool life.
		DESCRIBE features of gear and thread manufacturing processes.
		SELECT appropriate grinding wheel and demonstrate the various surface finishing processes.
		SELECT appropriate jigs/fixtures and to draw the process plan for a given component.
		SELECT & EVALUATE various parameters of process planning. CO6. GENERATE CNC program for Turning / Milling processes and generate

SEM -II

302049	Artificial Intelligence & Machine Learning	DEMONSTRATE fundamentals of artificial intelligence and machine learning.
		APPLY feature extraction and selection techniques.
		APPLY machine learning algorithms for classification and regression problems.
		DEVISE AND DEVELOP a machine learning model using various steps.
		EXPLAIN concepts of reinforced and deep learning.
302050	Computer Aided Engineering	SIMULATE machine learning model in mechanical engineering problems.
		DEFINE the use of CAE tools and DESCRIBE the significance of shape functions in finite element formulations.
		APPLY the various meshing techniques for better evaluation of approximate results.
		APPLY material properties and boundary condition to SOLVE 1-D and 2-D element stiffness matrices to obtain nodal or elemental solution.
		ANALYZE and APPLY various numerical methods for different types of analysis.
302051	Design of Transmission Systems	EVALUATE and SOLVE non-linear and dynamic analysis problems by analyzing the results obtained from analytical and computational method.
		GENERATE the results in the form of contour plot by the USE of CAE tools.
		APPLY the principle of Spur & Helical gear design for industrial application and PREPARE a manufacturing drawing with the concepts of GD&T.
		EXPLAIN and DESIGN Bevel & Worm gear considering design parameters as per design standards.
		SELECT & DESIGN Rolling and Sliding Contact Bearings from manufacturer's catalogue for a typical application considering suitable design
302052-A	Composite Materials	DEFINE and DESIGN various types of Clutches, Brakes, used in automobile.
		APPLY various concept to DESIGN Machine Tool Gear box, for different applications
		ELABORATE various modes of operation, degree of hybridization and allied terms associated with hybrid electric vehicles.
		DEFINE & COMPARE composites with traditional materials.
		IDENTIFY & ESTIMATE different parameters of the Polymer Matrix Composite
		CATEGORISE and APPLY Metal Matrix Process from possessions landscape.
		DETERMINE volume/weight fraction and strength of Composites.
		SELECT appropriate testing and inspection method for composite materials. CO6. SELECT composites materials for various applications.



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Department of Mechanical Engineering

Course Outcomes (COs)

**BE (Mechanical Engineering) -2019 Pattern
SEM-I**

402041	Heating, Ventilation, Air Conditioning and Refrigeration	refrigerants.
		ANALYZE multi pressure refrigeration system used for refrigeration applications.
		DESCRIBES Transcritical and ejector refrigeration systems.
		ESTIMATE cooling load for air conditioning systems used with concern of design conditions and indoor quality of air.
		DESIGN air distribution system along with consideration of ventilation and infiltration.
402042	Dynamics of Machinery	EXPLAIN the working of types of desiccants, evaporative, thermal storage, radiant cooling, clean room and heat pump systems.
		APPLY balancing technique for static and dynamic balancing of multi cylinder inline and radial engines.
		ANALYZE the gyroscopic couple or effect for stabilization of Ship, Airplane and Four wheeler vehicles.
		ESTIMATE natural frequency for single DOF un-damped & damped free vibratory systems.
		DETERMINE response to forced vibrations due to harmonic excitation, base excitation and excitation due to unbalance forces.
402043	Turbomachinery	ESTIMATE natural frequencies, mode shapes for 2 DOF un-damped free longitudinal and torsional vibratory systems. and vibration control.
		hydraulic turbines.
		mechanism & losses.
402044A	Automobile Design	MEASURE performance parameters of single & multistage centrifugal pumps along with discussion of cavitation and selection.
		EXPLAIN performance parameters of centrifugal compressor along with discussion of theoretical aspects of axial compressor.
		DESIGN of Principal Engine Components
402044B	Design of Heat Transfer Equipments	DESIGN of Drive train
		DESIGN of brakes and Suspension
		EXPLAIN the design aspect of heat exchanger considering fouling factor for Heat Transfer Applications
		SELECT and DESIGN the double tube heat exchangers for process industry
		DESIGN the Shell & Tube Heat Exchangers for specified conditions
		DESIGN the condensers and evaporators for refrigeration applications
		DESIGN the compact heat exchangers

		ANALYSE the performance of counter and cross flow cooling tower.
402044C	Modern Machining Processes	UNDERSTAND and ANALYZE the mechanism, process parameters of mechanical assisted modern machining processes.
		UNDERSTAND the mechanism, construction and working of laser, plasma and electron beam assisted machining.
		CLASSIFY and ANALYZE the mechanism, process parameters of the chemical and electrochemical machining.
		RELATE and ANALYZE the mechanism and select process parameters Electrical Discharge Machining for an application.
		ILLUSTRATE the application of micromachining processes.
402044D	Industrial Engineering	SUGGEST appropriate nanomachining process for the specific application.
		EVALUATE the productivity and IMPLEMENT various productivity improvement techniques.
		APPLY work study techniques and UNDERSTANDS its importance for better productivity.
		DEMONSTRATE the ability to SELECT plant location, appropriate layout and material handling equipment.
		USE of Production planning and control tools for effective planning, scheduling and managing the shop floor control.
402044E	Internet of Things	PLAN inventory requirements and EXERCISE effective control on manufacturing requirements.
		productivity.
		EXPLAIN the Applications/Devices, Protocols and Communication Models of IoT
		DEMONSTRATE small Mechanical Engineering IoT oriented applications using Sensors, Actuators, Microcontrollers and Cloud
		SELECT commonly used IoT Simulation Hardware platforms
402044F	Computational Fluid Dynamics	APPLICATION of Interfacing and Communication Technologies for IoT
		ILLUSTRATE IoT Application Development and Security of IoT Ecosystem
		EVALUATE Present and Future Domain specific Applications of IoT Ecosystem
		DISTINGUISH and ANALYZE the governing equations of fluid mechanics and heat transfer in various formulations
		ANALYZE and MODEL the conduction and advection problems
402045A	Product Design and Development	ANALYZE and MODEL the Convection-Diffusion problems
		IDENTIFY and EVALUATE the External/Internal flow and its simulation
		DISTINGUISH and COMPARE concepts of stability and turbulence.
		USE and APPLY a CFD tool for effectively solving practical Fluid-Structure Interaction problems
		UNDERSTAND Product design and Product development processes
402045B	Experimental Methods in Thermal Engineering	UNDERSTAND Processes, tools and techniques for Market Survey & Product Specification Finalization
		UNDERSTAND Processes, tools and techniques for Concept Inception, Verification and selection
		UNDERSTAND Processes, tools and techniques for Concept Exploration & Development
		UNDERSTAND Processes, tools and techniques for Design Verification and Validation
		UNDERSTAND Processes, tools and techniques for Robust Design and Development
402045C	Additive Manufacturing	IDENTIFY the suitable instrument for measuring parameters as per performance characteristics
		ANALYZE experimental data by using different statistical techniques and estimate error
		DISTINGUISH different methods of temperature measurements and thermal radiation
		CLASSIFY various pressure measurement instruments and their comparison
		EXPLAIN different flow measurement methods and flow visualization techniques
402045D	Operations Research	different AI and ML techniques
		USE and CLASSIFY the fundamentals of Additive Manufacturing Technologies for engineering applications.
		technologies and STUDY their applications, benefits.
		technologies and STUDY their applications, benefits.
		product.
402045E	Augmented Reality and Virtual Reality	DESIGN and CONSTRUCT the AM equipment's for appropriate applications and the input CAD model.
		DEVELOP the knowledge of additive manufacturing for various real-life applications.
		making.
		different situations.
		method.
402046	Data Analytics Laboratory	programming approach.
		the optimal solutions using appropriate models for the situation.
		APPLY concepts of simulation and Dynamic programming
		UNDERSTAND fundamental Computer Vision, Computer Graphics and HumanComputer Interaction Techniques related to VR/AR
		UNDERSTAND Geometric Modeling Techniques
402047	Project (Stage I)	UNDERSTAND the Virtual Environment
		ANALYZE and EVALUATE VR/AR Technologies
		APPLY various types of Hardware and Software in Virtual Reality systems
		DESIGN and FORMULATE Virtual/Augmented Reality Applications
		UNDERSTAND the basics of data analytics using concepts of statistics and probability.
402048	Computer Integrated Manufacturing	set.
		EXPLORE the data analytics techniques using various tools
		APPLY data science concept and methods to solve problems in real world context
		SELECT advanced techniques to conduct thorough and insightful analysis and interpret the results
		Implement systems approach.
Sem II		
402048	Computer Integrated Manufacturing	To conceptualize a novel idea / technique into a product.
		To think in terms of a multi-disciplinary environment.
		To take on the challenges of teamwork, and document all aspects of design work.
		To understand the management techniques of implementing a project.
		EXPLAIN CIM and factory automation.
402048	Computer Integrated Manufacturing	UNDERSTAND the integration of hardware and software elements for CIM
		APPLY CNC program for appropriate manufacturing techniques.
		ANALYZE processes planning, quality and MRP integrated with computers.
		INTERPRET flexible, cellular manufacturing and group technology.
		ANALYZE the effect of IOT, Industry-4.0 and cloud base manufacturing.
		EXPLAIN the power generation scenario, the layout components of thermal power plant and ANALYZE the improved Rankine cycle.

402049	Energy Engineering	and methods to control the same.
		EXPLAIN the layout, component details of diesel engine plant, hydel and nuclear energy systems.
		ANALYZE gas and improved power cycles.
		EXPLAIN the fundamentals of renewable energy systems.
402050A	Quality & Reliability Engineering	EXPLAIN basic principles of energy management, storage and economics of power generation.
		UNDERSTAND basic concepts of quality and RELATE various quality tools
		DEVELOP analytical competencies to SOLVE problems on control charts and process capability.
		UNDERSTAND fundamental concepts of reliability.
		EVALUATE system reliability.
402050B	Energy Audit and Management	IDENTIFY various failure modes and CREATE fault tree diagram.
		UNDERSTAND the concept of reliability centered maintenance and APPLY reliability tests methods.
		EXPLAIN the energy need and role of energy management
		CARRY OUT an energy audit of the Institute/Industry/Organization
		ASSESS the ENCON opportunities using energy economics
		ANALYSE the energy conservation performance of Thermal Utilities
402050C	Manufacturing System and Simulation	ANALYSE the energy conservation performance of Electrical Utilities
		EXPLAIN the energy performance improvement by Cogeneration and WHR method
		UNDERSTAND the concepts of manufacturing system, characteristics, type, etc.
		UNDERSTAND the concepts of Facilities, manufacturing planning & control and Support System.
		UNDERSTAND the concepts of manufacturing towards solving productivity related problems.
		DEVELOP a virtual model to solve industrial engineering related issues such as capacity utilization, line balancing.
402050D	Engineering Economics and Financial Management	BUILDING tools to view and control simulations and their results.
		PLAN the data representation & Evaluate the results of the simulation.
		UNDERSTAND the business environment, concepts of economics and demand-supply scenario.
		APPLY the concepts of costing and pricing to evaluate the pricing of mechanical components.
		UNDERSTAND accounting systems and analyze financial statements using ratio analysis
402050E	Organizational Informatics	SELECT and PREPARE the appropriate type of budget and understand the controlling aspects of budget.
		UNDERSTAND the international business and trade system functioning
		DEMONSTRATE understanding of financing decisions of new ventures and performance
		Demonstrate an understanding of the scope, purpose and value of information systems in an organization.
		Understand the constituents of the information system.
402050F	Computational Multi Body Dynamics	Demonstrate the Understanding of the management of product data and features of various PLM aspects.
		Relate the basic concepts of manufacturing system and the ERP functionalities in context of information usage.
		Understand the manufacturing execution system and it's applications in functional areas.
		Outline the role of the information system in various types of business and allied emerging technologies.
		APPLY the basic terminology and concepts used in Multibody Dynamics to solve varieties of motion related applications
		IDENTIFY and EVALUATE the types of joints, its kinematics and relevant transformations
402051A	Process Equipment Design	DISTINGUISH and COMPARE the formulation methods
		DERIVE equations of motion and EVALUATE the kinematics and dynamics of rigid Planar inter-connected bodies
		DERIVE equations of motion and EVALUATE the kinematics of rigid Spatial interconnected bodies
		APPLY MBD tool effectively and SIMULATE it to solve and validate practical Multibody Dynamics problems and its solutions
		INTERPRET the different parameters involved in design of process Equipments.
402051B	Renewable Energy Technologies	ANALYZE thin and thick walled cylinder
		DESIGN cylindrical vessel, spherical vessel, tall vessels and thick walled high pressure vessels
		DESIGN different process Equipments and select pump, compressor etc. and auxiliary services
		EVALUATE Process parameters and their correlation
		APPLY the concepts of process equipment design for specific applications
402051C	Automation and Robotics	DESCRIBE fundaments, needs and scopes of renewable energy systems.
		EXPLAIN performance aspects of flat and concentric solar collectors along with applications.
		DESIGN solar photovoltaic system for residential applications.
		DESIGN AND ANALYSIS of wind energy conversion system.
		APPLY Installation practices of Wind and Solar Photovoltaic Systems for grid connection.
402051D	Industrial Psychology and Organizational Behavior	DETERMINE performance parameters of bio-energy conversion systems.
		UNDERSTAND the basic concepts of Automation
		UNDERSTAND the basic concepts of Robotics
		IDENTIFY and EVALUATE appropriate Drive for Robotic Applications
		COMPARE and SELECT End-effectors and Sensors as per Application
402051E	Electric and Hybrid Vehicle	DEVELOPE the Mathematical Modeling Approaches of Robot
		EVALUATE the fundamentals of robot programming and CLASSIFY the Applications
		DEMONSTRATE fundamental knowledge about need and scope of industrial - organizational psychology and behavior.
		ANALYZE the job requirement, have understanding of fatigue, boredom and improve the job satisfaction.
		UNDERSTAND the approaches to enhance the performance.
402052	Mechanical Systems	KNOWLEDGE of theories of organizational behavior, learning and social-system.
		UNDERSTAND the mechanism of group behavior, various aspects of team, leadership and conflict management.
		EVALUATE the organizational culture, manage the change and understands organizational development approaches.
		UNDERSTAND the basics related to e-vehicle
		CLASSIFY the different hybrid vehicles
402052	Mechanical Systems	IDENTIFY and EVALUATE the Prime Movers, Energy Storage and Controllers Topologies
		DEVELOP body frame with appropriate suspension system and TESTING of for eVehicles
		CLASSIFY and EVALUATE Battery Charging techniques and management
		specific information collection, Problem Definition, Task Specification, Solution Concept inception, Concept Development, System's the complete product development process.
		employment after passing your Undergraduate Degree Examination.

<p>402052</p>	<p>Analysis Laboratory</p>	<p>efficient energy use, security, health, education and transport, which will be coming your ways in the coming future. PRIORITIZE the concept of quality and standards, including systems reliability, safety and fitness for the intended purpose. INVENT yourself to face the challenges of future technologies and their associated Problems.</p>
<p>402053</p>	<p>Project (Stage II)</p>	<p>Implement systems approach. To conceptualize a novel idea / technique into a product. To think in terms of a multi-disciplinary environment To take on the challenges of teamwork, and document all aspects of design work. To understand the management techniques of implementing a project.</p>



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Process Manual for CO, PO & PSO Attainment

Sr. No.	Contents
1	Definitions
2	Programme Educational Objectives(PEOs)
3	Programme Specific Outcomes(PSOs)
4	Programme Outcomes (PO)
5	BLOOMSTAXONOMY
6	PEO-Mission Mapping
7	Mechanism of Mapping of PEO, PSO, PO&CO
8	Course Outcomes(COs)
9	CO-PO and CO-PSO Mapping
10	CO Attainment

DEFINITIONS (MBA)

• **Outcome Based Education:**

Outcome Based Education {OBE} Approach: Outcomes are about performance, and this implies:

- a) There must be a performer-the student(learner), not only the teacher
- b) There must be something performable (thus demonstrable or assessable) to perform
- c) The focus is on the performance, not the activity or task to be performed

• **Programme Educational Objectives(PEOs):**

Programme Educational- Objectives are a set of broad future-focused student performance outcomes that explicitly identify what students will be able to do with what they have learned, and what they will be like after they leave school and are living full and productive lives. Thus PEOs are what the programme is preparing graduates for in their career and professional life (to attain within a few years.aftergraduation1).

• **Graduate Attributes(GAs):**





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President

Prof. Sagar Suke
Group Director

Dr. Tanaji Dabade
Director

Graduate Attributes (GAs-) are the qualities, knowledge and capabilities that students are encouraged to take responsibility for developing throughout their studies and are the defining characteristics of the students passing out of the MBA program. These attributes include, but go beyond, the disciplinary expertise or technical knowledge.

- **Programme Outcomes(POs):**

Programme Outcomes are a set of narrow statements that describes what students (learners) of the programme are expected to know and be able to perform or attain by the time of graduation.

- **Programme Specific Outcomes(PSOs):**

Programme Outcomes are a set of narrow statements that describes what students (learners) of a particular specialization of the programme are expected to know and be able to perform or attain by the time of graduation. PSOs are also a function of the various course combinations offered by the Institute.

- **Learning Outcomes:**

A learning outcome is what a student CAN DO as a result of a learning experience. It describes a specific task that he/she is able to perform at a given level of competence under a certain situation. The three broad types of learning outcomes are:

- Disciplinary knowledge-and skills
- Generic skills
- Attitudes and values

Course Outcomes(COs):

A set of specific statements that describes the complex performances a student should be capable-of as a result of learning experiences within a course.

- **Teaching and Learning Activities(TLAs):**

The set of pedagogical tools and techniques or the teaching and learning activities that aim to help students to attain the intended learning outcomes and engage them in these learning activities through the teaching process.





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Dr. Tanaji Dabade
Director

- **Outcome Based Assessment(OBA):**

An assessment system that asks course teachers to first identify what it is that we expect students to be able to do once they have completed a course or program. It then asks course teachers to provide evidence that they are able to do so. In other words, how will each learning outcome be assessed? What evidence of student learning is most relevant for each learning outcome and what standard or criteria will be used to evaluate that evidence? Assessment is therefore a key part of outcome-based education and used to determine whether or not a qualification has been achieved.

Programme Educational Objectives(PEOs)for MBA

1. **PEO 1:** Graduates of the MBA program will successfully integrate core, cross-functional and inter- disciplinary aspects of management theories, models and frameworks with the real world practices and the sector specific nuances to provide solutions to real world business, policy and social issues in a dynamic and complex world.
2. **PEO 2:** Graduates-of the MBA program will possess excellent communication skills, excel in cross-functional, multi-disciplinary, multi-cultural teams, and have an appreciation for local, domestic and global contexts so as to manage continuity, change, risk, ambiguity and complexity.
3. **PEO 3:** Graduates of the MBA program will be appreciative of the significance of Indian ethos and values in managerial decision making and exhibit value centered leadership.
4. **PEO 4:** Graduates of the MBA program will be ready to engage in successful career pursuits covering a broad spectrum of areas in corporate, non-profit organizations, public policy, entrepreneurial ventures and engage in life-long learning.
5. **PEO 5:** Graduates of the MBA program will be recognized in their chosen fields for their





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managerial competence, creativity & innovation, integrity & sensitivity to local and global issues of social relevance and earn the trust & respect of theirs as inspiring, effective and ethical leaders, managers, entrepreneurs, intrapreneurs and change agents.

PROGRAMMESPECIFICOUTCOMES<PSOs>

PSOs	PSO Description
1.MBA Entrepreneurship Development Activities	1. MBA graduate must be able to advanced there entrepreneurship independently or in other organizations in which they are employed.
	2. MBA graduates must be able to analyze the business environment with leadership and problem-solving skills.
2.Research Guidance and Undertaking	1. MBA graduates are able to Undertaking research in business management is important since it aids a business plan for the future, based on what may have occurred in earlier times.





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PROGRAMMEOUTCOMESMBA<POs>

POs	Attribute	Program Outcome
PO 1	Generic and Domain Knowledge	Ability to articulate, illustrate, analyze, synthesize and apply the knowledge of principles and frameworks of management and allied domains to the solutions of real
PO 2	Problem Solving & Innovation	Ability to Identify, formulate and provide innovative solution frameworks to real world complex business and social problems by systematically applying modern quantitative and qualitative problem solving tools and techniques.
PO 3	Critical Thinking	Ability to conduct investigation of multidimensional business problems using research based knowledge and research methods to arrive at data driven decisions.
PO 4	Effective Communication	Ability to effectively communicate in cross-cultural settings in technology mediated environments, especially in the business context and with society at large.
PO 5	Leadership and Team Work	Ability to collaborate in an organizational context and across organizational boundaries and lead themselves and others in the achievement of organizational goals and optimize outcomes for-all stakeholders.
PO 6	Global Orientation and Cross	Cultural Appreciation: Ability to approach any relevant business issues from a global perspective and exhibit an appreciation of Cross Cultural aspects of business and management.





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P O 7	Entrepreneurship	Ability to identify entrepreneurial opportunities and leverage managerial & leadership skills for founding, leading & managing startups as well as professionalizing and growing family businesses.
P08	Environment and Sustainability	Ability to demonstrate knowledge of and need for sustainable development and assess the impact of managerial decisions and business priorities on the societal, economic and environmental aspects.
PO9	Social Responsiveness and Ethics	Ability to exhibit a broad appreciation of the ethical and value underpinnings of managerial choices in a political, cross
POI0	Life Long Learning	Ability to operate independently in new environment, acquire new knowledge and skills and assimilate them into the internalized knowledge and skills.





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Blooms Taxonomy

01	02	03	04	05	06
KNOWLEDGE:	UNDERSTAND:	APPLY:	ANALYSE:	EVALUATE:	CREATE:
Define, Describe, Recognize, Explain, Recite, Memorize, Illustrate,	Summarize, Interpret, Classify, Compare, Contrast, Infer, Relate, Extract, Paraphrase, Cite	Solve, Identify, Change, Relate, Complete, Tell, Use, Sketch, Teach, Articulate, Discover, Quote Transfer	Contrast, Connect, Relate, Devise, Correlate, Illustrate, Distill, Conclude, Categorize, Take Apart	Criticize, Reframe, Judge, Defend, Appraise, Value, Prioritize,	Design, Modify, Role-Play, Develop, Rewrite, Pivot, Modify,

LEVELS OF OUTCOMES

All the courses together-must cover the POs (and PSOs).-For a course we map the COs to POs through the CO-PO matrix and to PSOs through the CO-PSO matrix as shown below.

The various correlation levels are:

- ▶ "1"-Slight(Low)Correlation
- ▶ "2"-Moderate (Medium)Correlation
- ▶ "3"-Substantial(High)Correlation





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PO-PSO Mapping

(0-No correlation,1- Low Correlation, 2-Moderate Correlation,3-High Correlation)

PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
	Generic and Domain Knowledge	Problem Solving & Innovation	Critical Thinking	Effective Communication	Leadership and Team Work	Global Orientation and Cross-Cultural Appreciation	Entrepreneurship	Environment and Sustainability	Social Responsibility and Ethics	Life Long Learning
Entrepreneurship Development Activities	2	3	3	2	3	3	3	3	3	3
Research Guidance and Undertaking	2	2	3	3	1	3	3	3	3	3





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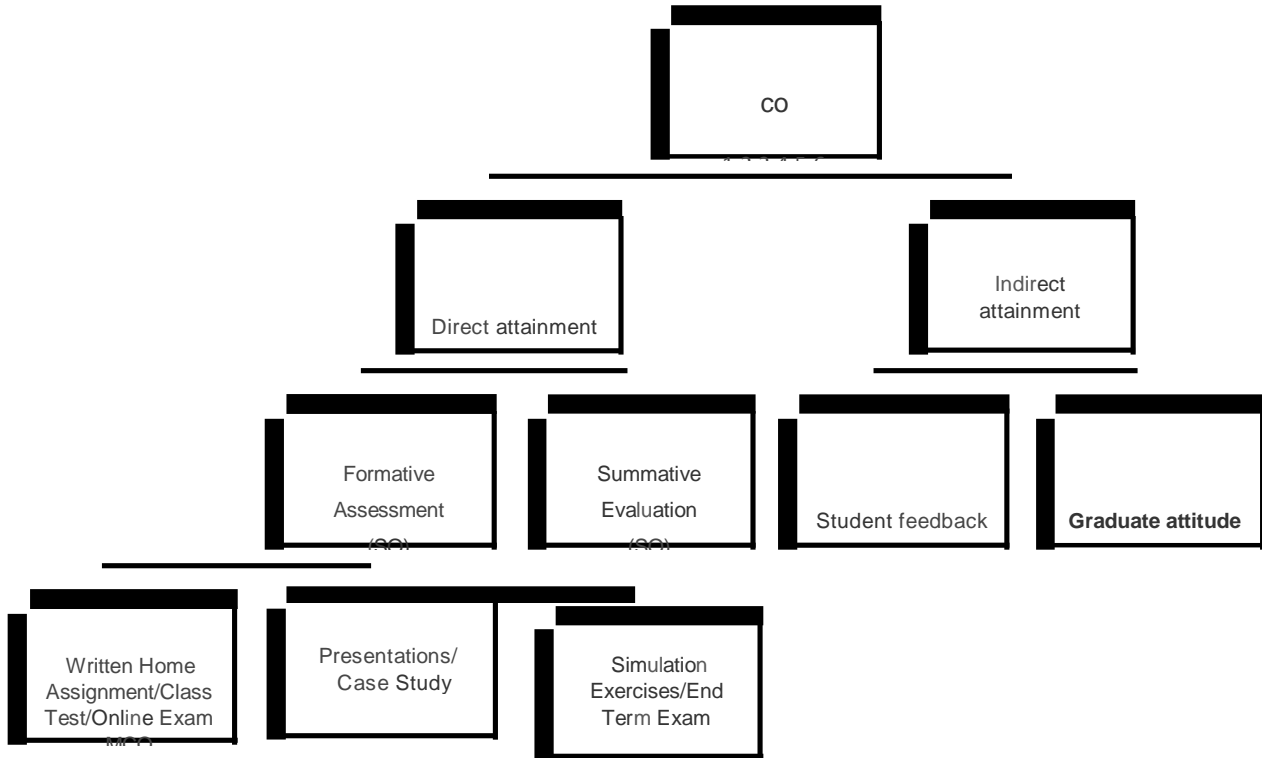
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Mechanism CO Attainment MBA Syllabus 2019Pattern <revised>





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MBA Programme Course Types & Evaluation Pattern MBA (2019PATTERN SYALLBUS)

Sr. No.-	Course Type	Credits	Nature	Comprehensive Concurrent Evaluation (CCE)	End Semester Evaluation (ESE) Marks	Total Marks
			BASIC COURSE TYPES			
1	Generic Core (GC)	3	Compulsory	50	50-	100
2	Subject Core (SC)	7	Compulsory (Specialization specific)	50	50	100
3	Generic Elective (GE- UL)	2	Elective	0	50	50
4	Generic Elective (GE- IL)	2	Elective	50	0	50
5	Subject Elective (SE - IL)	2	Elective (Specialization specific)	50	0	50
6	Summer Internship Project (SIP)	6	Project (Compulsory)	50	50	100

Dr.Tanaji Dabade
Director



Programme Outcomes:

Sr. No	PO	Description
PO-1	Generic and Domain Knowledge	Ability to articulate, illustrate, analyze, synthesize and apply the knowledge of principles and frameworks of management and allied domains to the solutions of real-world complex business issues
PO-2	Problem Solving & Innovation	Ability to identify, formulate and provide innovative solution frameworks to real world complex business and social problems by systematically applying modern quantitative and qualitative problem solving tools and techniques.
PO-3	Critical Thinking	Ability to conduct investigation of multidimensional business problems using research based knowledge and research methods to arrive at data driven decisions
PO-4	Effective Communication	Ability to effectively communicate in cross-cultural settings, in technology mediated environments, especially in the business context and with society at large
PO-5	Leadership and Team Work	Ability to collaborate in an organizational context and across organizational boundaries and lead themselves and others in the achievement of organizational goals and optimize outcomes for all
PO-6	Global Orientation and Cross-Cultural Appreciation	Ability to approach any relevant business issues from a global perspective and exhibit an appreciation of Cross Cultural aspects of business and management.
PO-7	Entrepreneurship	Ability to identify entrepreneurial opportunities and leverage managerial & leadership skills for founding, leading & managing startups as well as professionalizing and growing family businesses.
PO-8	Environment and Sustainability	Ability to demonstrate knowledge of and need for sustainable development and assess the impact of managerial decisions and business priorities on the societal, economic and environmental aspects.
PO-9	Social Responsiveness and Ethics	Ability to exhibit a broad appreciation of the ethical and value underpinnings of managerial choices in a political, cross-cultural, globalized, digitized, socio-economic environment and distinguish between ethical and unethical behaviors & act with integrity.
PO-10	LifeLong Learning	Ability to operate independently in new environment, acquire new knowledge and skills and assimilate them into the internalized knowledge and skills.

University Recommended COs

Course Code	Course Title	Cognitive Abilities	Course Objectives
101	Managerial Accounting	Remembering	DESCRIBE the basic concepts related to Accounting, Financial Statements, Cost Accounting, Marginal Costing, Budgetary Control and Standard Costing
		Understanding	EXPLAIN in detail, all the theoretical concepts taught through the syllabus.
		Applying	PERFORM all the necessary calculations through the relevant numerical problems.
		Analysing	ANALYSE the situation and decide the key financial as well as non-financial elements involved in the situation.
		Evaluating	EVALUATE the financial impact of the decision.
102	Organizational Behaviour	Remembering	DESCRIBE the major theories, concepts, terms, models, frameworks and research findings in the field of organizational behavior.
		Understanding	EXPLAIN the implications of organizational behavior from the perspectives of employees, managers, leaders and the organization.
		Applying	MAKE USE OF the Theories, Models, Principles and Frameworks of organizational behavior in specific organizational settings.
		Analysing	DECONSTRUCT the role of individual, groups, managers and leaders in influencing how people behave and in influencing organizational culture at large.
		Evaluating	FORMULATE approaches to reorient individual, team, managerial and leadership behaviour in order to achieve organizational goals.
		Creating	ELABORATE UPON the challenges in shaping organizational behavior, organizational culture and organizational change.
103	Economic Analysis for Business Decisions	Remembering	DEFINE the key terms in micro-economics.
		Understanding	EXPLAIN the key terms in micro-economics, from a managerial perspective.
		Applying	IDENTIFY the various issues in an economics context and DEMONSTRATE their significance from the perspective of business decision making.
		Analysing	EXAMINE the inter-relationships between various facets of micro-economics from the perspective of a consumer, firm, industry, market, competition and business cycles.
		Evaluating	DEVELOP critical thinking based on principles of micro-economics for informed business decision making
		Creating	ANTICIPATE how other firms in an industry and consumers will respond to economic decisions made by a business, and how to incorporate these responses into their own decisions.
104	Business Research Methods	Remembering	DEFINE various concepts & terms associated with scientific business research.
		Understanding	EXPLAIN the terms and concepts used in all aspects of scientific business research.
		Applying	MAKE USE OF scientific principles of research to SOLVE contemporary business research problems.
		Analysing	EXAMINE the various facets of a research problem and ILLUSTRATE the relevant aspects of the research process from a data driven decision perspective.
		Evaluating	JUDGE the suitability of alternative research designs, sampling designs, data collection instruments and data analysis options in the context of a given real-life business research problem from a data driven decision perspective.
		Creating	FORMULATE alternative research designs, sampling designs, data collection instruments, testable hypotheses, data analysis strategies and research reports to address real-life business research problems.
105	Basics of Marketing	Remembering	RECALL and REPRODUCE the various concepts, principles, frameworks and terms related to the function and role of marketing.
		Understanding	DEMONSTRATE the relevance of marketing management concepts and frameworks to a new or existing business across wide variety of sectors and ILLUSTRATE the role that marketing plays in the 'tool kit' of every organizational leader and manager.
		Applying	APPLY marketing principles and theories to the demands of marketing function and practice in contemporary real world scenarios.
		Analysing	EXAMINE and LIST marketing issues pertaining to segmentation, targeting and positioning, marketing environmental forces, consumer buying behavior, marketing mix and Product Life Cycle in the context of real world marketing offering (commodities, goods, services, e-products/ e-services).
		Evaluating	EXPLAIN the interrelationships between segmentation, targeting and positioning, marketing environment, consumer buying behavior, marketing mix and Product Life Cycle with real world examples.
		Creating	DISCUSS alternative approaches to segmentation, targeting and positioning, the marketing environment, consumer buying behavior, marketing mix and Product Life Cycle in the context of real world marketing offering (commodities, goods, services, e-products/ e-services.).
106	Digital Business	Remembering	DESCRIBE the conceptual framework of e-commerce, mobile commerce and social commerce.
		Understanding	SUMMARIZE the impact of information, mobile, social, digital, IOT and related technologies on society, markets & commerce.
		Applying	ILLUSTRATE value creation & competitive advantage in a digital Business environment.
		Analysing	EXAMINE the changing role of intermediaries, changing nature of supply chain and payment systems in the online and offline world.
		Evaluating	ELABORATE upon the various types of digital business models and OUTLINE their benefits and limitations.
		Creating	DISCUSS the various applications of Digital Business in the present day world.
107	Management Fundamentals	Remembering	ENUMERATE various managerial competencies and approaches to management.
		Understanding	EXPLAIN the role and need of Planning, Organizing, Decision Making and Controlling.
		Applying	MAKE USE OF the principles of goal setting and planning for simple as well as complex tasks and small projects.
		Analysing	COMPARE and CONTRAST various organizational structures of variety of business and not-for-profit entities in a real world context.
		Evaluating	BUILD a list of the decision making criteria used by practicing managers, leaders and entrepreneurs in routine and non-routine decision making situations and EVALUATE and EXPLAIN the same.
		Creating	FORMULATE and DISCUSS a basic controlling model in a real life business, startup and not-for-profit organizational context.
108	Indian Economy	Remembering	DESCRIBE the present state of Indian Economy and LIST major economic policy issues in the current context
		Understanding	EXPLAIN the economic development strategy since Independence and
		Applying	DISCUSS the priorities in the current context.
		Analysing	ILLUSTRATE the economic impact of Monetary policy and Fiscal Policy, Economic Reforms, Demographic Transition in India, Changing profile of GDP, Growth and Inequality and Trade Policy in the Indian context.
		Evaluating	EXAMINE the changing profile of human capital, employment, productivity and ILLUSTRATE the linkages with Soft Infrastructure, growth of Start-ups, GDP composition of India.
109	Entrepreneurship Development	Remembering	DEFINE the key terms, LIST the Attributes and Characteristics of Entrepreneurs features and ENUMERATE the Factors influencing Entrepreneurship Growth.
		Understanding	DISCUSS various theories of entrepreneurship and the entrepreneurship development ecosystem in Indian context.
		Applying	APPLY the theories of entrepreneurship and entrepreneurship development framework to analyze and identify entrepreneurial opportunities.
		Analysing	DISCRIMINATE between potential options available for entrepreneur for embarking on establishing a Start Up
		Evaluating	EVALUATE the start up ecosystem and the entrepreneurial opportunities in light of requirements of a business plan.
		Creating	CREATE a business plan that captures entrepreneurs and variety of entrepreneur motivations, entrepreneur culture and sectoral opportunities and financing options.
113	Verbal Communication Lab	Remembering	RECOGNIZE the various elements of communication, channels of communication and barriers to effective communication.
		Understanding	EXPRESS themselves effectively in routine and special real world business interactions.
		Applying	DEMONSTRATE appropriate use of body language.
		Analysing	TAKE PART IN professional meetings, group discussions, telephonic calls, elementary interviews and public speaking activities.
		Evaluating	APPRAISE the pros and cons of sample recorded verbal communications in a business context.
114	Enterprise Analysis and Desk Research	Creating	CREATE and DELIVER effective business presentations, using appropriate technology tools, for common business situations.
		Remembering	DESCRIBE the key historical, organizational, market related, financial, governance, leadership and social responsibility dimensions of a real world business organization.
		Understanding	SUMMARIZE the regional, national and global footprint of a real world business organization.
		Applying	DEMONSTRATE the use of secondary – offline and online resources to profile a real world business organization.
		Analysing	ANALYSE, using tables and charts, the trends in market standing and financial performance of a real world business organization over the last 5 years.
		Evaluating	COMPOSE a succinct summary of future plans of a real world business organization the company website, shareholders reports and other information available in the public domain.
115	Selling & Negotiations Skills Lab	Creating	IMAGINE the key challenges and opportunities for a real world business organization in the immediate future (1 to 3 years).
		Remembering	DESCRIBE the various selling situations and selling types.
		Understanding	OUTLINE the pre-sales work to be carried out by a professional salesperson.
		Applying	IDENTIFY the key individuals involved in a real world sales process for a real world product/ service / e-product / e-service.
		Analysing	FORMULATE a sales script for a real world sales call for a product/ service / e-product / e-service.
		Evaluating	DECONSTRUCT the pros and cons of sample real world sales calls for a product/ service / e-product / e-service.
191	Human Rights- 1	Creating	DEVELOP a sales proposal for a real world product/ service / e-product / e-service and for a real world selling situation.
			To Familiar with the Concepts of Human Rights

192	Introduction to Cyber Security		To Familiar with the Concepts of Cyber Security
201	Marketing Management (MM)	Remembering	DESCRIBE the key terms associated with the 4 Ps of marketing.
		Understanding	COMPARE and CONTRAST various approaches to pricing for a real world marketing offering (commodities, goods, services, e-products/ e-services.)
		Applying	DEMONSTRATE an understanding of various channel options for a real world marketing offering (commodities, goods, services, e-products/ e-services.)
		Analysing	EXAMINE the product line of a real world marketing offering (commodities, goods, services, e-products/ e-services.)
202	Financial Management (FM)	Evaluating	EXPLAIN the role of various communication mix elements for a real world marketing offering (commodities, goods, services, e-products/ e-services.)
		Creating	DESIGN a marketing plan for a real world marketing offering (commodities, goods, services, e-products/ e-services.)
		Remembering	DESCRIBE the basic concepts related to Financial Management, Various techniques of Financial Statement Analysis, Working Capital, Capital Structure, Leverages and Capital Budgeting.
		Understanding	EXPLAIN in detail all theoretical concepts throughout the syllabus
203	Human Resource Management (HRM)	Applying	PERFORM all the required calculations through relevant numerical problems.
		Analysing	ANALYZE the situation and • comment on financial position of the firm • estimate working capital required • decide ideal capital structure • evaluate various project proposals
		Evaluating	EVALUATE impact of business decisions on Financial Statements, Working Capital, Capital Structure and Capital Budgeting of the firm
		Remembering	DESCRIBE the role of Human Resource Function in an Organization.
204	Operations & Supply Chain Management	Understanding	ENUMERATE the emerging trends and practices in HRM.
		Applying	ILLUSTRATE the different methods of HR Acquisition and retention.
		Analysing	DEMONSTRATE the use of different appraisal and training methods in an Organization.
		Evaluating	OUTLINE the compensation strategies of an organization
208	Geopolitics & World Economic Systems	Creating	INTERPRET the sample job descriptions and job specifications for contemporary entry level roles in real world organizations.
		Remembering	DEFINE basic terms and concepts related to Production, Operations, Services, Supply Chain and Quality Management.
		Understanding	EXPLAIN the process characteristics and their linkages with process-product matrix in a real world context.
		Applying	DESCRIBE the various dimensions of production planning and control and their inter-linkages with forecasting.
209	Start Up and New Venture Management	Analysing	CALCULATE inventory levels and order quantities and MAKE USE OF various inventory classification methods.
		Evaluating	OUTLINE a typical Supply Chain Model for a product / service and ILLUSTRATE the linkages with Customer Issues, Logistic and Business Issues in a real world context.
		Creating	ELABORATE upon different operational issues in manufacturing and services organisations where the decision-making element is emphasized.
		Remembering	ENUMERATE the various elements of global economic system.
210	Qualitative Research Methods	Understanding	EXPLAIN the role of key trade organizations in the global economic system.
		Applying	IDENTIFY the crucial elements of international trade laws.
		Analysing	ANALYSE the forces that work for and against globalization.
		Evaluating	ASSESS the impact of the elements of the Global Economic System on the India Economy.
213	Written Analysis and Communication Lab	Remembering	DESCRIBE the strategic decisions involved in establishing a startup.
		Understanding	EXPLAIN the decision making matrix of entrepreneur in establishing a startup.
		Applying	IDENTIFY the issues in developing a team to establish and grow a startup
		Analysing	FORMULATE a go to market strategy for a startup.
205 MKT	Marketing Research	Evaluating	DESIGN a workable funding model for a proposed startup.
		Creating	DEVELOP a convincing business plan description to communicate value of the new venture to customers, investors and other stakeholders.
		Remembering	DESCRIBE the stages of scientific researches and qualitative research methods.
		Understanding	COMPARE characteristics of qualitative research and quantitative research.
206 MKT	Consumer Behaviour	Applying	CONSTRUCT appropriate research and sampling designs for Qualitative research work in real world business and non-business contexts
		Analysing	ANALYZE the use of appropriate Qualitative research methods in real world Business and non-business contexts.
		Evaluating	ASSESS the Qualitative Research work with the help of different quality criteria
		Creating	COMBINE Qualitative and Quantitative research approaches in a real world Research project.
217 MKT	Integrated Marketing Communications	Remembering	DESCRIBE stages in a typical communication cycle and the barriers to effective communication.
		Understanding	SUMMARIZE long essays and reports into précis and executive summaries.
		Applying	USE Dictionary and Thesaurus to draft and edit a variety of business written communication.
		Analysing	EXAMINE sample internal communications in a business environment for potential refinements.
205 MKT	Marketing Research	Evaluating	COMPOSE variety of letters, notices, memos and circulars.
		Remembering	IDENTIFY and DESCRIBE the key steps involved in the marketing research process.
		Understanding	COMPARE and CONTRAST various research designs, data sources, data collection instruments, sampling methods and analytical tools and SUMMARIZE their strengths & weaknesses.
		Applying	DEMONSTRATE an understanding of the ethical framework that market research needs to operate within.
206 MKT	Consumer Behaviour	Analysing	ANALYZE quantitative data and draw appropriate Inferences to address a real life marketing issue.
		Evaluating	DESIGN a market research proposal for a real life marketing research problem and EVALUATE a market research proposal.
		Creating	PLAN and UNDERTAKE qualitative or quantitative Market Research and demonstrate the ability to appropriately analyse data to resolve a real life marketing issue.
		Remembering	ENUMERATE social and psychological factors and their influence his/her behavior as a consumer.
217 MKT	Product and Brand Management	Understanding	EXPLAIN fundamental concepts associated with consumer and organizational buying behavior.
		Applying	APPLY consumer behavior concepts to real world strategic marketing management decision making.
		Analysing	ANALYZE the dynamics of human behavior and the basic factors that influence the consumer's decision process.
		Evaluating	EXPLAIN the consumer and organizational buying behavior process for a variety of products (goods/services).
217 MKT	Product and Brand Management	Creating	DISCUSS the use of the Internet, e-commerce & information technology with respect to the changing consumer marketplace and ELABORATE on the various aspects of the changing Indian Consumer.
		Remembering	DESCRIBE the IMC mix and the IMC planning process.
		Understanding	EXAMINE the role of integrated marketing communications in building brand identity, brand equity, and customer franchise.
		Applying	CONSTRUCT a marketing communications mix to achieve the communications and behavioural objectives of the IMC campaign plan.
205 FIN	Financial Markets and Banking Operations	Analysing	ANALYZE and critically evaluate the communications effects and results of an IMC campaign to determine its success for a variety of brands.
		Evaluating	DESIGN a sales promotion campaign and CHOOSE the avenues for Public Relations, Publicity and Corporate Advertising for a consumer and a business-to-business product.
		Creating	DEVELOP an integrated cross-media strategy and creative message and concept to reach the target audience and deliver the brand promise through an IMC campaign for a variety of brands.
		Remembering	DEFINE the key concepts and DESCRIBE the elements of a product strategy.
206 FIN	Personal Financial Planning	Understanding	EXPLAIN the process and methods of brand management, including how to establish brand identity and build brand equity.
		Applying	IDENTIFY the Brand Marketing Strategies for Leaders, Challengers, Followers and Niche Strategies for real life consumer, business products and services operating in various markets and in the digital space.
		Analysing	EXAMINE the key brand concepts by articulating the context of and the rationale of application for real life consumer, business products and services operating in various markets and in the digital space.
		Evaluating	FORMULATE effective branding strategies for real life consumer, business products and services operating in various markets and in the digital space.
205 FIN	Financial Markets and Banking Operations	Creating	COLLECT brand audit data using appropriate tools and PROPOSE strategic recommendations for Reinforcing / Revitalizing / Rejuvenating failed Brands for real life consumer, business products and services in various markets and in the digital space.
		Remembering	RECALL the structure and components of Indian financial system through banking operations & Financial Markets.
		Understanding	UNDERSTAND the concepts of financial markets, their working and importance.
		Applying	ILLUSTRATE the working and contribution of Banks and NBFCs to the Indian Economy.
206 FIN	Personal Financial Planning	Analysing	ANALYZE the linkages in the Financial Markets.
		Evaluating	EXPLAIN the various banking and accounting transactions.
		Creating	DEVELOP necessary competencies expected of a finance professional.
		Remembering	UNDERSTAND the need and aspects of personal financial planning
217 FIN	Securities Analysis & Portfolio Management	Understanding	Describe the investment options available to an individual
		Applying	IDENTIFY types of risk and means of managing it
		Analysing	DETERMINE the ways of personal tax planning
		Evaluating	EXPLAIN retirement and estate planning for an individual and design a financial plan.
217 FIN	Futures & Option	Creating	CREATE a financial plan for a variety of individuals.
		Remembering	REMEMBER various concepts taught in the syllabus.
		Understanding	EXPLAIN various theories of Investment Analysis and Portfolio Management.
		Applying	CALCULATE risk and return on investment using various concepts covered in the syllabus.
217 FIN	Futures & Option	Analysing	ANALYZE and DISCOVER intrinsic value of a security.
		Evaluating	DESIGN/ CREATE optimal portfolio.
		Remembering	DESCRIBE the basic concepts related to Derivatives, Types of Derivative products and Risk Management
		Understanding	EXPLAIN in detail the terminology used in the Futures and Options segment of finance domain
205 HRM	Competency Based Human Resource Management	Applying	UNDERSTAND and DIFFERENTIATE between Options and Futures pricing and apply the understanding in the simulated virtual trading platform.
		Analysing	ANALYZE and offer optimum solutions in the cases of risk management through hedging with futures and options.
		Evaluating	EVALUATE the various derivative strategies for their application in different situations.
		Remembering	DEFINE the key terms related to performance management and competency development.
205 HRM	Competency Based Human Resource Management	Understanding	EXPLAIN various models of competency development.
		Applying	PRACTICE competency mapping.
		Analysing	ANALYZE competencies required for present and potential future jobroles at various levels and across variety of organizations.
		Evaluating	DESIGN and MAP their own competency and plan better and appropriate career for themselves.
205 HRM	Competency Based Human Resource Management	Evaluating	DESIGN and MAP their own competency and plan better and appropriate career for themselves.
		Creating	DEVELOP a customized competency model in accordance with the corporate requirements.

206 HRM	Employee Relations and Labour Legislations	Remembering	SHOW awareness of important and critical issues in Employee Relations
		Understanding	INTERPRET and relate legislations governing employee relations.
		Applying	DEMONSTRATE an understanding of legislations relating to working environment.
		Analysing	OUTLINE the role of government, society and trade union in ER.
		Evaluating	EXPLAIN aspects of collective bargaining and grievance handling.
		Creating	DISCUSS the relevant provisions of various Labour Legislations.
217 HRM	Labour Welfare	Remembering	ENUMERATE the key concepts of the subject matter.
		Understanding	DESCRIBE the key aspects of the labour policy regulation in the country.
		Applying	IDENTIFY the applicability of various legislations to variety of real world organizations.
		Analysing	EXAMINE the traditional concept of labour welfare in the industry.
		Evaluating	EXPLAIN the conditions of labour and their welfare and social security needs in the country.
		Creating	ELABORATE upon the perspective of labour problems and remedial measures in the country.
218 HRM	Lab in Recruitment and Selection	Remembering	DESCRIBE the key concepts such as Job Specification, Job description, Recruitment and Selection.
		Understanding	COMPARE and CONTRAST various methods of Recruitment and Selection.
		Applying	DEVELOP Job Specifications and Job descriptions in a variety of context.
		Analysing	ANALYZE various Personality types.
		Evaluating	EXPLAIN the profiling techniques used to test Personality, Aptitude, Competency.
		Creating	
205 OSCM	Service Operations Management – I	Remembering	DESCRIBE the nature and CHARACTERISTICS of services and the services economy.
		Understanding	DESCRIBE the service design elements of variety of services.
		Applying	USE service blueprinting for mapping variety of real life service processes.
		Analysing	ANALYZE alternative locations and sites for variety of service facilities.
		Evaluating	JUDGE and EXPLAIN the service orientation at variety of service facilities / organizations.
		Creating	CREATE flow process layouts for variety of services.
206 OSCM	Supply Chain Management	Remembering	DESCRIBE the key concepts of Supply Chain Management and the – driving forces in contemporary Supply Chain Management.
		Understanding	EXPLAIN the structure of modern day supply chains.
		Applying	IDENTIFY the various flows in real world supply chains.
		Analysing	COMPARE and CONTRAST push and pull strategies in Supply Chain Management.
		Evaluating	EXPLAIN the key Operational Aspects in Supply Chain Management.
		Creating	DISCUSS the relationship between Customer Value and Supply Chain Management.
217 OSCM	Planning & Control of Operations	Remembering	DESCRIBE the building blocks of Planning & Control of Operations.
		Understanding	EXPLAIN the need for aggregate planning and the steps in aggregate planning.
		Applying	MAKE USE OF the various forecasting approaches in the context of operations planning process.
		Analysing	ILLUSTRATE how capacity planning is done in organizations and its relationship with MRP.
		Evaluating	EXPLAIN the importance of scheduling in operations management.
		Creating	CREATE a Bill of Materials.
218 OSCM	Productivity Management	Remembering	DEFINE various types of productivity and measures of productivity.
		Understanding	DEMONSTRATE the linkages between various measures of productivity.
		Applying	APPLY Value Analysis and Value Engineering principles to simple situations related to operations management.
		Analysing	APPLY various types of charts and diagrams to carry out work study and method study.
		Evaluating	DETERMINE the Standard Time using Techniques of Work Measurement.
		Creating	ELABORATE upon the concepts of JIT, Lean, 5S, TPM, BPR, Six Sigma, World Class manufacturing.
205 BA	Basic Business Analytics using R	Remembering	IDENTIFY opportunities for creating value using business analytics and
		Understanding	DESCRIBE the basic concepts in Business Analytics, DATA Science and Business Intelligence.
		Applying	EXPLAIN the applications of Business Analytics in multiple business domains and scenarios.
		Analysing	DEVELOP a thought process to think like a data scientist/business analyst.
		Evaluating	ANALYZE data graphically by creating a variety of plots using the appropriate visualization tools of R.
		Creating	SELECT the right functions of R for the given analytics task.
206 BA	Data Mining	Remembering	DEFINE the key terms associated with Data Mining
		Understanding	EXPLAIN the various aspects of Data
		Applying	APPLY classification models
		Analysing	ANALYZE using clustering models
		Evaluating	SELECT appropriate association analysis and anomaly detection tools.
		Creating	COMBINE various data mining tools and use them in live analytical projects in business scenarios.
217 BA	Marketing Analytics	Remembering	DESCRIBE the use of Voice of the Customer data in making data driven marketing decisions.
		Understanding	DEMONSTRATE an understanding of utility theory to measure customer preferences and choices.
		Applying	IDENTIFY what customers' value in a product, and assess what they are willing to pay for it.
		Analysing	ILLUSTRATE the use of various tools and frameworks to solve strategic marketing problems using marketing data.
		Evaluating	DETERMINE the most effective target markets
		Creating	DESIGN a study that incorporates the key tools of Marketing Analytics.
218 BA	Retailing Analytics	Remembering	ENUMERATE the characteristics, opportunities and challenges of New Age Retailing and Digital Consumers.
		Understanding	UNDERSTAND Consumer Buying Behavior and Trends in new age retailing.
		Applying	USE various kinds of data for performing Retailing Analytics.
		Analysing	ILLUSTRATE the use of various tools and frameworks for predictive retail analytics.
		Evaluating	DERIVE a variety of metrics and quantify key outcomes in multiple areas of Retail.
		Creating	BUILD value for Retail and Marketing by deriving Marketing ROI metrics.
291	Human Rights-II		To Familiar with the Concepts of Human Rights
292	Information Security-II		To Familiar with the Concepts of Cyber Security
301	Strategic Management-SM	Remembering	DESCRIBE the basic terms and concepts in Strategic Management.
		Understanding	EXPLAIN the various facets of Strategic Management in a real world context.
		Applying	DESCRIBE the trade-offs within and across strategy formulation, implementation, appraisal.
		Analysing	INTEGRATE the aspects of various functional areas of management to develop a strategic perspective.
		Evaluating	EXPLAIN the nature of the problems and challenges confronted by the top management team and the approaches required to function effectively as strategists.
		Creating	DEVELOP the capability to view the firm in its totality in the context of its environment.
302	Decision Science	Remembering	DESCRIBE the concepts and models associated with Decision Science.
		Understanding	UNDERSTAND the different decision-making tools required to achieve optimisation in business processes.
		Applying	APPLY appropriate decision-making approach and tools to be used in business environment.
		Analysing	ANALYZE real life situation with constraints and examine the problems using different decision-making tools
		Evaluating	EVALUATE the various facets of a business problem and develop problem solving ability
		Creating	DISCUSS & propose the various applications of decision tools in the present business scenario.
303	Summer Internship Project		To offer the opportunity for the young students to acquire on job the skills, knowledge, attitudes, and perceptions along with the experience needed to constitute a professional identity.
306	International Business Economics	Remembering	RECALL and DEFINE the economic aspects of international business.
		Understanding	DEMONSTRATE the outcomes of globalising and liberalising trade environment, trade policy frameworks and macroeconomic linkages of the open economy.
		Applying	IDENTIFY the mechanisms and working of the foreign exchange markets.
		Analysing	EXAMINE how a trade policy improves or diminishes the prospects of survival / growth of business.
		Evaluating	MEASURE the implications of International Financial Crisis and its repercussions on International Trade
		Creating	COMPOSE a matrix of various economic aspects of international business and their linkages with Indian Economy
307	International Business Environment	Remembering	Recall and Describe the key concepts of international Business Environment
		Understanding	Understand the relevance of Multinational Corporations (MNCs) in global trade
		Applying	Demonstrate the significance of FDI and FPI in respect of developing economy
		Analysing	Analyze the issues related to Labor, Environmental and Global Value chain
		Evaluating	Formulate and discuss the case related to various Agreements under WTO and contemporary global business environment.
		Creating	
308	Project Management	Remembering	DEFINE the key terms and concepts in project management.
		Understanding	EXPLAIN the importance of project management methodologies and tools at the distinct stages in the Project's life cycle
		Applying	ILLUSTRATE the importance of PM in most industries and businesses
		Analysing	EXAMINE the importance of Leadership specifically in heterogenous and virtual teams as well as governance and approaches to conflict resolutions
		Evaluating	DESIGN dashboard, status report and index for Key Performance Indicators of project for the Management
		Creating	
304 MKT	Services Marketing	Remembering	RECALL the key concepts in services marketing
		Understanding	Describe the role of Extended Marketing Mix in Services in managing consumer behavior and in improving service quality.
		Applying	Identify concepts related to service experience in the context of real world offering.
		Analysing	Examine the elements of services marketing and service quality in contemporary context.
		Evaluating	EVALUATE Segmentation, Targeting & Positioning of Services and assess its importance and challenges in the dynamic marketing environment
		Creating	DEVELOP marketing mix, service blueprint and servicescapes for various services offering
305 MKT	Sales & Distribution Management	Remembering	DESCRIBE the theoretical concepts related to Sales and Distribution Management Domain.
		Understanding	UNDERSTAND the role, concepts, importance, techniques and approaches required for effective designing and implementation of various aspects in the Sales and Distribution Management.
		Applying	APPLY various concepts related to Sales and Distribution Management.
		Analysing	ANALYZE the real-life issues related to design and implementation of Sales and Distribution Management Strategy.
		Evaluating	EVALUATE suitability of alternative Sales and Distribution Management strategies of an organization.
		Creating	DESIGN and implement Sales and Distribution Management Strategies for an organization.

312 MKT	Business to Business Marketing	Remembering	DEFINE the terms and concepts related to Business to Business marketing
		Understanding	EXPLAIN the terms and concepts used in business to business marketing
		Applying	IDENTIFY challenges and opportunities in Business-to-Business Marketing.
		Analysing	FORMULATE segmentation, targeting and positioning, consumer buying behavior and marketing mix in the context of Business to Business marketing
		Evaluating	DESIGN marketing mix elements considering business-to-business sales and service situations.
313 MKT	International Marketing	Remembering	DESCRIBE various terms and key concepts associated with international marketing.
		Understanding	EXPLAIN various key concepts used in all aspects of international marketing.
		Applying	ILLUSTRATE all stages in international marketing management process.
		Analysing	EXAMINE various facets of international marketing environment and the relevant aspects of international marketing management process from a data driven decision perspective.
		Evaluating	JUDGE suitability of alternative market segmentation bases, target market selection, market entry strategies, positioning strategies and international marketing mix strategies based on assessment of international marketing environment.
314 MKT	Digital Marketing II	Remembering	DEFINE the key terms and concepts related with digital marketing
		Understanding	EXPLAIN the role of Facebook, Google Ad words, Youtube, Email marketing and other related tools in digital marketing.
		Applying	MAKE USE OF Facebook, Google Ad words, Youtube and Email marketing and other related tools for carrying out digital marketing for given situation.
		Analysing	ILLUSTRATE the use of Facebook, Google Ad words, Youtube and Email marketing and other related tools in given situation.
		Evaluating	DESIGN digital media campaign using appropriate mix of Facebook, Google Ad words, Youtube and Email marketing and other related tools.
304 FIN	Advanced Financial Management	Remembering	DESCRIBE the basic concepts in financing, investing and profit distribution in a firm
		Understanding	EXPLAIN theoretical concepts related to raising and use of funds and value of firm
		Applying	CALCULATE values for making capital structure, investment, liquidity and dividend decisions in the financial management of a firm
		Analysing	ANALYZE the Leverage and PBIT EPS Analysis associate with Financial Data in the corporate
		Evaluating	Evaluate the key strategic financial issues that must be considered in an acquisition or merger
305 FIN	International Finance	Remembering	RECALL the basic concepts associated with international finance.
		Understanding	EXPLAIN the various the concepts related to Foreign Exchange Markets, transactions on the international foreign exchange market, Taxation Systems, International Receivables and cash management.
		Applying	USE International Monetary Fund, World Bank, credit rating agencies, foreign exchange, foreign exchange transactions, taxation system, International Receivables and cash management in International financial market.
		Analysing	ANALYZE the role of exchange rate and credit rating agencies, foreign exchange transactions, taxation system, Receivables and cash management in International financial market.
		Evaluating	EVALUATE the International Monetary Fund, World Bank, credit rating agencies, foreign exchange, foreign exchange transactions, taxation system, Receivables and cash management in International finance.
312 FIN	Behavioural Finance	Remembering	RECALL the basic concepts associated with international finance.
		Understanding	EXPLAIN the various the concepts related to Foreign Exchange Markets, transactions on the international foreign exchange market, Taxation Systems, International Receivables and cash management.
		Applying	USE International Monetary Fund, World Bank, credit rating agencies, foreign exchange, foreign exchange transactions, taxation system, International Receivables and cash management in International financial market.
		Analysing	ANALYZE the role of exchange rate and credit rating agencies, foreign exchange transactions, taxation system, Receivables and cash management in International financial market.
		Evaluating	EVALUATE the International Monetary Fund, World Bank, credit rating agencies, foreign exchange, foreign exchange transactions, taxation system, Receivables and cash management in International finance.
313 FIN	Technical Analysis of Financial Markets	Remembering	RECALL the basic concepts associated with international finance.
		Understanding	EXPLAIN the various the concepts related to Foreign Exchange Markets, transactions on the international foreign exchange market, Taxation Systems, International Receivables and cash management.
		Applying	USE International Monetary Fund, World Bank, credit rating agencies, foreign exchange, foreign exchange transactions, taxation system, International Receivables and cash management in International financial market.
		Analysing	ANALYZE the role of exchange rate and credit rating agencies, foreign exchange transactions, taxation system, Receivables and cash management in International financial market.
		Evaluating	EVALUATE the International Monetary Fund, World Bank, credit rating agencies, foreign exchange, foreign exchange transactions, taxation system, Receivables and cash management in International finance.
314 FIN	Commodities Markets	Remembering	RECALL the basic concepts associated with international finance.
		Understanding	EXPLAIN the various the concepts related to Foreign Exchange Markets, transactions on the international foreign exchange market, Taxation Systems, International Receivables and cash management.
		Applying	USE International Monetary Fund, World Bank, credit rating agencies, foreign exchange, foreign exchange transactions, taxation system, International Receivables and cash management in International financial market.
		Analysing	ANALYZE the role of exchange rate and credit rating agencies, foreign exchange transactions, taxation system, Receivables and cash management in International financial market.
		Evaluating	EVALUATE the International Monetary Fund, World Bank, credit rating agencies, foreign exchange, foreign exchange transactions, taxation system, Receivables and cash management in International finance.
304 HRM	Strategic Human Resource Management	Remembering	REMEMBER the strategies adopted by HR and their implementation issues and challenges faced by the organization in national and international context.
		Understanding	ABILITY to UNDERSTAND and ARTICULATE the basic concepts of SHRM and link the HR strategies to the organizational business strategies.
		Applying	ABILITY to ANALYZE HR as an investment to the company.
		Analysing	ABILITY to INTERPRET and EVALUATE the implementation of the HR strategies.
		Evaluating	FORMULATE and provide realistic solutions to the industry by designing innovative strategies and logical decision making.
305 HRM	HR Operations	Remembering	Describe the functioning of personnel department
		Understanding	Understand the communication of HR & Personnel department
		Applying	Apply the knowledge of various provisions under laws related to social Security and Labour welfare
		Analysing	Examine various compensation structure and disciplinary policies
		Evaluating	Evaluate applicability of provisions of laws related to social security and labour welfare across various sectors
312 HRM	Talent Management	Remembering	Design a salary structure incorporating all components of payroll system
		Understanding	Describe the functioning of personnel department
		Applying	Understand the communication of HR & Personnel department
		Analysing	Apply the knowledge of various provisions under laws related to social Security and Labour welfare
		Evaluating	Examine various compensation structure and disciplinary policies
313 HRM	Psychometric testing and Assessment	Remembering	REMEMBER the strategies adopted by HR and their implementation issues and challenges faced by the organization in national and international context.
		Understanding	ABILITY to UNDERSTAND and ARTICULATE the basic concepts of SHRM and link the HR strategies to the organizational business strategies.
		Applying	ABILITY to ANALYZE HR as an investment to the company.
		Analysing	ABILITY to INTERPRET and EVALUATE the implementation of the HR strategies.
		Evaluating	FORMULATE and provide realistic solutions to the industry by designing innovative strategies and logical decision making.
314 HRM	HR Perspectives in Mergers & Acquisitions	Remembering	REMEMBER the strategies adopted by HR and their implementation issues and challenges faced by the organization in national and international context.
		Understanding	ABILITY to UNDERSTAND and ARTICULATE the basic concepts of SHRM and link the HR strategies to the organizational business strategies.
		Applying	ABILITY to ANALYZE HR as an investment to the company.
		Analysing	ABILITY to INTERPRET and EVALUATE the implementation of the HR strategies.
		Evaluating	FORMULATE and provide realistic solutions to the industry by designing innovative strategies and logical decision making.
304 OSCM	Services Operations Management – II	Remembering	REMEMBER the strategies adopted by HR and their implementation issues and challenges faced by the organization in national and international context.
		Understanding	ABILITY to UNDERSTAND and ARTICULATE the basic concepts of SHRM and link the HR strategies to the organizational business strategies.
		Applying	ABILITY to ANALYZE HR as an investment to the company.
		Analysing	ABILITY to INTERPRET and EVALUATE the implementation of the HR strategies.
		Evaluating	FORMULATE and provide realistic solutions to the industry by designing innovative strategies and logical decision making.
305 OSCM	Logistics Management	Remembering	REMEMBER the strategies adopted by HR and their implementation issues and challenges faced by the organization in national and international context.
		Understanding	ABILITY to UNDERSTAND and ARTICULATE the basic concepts of SHRM and link the HR strategies to the organizational business strategies.
		Applying	ABILITY to ANALYZE HR as an investment to the company.
		Analysing	ABILITY to INTERPRET and EVALUATE the implementation of the HR strategies.
		Evaluating	FORMULATE and provide realistic solutions to the industry by designing innovative strategies and logical decision making.
312 OSCM	Manufacturing Resource Planning	Remembering	REMEMBER the strategies adopted by HR and their implementation issues and challenges faced by the organization in national and international context.
		Understanding	ABILITY to UNDERSTAND and ARTICULATE the basic concepts of SHRM and link the HR strategies to the organizational business strategies.
		Applying	ABILITY to ANALYZE HR as an investment to the company.
		Analysing	ABILITY to INTERPRET and EVALUATE the implementation of the HR strategies.
		Evaluating	FORMULATE and provide realistic solutions to the industry by designing innovative strategies and logical decision making.
313 OSCM	Sustainable Supply Chains	Remembering	REMEMBER the strategies adopted by HR and their implementation issues and challenges faced by the organization in national and international context.
		Understanding	ABILITY to UNDERSTAND and ARTICULATE the basic concepts of SHRM and link the HR strategies to the organizational business strategies.
		Applying	ABILITY to ANALYZE HR as an investment to the company.
		Analysing	ABILITY to INTERPRET and EVALUATE the implementation of the HR strategies.
		Evaluating	FORMULATE and provide realistic solutions to the industry by designing innovative strategies and logical decision making.
314 OSCM	Sustainable Supply Chains	Remembering	REMEMBER the strategies adopted by HR and their implementation issues and challenges faced by the organization in national and international context.
		Understanding	ABILITY to UNDERSTAND and ARTICULATE the basic concepts of SHRM and link the HR strategies to the organizational business strategies.
		Applying	ABILITY to ANALYZE HR as an investment to the company.
		Analysing	ABILITY to INTERPRET and EVALUATE the implementation of the HR strategies.
		Evaluating	FORMULATE and provide realistic solutions to the industry by designing innovative strategies and logical decision making.

314 OSCM	Business Excellence	Applying	MAKE USE OF the concepts, tools and techniques of Business Excellence in the various areas of Operations, Supply Chain and Services
		Analysing	ILLUSTRATE the various facets of development, implementation and assessment of business excellence
		Evaluating	FORMULATE a managerial perspective and DEVELOP an informed decisionmaking ability for driving Business Excellence in the various areas of Operations, Supply Chain and Services
		Creating	DISCUSS what makes some organizations best-in-class organizations.
304 BA	Advanced Statistical Methods using R	Remembering	RECALL all basic statistical concepts and associated values, formulae.
		Understanding	EXPLAIN the statistical tools and DESCRIBE their applications in multiple business domains and scenarios
		Applying	APPLY time series analysis in prediction of various trends.
		Analysing	DISCRIMINATE between various types of probability and probability distributions.
		Evaluating	FORMULATE and TEST hypothesis using tools of R.
		Creating	COMPILE various tools and functions of R programming language and use them in live analytical projects in multiple business domains and scenarios.
305 BA	Machine Learning & Cognitive intelligence using Python	Remembering	DEFINE the key terms in Python, Machine Learning and Cognitive Intelligence
		Understanding	EXPLAIN the applications of Machine Learning in multiple business domains and scenarios
		Applying	DEVELOP a thought process to think like data scientist/business Analyst
		Analysing	ANALYSE data using supervised and unsupervised Learning Techniques
		Evaluating	SELECT the right functions, arrays of Python for Machine Learning algorithms.
		Creating	COMBINE various tools and functions of Python language in developing Machine Learning algorithms and use them in live analytical projects in multiple business domain and scenarios.
312 BA	Social Media, Web & Text Analytics	Remembering	DEFINE the key terms in Social Media Analytics, Web Analytics and Text Analytics
		Understanding	EXPLAIN the applications of Social Media Analytics, Web Analytics and Text Analytics in multiple business domains and scenarios
		Applying	DEVELOP a thought process to harness the power of social media analytics to improve website or business
		Analysing	ANALYSE Social Media Analytics and Web Analytics Tools
		Evaluating	SELECT the right metrics for Social Media Analytics and Web Analytics
		Creating	COMBINE various tools and metrics in building high impact dashboard in multiple business domains and scenarios
313 BA	Industrial Internet of Things	Remembering	ENUMERATE the key concepts of industry 4.0, data science in manufacturing, operations analytics and IIOT
		Understanding	DISCUSS the value added by analytics in the operations function.
		Applying	DEMONSTRATE the practical applications of data analytics and data science in manufacturing operations.
		Analysing	EXAMINE the Industrial Internet of Things (IIoT) and the role of Big Data Analytics.
		Evaluating	EXPLAIN the applications of analytics in operations.
		Creating	COMPILE the issues pertaining to the adoption of technologies that will shape industry
314 BA	Supply Chain Analytics	Remembering	DESCRIBE the importance of the basics of Supply Chain Analytics and Optimization
		Understanding	EXPLAIN the role and applications of Descriptive, Predictive & Prescriptive Analytics in a Supply Chain
		Applying	ILLUSTRATE the basics of Modeling through R Language.
		Analysing	EXAMINE the level of uncertainty associated with the supply of products and services to targeted customer segments and justify the choice of a supply chain strategy and its fit with competitive strategy.
		Evaluating	DETERMINE the right tools for addressing various issues in Supply Chain Analytics.
		Creating	COMBINE the various approaches to Supply Chain Analytics for improvements in the supply chain system
393	Information Security-III		To Familiar with the Concepts of Human Rights
394	Skill Development-I		To Familiar with the Concepts of Skill Development
395	Introduction to Constitution		To Familiar with the indian constitution.
401	Enterprise Performance Management	Remembering	Enumerate the different parameters & facets of management control of an enterprise.
		Understanding	Illustrate the various techniques of enterprise performance management for varied sectors.
		Applying	Determine the applicability of various tools and metrics as a performance evaluation & management tools.
		Analysing	Analyse the key financial & non-financial attributes to evaluate enterprise performance.
		Evaluating	Formulate the various parameters to evaluate enterprise performance effectively through implementation of strategy.
402	Indian Ethos & Business Ethics	Remembering	Recall and spell the human universal values of Indian Ethos and its applications in Business ethics
		Understanding	Recognize and Demonstrate the relevance of Indian Ethos by taking the rationale and ethical business decision derived from Indian Heritage Scriptures.
		Applying	Apply the concepts of Indian Ethos, Values, and Ethics with moral reasoning to develop sustainable solutions to solve complex business issues..
		Analysing	Analyze and make inferences to contemporary business practices in relation to Indian Ethos & Business Ethics
		Evaluating	Appraising the importance of business decisions on the basis of ethics and thus create a value driven management.
		Creating	ELABORATE Ethical dilemmas in different business areas of marketing, HRM and Finance and ADAPT dilemma resolution interventions by referring to Ethical decision making.
405	Global Strategic Management	Remembering	Define the concept and key terms associated with the global strategic management.
		Understanding	Describe in detail global strategic alliance, merger and acquisitions.
		Applying	Demonstrate various global organisation models in global strategic management context.
		Analysing	Examine various entry and business-level strategies from global strategic management prospective.
		Evaluating	Explain globalization, innovation, and sustainability and challenges to strategic management.
		Creating	Design global strategies and understand their relative merits and demerits.
406	Technology Competition and Strategy	Remembering	DEFINE the key terms and concepts.
		Understanding	EXPLAIN how technology affects strategic interactions among firms and consumers
		Applying	DETERMINE the linkages Technology & Business Strategies
		Analysing	EXAMINE the technology environment of a firm.
		Evaluating	APPRAISE the risks pertaining to technology and competition.
403 MKT	Marketing 4.0	Remembering	DESCRIBE the various concepts associated with Marketing 4.0.
		Understanding	EXPLAIN the importance of various concepts in Marketing 4.0. like prompted Advocacy ,5A's, Four Major Industry Archetypes, and content marketing leading to Brand Affinity.
		Applying	APPLY the concepts of digital marketing by Using Digital Anthropology to connected customers , which will drive up the productivity , by Integrating the Best of Online and Offline Channels in the digital world.
		Analysing	ANALYSE the online and offline interactions between the companies and customers to be the effective marketers.
		Evaluating	EVALUATE how Technology & connectivity has changed human life and business in the context of real-world commodities, products & services.
		Creating	CREATING WOW! Moments with customer engagement by using Marketing 4.0.
404 MKT	Marketing Strategy	Remembering	DESCRIBE various concepts of marketing strategies.
		Understanding	EXPLAIN various marketing strategies to handle marketing circumstances
		Applying	APPLY the concepts of marketing strategy to solve real-life business problems.
		Analysing	DISCOVER the suitable competitive advantage useful to design market specific and organization specific marketing strategies.
		Evaluating	ESTIMATE the attractiveness of segment to decide targeting strategy and MONITOR marketing performance using marketing matrices.
		Creating	DESIGN marketing strategies to lead the organization towards sustainable growth.
409 MKT	Customer Relationship Management	Remembering	Define concepts and components of B2B, B2C CRM, customer acquisition & retention and CRM mechanics
		Understanding	EXPLAIN key concepts and theories associated with CRM.
		Applying	APPLY and ILLUSTRATE principles, theories and models of CRM in B2B and B2C markets.
		Analysing	CLASSIFY Customer acquisition and retention strategies and ANALYZE Customer database in CRM.
		Evaluating	EVALUATE suitability and effectiveness of CRM strategies in marketing situations of products, services & e-products/ services across various industries.
		Creating	DEVELOP CRM strategies/plans for various B2B and B2C markets.
410 MKT	Rural and Agriculture Marketing	Remembering	DEFINE various concepts related to Rural and Agricultural Marketing
		Understanding	UNDERSTAND the rural consumer buying Behavior, Rural Marketing Mix, Industrial and Agriculture Market, Difference between Rural and Urban market on different terms and Environment,
		Applying	APPLY Rural Marketing research for Segmentation, Positioning with data collection methods for current rural market in India.
		Analysing	ILLUSTRATE the Rural product, Pricing and Distribution Strategies with modern approach and challenges faced in rural Market and emerging Models in Rural Market.
		Evaluating	ASSESS the use of ICT in Agriculture Marketing with use of various models in domestic and international Market.
		Creating	FORMULATE a model for Marketing of Agricultural products by using marketing mix tools.
403 FIN	Financial Laws	Remembering	Define and Describe the basic concepts related to Financial Laws
		Understanding	Illustrate the implications of various laws, Explain concepts and details of various financial laws.
		Applying	Make use of contextual financial laws applicable to organisations.
		Analysing	Infer the application of financial laws to organisations
		Evaluating	Appraise and perceive the benefits of applicable laws to the organisations.
		Creating	CREATE debt restructuring portfolio/ proposal.
404 FIN	Current Trends & Cases in Finance	Remembering	DESCRIBE the concepts related to emerging areas of Microfinance, Small finance banks, Payment Banks, Start-Ups, SHG and Digitization and analytics
		Understanding	EXPLAIN in detail, all the theoretical concepts taught through the syllabus
		Applying	APPLY the various theories and models of financial management in the case.
		Analysing	ANALYSE the situation and decide the key financial as well as non-financial elements involved in the situation.
		Evaluating	EVALUATE the financial impact of the alternative on the given case.
		Creating	CREATE financial models based on theories and concepts studied
409 FIN	Fixed Income Securities	Remembering	Describing the basic concepts of fixed Income Securities.
		Understanding	Understanding the various types of securities traded in the fixed Income market.
		Applying	Applying the knowledge of fixed income securities for diversifying the portfolio of investments.
		Analysing	Predictive analysis of the economic outlook through yield curve analysis.
		Evaluating	Evaluate the risk and returns of different fixed income securities.
		Creating	Devise the various investment strategies based on portfolio returns.

410 FIN	Business Valuation	Remembering	RECALL concepts of value and valuation
		Understanding	EXPLAIN valuation process of business firms
		Applying	CALCULATE business value using different techniques
		Analysing	EXAMINE special factors to be considered in business valuation
		Evaluating	ASSESS the value of the firm in the light of business environment and regulatory aspects
403 HRM	Organizational Diagnosis & Development	Creating	DESIGN a structured business valuation model for business.
		Remembering	DESCRIBE the major theories, concepts, terms, models tools and frameworks in the field of Organizational Diagnosis & Development.
		Understanding	UNDERSTAND concept of OD and 'intervention'.
		Applying	MAKE USE of the Theories, Models, Principles and Frameworks of Organizational Diagnosis & Development in specific organizational settings.
		Analysing	ANALYZE the external and internal environment with right tool of diagnosis and review the role of consultant in OD.
404 HRM	Current Trends & Cases in Human Resource	Evaluating	IDENTIFY AND MAP an intervention to organisational need
		Creating	DESIGN the role of the consultant for an organisational issue
		Remembering	DESCRIBE the conceptual framework of Digital Disruptions and its impact on the current HR Trends.
		Understanding	SUMMARIZE the impact of Current HR trends on HR Functions
		Applying	ILLUSTRATE value creation & competitive advantage of Technology on current HR Trends
409 HRM	Labour Legislation Management	Analysing	EXAMINE the changing role of HR Priorities
		Evaluating	ELABORATE upon the various types of current HR Trends
		Creating	APPLY the existing Tech tools to real time HRM Challenges and offer Solutions.
		Remembering	AWARENESS about foundation of labor legislation.
		Understanding	UNDERSTAND the legislation related to various labor and social laws.
410 HRM	Designing HR Policies	Applying	APPLY formulas of specific laws and calculate.
		Analysing	STUDY labor legislation and effective implementation of them through case laws.
		Evaluating	REVIEW AND UNDERSTAND different labor legislations and its amendments.
		Remembering	IDENTIFY important points to be incorporated in HR Manual
		Understanding	UNDERSTAND policy requirement for Recruitment & Selection process
403 OSCM	E Supply Chains and Logistics	Applying	PREPARE policies on employee benefits for an organization of your choice
		Analysing	ILLUSTRATE steps involved in better employee relations & grievance handling
		Evaluating	CONSTRUCT various HR policies for an organization of your choice
		Remembering	DESCRIBE the structure of modern days Logistics.
		Understanding	EXPLAIN the key concepts of Supply Chain Management and the – driving forces in contemporary Supply Chain Management.
404 OSCM	Industry 4.0	Applying	IDENTIFY the various flows in real world supply chains and Logistics. IDSCRIBE the importance of documentations.
		Analysing	COMPARE and CONTRAST push and pull strategies in Supply Chain Management. ANALYSE the impact of tracking system linkage in Logistics.
		Evaluating	EXPLAIN the key Operational Aspects of E Procurement.
		Creating	DEVELOP a framework for e-logistics
		Remembering	DEFINE industrial revolutions and its different aspects.
409 OSCM	Enterprise Resource Planning	Understanding	EXPLAIN the role of technology pillars of Industry 4.0.
		Applying	DEMONSTRATE the use of data in effective decision making.
		Analysing	ILLUSTRATE the need of cyber physical system for sustainable competitive advantage.
		Evaluating	EXPLAIN the challenges faced by various industries in full fledge implementation of Industry 4.0
		Creating	DEVELOP a framework for any organization using base of Smart Industry Readiness Index Proposed by Singapore EDB
410 OSCM	World Class Manufacturing	Remembering	DESCRIBE the key concepts of ERP systems for manufacturing or service organizations.
		Understanding	EXPLAIN the scope of common ERP Systems modules.
		Applying	DEVELOP basic understanding of how ERP enriches the business organizations in achieving a multidimensional growth.
		Analysing	EXAMINE the challenges associated with implementing enterprise systems and their impacts on organizations.
		Evaluating	JUSTIFY selection of an appropriate ERP transition strategy.
403 BA	Economics of Network Industries	Creating	FORMULATE best selection and implementation strategy in a real setting.
		Remembering	DEFINE the basic terms associated with Manufacturing Excellence and World Class Manufacturing
		Understanding	SUMMARIZE the features of various frameworks used for World Class Manufacturing
		Applying	IDENTIFY the challenges to manufacturing industry in the information age
		Analysing	ANALYZE the usage of Information management tools, Material processing and handling tools.
404 BA	Artificial Intelligence in Business Applications	Evaluating	EVALUATE the country's preparedness for World Class Manufacturing
		Creating	ESTIMATE the performance of manufacturing firms with the measurement system to determine the readiness for World Class Manufacturing
		Remembering	APPRECIATE the differences in the nature of information goods as opposed to traditional goods and services.
		Understanding	DESCRIBE the characteristics of the markets for network products.
		Applying	ILLUSTRATE the characteristics of the cost structure of information goods and its implications for pricing of information goods w.r.t. price discrimination, versioning of information goods, and bundling
409 BA	E Commerce Analytics - II	Analysing	COMPARE and CONTRAST the pros and cons of keeping products compatible, and strategic aspects of the decision regarding compatibility.
		Evaluating	EVALUATE the role of complementary products, compatibility and standards, switching costs and lock-in in network industries.
		Creating	DISCUSS the economics of Internet advertising, and the business model of zero pricing.
		Remembering	IDENTIFY KNOWLEDGE associated and represent it by logical sequence and plan a strategy to solve given problem
		Understanding	UNDERSTAND AI's fundamental concepts and methods.
410 BA	Healthcare Analytics	Applying	APPLY various machine learning algorithms on structured data to develop machine learning models.
		Analysing	ACQUIRE advanced Data ANALYSIS SKILLS through algorithm and search processes.
		Evaluating	SELECT logical and functional process to develop the model
		Creating	CREATE SOLUTIONS for various business problems using AI techniques.
		Remembering	DESCRIBE the key concepts in e-commerce analytics.
492	Information Security-IV	Understanding	DEMONSTRATE the use of analytics to drive profitability throughout the organization, and across the entire customer experience and lifecycle.
		Applying	SOLVE the unique problems in e-commerce, and transform data into better decisions and customer experiences.
		Analysing	DISCOVER high-value insights via dashboards and visualization.
		Evaluating	DEVELOP analytical approaches to improve ecommerce marketing and advertising, understand customer behavior, increase conversion rates, strengthen loyalty, optimize merchandising and product mix, streamline transactions, optimize product mix, and accurately attribute sales.
		Creating	FORMULATE the right analytics driven strategy for ecommerce businesses.
494	Skill Development-II	Remembering	DESCRIBE the key terms in healthcare data analytics
		Understanding	EXPLAIN the fundamental concepts in Health Care Analytics
		Applying	ILLUSTRATE the use of specific tools and techniques to design effective ways of handling, retrieving, analyzing, and making use of healthcare data
		Analysing	EXAMINE the issues associated with the applications of intelligent data acquisition, processing, and analysis of healthcare data
		Evaluating	EXPLAIN the perspectives of healthcare related opportunities for developing new analytical approaches.
Creating	ADAPT healthcare data analytics for improving the health and well-being of people.		
492	Information Security-IV		To Familiar with the Concepts of Cyber Security
494	Skill Development-II		To Familiar with the Concepts of Skill Development

