First Year

Programme Educational Objectives (PEOs):

1) To prepare students for successful careers in industry that meet the needs of Indian and multinational companies.
2) To develop the ability among students to synthesize data and technical concepts for application to product design.
3) To provide opportunity for students to work as part of teams on multidisciplinary projects.
4) To provide students with a sound foundation in the mathematical, scientific and engineering fundamentals necessary to formulate, solve and analyze engineering problems and to prepare them for graduate studies.
5) To promote student awareness of the life-long learning and to introduce them to professional ethics and codes of professional practice.

Program Outcomes (POs)

Engineering Graduate will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, Science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions using first principle of mathematics, natural sciences, and engineering ssciences.
3. Design/ development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. Environment and sustainability: Understand the impact of professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and the need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. Individual and Team Work: Function effectively as an individual, and as member or leader in diverse teams, and in multidisciplinary settings.
10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project Managements and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. Life-long Learning: Recognize the need for, and have preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Group A

Subject: COMPUTER PROGRAMMING (19COF104) 2019-20,2020-21,2021-22

Course Outcomes:

Course outcome code	Course Outcome After the completion of course students will be able to
19COF l04.1	Explain the fundamental of computer and computing concepts.
19COF l04.2	Discuss the fundamental of C language.
19COF l04.3	Illustrate the use of operators, expression and input-output operations.
19COF l04.4	Explain conditional branching, iteration and jumping statement.
19COF l04.5	Design functions, pointer, array & structures, use of string & file concepts.
19COF l04.6	Apply programming concepts to solve real life programming problems.

Subject: Engineering Mechanics (11947 & 11955)

Course Outcomes:

At the end of course students will be able to -

	Course Outcomes
19COF 103.1	Organize and solve the forces along with its effect.
19COF 103.2	Apply principles of statics to the system of rigid bodies to solve simple structures.
19COF 103.3	Determine frictional forces for simple contacts, wedges and in coil friction.
19COF 103.4	Evaluate centroid & moment of inertia for 2-D structures.
19COF 103.5	Utilise the kinematic and kinetic equations.
19COF	Elaborate the concepts related to engineering mechanics, determine the

103.6	lifting machine parameters and prove it graphically.

Engineering Mathematics I - Year of Study: 2010-11 to 2018-19

Course outcome code	**Course outcome of Engineering Mathematics I (1AI)-NEW**
	After the completion of course students will be able to…
19COF101.1	Make use of derivatives of a continuous function into a polynomial and solve indeterminate forms.
19COF101.2	Extend the basic ideas of the calculus of functions of single variables to functions of several variables and its concept.
19COF101.3	Compare real and imaginary equations and evaluate it.
19COF101.4	Solve certain types of differential equations and utilize it for engineering problems of electronics, electrical circuit.
19COF101.5	Determine infinite series and their convergence and divergence.

Engineering Physics (New Syllabus 2019-20 to 2021-22) : Course Outcomes

Course outcome code	**Course outcomes of Engineering Physics**
19COF102.1	The students will be able to classify semiconductors and explain the working of diodes using band theory of solids.
19COF102.2	The students will be able to apply the knowledge of Quantum physics, Compton scattering, de-Broglie's matter waves, Heisenbergs Uncertainty Principle.
19COF102.3	The students will be able to utilize knowledge of electric and magnetic fields in mass spectrograph and cathode ray oscilloscope.

19COF102.4	The students will be able to understand and utilize the knowledge of interference & diffraction of light, optical fibers and lasers.
19COF102.5	The students will make use of the knowledge of fluid dynamics , ultrasonic waves and acoustics in various applications.
19COF102.6	The students will be able to develope experimental skills and identify the appropriate application of particular experiment.

Course outcome code	Course outcome of Workshop Practice 1A5 -NEW
19COF105.1	Upon completion of this course, the students will be able to Expain and Demonstrate different manufacturing processes which are commonly appyled in industry.
19COF105.2	How to devlop the components using various manufacturing techniques.
19COF105.3	Analyze dimensional accuracy and match tolerances.
19COF105.4	Design and will model of various prototypes in the Smity such as forming square/ hexagonal head bolt and hook.
19COF105.5	Create different Jobs in Fitting such as filing hack saw cutting, drilling and tapping.
19COF105.6	Applying knowledge of foundry suchs as and molding, patterns , types of molding sands.

Basic Electrical Engineering: Year of study- (2019-20 to 2021-22)

Course Outcome Code	Course outcome of Basic Electrical Engineering-NEW (1B3) After completion of the course, the students will be able to…
19COF108.1	Find basic parameters of DC circuits like voltage, currents and resistance using theorems and transformation techniques.

19COF108.2	Explain the different properties of electromagnets and phenomenon of electromagnetic induction in magnetic circuits.
19COF108.3	Utilize the different terms of AC so as to build series and parallel AC circuits.
19COF108.4	Simplify three phase system using star and delta connection to balance three phase load in high voltage applications.
19COF108.5	Compare types and characteristics of Transformers as well as DC motors to decide their exact field of applications.
19COF108.6	Discuss about the use of measuring instruments and safety precautions so as to operate electrical equipments and experimental kits in real time applications.

Course Outcome Code	**Course outcome of Engineering Chemistry (1B2)_New Syllabus**
19COF107.1	After the completion of the cours the students will be able to… Describe properties of hard water, its disadvantages and various softening processes of water use for generation of steam.
19COF107.2	Identify various types of corrosion, mechanism and control methods to protect metal and explain energy storage system and its applications.
19COF107.3	Apply the knowledge of useful engineering materials such as cement, lubricant, industrial and polymeric materials.
19COF107.4	Apply the knowledge of properties of chemical fuel based on analysis and numerical data.
19COF107.5	Identify the various phases of system and complex compound by using thermodynamic variables and describe various spectrophotometric technique.
19COF107.6	Determine the properties of useful engineering materials such as water, chemical fuel, lubricant based on laboratory technique.

English Communication Skill Lab: Year of study-2019-20, 2020-21, 2021-22.

After the completion of the practical course, the students will be able to**…**

Course Outcome Code	Course outcome English Communication Skill Lab (1B5)
19COF110.1	Recall the fundamental concepts of English language for communication purpose.
19COF110.2	Demonstrate their ability to discuss in English language.
19COF110.3	Develop their communication skills through group discussion.
19COF110.4	Simplify their presentation skill through reading comprehension and extempore.
19COF110.5	Find effective textual contents for improved communication through story and article writing.
19COF110.6	Elaborate effective ways for healthy conversation to make their point of views clear to the listeners.

Subject: Engineering Graphics

Course Outcomes:

At the end of course students will be able to -

Course Outcomes Code	Course Outcomes
19COF 109. 1	Make use of the drawing instruments effectively to dimension the given figures.
19COF 109. 2	Explain the methods of projection.
19COF 109. 3	Define the sectional views of solids such as Prism, Pyramid, Cone, Cylinder & Cube.
19COF 109. 4	Identify the pictorial views of the object.

19COF 109. 5	Construct isometric scale, isometric projection & views.
19COF 109. 6	Develop the lateral surfaces of primitive solids by using CAD Software.

Engineering Mathematics II - Year of Study: 2019-20 to 2021-22

Course outcome code	**Course outcome of Engineering Mathematics II (IBI)-New**
	After the completion of course students will be able to…
19COF l 06.1	Make use of system of equations in matrix forms.
19COF l 06.2	Find the periodic functions as an infinite series.
19COF l 06.3	Solve integral by Beta, Gamma functions and reduction formulae.
19COF l 06.4	Construct a curve from equation and apply differentiation under integral sign.
19COF l 06.5	Evaluate double integral, triple integral and its applications.

Civil Engineering

3CE02 Streangth of Material	
CO	**Course Outcome**
1	Explain mechanical properties of material, the concepts of stress and strain at a point and the stress-strain relationships, theory of simple bending, shear stresses & strain energy. (L2: Understand)
2	Calculate the stresses and strains in the members subjected to axial, bending and torsional loads and Shear & Bending Stresses. (L3: Apply)
3	Analyze the beam and draw axial force, shear force and bending moment, bending and shear stress distribution diagram for all types of loading. (L4:Analyze).
4	Solve problems using concept of theory of torsion & calculate the principal stresses and strains in structural members.(L3: Apply)
5	Develop slope and deflection equations to find values of slope and deflection of beams subjected to loads.(L3: Apply)
6	Apply & utilize the theoratical & practical knowledge for performing shear, compression, modulus of rupture, hardness, deflection of spring & beam, Impact and Tension test on specimen. (L3: Apply)

3CE03 Transportation Engineering – I	
CO	**Course Outcome**
1	**Remembering** the basics of transportation systems and various properties of materials used for road construction. **L1:Remembering**
2	**Explain** the construction aspects of roadways and their cross sectional elements of roads. (**L_2:Explain)**
3	**Design** & analysis of flexible & rigid pavement, analysis for wheel lo (ad & temperature stresses in rigid pavement. **(L6 : Design)**
4	**Understaning** the concept of traffic engineering & traffic regulations for driving motor vehicles. **(L2: Understanding)**
5	**Estimating** flood discharge, water way, scour depth, depth of foundation, afflux, clearance and freeboard Also Understanding the components of bridge & different structural forms of culverts, causeway, bridges,etc. (**L5: Estimate)**
6	**Determine** properties of aggregates and bitumen. **(L5:Determine)**

3CE04 Building Construction and Material	
CO	**Course Outcome**
1	Identify and characterize building materials (L3: Applying)
2	Understand the manufacturing process of bricks .(L6: Creating)
3	Identify the methods for preservation of timber .(L3: Applying)
4	Identify the factors to be considered in construction of buildings. (L3: Applying)
5	Understand the construction practices and techniques (L6: Creating)
6	Understand the techniques of damp proofing and fire resistance .(L2: Understanding)

5CE01 Reinforced Cement Concrete-II	
CO	**Course Outcome**
1	Design the water tanks with rigid & fexible base using IS code.
2	Explain 1) LSM & WSM 2) Basic concept of singly reinforced beam & flange beam.
3	Solve the problem on Reinforced Concrete Columns and footings , beam.
4	Predict serviceability of .structures
5	Interpret earthquake resistant construction.
6	Create a Prototype model of various structural member like beam columns slab etc.

5CE02 Fuild Mechanic -II	
CO	**Course Outcome**
1	Apply their knowledge of fluid mechanics in addressing in open channels.(L4- Apply)
2	Solve problem in uniform,gradually and rapidly varied flow in steady conditions.(L6-Solve)
3	Design construction as well as efficient working various type of hydraulic structure and machine is considerably simplified by using dimensional analysis and model study.(L6-Design)
4	Analysis and design the impact of jet on vanes which is a base of turbo machines.(L4-Analysis,L6-Design)
5	Elaborate the knowledge in hydraulic machines.(L6- Elaborate)
6	Demonstrate the working of turbine and pumps. (L2- Demonstrate)

5CE03 Building Planning and CAD	
CO	**Course Outcome**
CO1	Develop plan of building from given single line plan, manually and with AutoCAD.Level 6:Creating
CO2	Make use of engineering drawings by First angle and Third angle method. Level 3: Applying
CO3	Develop working and submission drawings of buildings, manually and with AutoCAD. Level 3: Applying
CO4	Create a plan of any building considering basic planning knowledge, customer's requirements and budget.Level 6:Creating
CO5	Model free hand sketch of various building items like chajja, window grill, compound wall, etc Level 4: Applying

5CE04 Surveying II	
CO	**Course Outcome**
1	Demonstrate the application of tachometric surveying for calculating horizontal and vertical distances (L2)
2	Apply the knowledge of curve surveying for setting out curves. (L3)
3	Compare triangulation surveying with plain surveying (L5)
4	Elaborate the methods of hydrographic and underground surveying (L6)
5	Determine the geometric properties of object from photogrammetric image (L5)
6	Explain use of GIS and GPS (L2)

4CE01 Geotechnical Engineering-I	
CO	**Course Outcome**
1	Explain the index and engineering properties of soil for its classification (L2): Understand
2	Elaborate the concept of soil compaction and quality control in feild. (L6): Create
3	Determine the permeability of soil and explain methods of dewatering. (L5): Evaluate
4	Determine the seepage discharge and design the graded filter. (L5): Evaluate
5	Understand the concept of consolidation and stress distribution in soil mass. (L2): Understand
6	Determine the Specific Gravity, Density, Atterrberg Limits, CBR, Shear Strength Parameters and Unconfied Compressive Strength of soil which helps in designing a structure. (L5): Evaluate

4CE02 Fuild Mechanics-I	
CO	**Course Outcome**
1	Apply their knowledge of basic fluid properties in fluid mechanics .(L4- Apply)
2	Solve problem in fluid statics and kinematics.(L6-Solve)
3	Solve problems in fluid dynamics and flow measurement.(L6-Solve)
4	Analysis the performance of flow instruments.(L4- Analysis,L6-Design)
5	Elaborate the knowledge in flow through pipes.(L6- Elaborate)
6	Discuss the drag and lift force. (L6- Discuss)

4CE03: Theory of Structure-I	
CO	**Course Outcome**
1	Students will be able to decide the method of analysis according to the type of structural element. (L5: Evaluating)
2	Students will be able to explain degree of freedom, Condition of equilibrium, Stiffness and determinacy of element. (L2: Understanding)
3	Students will be able to apply the knowledge of Castigliano's theorem for finding deflection in truss, beam & frame (L3: Applying)
4	Students will be able to apply the knowledge of beam analysis for practical analysis and design purpose. (L4: Analyzing)
5	Students will be able to apply the various analysis methods for analysis of structural member. (L4: Analyzing)
6	Students will be able to analyze the 3 hinged arches. (L4: Analyzing)

4CEO4 Surveying-1	
CO	**Course Outcome**
1	Explain clasiification of sureying, different types of bearings, concept of levelling, theodolite treversing, contouring,tachometri surveying, curves, traingulation,hydroghraphic surveying and photogrammetric surveying. (L2: Understand)
2	find out the relative position of a natural or artificial object on, above or below the surface of earth. Solve problems realted to topics and determine angle measurement, distance measurement, and co-ordinate measurement.(L6:Creating)
3	Determine angle measurement, distance measurement, and co-ordinate measurement.(L5: Evaluating)
4	Carry out various surveys in the field(L3: Applying)
5	Prepare drawings and reports based on the field surveys.(L6: Creating)
6	Understand the topic of remote sensing.(L2: Understanding)

4CE05 Reinforced Cement Concrete-I	
CO	**Course Outcome**
1	Identify to know the need and composition of binding material , cement
2	decide and utilise the admixture as per need of concrete
3	Understand importance of mix design
4	Analysis components of RCC like slab and beam
5	Apply knowledge of theory to perform different test on various material use in concrete technology

6CE01 Numerical Methods and Computer Programming	
CO #	**Course Outcome**
1	Explain spreadsheet and FORTRAN commands giving typical usage examples.(L2: Understand)
2	Develop flowcharts, programs and spreadsheets for performing basic mathematical operations encountered in civil engineer's day to day work life, applying knowledge of mathematics and programming logic.(L3: Apply, PO1, PO5)
3	Develop spreadsheets and programs for solving simple Civil Engineering tasks. (L3: Apply, PO1, PO5)
4	Develop own program for solving Civil Engineering problems using knowledge of Numerical Methods. (L6: Create, PO1,PO5)
5	Identify ways for simplifying program logic using various language features and Propose ways to solve complex Civil Engineering Design and Automation problems using own programs, spreadsheets and commercial software (L4: Analyze, PO2, PO4, PO5)
6	Develop own program for solving Civil Engineering problems using knowledge of Numerical Methods. Identify ways for simplifying program logic using various language features. (L6: Analyze, PO2, PO4, PO5)

6EC02 DESIGN OF RCC & PRESTRESS CONCRETE STRUCTURES	
CO	**Course Outcome**
1	Explain behavior of RCC members and Prestress concrete members.(L2: Understand)
2	Design interior panel of flat slab, Retaining walls. (L6: Creating)
3	Design Combine footing and canopy structure.(L6: Creating)
4	Analysis of Prestress concrete flexure member.(L4: Analyzing)
5	Design of Prestress concrete flexure member and Water Tank.(L6: Creating)
6	Design of RCC and Prestress concrete member.(L6: Creating)

6CE03 : Water Resources Engineering -I	
CO #	**Course Outcome**
1	Identify Various components of hydrologic cycle that affect the movement of water in the earth
2	Explain the Various Stream flow measurements technique
3	Apply the concepts of movement of ground water beneath the earth
4	Explain the basic requirements of irrigation and various irrigation techniques, requirements of the crops

6CE04 TRANSPORTATION ENGINEERING - II	
CO	**Course Outcome**
1	Understanding the basics of Railway Engineerings . L1:Understanding
2	Explain Explain the construction aspects of railways and various defects in it. . (L2:Explain)
3	Design for turnout & cross over etc (L6 : Design)
4	Remembering the concept of Airport engineering (L1:Remembering)
5	Apply the knowledge in the construction of various components of airport engineering. (L3:Apply)
6	Explain the necessity and techniques used in tunnel engineering. (L2:Explain)

6CE06 Estimating And Costing	
	CO
1	Estimate the quantities of materials, labours and tools & plants required to complete a task.
2	Prepare Rate Analysis for a given item of work.
3	Prepare approximate and detailed estimate of a complete work
4	Prepare Valuation of any existing building.
5	Define specifications of various building items, road work items and irrigation work items
6	Define Tender Notice, conditions of contract, Schedule A, Schedule B and other documents for a work.
7	Estimate the quantities of various items of works and prepare estimate of load bearing and frame structured buildings, manually and with Excel

7CE01 Theory of Structure - II	
CO	**Course Outcome**
1	Define Determinate, Indeterminate Structures and basic principals of structural analysis. (L1: Remembering)
2	Describe procedure of analysis of Determinate & Indeterminate Structures. (L2: Understanding)
3	Determine support reactions, shear forces, bending moments for given structure using engineering principles. Draw SFD BMD (L3: Applying)
4	Analyse the given structure (beam, frame) by using any method by considering sway effect (MDM, SDM, Kani's Method, MMSA) (L4: Analyzing)
5	Evaluate the given problem & Justify the method adopted for analysis. (L5: Evaluating)
6	Mini-project: Formulate 3D Model & Calculate the relative forces & deflection. (L6: Creating)

7CE02: Geotechnical Engineering II	
CO	**Course Outcome**
1	List the methods of exploration, objectives and its field application along with data interpretation. (L1): Remember
2	Evaluate the bearing capacity of shallow and deep foundation. (L5): Evaluate
3	Find the earth pressure on foundations and retaining structures, understand various types of cofferdam. (L1): Remember
4	Understand the various ground improvement techniques. (L2): Understand
5	Design of pile foundation and evaluate soil settlement. (L6): Create
6	Evaluate the bearing capacity of shallow foundation, Determine the FSI of soil, Design of Pile foundation, Conduct the electrical resistivity and standard penetration test and Estimate the earth pressure acting on retaining wall. (L2): Understand

7CE03 Design of Steel Structures	
CO	**Course Outcome**
1	Explain the Design methods of design of steel structure.(L2: Understand)
2	Design bolted and welded connection.(L6: Creating)
3	Design the Tension and compression member.(L6: Creating)
4	Analysis of different loading on truss.(L4: Analyzing)
5	Design of steel flexure member.(L6: Creating)
6	Design of connection and structural member in steel structure.(L6: Creating)

7CE04 Environmental Engineering -I	
CO	**Course Outcome**
1	Identify the water demand and the sources of water demand
2	Explain the basic characteristics of water & its determination
3	Apply the water treatment concept & methods
4	Design of various treatment units plan & their operation
5	Apply water distribution process, operation & maintenance of water supply

7CE05: Advanced Concrete Technology	
CO	**COURSE OUTCOMES**
1	Explain necessity, applications, advantages, disadvantages of various construction chemicals and admixtures (L2: Understand)
2	Identify appropriate admixtures and construction chemicals for a given requirement. (L3: Apply)
3	Justify use of Mineral Admixtures as a effective measure for minimizing environmental pollution (L5: Evaluate)
4	Elaborate factors affecting durability of concrete and measures that can be adopted to improve durability of concrete for given environmental conditions. (L6: Create)
5	Identify appropriate material, technique for repairs and rehabilitation work. (L3: Apply)
6	Explain applications, advantages, limitations of various NDT techniques. (L2: Understand)

8CE01 Water Resource Engineering- II	
CO	**Course Outcome**
1	Analysis of resorvoir planning and calculation of life of reservoir. Also explained dams and details of earthen dam.(Level 4)
2	Explain and analysis of gravity dams along with the study of earthquake and its efects on dam. (Level 4)
3	Explain diversion head works,design of weir and explain construction of KT weirs.(Level 2)
4	Explain spillways, energy dissipators and Details of canal irrigation(Level 4)
5	Explain Canal Masonary works, Cross drainage works,well irrigation, Water Management, River training works(Level 2)
6	Apply math, science, and technology in the field of water resource Engineering. (Level 5)

8CE02 Environmental Engineering -II	
CO	**Course Outcome**
1	Identify the Physical, chemical and biological characteristics of wastewater
2	Explain the analysis and selection of wastewater flowrates and constituent loadings for process design
3	Explain Physical unit operations: Screening, grit chamber, sedimentation and air flotation
4	Identify the plan strategies to control, reduce and monitor pollution
5	Explain Anaerobic treatment processes, sludge treatment and disposal: sources, characteristics and quantities of sludge. Treatment processes, gravity and flotation thickening, sludge digestion, vacuum and pressure filtration. Ultimate sludge disposal.

8CE03 Project Planning Management	
CO	**Course Outcome**
1	Demonstrating of various types of projects moder construction techniques and Planning Tools: Basic concept of Gantt Chart, Bar Chart, Mile stone chart, and their advantage, limitations and overcoming measures. Conceptual Phase (L2)
2	Analyze Numerical on Time and Floats computation, concept of Updating Network and its numerical for computation. (L4)
3	Identify technique, three time estimates, average time, Critical path, slack computation, S.D, Variance, Probability factor, crash programme, normal and crash cost, normal and crash time, cost slope, Numerical on Probability computation, crashing . (L3)
4	Explain Concept of resource smoothening and leveling, Cost Curves, Numerical of it. Introduction to Planning softwares. (L5)
5	Analyze and modify by using MSP, ABC, EOQ Technique. (L4)
6	Explain details of Equipment Management (L5)

8CE04: Dam Engineering	
CO	**Course Outcome**
1	Decide suitable sites for construction of dam (L5:Evaluate)
2	Compare different types of dams and suggest suitable type of dam. (L4: Analyze)
3	Assessment of soil properties for construction of dams. (L5:Evaluate)
4	Apply the knowledge of instrumentation. (L3: Apply)
5	Apply the knowledge of instrumentation. (L3: Apply)
6	Design different types of dams, spillways, weirs and canals.(L6:Create)

8CE04: ADRCC	
CO	**Course Outcome**
1	Design Portal Frame two bay two storied using IS code.
2	Explain 1) Deign of Circular Slab , Complete Design of small structure.
3	Solve the problem on footbridge and deck slab as per IRC loading
4	Predict serviceability of .structures , stuctural Response of earth quake multistoried frame ,Problem on Inzt type water tank
5	Create a Prototype model of various structural member like beam columns slab etc.

Computer Science & Engineering

Course Name: (3KS01) Mathematics-III
At the end of course, Student will be able to:

K301.1	Solve linear differential equation using appropriate techniques.
K301.2	Demonstrate good understanding of Laplace transform and use it for solving linear and simultaneous differential equations.
K301.3	Estimate the solution of difference equation by Z-transform.
K301.4	Analyze and Solve engineering problems using Fourier transform.
K301.5	Know the conditions for complex variable function to be analytic and /or harmonic. Also State and prove the Cauchy-Riemann equation and use it to show that function is analytic.
K301.6	Use vector calculus to formulate various engineering problems.

Course Name: Programming Methodology (3KS02) and Programming Methodology Lab (3KS06)
At the end of course, students will be able:

K302.1	To **describe** concept of Object oriented features of Java.
K302.2	To **define and practice** the fundamentals of java definition constructs.
K302.3	To **apply** the basic building blocks of object-oriented programming to provide solutions to the practical programming problems.
K302.4	To **understand and illustrate** the concept of exception handling and I/O functionality.
K302.5	To **design** applications of java and java applets.
K302.6	To **create and evaluate** effective GUI applications using event handling and AWT components.
K306.1	To **comprehend and analyze** programming methodology concepts to **create** various applications.

Course Name: Electronic Devices and Circuits (3KS03) and Electronic Devices and Circuits Lab (3KS07)
At the end of course, students will be able:

K303.1	To **explain** basic electronic devices and its application.
K303.2	To **describe** the structure of BJT and compare its configuration.
K303.3	To **analyze** different biasing and compensation technique.
K303.4	To **examine** the performance of FETs on the basis of their types and working.
K303.5	To **demonstrate** and explain working of different types of oscillators.
K303.6	To **interpret** the operation of different optoelectronic devices
K307.1	**Design**, **develop** and **test** Electronic Devices and Circuits, demonstrate and conclude correlation of theory concept with practices.

Course Name: Discrete Structure (3KS04)

At the end of the course students will be able to:

K304.1	Identify basic terminology of Mathematical Logic.
K304.2	Explain theory of inference and predicate calculus
K304.3	Solve real-world problems logically using appropriate set, function, relations and also interpret the associated operations and terminology in context.
K304.4	Identify and Design an Algebraic Structure and groups
K304.5	Examine and formulate the concept of Lattices & Boolean Algebra to solve engineering problems.
K304.6	Model problems in Computer Science using graphs, trees and various principles of discrete mathematics.

Course Name: (3KS05) Computer Organization At
the end of course, students will able to:

K305.1	**State** the basics of computer hardware and how software interacts with computer hardware.
K305.2	**Explain** fundamental concept of processing unit and **identify** the techniques for control unit design.
K305.3	**Illustrate** the concept of processing I/O organization and **examine** different ways of communicating with I/O devices and standard I/O interfaces.
K305.4	**Design** memory organization that uses banks for different word size operation and also **show** how cache design parameters affect cache hit rate.
K305.5	**Perform** computer arithmetic operations and **assess** the efficiency of arithmetic operation.
K305.6	**Describe** Input-Output and communication devices.

Course Name: (3KS08) C-lab I
By the end of the course, students will be able to:

K308.1	**Define** HTML and **identify** different HTML tags to **design** web pages.
K308.2	To **identify** resolution and type of an image & **manipulate** the image file using Photoshop.
K308.3	**Demonstrate** the used of text, graphics, sound, animation videos in web applications.
K308.4	An ability to **design** and **develop** static & Dynamic Website.
K308.5	To **design** flash media in website for final interactive application.

Course Name: Data Structure (4KS01) and Data Structure Lab (4KS06)

At the end of the course students will be able to:

K401.1	Understand the of basic data structures for storage and retrieval of linear and nonlinear data structure.
K401.2	Apply knowledge of data structures to implement algorithms for the creation, insertion, deletion, searching, and sorting of each data structure.
K401.3	Differentiate between arrays & linked list which is used to implement list of abstract data types.
K401.4	Understand the tradeoffs between stacks and queues which can make appropriate design decisions based on application data requirements.
K401.5	Design and develop the data structures such as tree by using C as the programming language using static or dynamic implementations.
K401.6	Recognize the importance of Graph and its application in real world scenarios.
K406.1	Design and develop the program for different searching and sorting algorithms and analyze its time and space complexity.

Course Name: Analog and Digital Integrated Circuits (4KS02) and Analog and Digital Integrated Circuits (4KS07)

At the end of the course students will be able to:

Course	**Course Outcome**
K402.1	To study the basic concepts of operational amplifier and its various applications.
K402.2	To explain the operation and application of IC555 and IC565.
K402.3	To explain different Number System and basics of conversion of number systems.
K402.4	Realize different minimization technique to obtain minimized expression.
K402.5	To design Combinational Circuits.
K402.6	To devise Sequential Digital Circuits.
K402.7	Design and implement circuits for Analog and Digital Integrated Circuits given in the forms of aims and objectives using components and most importantly to demonstrate and implement theory concept with practice.

Course Name: Object Oriented Programming (4KS03) and Object Oriented Programming Lab (4KS08)

At the end of the course students will be able to:

K403.1	To illustrate the basic concept of objects & Classes, Constructors, Arrays of object++ String class
K403.2	To explain the concept of operator overloading, Data Conversion, Pointers & Arrays.
K403.3	To demonstrate the use of Inheritance & containership in C++.
K403.4	To implement the concept of Abstract Classes & Virtual functions.
K403.5	To outline the concept of streams and file handling in C++

K403.6	To demonstrate the use of Function templates, Class Templates & Exception Handling.
K408.1	To develop the programs by implementing object oriented concepts.

Course Name: Assembly language programming (4KS04) and Assembly language programming Lab (4KS09)
At the end of the course students will be able to:

Sr. No.	Course Outcome
K404.1	**Describe** 8086 microprocessor and its architecture; also understand instruction processing during the fetch-decode-execute cycle.
K404.2	**Design** and **Test** assembly language programs using 8086 microprocessor instruction set.
K404.3	**Demonstrate** the implementation of standard programming constructs, including control structures and functions, in assembly language.
K404.4	**Analyze** the internal workings of the microprocessor on a procedure call and macros defined by user in an assembly language program.
K404.5	**Understand and realize** the Interfacing of memory & various I/O devices with 8086 microprocessor.
K404.6	**Interpret the interfacing of microprocessor with interrupt controller IC.**
K409.1	**Design** and **develop** programs in Assembly Language Programming given in the forms of aims and objectives using existing tools and **Conclude** co-relation of theory concept with practices.

Course Name: Theory of Computation (4KS05)
At the end of the course students will be able to:

Sr. No.	Course Outcome
K405.1	To **explain** the basic definition like Alphabet, Symbol and various operation on String and **outline** Finite Automata model, acceptance string and language in automata.
K405.2	To **make use of** Regular Sets and Regular Expressions (RE) and their Identity rules. To **show** Equivalence between RE and FA, Conversion of FA to RE. **Examine** Pumping Lemma for Regular Sets, Closure properties of Regular Sets.
K405.3	To **explain** Context Free Grammar (CFG) , also **compare** the difference between Context Free Grammar and Regular Grammar.
K405.4	To **develop** Turing Machine for computing mathematical operations like addition, subtraction of two unary number also one's and two's compliment of unary number. **Solve** problems on Turing Machine as Language Acceptors.
K405.5	To **Solve** the problems on Deterministic Context -Free Language and Deterministic Pushdown Automata.
K405.6	To **illustrate** the concept of Decidable and Undecidable and **analyze** the Properties of Recursive & Non-Recursive Enumerable Languages.

Course Name: (5KS01) Data Communication
At the end of the course, students will be able to:

K501.1	**Understand** basic principles of Data Communication system & its components.
K501.2	**Identify** and **solve** problems based on the encoding & decoding techniques
K501.3	**Understand** and **apply** various multiplexing techniques for different applications
K501.4	**Analyze and interpret** various data link control mechanism and the role of protocols in networking.
K501.5	**Design** and **develop** different enterprise network using LAN technologies.
K501.6	**Discriminate** various Frame relay & congestion control algorithms

Course Name: (5KS02) File Structures and Data Processing At
the end of course, students will able:

K502.1	**Explain** importance of file structures, types of storage devices and Unix File systems.
K502.2	**Distinguish** techniques for organization and manipulation of data in file and secondary storage including the low level aspects of file manipulation.
K502.3	**Apply** the techniques in the design of C++ programs for solving various file management problems and critically **evaluate** different techniques of Data compression, indexing and Sorting.
K502.4	**Analyze** the high-level file structure methods of consequential processing and its application.
K502.5	**Arrange** Multilevel indexes, indexing scheme, and the notation of B-trees and **categorize** the speed of the search operation.
K502.6	**Relate** and **use** mathematical tools for analyzing performance of various hashing technique and collision resolution methods.

Course Name: System Software (5KS03) and System Software Lab (5KS07)
At the end of the course, students will be able to:

K503.1	**Identify** the fundamentals of compiler and its phases.
K503.2	**Understand** the concept of syntax analysis and **solve** the problems of predictive parsing.
K503.3	**Design** and **differentiate** top down and bottom up parsing techniques.
K503.4	**Apply** syntax directed translation to construct syntax trees.
K503.5	**Relate** various storage allocation strategies of compiler.
K503.6	**Design** and **Implement** intermediate code generator based on given code patterns
K507.1	**Design** and **Develop** compiler phases related techniques using existing as well as modern software tools and to **demonstrate** & **conclude** co-relation of theory concept with practices.

Course Name: Switching Theory Logic Design (5KS04) and Switching Theory Logic Design Lab (5KS08)

At the end of course, Students will be able:

K504.1	**To describe** fundamental of VHDL Programming.
K504.2	**To differentiate** architectural styles of VHDL constructs
K504.3	**To practice** and **solve** different methods to obtain minimized expression.
K504.4	**To understand** basic Combinational Circuits
K504.5	**To design** Combinational circuits
K504.6	**To devise** Sequential digital circuits
K508.1	**To Design** and **develop** programs for Switching Theory and Logic Design given in the forms of aims and objectives using existing as well as modern tools and to **demonstrate** & **conclude** co-relation of theory concept with practices.

Course Name: Communication Skill (5KS06) and Communication Skill Lab (5KS09) Course Outcomes:

At the end of course, Students will be able:

K506.1	**Effectively** communicate through verbal / oral communication.
K506.2	Actively participate in group discussion / meetings / interviews and prepare & deliver presentations effectively.
K506.3	**Write** precise briefs / reports and technical documents and improve comprehension skill.
K509.1	**Face** interviews confidently, acquire necessary professional skills & soft skills and be industry ready.

Course Name: Operating Systems (6KS01) and Operating System Lab (6KS07)

At the end of course students will able:

Sr .No	Course Outcome
K601.1	Understand the concept of programs & processes with the need of scheduling in operating systems and to study components of OS, knowing the concept OS threads.
K601.2	Recognize different states of process and schedulers to apply scheduling algorithm to meet the scheduling objectives and acquire the knowledge of dealing with deadlocks.
K601.3	Apply memory management techniques & virtual memory concepts to avoid page faults and computing page replacement strategies.
K601.4	Learn the use of OS file systems with the directory structure and management of free memory space by understanding memory allocation techniques.
K601.5	Master concepts/issues of file system interface and implementation, disk management
K601.6	Analyze the Linux operating systems with concepts like memory management, process scheduling, disk scheduling, I/O interfaces, File structure etc.

Course Name: Database Systems (6KS02) and Database Systems Lab (6KS08)

At the end of course students will able:

Sr .No	Course Outcome
K602.1	To **describe** database systems and its architecture.
K602.2	To **apply** the SQL queries on database for intended output.
K602.3	To **analyze** the database and remove the redundancy.
K602.4	To **rewrite** query for optimization and its cost effective processing.
K602.5	To **ensure** accuracy and integrity using transaction properties.
K602.6	To **describe** concurrency control protocol for ensuring transaction properties.

Course Name: Computing Resource Management (6KS03)

At the end of course students will able:

Sr .No	Course Outcome (Statement)
K603.1	Understand and perform the key steps in the development of a strategic business plan for new or existing companies
K603.2	To Evaluate company's performance including financials, market share, innovation, and employment
K603.3	To Develop a suitable budget for a new project.
K603.4	To Identify important risks facing a new project.
K603.5	understand the integration of technical, financial, human resources and legal aspects of public and private enterprises.
K603.6	Understand the administration, ownership, and organization of natural resources management enterprises.

Course Name: Computer Architecture (6KS04)
At the end of the course, students will be able to:

K604.1	Describe Instruction set its Machine Instruction Characteristics, Types of Operands and Operations, Intel x86 and ARM Data Types, its Types of Operations.
K604.2	Describe Assembly language concept and Basic implementation of x86 and ARM Addressing modes, Instruction Formats,.
K604.3	Familiarizer with x86 Processor Family, The ARM Processor includes its Structure and Function.
K604.4	Familiarizewith RISC architecture, including the characteristics, instruction set, data paths, and ways of dealing with pipeline hazards.
K604.5	Independently understanding Control Unit Operations and study of Microinstruction Sequencing & Execution.
K604.6	Learn from additional topics in computer architecture, such as Parallel Processing which contains Multiple Processing, Multithreading and Multicore Processor.

Course Name: Database Management Systems (FE) (6FEKS05)
At the end of course students will able:

Sr .No	Course Outcome (Statement)
K605.1	To describe database systems and its architecture.
K605.2	To apply the SQL queries on database for intended output.
K605.3	To analyze the database and remove the redundancy.
K605.4	To rewrite query for optimization and its cost effective processing.
K605.5	To ensure accuracy and integrity using transaction properties.
K605.6	To describe concurrency control protocol for ensuring transaction properties.

Course Name: Software Project Management (FE-II) (6FEKS05)
At the end of course students will able:

Sr .No	**Course Outcome**
K605.1	To recognize evolving role of s/w & project management related concept
K605.2	To estimate s/w productivity using metrics and indicator & identify important issues for planning a project.
K605.3	To identify & analyse aspect in s/w to manage time , process & resourses effectively with quality concept.
K605.4	Explain system engineering & requirementt engineering and apply s/w design principal to produce cost effective s/w
K605.5	Design a s/w system component or process to meet desired need within realistic constraints.
K605.6	Judge diffrent testing techniques used in s/w engg.to test s/w

Course Name: Digital Signal Processing (7KS01) and Digital Signal Processing Lab (7KS06)
At the end of the course, students will be able to:

K701.1	**Differentiate** between analog, continuous time, discrete time, digital signals with the basic operations involved in signal conversion.
K701.2	**Perform** calculations to convolve, to correlate finite sequences and **analyze** whether the system is stable or not.
K701.3	**Apply** Z transform properties and theorems to find the response of digital system.
K701.4	**Examine** the Discrete time Fourier transform using DIT-FFT and DIF-FFT algorithms.
K701.5	**Design** IIR, FIR filter by using Direct I, Direct II, cascade, Parallel forms of filter.
K701.6	**Compare** and **contrast** the digital low pass and high pass FIR & IIR filters to satisfy given frequencies and attenuation factors.
K706.1	**Design** and **develop** programs for given aims and objectives using existing as well as modern software tools and conclude correlation of theory concept with practice.

Course Name: Computer Networks (7KS02) At
the end of course, students will able:

K702. 1	To **explain** & **identify** fundamental concepts & different layers of computer networks.
K702. 2	To **generalize** all transport layer protocols to understand end-to-end communication over a network.
K702. 3	To **demonstrate** basic understanding of network layer protocols for data routing in network.
K702. 4	To **analyze** functional & procedural means to transfer data between network entities.
K702. 5	To **assess** authentication protocols & security issues in computer networks.
K702. 6	To **develop** mechanism for effective network management framework to control various devices in network.

Course Name: Design and Analysis of Algorithm (7KS03) and Design and Analysis of Algorithm Lab (7KS07)
At the end of course students will able to:

K703.1	**Understand** and **compare** different algorithms for calculating time and space complexity using asymptotic notations.
K703.2	**Comprehend** and **analyze** the divide-and-conquer strategy for design and analysis of various algorithms.
K703.3	**Understand** and **apply** greedy method to various algorithms in order to compute optimal solution and devise asymptotic notation.
K703.4	**Interpret** and **analyze** dynamic programming approach for designing graph and matrix based algorithms.
K703.5	**Design** and **analyze** concept of backtracking for search and traversal algorithms.

K703.6	**Apply** the knowledge gained to infer the efficiency of algorithms considering time and space trade off.
K707.1	**Design**, **Develop** and **Analyze** program using divide and conquer, greedy algorithms and dynamic programming.

Course Name: Object Oriented Analysis & Design (7KS04) and Object Oriented Analysis & Design Lab (7KS08)
At the end of course, students will be able:

K704.1	To **define** and **explain** object-oriented modeling concept and class modeling.
K704.2	To **distinguish** advanced class modeling and advance state modeling with its characteristics.
K704.3	To **discuss** interaction modeling and advanced interaction modeling.
K704.4	To **analyze** and **design** the process overview, system conception and domain analysis.
K704.5	To **explain** object-oriented methodology for software development in the problem domain using types of application analysis and system design.
K704.6	To **illustrate** class design concept and shows how to **select** analysis model and provide a basis for implementation.

Course Name: Web Engineering (7KS05)
At the end of course, students will be able:

K705.1	To **discuss** web architecture, its principles and **review** the protocol suites.
K705.2	To **apply** the knowledge of HTML and CSS to **create** personal and business websites using current professional and industrial standard.
K705.3	**Design** and **Develop** data transfer scripts using XML language for the transfer of data over the Internet.
K705.4	To **formulate** maximum flexibility for XML documents validation with XML Schema over DTD.
K705.5	To **create** an interactive session in Java script, between user and the server using objects and functions.
K705.6	To **summarize** relation between the user and server generated from the web server through automated response with the help of CGI.

Course Name: Artificial Intelligence (8KS01) and Artificial Intelligence Lab (8KS05)
At the end of course, students will able to:

K801.1	Identify appropriate problem specification and explore various AI techniques to understand problem characteristics.
K801.2	Familiar with terminology used in this topical area such as draw problem tree and graph to represent knowledge. Interpret various weak methods.
K801.3	Explain game playing using minmax search procedure and illustrate alpha-beta cut-offs using additional refinement.
K801.4	Express Knowledge Representation and convert to clause form, and apply Resolution in prepositional and predicate logic.
K801.5	Compare various structural Representation of knowledge finding the right structure as needed. Demonstrate using semantic nets, conceptual dependency, frames and Scripts.
K801.6	Explore Natural Language understanding by analyzing syntax and semantics to develop understanding single and multiple sentences.
K805.1	Design and develop program or application for given aims and objectives (such as knowledge based system) using existing as well as modern software tools and to demonstrate and conclude correlation with AI techniques and knowledge Representation for problem solving, Natural Language understanding and analyze important historical and current trends addressing artificial intelligence.

Course Name: Embedded System (8KS02) and Embedded System Lab (8KS06)
At the end of course students will able:

Course	Course Outcome (Statement)
K802.1	To identify the requirement of the embedded system for the human kind and to become skilled at the difference between embedded systems and general purpose system.
K802.2	To discriminate the components of embedded systems with study of actuators and sensors.
K802.3	To understand the important quality attributes of the embedded system that needs to be addressed for operational mode of system.
K802.4	To analyze and explain the 8051 assembly with memory structure, Interface of 8051 with basic study of 8051 ports
K802.5	To implement the programming logics to the embedded system using embedded 'C'.
K802.6	To generalize the concepts of Real time operating system based on embedded firmware design.

Course Name: Software Engineering (8KS03)

At the end of the course, students will be able to:

K803.1	Define Software Engineering and Explain its Importance and Select Software Processes.
K803.2	Apply measurement metrics and indicator to the software development.
K803.3	Schedule the project and applying the software quality assurance concepts to the software under development
K803.4	Prepare the system engineering using hierarchical structure and applying requirement engineering
K803.5	Designing and Developing the system architecture with design of user interface design.
K803.6	Applying fundamentals of testing and debugging to the software design and developed.

Course Name: Network Security (8KS04)

K804.1	Students can list and briefly describe security risks, encryption, explain the differences between the three major goals of information security: confidentiality, integrity and availability.
K804.2	Student can come out with the knowledge of public key cryptography which can be used to ensure the identity of the sender of an encrypted message and Message Authentication is done.
K804.3	Student can Analyze the significant differences between security considerations for email over a public network and encrypted traffic over a wireless local area network.
K804.4	Student will understand IP Security Architecture, Key Management for encryption and decryption, Web Security.
K804.5	Students will be exposed to the different type of Intruders, Intrusion Detection, Password Management.
K804.6	Students will learn Malicious Software, Viruses and Related Threats, Use of Firewalls.

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Course Name:(3ET01)Engineering Mathematic-III At the end of course, Student will be able to:

Course Outcomes:	
19COE301.1	1. Apply the knowledge of vector calculus to solve physical problem and find Fourier, sine,
19COE301.2	2. Determine analytical function, Taylor's and Laurent's series
19COE301.3	3. Solve polynomial equations, system of linear equations and differential equations by differet methods.
19COE301.4	4. Make a use of various methods to solve Linear differential equations
19COE301.5	5. Solve partial differential equation and difference equation
19COE301.6	6. Evaluate laplace transform by making use of properties and solution of Differential

Course Name:Object Oriented Programming (3ET2)& Object Oriented Programming Lab (3ETP7) At the end of course, Student will be able to:

Course Outcomes:	
19COE302.1	1. To Justify the basic concept of object-oriented programming.
19COE302.2	2. To Design, implement, test and debug simple programs in C++ using Functions.
19COE302.3	3. To Understand polymorphisam in OOP using C++.
19COE302.4	4. To Understand and Implement Inheritance using C++.
19COE302.5	5. To Design and To implement simple programs in Java using Classes, Objects and Inheritance.
19COE302.6	6. To Design and test the implementation of Object Oriented programming concepts.

Course Name:Electronic Devices & Circuits (3ET3) & Electronic Devices & Circuits Lab (3ETPP8) At the end of course, Student will be able to:

Course Outcomes:	
19COE302.1	1. Comprehend the knowledge of diode and its applications in rectifier and regulator
19COE302.2	2. Analyze the RC circuit using different input signals, Understant Diode Clippers
19COE302.3	3. Understand basic of BJT and their operational parameters
19COE302.4	4. Understand feedback concept, topologies and their applications
19COE302.5	5. Comprehend the knowledge of Multistage amplifiers and Field Effect Transistors
19COE302.6	6. Implement and analyze Electronic and wave shaping circuits

Course Name: (3ET4)Instrumentation & Sensor At the end of course, Student will be able to:

Course Outcomes:	
19COE404.1	1. To Comprehend fundamental knowledge of transducers, instrumentation and measurement systems.
19COE404.2	2. To Understand working principle and design of Displacement, Liquid Level measurement.
19COE404.3	3. To Understand working principle and design of Temperature, Pressure, Flow and Humidity measurement.
19COE404.4	4. To Understand working principle of Velocity, Strain measurement
19COE404.5	5. To impart the knowledge of Data acquisition and applications of Electronic Instruments Analog & Digital data acquisition system

Course Name: (3ET5)
Electromagnetic Wave At the end of
course, Student will be able to:

Course Outcomes:	
20COE305.1	1. Apply vector calculus to understand the behavior of static electric and magnetic
20COE305.2	2.Formulate and solve problems in electrostatics and magnetostatics in dielectric
20COE305.3	3. Describe and analyze electromagnetic wave propagation in free-space.
20COE305.4	4. Analyze plane electromagnetic waves at boundaries between homogeneous media.
20COE305.5	5. Analyze the electromagnetic radiation from localized charges considering

Course Name: (3ETP9)Skill Development Lab-I (Measurements, Testing & Instrumentation) At the end of course, Student will be able to:

Course Outcomes:	
19COE309.1	1. To understand different types of electronic testing and measuring equipments.
19COE309.2	2. To understand use of various signal/function generators and analyzers used in electronics measurements
19COE309.3	3. To understand use of various Oscilloscope and Analyzers used in electronics measurement system.

Course Name: Signals and System
(4ET01) At the end of course,
Student will be able to:

Course Outcomes:	
19COE401.1	1. Describe signals mathematically and understand how to perform mathematical
19COE401.2	2. Analyze the spectral characteristics of continuous-time periodic and aperiodic
19COE401.3	3. Classify systems based on their properties and determine the response of LTI

19COE401.4	4. Analyze system properties based on impulse response and Fourier analysis.
19COE401.5	5. Understand the process of sampling and its effects. and Apply the Laplace

Course Name: Network Analysis (4ET2)

At the end of course, Student will be able to:

Course Outcomes:	
19COE403.1	1. Analyze electrical circuits using mesh and node analysis.
19COE403.2	2. Analyze electrical circuits using suitable network theorems.
19COE403.3	3. Draw oriented graph of the network to determine their currents and voltages.
19COE403.4	4. Apply Laplace Transform for circuit analysis.
19COE403.5	5. Relate various two port network and apply two-port network theory for network

Course Name: Analog Electronics I (4ET3)& Analog Electronics I Lab (4ETP7) At the end of course, Student will be able to:

Course Outcomes:	
19COE403.1	1. Analyze different wave shaping circuits.
19COE403.2	2. Perform evaluation of the switching behavior of semiconductor devices.
19COE403.3	3. Comprehend the knowledge of basic concepts and performance parameters of Op-Amp.
19COE403.4	4. Use Op-Amp for implementation of linear applications
19COE403.5	5. Comprehend the knowledge of non-linear applications of Op-Amp, PLL and data
19COE403.6	6. Implement wave shaping circuits & various applications of Op-Amp

Course Name: Digital Electronics I (4ET4) & Digital Electronics I Lab (4ETP8) At the end of course, Student will be able to:

Course Outcomes:	
19COE404.1	1. Apply Boolean Algebra and number systems to solve logic functions and
19COE404.2	2.Simplify combinational logic ckt using K-map.
19COE404.3	3.To design MSI ckts using 74/54 series chips.
19COE404.4	4.Analyze and design sequential circuits.
19COE404.5	5.Analyze clocked sequential networks and study different types of semiconductor
19COE404.6	6.Design and Implement SSI,MSI,LSI,combinational and sequential logic circuits.

Course Name:Communication Engineering - I (4ET5) & Communication Engineering - I Lab (4ETP9) At the end of course, Student will be able to:

Course Outcomes:	
19COE405.1	1. Understand the concept of Amplitude Modulation including its frequency
19COE405.2	2.Comprehend the AM Receivers and various Demodulation schemes in analog
19COE405.3	3. Comprehend the concept of Frequency Modulation system and compare it with
19COE405.4	4. Understand FM receivers along with impact of noise in FM reception including
19COE405.5	5. Differentiate between parallel & co-axial transmission line and the properties of
19COE405.6	6. Explain principle of antennas, radiation and to study various antennas used at

Course Name:Skill Development Lab-II (Software) (4ETP10) At the end of course, Student will be able to:

Course Outcomes:	
19COE410.1	1. Design & Develop simple web based applications on their own.
19COE410.2	2. Design and develop applications by using Java Scripting.
19COE410.2	3. Identify existing processes/solution methods for solving the problem, including

Course Name: Analog Electronics-II(5ET1) & Analog Electronics-II Lab(5ETP6) At the end of course, Student will be able to:

Course Outcomes:

19COE501.1	1. Acquire and apply knowledge for design of voltage regulator circuits using ICs and discrete components
19COE501.2	2. Analyze and design electronic circuits for various linear applications
19COE501.3	3. Analyze and design electronic circuits for various non-linear applications
19COE501.4	4. Design various waveform generator circuits using different ICs.
19COE501.5	5. Design various types of active filters & temperature monitoring system using Op-Amp and sensors
19COE501.6	6. Implement various analog electronics circuits using suitable ICs and passive components

Course Name: Power Electronics & Design (5ET2) & Power Electronics & Design Lab (5ETP7) At the end of course, Student will be able to:

Course Outcomes:	
19COE502.1	1. Understand the Construction, characteristics & application of different power devices.
19COE502.2	2. Understand the basic operation & Derive the output voltage, current of phase controlled rectifiers with & without FWD in R-L load for single phase and three phase supply.
19COE502.3	3. Analyze various types of commutation techniques. Understanding the various types of inverter circuits.
19COE502.4	4. Understand the basic principle, types & control techniques of choppers & cyclo- converters.
19COE502.5	5. Illustrate the operation of various types of DC motor and stepper motor, single phase and three phase Induction Motor and Servomotor
19COE502.6	6. Apply the knowledge of various power semiconductor devices, converters and drives for examining the operation

Course Name: Microprocessor and Microcontroller (5ET3) & Microprocessor and Microcontroller Lab (5ETP8)

At the end of course, Student will be able to:

Course Outcomes:	
19COE503.1	1. To study fundamentals of microprocessor systems.
19COE503.2	2. Understanding microprocessor Assembly Language Programming concepts and different data transfer schemes.
19COE503.3	3. To deal interfacing of different peripheral devices with Microprocessor.
19COE503.4	4. To study fundamentals of microcontroller systems.
19COE503.5	5. Understanding microcontroller Assembly Language Programming concepts &To get knowledge of interfacing different peripheral devices with Microcontroller.
19COE503.6	6. Develop skill of writing programs in ALP for various applications of 8085 & 8051 & Interface various peripherals with 8085 & 8051.

Course Name: Communication Engg.-II
(5ET4) At the end of course, Student
will be able to:

Course Outcomes:	
19COE504.1	1. To understand the fundamentals of Probability theory and random processes.
19COE504.2	2. To study principles of Electromagnetic Wave propagation.
19COE504.3	3. To study various pulse modulation and demodulation techniques used in transmission of analog signal.
19COE504.4	4. To understand the concept of sampling and quantization in digital transmission system.
19COE504.5	5. To study multiplexing and basics of telephone switching system.

Course Name: FE-I(SOFC) (5ET5)
At the end of course, Student will be able to:

Course Outcomes:	
19COE505.1	1. Understand the basic Concepts of orbital aspects & orbital effects in Satellite Communications
19COE505.2	2.Explain the fundamentals of Electromagnetic field Propogation,Analyze Satellite Link Model
19COE505.3	3. Summarize GPS services of Satellite Communications
19COE505.4	4. Comprehend the kownledge for basic Concepts of Optical Fiber Communications
19COE505.5	5. Illustrate the functioning of Optical Sources & Detectors.

Course Name: Skill Development Lab-III
(Simulation) (5ETP9) At the end of course, Student
will be able to:

Course Outcomes:	
19COE509.1	1. To write program scripts, functions, simulate experimental models,generate different plots and explore results using simulation tools to draw valid conclusions and inferences in engineering problems.

Course Name: (6ET1) MICROCONTROLLER PROGRAMMING & APPLICATIONS

At the end of course, Student will be able to:

Course Outcomes:	
19COE601.1	1. To understand and familiarize with the members of AVR family and its
19COE601.2	2. To understand the instructions set of AVR Microcontroller.
19COE601.3	3. To apply knowledge of instruction set of AVR and develop logic in assembly and
19COE601.4	4. To understand in built peripherals of AVR microcontroller.
19COE601.5	5. To implement a system for dedicated applications and Understand different

	serial

Course Name: (6ET2) Control System Engineering At the end of course, Student will be able to:

Course Outcomes:	
19COE602.1	1. Understand the principles fiber-optic communication, the components and Losses andTo

19COE602.2	2. Understand time response of the LTI system and its stability analysis.
19COE602.3	3. Understand use of frequency response of the LTI system for System stability analysis
19COE602.4	4. Understand the use of other frequency response analysis techniques for measuring system
19COE602.5	5. Study State Variable Analysis of the system and stability of the digital control system.

Course Name: Digital Communication (6ET3) & Digital Communication Lab (6ETP7) At the end of course, Student will be able to:

Course Outcomes:	
19COE603.1	1. Understand the fundamental building blocks of digital communication systems,
19COE603.2	2. Understand the fundamentals of information theory and analyze information
19COE603.3	3. Analyze performance of different digital modulation techniques using
19COE603.4	4. Understand methods to mitigate inter symbol interference in baseband
19COE603.5	5. Implement different error control coding schemes for the reliable transmission.
19COE603.6	6.Developing source code/performing hardware based practical to study different

Course Name: DIGITAL SIGNAL PROCESSING (6ET4) &DIGITAL SIGNAL PROCESSING (6ETP8) Lab
At the end of course, Student will be able to:

Course Outcomes:	
19COE604.1	1. Examine the discrete time signals and identify the type system.
19COE604.2	2. Solve the z-transform of a sequence, identify its region of convergence, and
19COE604.3	3. Evaluate the Fourier transform of a signal.
19COE604.4	4. Design FIR and IIR filters.
19COE604.5	5. Discuss the concepts of Multirate Digital Signal Processing and need of Filter
19COE604.6	6. Generate different plots and explore results to draw valid conclusions and

Course Name: (6ET5) FE-II Introduction to Wireless Technology At the end of course, Student will be able to:

Course Outcomes:	
19COE605.1	1. Comprehend the knowledge of different generations of wireless networks and
19COE605.2	2. Understand the fundamentals and evolution of cellular technology
19COE605.3	3. Understand GSM System with its architecture and signal processing
19COE605.4	4. Understand CDMA System with its architecture and channel structure
19COE605.5	5. Comprehend the knowledge of Wireless LAN and PAN

Course Name: VLSI Design (7ET1) & VLSI Design (7ETP6) At the end of course, Student will be able to:

Course Outcomes:	
19COE701.1	1. Demonstrate the knowledge of need of VLSI design & its importance in various applications, Illustrate IC manufacturing process & CMOS Technology, various IC design parameters and explain various tools for IC design
19COE701.2	2. Explain different aspects of VHDL for VLSI design, understand & differentiate between the various VHDL modeling techniques and model combinational & sequential circuits using VHDL.
19COE701.3	3.Demonstrate the knowledge of concepts such as simulation, synthesis & realization of digital circuits using VHDL and related to various HDLs.
19COE701.4	4. Illustrate the architecture of CPLD & FPGA, understand Xilinx/ Altera as tool for CPLD & FPGA design and apply these techniques for digital circuit designing
19COE701.5	5.Explain various CMOS logic families, build digital circuits using these families and compare them related to their speed, area and power consumption. Illustrate the process of fabrication of MOS transistors, apply the design rules for designing
19COE701.6	6. Verify the operation of logic gates, analyze the performance of CMOS ckts using tool like Xilinx, Mixrowind etc.

Course Name: Digital Image Processing (7ET2) At the end of course, Student will be able to:

Course Outcomes:	
19COE703.1	1. Analyze general terminology of digital image processing
19COE703.2	2. Examine various types of images, intensity transformations, spatial filtering & analyse the performance of
19COE703.3	3. Develop Fourier transform for image processing in frequency domain to enhance the image
19COE703.4	4. Evaluate the methodologies for image restoration.
19COE703.5	5.To study and compare the performance of image compression techniques and To study image segmentation

Course Name: SATELLITE AND FIBER OPTIC COMMUNICATION (7ET3) At the end of course, Student will be able to:

Course Outcomes:	
19COE505.1	1. Understand the basic Concepts of orbital aspects & orbital effects in Satellite Communications
19COE505.2	2.Explain the fundamentals of Electromagnetic field Propogation,Analyze Satellite Link Model
19COE505.3	3. Summarize GPS services of Satellite Communications
19COE505.4	4. Comprehend the kownledge for basic Concepts of Optical Fiber Communications
19COE505.5	5. Illustrate the functioning of Optical Sources & Detectors.

Course Name: IMQC (7ET4)

At the end of course, Student will be able to:

Course Outcomes:	
19COE704.1	1. To understand basics of management, administration and organization.
19COE704.2	2. Comprehend the knowledge of marketing management and materials management.
19COE704.3	3. To understand knowledge of personnel management and labour welfare in business orgnisation.
19COE704.4	4. To understand basics of project report and concept of budget and their components..
19COE704.5	5. Comprehend the knowledge of quality management tools and professional ethics.

Course Name: PLC & Automation (7ET5)

At the end of course, Student will be able to:

Course Outcomes:	
19COE705.1	1.Describe working of various blocks of PLC.
19COE705.2	2.Illustrate the use of various Input and Output Devices related to PLC
19COE705.3	3.Discuss and demonstrate various functions and instructions used in PLC programming.
19COE705.4	4.Develop the ladder programs for electronics applications.
19COE705.5	5.Develop the ladder programs for industrial applications &.Explain architecture, types and application of SCADA

Course Name: Skill Development Lab-V (Signal & Image Processing)

(7ETp7) At the end of course, Student will be able to:

Course Outcomes:	
19COE707.1	1. Evaluate the methodologies for image pre-processing and post processing.
19COE707.2	2. Apply image processing algorithms in practical applications.

Course Name: UHF& MICROWAVE (8ET1) & UHF& MICROWAVE (8ETP6) Lab

At the end of course, Student will be able to:

Course Outcomes:	
19COE801.1	1. Understand the operation and analysis of microwave tubes.
19COE801.2	2. Understand principle of operation and analysis of solid state microwave devices.
19COE801.3	3. Describe the the principles of microwave transmission through Waveguides and
19COE801.4	4. Comprehend the knowledge transmission line, cavity and dielectric Microwave
19COE801.5	5. Understand and principle of operation of microwave components with formulation
19COE801.6	6.Implement the methods of measurement of microwave parameters in the laboratory

Course Name:WirelessCommunication (8ETC2)

At the end of course, Student will be able to:

Course Outcomes:	
19COE802.1	1. llustrate the evolution of cellular mobile system and understand cellular concepts.
19COE802.2	2. Use design fundamentals of cellular radio system.
19COE802.3	3.Understand propagation mechanism and fading in mobile radio system.
19COE802.4	4. Demonstrate concepts of various 2nd and 3rd generation cellular systems and
19COE802.5	5. llustrate concepts of various wireless data communication networks.

Course Name: Data Communication Network (8ET3) At the end of course, Student will be able to:

Course Outcomes:	
19COE803.1	1. To Understand different types of networks, devices and their functions within a
19COE803.2	2. To undersatnd different data link layer protocol and mechnisms.
19COE803.3	3. To Understand different network routing and addressing techniques.
19COE803.4	4. To Understand and implement routing algorithms and traffic control techniques.
19COE803.5	5. To Understand and Describe various Application Layer Protocols and security

Course Name: BIOMEDICAL ENGINEERING (8ET4)

At the end of course, Student will be able to:

Course Outcomes:	
19COE804.1	1.Undersatnd fundametals of Medical Instrustrumentation,Biomedical Signals and
19COE804.2	2.Illustrate the significance of human signals and recording techniques
19COE804.3	3.Familiarize with Modern medical imaging systems.
19COE804.4	4.Describe Need of Physiological and electrotherapy equipments
19COE804.5	5.Conceptualize requirements and importance of patient care,safety,Anaesthesia

Course Name: SKILL DEVELOPMENT LAB- VI (8ETP6)

At the end of course, Student will be able to:

Course Outcomes:	
19COE806.1	1. Install, configure and operate various computer networks, networking devices and
19COE806.2	2. Analyze the performance of computer networks using simulation softwares.

Information Technology

ENGINEERING MATHEMATICS-III (3IT01) Credits: - 5

Sr. No.	Specific Course Outcome
CON 301.1	Identify and solve the ordinary differential equation with constant coefficients.
CON 301.2	Understand and formulate the Laplace transform to solve Differential equations.
CON 301.3	Define Higher order Differential Equations, Z-transform and it's inverse transform.
CON 301.4	Define and Formulate Fourier transforms and Partial differential equation of first order.
CON 301.5	Discuss Complex analysis and its methods
CON 301.6	Understand Vector Calculus and its applications

PROGRAMING METHODOLOGY (3IT02) / PM Lab (3IT06) Credits: - 4 / 1

Sr. No.	Specific Course Outcome
CON 302.1	Understand principles of object oriented programming.
CON 302.2	Explain and apply basic concepts of OOP using Java Programming language.
CON 302.3	Apply the concept of a class and object for solving real life problems.
CON 302.4	Create Graphical user interface using Java Window toolkit and event handling mechanism.
CON 302.5	Differentiate Applet and Application programming and use applet programming to design interactive web page.
CON 302.6	Demonstrate various file handling input output operations and use of exception handling.

DISCRETE STRUCTURE (3IT03) Credits: - 4

Sr. No.	Specific Course Outcome
CON 303.1	Identify basic terminology of Mathematical Logic, Theory of inference & Predicate calculus.
CON 303.2	Identify, illustrate, and solve engineering problems on the basis of set theory.
CON 303.3	Identify and Design an Algebraic Structures and Boolean Algebra to solve engineering problems.
CON 303.4	Design and interpret data using graphs, trees and related algorithms.
CON 303.5	Identify and Design Finite State machines & Turing machines

ELECTRONICS DEVICES & CIRCUIT (3IT04) / EDC Lab (3IT07) Credits: - 4 / 1

Sr. No.	Specific Course Outcome
CON 304.1	Memories the operation of Semiconductor devices and its applications.
CON 304.2	Explain the need of biasing and condition for faithful amplification of various transistor configurations.
CON 304.3	Understand operations of oscillators.
CON 304.4	Explain the parameters of Operational Amplifier and Discuss aplications of Operational Amplifier.
CON 304.5	Evaluate various multivibrator circuits using IC555.
CON 304.6	Demonstrate and simulate various electronic circuits using Pspice.

ASSEMBLY LANGUAGE PROGRAMMING (3IT05) / ALP Lab (3IT08) Credits: - 4 / 1

Sr. No.	Specific Course Outcome
CON 305.1	To understand the architecture of 8086/8088 microprocessor.
CON 305.2	Identify various addressing modes in 8086.
CON 305.3	Apply various instructions used in 8086/8088 for programming.
CON 305.4	Understand concepts of stack and subroutine.
CON 305.5	Describe interfacing of 8086 with programmable peripheral interface 8255 PPI.
CON 305.6	Describe 8086 interrupts and interfacing of programmable interrupt controller 8259 with 8086.

COMPUTER LAB-I (3IT09) Credits: - 2

Sr. No.	Specific Course Outcome
CON 309.1	Describe basics of the UNIX/LINUX operating system.
CON 309.2	Implement the general purpose utility commands.
CON 309.3	Design flowchart and execute C program in VI-editor.
CON 309.4	Apply concept of shell programming.

DATA STRUCTURE (4IT01) / DS Lab (4IT06) Credits: - 4 / 1

Sr. No.	Specific Course Outcome
CON 401.1	Explain the role of data structures in structuring and manipulating data and understand the concepts of algorithm design and complexity theory.
CON 401.2	Understand memory representation and use appropriate linear data structures to solve problems.
CON 401.3	Differentiate and evaluate memory utilization in static and dynamic memory allocation and perform various operations on linear data structures like linked list, stack and queue.
CON 401.4	Understand nonlinear data structures and demonstrate applications of Tree, graph.
CON 401.5	Understand and demonstrate various sorting algorithm and their time complexities.
CON 401.6	Design and execute algorithms using appropriate linear and nonlinear data structures and know their real world application.

COMMUNICATION ENGINEERING (4IT02) / CE Lab (4IT07) Credits: - 4 / 1

Sr. No.	Specific Course Outcome
CON 402.1	Explain the concept of various AM modulation technique & its transmission through communication channel.
CON 402.2	Understand how the AM signal is reconstructed at the receiver end.
CON 402.3	Explain the Generation and transmission of FM signal and compare FM signal with AM signal.
CON 402.4	Understand how the FM signal is reconstructed at the receiver end.
CON 402.5	Understand the concept of Sampling Theorem, Nyquiest sampling theorem, Aliasing effect, & various Pulse modulation technique.
CON 402.6	Understand the signals and their analysis using Fourier series and Fourier Transform in frequency domain.

OBJECT ORIENTED TECHNOLOGIES THEORY (4IT03) / OOT Lab (4IT08) Credits: - 4 / 1

Sr. No.	Specific Course Outcome
CON 403.1	Define fundamental concepts that underline object oriented approaches to software development.
CON 403.2	Perform object oriented concepts like inheritance, operator overloading and containership in programming.
CON 403.3	Apply the concepts of virtual functions, friend functions, static functions and graphics
CON 403.4	Explain file related operations, error handling in file.
CON 403.5	Compare the concepts of class template & function template.
CON 403.6	Design & develop applications of creative and lateral thinking, most particularly in solving problems.

SOCIAL SCIENCE & ENGINEERING ECONOMICS (4IT04) Credits: - 4

Sr. No.	Specific Course Outcome
CON 404.1	State the importance of study of social sciences to Engineers.

CON 404.2	Discriminate the Composition and Power of Indian Parliament as well as Indian Constitution.
CON 404.3	Describe the Impact of Science and Technology on various aspects of human society.
CON 404.4	Recognize the various Economic systems and forms of Business organization
CON 404.5	Study the concepts of Principle of taxation , market and Economics of Development

NUMERICAL METHODS & OPERATIONAL RESEARCH TECHNIQUE (4IT05)

Credits: - 4

Sr. No.	Specific Course Outcome
CON 405.1	Describe Error Analysis techniques along with the solution of Non Linear and polynomial equations.
CON 405.2	Generate the solution for Linear system equations and Regression techniques.
CON 405.3	Distinguish and evaluate the concept of Integrations and Differential equation**.**
CON 405.4	Describe the various Operation Research Models and evaluation of Dynamic programming methods
CON 405.5	Explain the concept of Linear programming and Sequencing problem and their evaluation. Design PERT networks and CPM.

COMPUTER LAB- II (HTML) (4IT09) Credits: - 2

Sr. No.	Specific Course Outcome
CON 409.1	Design a Web page using HTML basic tags.
CON 409.2	Add images to HTML web pages and link multiple HTML pages with the help of HTML tag.
CON 409.3	Create and design tables, frames and forms in HTML page. Design Web Page using Style sheets.
CON 409.4	Insert Java script in HTML web pages.

V **Semester Third Year**

OPERATING SYSTEM (5IT01) / OS LAB (5IT06) Credits: - 4 / 1

Sr. No.	Specific Course Outcome
CON 501.1	Define a basic concept of operating system and illustrate concept of process management using scheduling algorithm.
CON 501.2	Discuss memory management using paging and segmentation
CON 501.3	Define file system and free space management.
CON 501.4	Illustrate I/O system and disk scheduling.
CON	Tell summary of Linux operating system.

501.5	
CON 501.6	Illustrate process scheduling algorithms and memory management techniques.

DIGITAL INTEGRATED CIRCUITS (5IT02) / DIC LAB (5IT07) Credits: - 4 / 1

Sr. No.	Specific Course Outcome
CON 502.1	To understand characteristics of DIC and logic family like TTL,CMOS etc.
CON 502.2	Analyze and design logic circuit using minimization techniques
CON 502.3	Design combinational logic circuit using universal gates.
CON 502.4	Design combinational logic circuit using MSI chip.
CON 502.5	Design and analyze synchronous and asynchronous sequential circuit using Flip-flop.
CON 502.6	Design and analyze Shift registers and ASM Charts

COMPUTER ARCHITECTURE & ORGANIZATION (5IT03) Credits: - 4

Sr. No	Specific Course Outcomes
CON 503.1	Understand the basic concept of computer hardware, software, and addressing methods.
CON 503.2	Describe the working of multiple bus organization and micro- programmed control.
CON 503.3	Explain I/O interfacing, interrupts and direct memory access.
CON 503.4	Outline the memory organization of static & dynamic RAMs and its working difference.
CON 503.5	Perform arithmetic number representations, Booth's algorithm and design of fast adders and compare different I/O devices.

Sr. No	Specific Course Outcomes
CON 504.1	Identify the need of communication skill.
CON 504.2	Identify strategies for improving communication in social and professional relationship.
CON 504.3	Explain and apply the rhetorical goal of persuasive and informative speaking and establish credibility.
CON 504.4	Identify and apply strategies for effective communication using technology.

Free Elective I - INTRODUCTION TO COMPUTER NETWORKS (5FEIT05) Credits: - 4

Sr. No	Specific Course Outcomes
CON 505.1	To understand basic concept of computer network, topologies and physical layer cabling used in networking.
CON 505.2	Understand various basic operations of the computer system
CON 505.3	Understand operation of OSI layers and various network components and interconnection of LAN.
CON 505.4	Understand TCP/IP layers and IPv4 and IPv6 addressing used in networking.
CON 505.5	Learn the router configuration, router fundamentals and its modes and use routing protocol for different network applications.

Free Elective I - IT ETHICS & PRACTICES (5FEIT05) Credits: - 4

Sr. No	Specific Course Outcomes
CON 505.1	Describes an overview of ethics and, its importance in business and IT
CON 505.2	Define computer and internet crime, types of attacks, and security policies.
CON 505.3	Discuss right of privacy, freedom of expression, Intellectual property rights, software development process and issues related with it.
CON 505.4	Discuss employer/employee issues and, whistle blowing situations
CON 505.5	Describes impact of IT on the quality of life, professional societies, and code of ethics for professionals.

COMPUTER LAB-III (5IT09) Credits: - 2

Sr. No	Specific Course Outcomes
CON 509.1	Demonstrate LAMP installation and able write scripts in PHP
CON 509.2	Prepare different input techniques using forms using session and cookies
CON 509.3	Prepare database and access data through PHP scripts
CON 509.4	Prepare content management system

VI **Semester Third Year**

PRINCIPLE OF MANAGEMENT (6IT01) Credits: - 4

Sr. No	Specific Course Outcomes
CON 601.1	Learn the basic concept of management and also Study of human resource planning.
CON 601.2	Prepare the organization planning, their design and development along with production planning and control.
CON 601.3	Do Product design & development
CON 601.4	Study fundamental concepts of maintenance and system reliability, concept of failure analysis and Know the concept of TQM, ISO 9000 and quality audit.
CON 601.5	Learn and apply marketing management, project management.

DATABASE MANAGEMENT SYSTEMS (6IT02) / DMS LAB (6IT06) Credits: - 4 / 1

Sr. No	Specific Course Outcomes
CON 602.1	Describe concept of database system.
CON 602.2	Discuss and apply the concept related with data model.
CON 602.3	Apply concepts of database integrity and security.
CON 602.4	Describe query processing and query optimization.
CON 602.5	Explain concept of transaction management and properties.
CON 602.6	Describe the concept of Concurrency control and study of various database protocols.

THEORY OF COMPUTATION (6IT03) Credits: - 4

Sr. No	Specific Course Outcomes
CON 603.1	Construct Finite state machine and differentiate between deterministic finite automation and non-deterministic finite automation.
CON 603.2	Construct regular expressions and equivalence between RE and FA.
CON 603.3	Design Context free grammar, derivation trees, conversion of Context free grammar in to normal forms, design push down automata
CON 603.4	Design Turing machine and its model
CON 603.5	Discuss hierarchical structure of various languages and Grammar along with recursive & non-recursive enumerable languages

Sr. No	Specific Course Outcomes
CON 604.1	Understand fundamentals of computer network, network architecture, services offered by OSI reference model.
CON 604.2	Discuss design issues of data link layer and elementary data link protocols with protocol verification.
CON 604.3	Apply routing methods and congestion control algorithm.
CON 604.4	Compare UDP services and TCP services.
CON 604.5	Define services of DNS and Multimedia.
CON 604.6	Illustrate computer network simulation using fundamentals of computer networks.

Free Elective II - E-COMMERCE (6FEIT05) Credits: - 4

Sr. No	Specific Course Outcomes
CON 605.1	Understand the difference between E-commerce, and E-business and know the Eight unique features of E-commerce technology.
CON 605.2	Discuss the concept of various models in E-commerce.
CON 605.3	Analyze the Ecommerce infrastructure, design a simple e-commerce Web Site and choose appropriate resources for it.
CON 605.4	Analyze Online Security and payment Systems in E-Commerce and Identify the key security threats in the e-commerce environment.
CON 605.5	Apply the ecommerce marketing concepts.

Free Elective II - KNOWLEDGE MANAGEMENT (6FEIT05) Credits: - 4

Sr. No	Specific Course Outcomes
CON 605.1	State the importance of knowledge and knowledge management, knowledge intensive firms and knowledge workers, learning & KM
CON 605.2	Describe Innovation dynamics and knowledge processes, forgetting & unlearning knowledge
CON 605.3	Discriminate the influence of socio-cultural factors in motivating workers to participate in knowledge management initiatives.
CON 605.4	Understand Cross community, Boundary spanning, Power, politics and conflict.
CON 605.5	Study ICT & knowledge management, facilitating KM via culture management and HRM practices, Leadership and KM

C LAB - IV CONTENT MANAGEMENT SYSTEM (6IT08) Credits: - 2

Sr. No	Specific Course Outcomes
CON 608.1	Understand and differentiate Content management System framework.
CON 608.2	Discuss about Configuring templates in Joomla.

CON 608.3	Design menus, pages and users with different kinds or levels of permissions in Joomla.
CON 608.4	Configure front end modules as Breadcrumbs, Newsflash, Random Image, search and custom HTML.

P.G.Department of Computer Applications

PO a)
An ability to apply knowledge of mathematics, computing and management in the field of computer software.
b) An ability to identify, formulate, design and solve intricate computing problems, as well as to analyze and interpret data. c) Able to develop algorithms, and implement them in various programming languages.
d) An ability to create and use techniques, expertise and modern computing tools necessary to solve complex computing problems
e) An ability to effectively communicate technical information and complex problems through improved communication and interpersonal skills
f) Graduates will develop an attitude of continuous learning.
g) Graduates will demonstrate knowledge of values and professional ethics in their activities
h) Graduates will develop confidence to face challenges in their career.

Semester	**Subjects**	**Course Outcomes**
		Winter 2019
Sem I Theory		
	1MCA1 Computer Organization and Architecture	On completion of the course, the students will be able to
		1. Explain fundamentals of parallel processing and pipeline processing
		2. Analyze and classify different pipelined processors
		3. Describe architectural features of advanced processors.
		4. Demonstrate concepts of parallelism in hardware/software.
	1MCA2 Object Oriented Programming with C++	on completion of this course, the students will be able to:
		Understand the difference between the top-down and bottom-up approach
		Describe the object-oriented programming approach in connection with C++
		Apply the concepts of object-oriented programming
		Illustrate the process of data file manipulations using C++

		Apply virtual and pure virtual function & complex programming situations
	1MCA3 Mathematical Foundation	On completion of the course, the students will be able to
		1. Understand the foundations of mathematics.
		2. Apply mathematical ideas to model real-world problems.
		3. Analyze data using Statistical Methods
		4. Identify the type of statistical situation and solve statistical problems
	1MCA4 System Analysis & Design	On successful completion of the course students will be able to:
		1. A firm basis for understanding the life cycle of a systems development project;
		2. An understanding of the analysis and development techniques required as a team member of a medium-scale information systems development project;
		3. An understanding of the ways in which an analyst's interaction with system sponsors and users play a part in information systems development;
		4. Experience in developing information systems models;
		5. Experience in developing systems project documentation;
	Open Elective	Develop skill in the area of interest beyond the syllabus
Sem I Practicles	Object Oriented Programming with C++ Lab	On successful completion of the course students will be able to:
		1. Creating simple programs using classes and objects in C++.
		2. Implement Object Oriented Programming Concepts in C++
		3. Develop applications using stream I/O and file I/O.
		4. Implement simple graphical user interfaces.
		5. Implement Object Oriented Programs using templates and exceptional handling concepts.
	Mathematical Foundation Lab	On the successful completion of the course, the students would be able to
		Evaluate the validity of logical argumentsand construct mathematical proofs.

		Analyse whether given graphs are isomorphic and apply different algorithms to find the shortest path.
		Apply the concept of two dimensional random variables to correlation, regression and Central limit theorem.
		Learn and apply multivariate analysis necessary for Principal Component Analysis.
		Identify the Markovianqueueing model in the given system, find the performance measures and analyse the results.
	Web Technologies Lab	The students will be able to:
		Analyze a web page and identify its elements and attributes.
		Create web pages using XHTML and Cascading Style Sheets
		Build dynamic web pages using JavaScript (Client side programming).
		Create XML documents and Schemas.
Sem III Theory	3MCA1 Operating Systems	On the successful completion of the course, the students would be able to
		Students will learn how Operating System is Important for Computer System.
		To make aware of different types of Operating System and their services.
		To learn different process scheduling algorithms and synchronization techniques to achieve better performance of a computer system.
		To know virtual memory concepts.
		To learn secondary memory management.
	3MCA2 File Structure & Data Processing	On the successful completion of the course, the students would be able to
		· Design and implement efficient file structure using improved programming skills
		To acquire the fundamental tools needed to design intelligent, cost-effective, and appropriate solutions to file structure problems with the fundamentals of file structures and their management.
		The software and hardware characteristics that combine to make file structure design important to application development and to organize different file structures in the memory.

		Effective use of files for storing and retrieving information by choosing appropriate file structure for storage representation.
		Understand the data coding technique, apply data compressing algorithms, use file systems interfaces and apply indexing and hashing to file structures
		Select file structures techniques, including direct access I/O, buffer packing and unpacking, consequential processing, Btrees, and external hashing and to identify a suitable sorting technique to arrange the data.
	3MCA3 Java Programming	on completion of this course, the students will be able to:
		Write Java application programs using OOP principles and proper programming structure
		Develop Java program using packages, inheritance and interface.
		Create Multithreaded programs.
		Write Java programs to implement error handling techniques using exception handling and develop programs using class and inputs from keyboard.
		Develop graphical User Interface using AWT.
		Demonstrate event handling mechanism.
	3MCA4 Computer Networks	on completion of this course, the students will be able to:
		Graduates are proficient at solving computer networking problems in the workplace.
		Graduates pursue productive careers in computer networking or a related computing field.
		Graduates are engaged in continuing professional development or professional societies in computer networking or a related computing field.
		Graduates follow standards set forth by professional societies of which they are members.
	3MCA5 Computer Oriented Optimization Techniques	on completion of this course, the students will be able to:
		Learn dynamic programming concepts.
		Learn linear programming and its model.
		Understand transportation problem, its types and related optimization techniques.
		Learn machine sequencing problem, branch and bound techniques.
		Understands the concept of probability OR model.

		· Learns game theory concepts and able to draw expected payoff.
Sem III Practicles	3MCA6 File Structure & Data Processing-Lab.	on completion of this course, the students will be able to:
		Design programs using a variety of data structures such as stacks, queues, hash tables, binary trees, search trees, heaps, graphs, and B-trees.
		Analyze and implement various kinds of searching and sorting techniques.
		Implement programs of for insert, delete, update records from file.
		Design algorithms for hashing techniques
	3MCA7 Java Programming-Lab.	on completion of this course, the students will be able to:
		· Able to write Java applications using OOP concept
		· Learn to create and implement Java applets.
		· Learn to implement I/O operations with respect to file.
		Able to write GUI based windows applications.
	3MCA8 Computer Oriented Optimization Techniques-Lab	on completion of this course, the students will be able to:
		· Learn to implement dynamic and linear programming.
		Learn to implement and apply transportation problem and its related optimization techniques.
		Implement machine sequencing problem with branch and bound techniques.
		Understands and able to use the concept of probability OR model.
		Learns to implement game theory concepts, draw expected payoff.
	3MCA9 Computer Lab-III	on completion of this course, the students will be able to:
		Manage processes/tasks.
		Implement multithreaded applications.
		Handle Kernel object and learn to manipulate it.
		Implement thread synchroniztion and inter-process communication.
		Implement programs related to file systems, directories and memory management.
		Implement device drivers and perform I/O Programming.

Sem V Theory	5MCA1 Artificial Intelligence	on completion of this course, the students will be able to:
		Understand the concepts of Artificial intelligence.
		Develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems for Game Playing.
		Represent knowledge of the world using logic and infer new facts from that Knowledge.
		Demonstrate working knowledge in LISP in order to write simple LISP programs and explore more sophisticated LISP code on their own.
		Know various AI search algorithms (uninformed, informed, heuristic, constraint satisfaction).
	5MCA2 Software Project Management	on completion of this course, the students will be able to:
		Apply the process to be followed in the software development life-cycle models.
		· Implement communication, modeling, construction & deployment practices in softwaredevelopment.
		Analyze & design the software models using unified modeling language (UML).
		Explain the concepts of various software testing methods & be able to apply appropriatetesting approaches for development of software.
		Explain the quality management & different types of metrics used in software development.
		Apply the concepts of project management & planning.
		Estimate project cost and perform cost-benefit evaluation among projects.
		Perform project scheduling, activity network analysis and risk management.
		Apply schedule and cost control techniques for project monitoring including contractmanagement.
		Apply quality models in software projects for maintaining software quality and reliability.
		Use suitable project organization structure, leadership, decision and motivation styles,proper safety and ethical practices and be responsible to the society.
	5MCA3 System Administration & Security	Understand network security, its types, access control, model of internetwork security, internet standards

		Understand Cryptography , Encryption principles and various algorithms, standardization process, key distribution, public key cryptography and message authentication.
		· Understand various encryption & decryption algorithms, message authentication process.
		Learn various Network security applications like Kerberos, X.509 directory authentication services, e-mail security PGP, MIME , S MIME functionality, IP Security Web Security, Network Management Security (SNMP, SNMPv1 SNMPv2).
		Understand System Security concepts like password protection, password selection strategies, Intrusion detection, viruses, Firewall.
	5MCA4 Management Information System	Apply a framework and process for aligning and organization's IT objectives with business strategy.
		Defend the strategic value of information resources for an organization.
		Participate in an organization's information systems and technology decision making processes.
		Identify ways information systems & technology may improve an organization's performance, including improving organizational processes, decision-making, collaboration, and personal productivity.
		Define what a manager should be able to expect from an IT department in an organization.
		Build a business case for IT, addressing key IT acquisition decisions such as make/buy; outsource/insource; project management.
		Apply a framework for evaluating information-related ethical dilemmas commonly faced by managers.
	5MCA5 Data Warehousing	Develop research oriented applications of data mining and data warehousing.
		Understand the necessity and importance of data preprocessing, data integration, data discretization.
		Learn the concepts of OLAP technology, data mining methods, various classification and prediction methods.
		Able to apply accuracy and error measures, methods of cluster analysis, graph mining and mining sequence patterns in data.

Sem V Practicles	5MCA6 Artificial Intelligence-Lab.	· Exhibit strong familiarity with a number of important AI techniques, including inparticular search, knowledge representation, planning and constraint management.
		Interpret the modern view of AI as the study of agents that receive percepts from theenvironment and perform actions.
		Build awareness of AI facing major challenges and the complexity of typical problemswithin the field.
		Assess critically the techniques presented and apply them to real world problems.
		Develop self-learning and research skills to tackle a topic of interest on his/her own or as part of a team
	5MCA7 Software Project Management-Lab.	Estimate project cost and perform cost-benefit evaluation among projects.
		Perform project scheduling, activity network analysis and risk management.
		Apply schedule and cost control techniques for project monitoring including contract management.
		Apply quality models in software projects for maintaining software quality and reliability.
		Use suitable project organization structure, leadership, decision and motivation styles, proper safety and ethical practices and be responsible to the society.
	5MCA8 System Administration & Security-Lab.	Identify Vulnerabilities in a Network.
		Solve Problems using various Algorithms.
		· Identify Various Attacks and Formulate Defence Mechanism.
		Understand Wireless Security.
	MINI Project	Demonstrate a sound technical knowledge of their selected project topic.
		Undertake problem identification, formulation and solution.
		Practically understand and implement the concept of linking database and front end.
		Design solutions to complex problems utilizing MVC architecture.
		Demonstrate the knowledge, skills and attitudes as a professional engineer.

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Sem II Theory	**MCA19109** Data Structure	Knowledge of basic data structures and algorithms.
		Understand concepts of searching and sorting techniques
		Understand concepts of stacks, queues, lists, trees and graphs
		Able to write algorithms for solving problems with the help of fundamental datastructures
	MCA19110 Operating System	Analyze & Classify different types of operating system
		Understand the working of Operating system
		Understand the Memory Management policies.
		Concepts of input/output, storage and file management
		Understand various protection and security mechanisms
	MCA19111 Database Management System	Understand concepts of database system architecture.
		Able to understand relational model and perform SQL operations.
		Understand the importance of normal forms and learn query optimization.
		Learns the impotance of transaction processing and concurreny control.
		Learn the concept of data warehousing and data mining.
	MCA19112 E-Commerce	Gain a comprehensive understanding of the E-Commerce landscape, currentandemergingbusiness models, and the technology and infrastructureunderpinnings of the business.
		Leverage the E-Commerce platforms to enhance current business orincubate new businesses.
		Gain an understanding on how innovative use of the ECommerce canhelp developing competitive advantage.
		Develop an understanding on how internet can help business grow.
		Gain an understanding on the importance of security, privacy, and ethicalissues as they relate to E-Commerce.
	MCA19113 Open Elective(Drupal)	Develop skill in the area of interest beyond the syllabus
Sem II Practicles	**MCA19113** Open Elective(Drupal)	

	MCA19114 Data Structure Lab	Skill of application of different data structures for solving problems.
	MCA19115 Database Management System Lab	Skill of effective use of database management system
	MCA117 Linux and Windows Lab	Able to understand the Basics of Windows & Linux working
		· Ability to learn the creation of Windows with various components
		Able to perform the shell scripting programs .
		Able to create file handling utilities by using Linux shell environment.
Sem IV Theory	**4MCA1** Database Management System	Define Database Management System, explain fundamental elements of a database management system, compare the basic concepts of relational data model, entity relationship model.
		Design entity-relationship diagrams to represent simple database application scenarios, translate entity-relationship diagrams into relational tables, populate a relational database and formulate SQL queries on the data.
		Understand the basic concepts regarding database, know about query processing and techniques involved in query optimization and understand the concepts of database transaction and related database facilities including concurrency control, backup and recovery
		Analyze a database design and improve the design by normalization
		Choose efficient query optimization techniques, select suitable transaction management, concurrency control mechanism and Recovery management techniques.
		Explain File organization and use appropriate index structure.
		Create and maintain tables using PL/SQL queries.
		Design and implement a database schema for a given problemdomain
	4MCA2 Client Server Computing	Learn to implement network related programs with concepts of servers and sockets.
		Understand JDBC concepts, prepared and callable statements and able to implement database connectivity applications.

		Understand and learn effective implementation of Servlet and JSP technologies which is essential component implementing scalable and sturdy enterprise level applications.
		Implement Remote method invocation applications for cross - platform data transaction.
		Understand and apply the concept of XML for cross - platform transaction of data.
		Understand and apply cascading stylesheets.
	4MCA3 Multimedia Technologies	Define and discuss the Introduction to Multimedia, Identify the multimedia components, Multimedia Authoring and Tools.
		Understand the various multimedia software and tools for customized graphic, video and audio designs.
		Understand the hardware requirement and Classification multimedia software.
		Understand the Graphics and Image Data Representation, Color in Image & Video, Fundamental Concept in Video, Audio.
		Understand analog and digital conversion process.
		Understand the audio digitization, audio file format and audio software, digital video standards, formats and technology.
	4MCA4 Electronic Commerce	Gain a comprehensive understanding of the E-Commerce landscape, current and emergingbusiness models, and the technology and infrastructure underpinnings of the business.
		Leverage the E-Commerce platforms to enhance current business or incubate new businesses.
		Gain an understanding on how innovative use of the ECommerce can help developing competitive advantage
		Develop an understanding on how internet can help business grow.
		Gain an understanding on the importance of security, privacy, and ethical issues as they relate to E-Commerce.
	4MCA5 Computer Graphics	To know the foundations & Core Concepts of computer graphics.
		To comprehend the concept of geometric, mathematical and algorithmic concepts necessary for understanding computer graphics.

		To understand the comprehension of windows, clipping and view-ports object representation in relation to images displayed on screen.
		To understand the concepts of Output primitives, 2Dtransformations , 2D-Viewing,Structural & Hierarchical Modeling.
		To Understand the concepts of GUI & input methods,
		To understand the concept of 3D , object representation in 3D, 3D Transformation & Viewing.
		To familiarize the students with graphics concepts like clipping, splines, objects modeling, visible surface detection.
Sem IV Practicles	**4MCA6** Database Management System Lab	Implement database models, schemas and instances.
		Apply the use of constraints, normal forms and relational algebra operations
		Construct queries using SQL for efficient data transaction in a database.
		Implement aggregate functions, joins, views and triggers in relational DBMS.
		Handle relational database system like Oracle, MySQL by by applying knowledge of DBMS.
		Analyze and implement storage and recovery techniques of database system.
	4MCA7 Client Server Computing Lab	Skill to implement network based applications.
		Skill to implement database connectivity application using client-server architecture.
		Skill to prepare DTDs for differnet web applications.
		Skill to write enterprise-level applications using Servlet and JSP.
		Skill to develop RMI application for cross-platform data transaction.
		Skill to develop component-based programming using beans.
		Skill to implement client-side JavaScript modules for server optimization.
	4MCA8 Multimedia Technologies Lab	Identify and implement the basic tools and components of a multimedia project.
		Apply basic elements and principles of photo editing software.

		Design and deploy animations using animation editing software.
		Prepare and present a multimedia portfolio containing electronic media that demonstrates multimedia and problemsolving skills.
	4MCA9 Electronic Commerce Lab	Learn to constructing Document Type Definitions and XML Schema used to validate XML documents.
		Develop dynamic web pages using XSL and learn to apply XSLT transformations and formatting to XML documents (XSL, XPath).
		Understand Cascading Style Sheets (CSS) and learn various ways to apply it to web pages
	4MCA10 Seminar	To analyze a current topic of professional interest and present it before the audience.
		To familiar with basic technical writing concepts and terms, such as audience analysis, jargon, format, visuals, and presentation.
		Acquired the basic skills to for performing literature survey and paper presentation
		To improve skills to read, understand, and interpret material on technology.
		To improve communication and writing skills.
		Prepare the report.
	6 MCA 1 PROJECT & DISSERTATION FULL TIME	1) Understand programming language concepts, as well as software engineering principles or go through the research work and gather knowledge over the field and develop an ability to apply them to software design of real life problems in an industry/ commercial environment or propose methodology in the field
		2)Plan, analyze, design a software project and demonstrate the ability to communicate effectively in speech and writing.
		3) Learn about different software development process models and how to choose an appropriate one for a project.
		4) Gain confidence at having conceptualized, designed, and implemented a working, medium sized project with their team.

Department of Mechanical Engineering

List of Cos_2019-20

Department of Mechanical Engineering

Semester	Name of Subject	Code of Subject	CO number	Course Outcome
1Year Group A	Engineering Mathematics I	19COF101	19COF101.1	Make use of derivatives of a continuous function into a polynomial and solve indeterminate forms.
			19COF101.2	Extend the basic ideas of the calculus of functions of single variables to functions of several variables and its concept.
			19COF101.3	Compare real and imaginary equations and evaluate it.
			19COF101.4	Solve certain types of differential equations and utilize it for engineering problems of electronics, electrical circuit.
			19COF101.5	Determine infinite series and their convergence and divergence.
	Engineering Physics	19COF102	19COF102.1	The students will be able to classify semiconductors and explain the working of diodes using band theory of solids.
			19COF102.2	The students will be able to apply the knowledge of Quantum physics, Compton scattering, de-Broglie's matter waves, Heisenbergs Uncertainty Principle.
			19COF102.3	The students will be able to utilize knowledge of electric and magnetic fields in mass spectrograph and cathode ray oscilloscope.
			19COF102.4	The students will be able to understand and utilize the knowledge of interference & diffraction of light, optical fibers and lasers.
			19COF102.5	The students will make use of the knowledge of fluid dynamics , ultrasonic waves and acoustics in various applications.
			19COF102.6	The students will be able to develope experimental skills and identify the appropriate application of particular experiment.
	Engineering Mechanics	19COF 103	19COF 103.1	Organize and solve the forces along with its effect.
			19COF 103.2	Apply principles of statics to the system of rigid bodies to solve simple structures.

			19COF 103.3	Determine frictional forces for simple contacts, wedges and in coil friction.
			19COF 103.4	Evaluate centroid & moment of inertia for 2-D structures.
			19COF 103.5	Utilise the kinematic and kinetic equations.
			19COF 103.6	Elaborate the concepts related to engineering mechanics, determine the lifting machine parameters and prove it graphically.
	COMPUTER PROGRAMMING	19COF104	19COF l 04.1	Explain the fundamental of computer and computing concepts.
			19COF l 04.2	Discuss the fundamental of C language.
			19COF l 04.3	Illustrate the use of operators, expression and input-output operations.
			19COF l 04.4	Explain conditional branching, iteration and jumping statement.
			19COF l 04.5	Design functions, pointer, array & structures, use of string & file concepts.
			19COF l 04.6	Apply programming concepts to solve real life programming problems.
	Workshop Practice 1A5	19COF105	19COF1 05.1	Upon completion of this course, the students will be able to Expain and Demonstrate different manufacturing processes which are commonly appyled in industry.
			19COF1 05.2	How to devlop the components using various manufacturing techniques.
			19COF1 05.3	Analyze dimensional accuracy and match tolerances.
			19COF1 05.4	Design and will model of various prototypes in the Smity such as forming square/ hexagonal head bolt and hook.
			19COF1 05.5	Create different Jobs in Fitting such as filing hack saw cutting, drilling and tapping.
			19COF1 05.6	Applying knowledge of foundry suchs as and molding, patterns , types of molding sands.
1st Year Group B	Mathematics II	19COF l 06	19COF l 06.1	Make use of system of equations in matrix forms.
			19COF l 06.2	Find the periodic functions as an infinite series.
			19COF l 06.3	Solve integral by Beta, Gamma functions and reduction formulae.

			19COF l 06.4	Construct a curve from equation and apply differentiation under integral sign.
			19COF l 06.5	Evaluate double integral, triple integral and its applications.
	Engineering Chemistry	19COF107	19COF107.1	Describe properties of hard water, its disadvantages and various softening processes of water use for generation of steam.
			19COF107.2	Identify various types of corrosion, mechanism and control methods to protect metal and explain energy storage system and its applications.
			19COF107.3	Apply the knowledge of useful engineering materials such as cement, lubricant, industrial and polymeric materials.
			19COF107.4	Apply the knowledge of properties of chemical fuel based on analysis and numerical data.
			19COF107.5	Identify the various phases of system and complex compound by using thermodynamic variables and describe various spectrophotometric technique.
			19COF107.6	Determine the properties of useful engineering materials such as water, chemical fuel, lubricant based on laboratory technique.
	Basic Electrical Engineering	19COF10	19COF108.1	Find basic parameters of DC circuits like voltage, currents and resistance using theorems and transformation techniques.
			19COF108.2	Explain the different properties of electromagnets and phenomenon of electromagnetic induction in magnetic circuits.
			19COF108.3	Utilize the different terms of AC so as to build series and parallel AC circuits.
			19COF108.4	Simplify three phase system using star and delta connection to balance three phase load in high voltage applications.
			19COF108.5	Compare types and characteristics of Transformers as well as DC motors to decide their exact field of applications.
			19COF108.6	Discuss about the use of measuring instruments and safety precautions so as to operate electrical equipments and experimental kits in real time applications.
	Engineering Graphics	19COF109	19COF109. 1	Make use of the drawing instruments effectively to dimension the given figures.
			19COF109. 2	Explain the methods of projection.
			19COF109. 3	Define the sectional views of solids such as Prism, Pyramid, Cone, Cylinder & Cube.
			19COF109. 4	Identify the pictorial views of the object.
			19COF1	Construct isometric scale, isometric projection &

			09. 5	views.
			19COF109. 6	Develop the lateral surfaces of primitive solids by using CAD Software.
	English Communication Skill Lab	19COF110	19COF110.1	Recall the fundamental concepts of English language for communication purpose.
			19COF110.2	Demonstrate their ability to discuss in English language.
			19COF110.3	Develop their communication skills through group discussion.
			19COF110.4	Simplify their presentation skill through reading comprehension and extempore.
			19COF110.5	Find effective textual contents for improved communication through story and article writing.
			19COF110.6	Elaborate effective ways for healthy conversation to make their point of views clear to the listeners.
	MIII	CO201	CO201.1	Make use of various methods to solve linear differential equation.
			CO201.2	Evaluate Laplace Transform by making use of properties and differential equation by Laplace transform method.
			CO201.3	Identify and solve partial differential equation of first order and to apply Empirical laws to given data from observation connecting to two variables.
			CO201.4	Determine analytic function, Taylor and Laurent's series.
			CO201.5	Solve polynomial equations, system of linear equations and differential equation by different method.
			CO201.6	Apply the knowledge of vector calculus to solve physical problem
			CO201	
	Mechanics of Material	CO202	CO202.1	Understand the knowledge of basic concepts of mechanics.
			CO202.2	Understand the fundamentals of various stresses and strains.
			CO202.3	Apply the various tests to identify the material properties.
			CO202.4	Analyze to find the optimum solutions for the various engineering problems after gaining the knowledge of mechanics.
			CO202	
	Fluid Power -I	CO203	C203.1	Knowledge of fluid & its characterstics
			C203.2	Application of fluid laws

		C203.3	Estimation of process performance
		C203.4	Knowlede and application of real life fluid problems
		C203.5	Design of fluid system & Prediction of behaviour of fluid system
		C203.6	To study & demonstrate the techniques of various fluid flow
		CO203	
Enineering Thermodynamics	CO204	CO204.1	Understand the basic concepts of Thermodynamics such as system, properties and state
		CO204.2	Apply first law of thermodynamics
		CO204.3	Apply second law of thermodynamics
		CO204.4	Understand concept of air standad cycles
		CO204	
Manufacturing Process -I	CO205	CO205.1	understand the basic concept of foundry process and related activities
		CO205.2	understand the concept of complete sand casting process with advance casting methods
		CO205.3	uderstand the fundamentals of welding process
		CO205.4	understand verious processes like electroplating, anodizing etc and its improtance in industry
		CO205.5	understand, apply and demonstrate basics of casting, foundary & welding processes
		CO205	
Basic Electric Drives and Control	CO206	CO206.1	Understand the working of electrical drives and their components
		CO206.2	Understand the basics of DC motors and their characteristics
		CO206.3	Understand the working of AC motors, induction motors and concept of braking
		CO206.4	Understand the different speed control methods of A.C. and D.C. motors
		CO206.5	Understand the design of transducers and their applications and the industrial applications of different drives
		CO206.6	Understand and demonstrate electric drives, their working with various transducers and controls
		CO206	
Engineering Metallurgy	CO207	CO207.1	Understand the concept of metals and its physical and metallurgical properties
		CO207.2	Understand concept of steels alloy steels cast irons and non ferrous alloys

		CO207.3	Demonstrate the knowledge of verious heat treatment of metals
		CO207.4	Demonstrate the knowledge of applications of steels, cast irons, nonferrous alloys, mechanical properties of metals in industries
		CO207.5	Demonstrsaste the knowledge of identifying the micro sttructures of various ferrous & non-ferrous metals
		CO207	
Energy Conversio n-I	CO208	CO208.1	Understaand the concept of pure substance, properties of steam and its behaviour during various thermodynamic process.
		CO208.2	Understand working of powerplant, analyze & remember working of different boilers,Safety mountings, control mountings & acessories.
		CO208.3	Analyze flow of steam through nozzles & diffusers
		CO208.4	Evaluate the power developed by different turbines with steam as working fluid by different turbines with steam as working fluid by graphical & analytical method
		CO208.5	Understand construction & working of different types of condensers & cooling towers
		CO208.6	study the concepts & acquire knowledge of various components in steampower plant like bioler, mountings ,accessories ,condensors, turbines
		CO208	
Manufactu ring Processes -II	CO209	CO209.1	Understand the basic concept of metal cutting and various manufacturing processes
		CO209.2	Demonstrate the knowledge of lathe and its various operations
		CO209.3	Demonstrate the knowledge of drilling, boring, milling and gear production machines
		CO209.4	understand the working and knowledge of coventional machine like slotter, plainner, grinder and shapper machines.
		CO209.5	Understand the various unconventional machining processes
		CO209.6	Demonstrate the operations on lathe machines, plainner, shapper ,grinding, drilliing and milling machines.
		CO209	
MDD-I	CO210	CO210.1	Student will be able to demonstrate the techniques of sactioning and visualising the objects
		CO210.2	Student will be able to develop machine component surfaces in order to fabricate them

			CO210.3	Considerations to design different machine components
			CO210.4	Student will be able to duplicate the design procudure for designing different mechanical joints
5	Production Technology	CO301	CO301.1	Knowledge of quality and quality management
			CO301.2	Application of statistical quality control tools
			CO301.3	Estimation of process capability
			CO301.4	Knowlede and application of work study techniques
			CO301.5	Design of inspection gauges
			CO301.6	Use of various inspection instruments
			CO301	
	HT	CO302	CO302.1	Apply the concept of heat transfer, laws of heat transfer and various mathematical equations
			CO302.2	Demonstrate the knowledge of determining the thermal conductivity of various materials
			CO302.3	Understanding and verifying various laws of radiation
			CO302.4	Estimation of Forced and Free convection
			CO302.5	Capable to explain the concept of heat exchanger and demonstrate the calculations of efficiency
			CO302.6	Understand and evaluate various modes of heat transfer processes
			CO302	
	MS	CO303	CO303.1	Exhibit the concept of measurment system and to know its importance in industries
			CO303.2	Ability to measure various parameters like presure flow, speed, vibrations etc
			CO303.3	Ability to use verious measuring instruments
			CO303.4	Exhibit process approach of engineering and will confident in industry
			CO303.5	Demonstrate good skills in project work
			CO303	
	TOM-I	CO304	CO304.1	To understand the concept and its application of link, mechanism and machines
			CO304.2	To analyse the mechanism and machines on the basis of velocity and accelaration method
			CO304.3	To apply the use of synthesis of mechanism
			CO304.4	To evaluate and understand brake cluth dynometer gear train etc
			CO304.5	To create and evaluate of minimum projection
			CO304.6	Design linkage, cam and gear mechanisms for a given motion or a given input/output motion or force relationship, identify the basic relations

				between velocity & acceleration and use graphical and analytic methods to study the motions of various mechanisms
			CO304	
	Computer Software Applications I Lab	CO305	CO305.1	Student will be able to understand and use the basic commands of drafting package
			CO305.2	Student will be able to understand 2D and 3D commands and develop a model in any Modeling software
			CO305.3	Student will be able to prepare assembly in any modeling software
			CO305.4	Student will be able to model sheet metal component in modeling software
			CO305	
	FP-II	CO306	CO306.1	Understand basic concept of prime movers
			CO306.2	Understand power produced with hydraulic machine
			CO306.3	Design of power conservation and devices
			CO306.4	Design hydraulic machine with high frequecy
			CO306.5	Understand concept of hydrostatic and hydrokinetic system
			CO306.6	Understand and apply the concept of prime movers, hydraulic machine, pump and demonstrate prime movers and hydraulic pumps
			CO306	
	Computer Software Applications	CO307	CO307.1	Student will able to understand and memorize the basics of DBMS
			CO307.2	Student will develop an ability to develop design of relational database
			CO307.3	Student will command over the MYSQL and perform relational algebra operation
			CO307.4	Student will articulate the simulation language and simulation packages
			CO307.5	Student will demonstrate the steps applied in simulation process
			CO307	
	Control System Engineering	CO312	CO308.1	Understand the basic concept and study different types of system
			CO308.2	Understand the concept of transient response analysis and will apply in numerical methods
			CO308.3	To knowledge of Industrial controllers and basic control actions of system

			CO308.4	Understand the concept of frequency response analysis method and use bode plot diagram in solving analytical problems
			CO308	
	Theory of Machines-II	CO313	CO309.1	To understand static force analysis and hydrodynamic lubrication
			CO309.2	Knowledge of analysis dynamic force analysis problem
			CO309.3	To apply knowledge of space mechanism and vehicle dynamics
			CO309.4	To understand the concept of vibrations and torsional vibration
			CO309.5	To remember and understand balancing
			CO309.6	Understand and apply knowledge of force analysis, space mechanism, vibrations and balancing of machinery
			CO309	
	Comm. Skill	CO314	CO310.1	Able to use language accurately fluently and appropriately
			CO310.2	Show their skills of listening understanding and interpreating
			CO310.3	Write project report, reviews resumes
			CO310.4	able to expresss their ideas relevant to given topics
			CO310.5	Exhibit skill of interview debeating and discussion
			CO310.6	Developing confidence smartness and outword skills as a techo-managerpossessing both the qualities i.e. professional and soft skills of communication
7	Machine Design and Drawing-II	C401	C401.1	To remember and understand key, shaft, coupling for industrial applications
			C401.2	To design and analyze bearings
			C401.3	To apply, evaluate and select types of drives
			C401.4	To understand, design and analyze I.C. engines parts and governors
			C401.5	
	Energy Conversion-II	C402	C402.1	Remembering the applications of various energy conversion machines
			C402.2	Understanding the working of machine like

				compressors, refrigerators, Air conditioners
			C402.3	Applying technical knowledge to choose appropriate energy conversion device for specific applications
			C402.4	To analyze nuclear and renewable energy scenario in India
			C402.5	To evaluate the performance of various machine like compressors, refrigerator
			C402.6	Undrstand, analyze applications of various energy conversion machines like compressors, refrigerators, Air conditioners and evaluate the performance of various machine like compressors, refrigerator
	Industrial Management & Costing	C403	C403.1	Understand the functions of management and setup of organization structure
			C403.2	Understand and demonstrate marketing and human resource management skills
			C403.3	Demonstrate the knowledge of materials management and inventory control
			C403.4	Exhibits the knowledge of cost estimation costing, financial management
	ATE	C404	C404.1	Concept of automation and its importance to industry and society automated flow line, line balancing
			C404.2	Create the skill of NC/CNCprograms
			C404.3	Apply to develop the working model of robots
			C404.4	Understand the concept of GT and its applications in FMS
			C404.5	The concept of CAPP and its application in FMS, Fundamentals of CIM components of CIM and automation in inspection
			C404.6	Understand the application of Line balancing, CNC, Robot anotomy, Group Technology, CAPP, FMS AND CIM
	NES	C405	C405.1	Create awareness about NCES
			C405.2	Acquire the depth knowledge of NCES
			C405.3	Understand the construction and performance of NCES
			C405.4	Develop and utilize NCES
			C405.5	Analyze the systems performance by using renewable Energies

			C405.6	Evaluate conversion efficiency of renewable energies
	Tool Engineering	C406	C406.1	Apply the basic machine concept for tool life improvement during machining operation
			C406.2	Design the various cutting tools and analyze the various cutting operations from tool design point
			C406.3	Evaluate the need for implementation of mass production tools like jigs, fixtures, press tools
			C406.4	Remember and apply the various concepts in location and clamping in industry
			C406.5	Understand and remember working of various types of press tools and Improve productivity through knowledge of tool design
			C406.6	Apply the basic machine concept for tool life improvement and Design the various cutting tools
8	ICE	C407	C407.1	Remembering type of engine, cycle analysis and losses in engines
			C407.2	Understanding working of various types of engines and its compatibility with fuels
			C407.3	To analyze various factors governing combustion phenomenon in engines
			C407.4	To evaluate the performance of engines under various operating conditions
			C407.5	Applying technical knowledge to curb vehicular pollution
			C407.6	To create the framework for evaluating the performance of engine
	ORT	C408	C408.1	Students will exhibits the basic knowledge of science, mathematics and engineering to formulate the real life situations into the OR problems and formulate OR models.
			C408.2	Students will be able to formulate LPP from the situations from production engineering and solve these LPPs for implementing the decisions.
			C408.3	Students will be able to formulate Transportation, Assignment, Sequencing, Queuing. Replacement problems and solve these problems by using the iterative methods.
			C408.4	Students will be able to formulate Network models for the projects and understand the use of network techniques- PERT and CPM for planning, scheduling and controlling of the projects.
			C408.5	Students will understand the concept of Simulation and how to use Monte Carlo

				simulation for various OR problems.
			C408.6	Students will be able to transfer abstract or therotical ideas to practical situations and apply their engineering khowledge to analyse the problems and evaluate the better alternatives.
	AE	C409	C409.1	Understand the basics of Automobile and its component
			C409.2	Identify different parts of Automobile
			C409.3	Explain the working of various parts
			C409.4	Describe how the steering suspension system operates
			C409.5	Understand the environmenal implications of Automobile engineering system operations
			C409.6	Understand the future development in Automoile Industry
	PPC	C410	C410.1	Importance of PPC its functions, Advantages
			C410.2	Calculations of sales forecasts using various forecasting methods
			C410.3	Criteria of batch size determination
			C410.4	Concept of machine capacity loading of machines and man machine activity charts.
			C410.5	Concept of inventory control and its systems
			C410.6	Modern techniques/Philosophies of management like CIM,JIT,MRP
	RAC	C411	C411.1	Understand basic concept of refrigeration process and VCR cycle
			C411.2	Understand compound compression and multi-evaporation system
			C411.3	Apply the knowledge of refrigeration components and controls
			C411.4	Apply the concept of Psychrometry and air conditioning system
			C411.5	Apply the concept of load calculation & Applied Psychrometry
			C411.6	Performance and evaulation of Conventional(VCRs,VARs) & Non conventional refrigreation(Cascade,Vortex tube refrigeration)
	Robotics	C412	C412.1	Understand the concept of robotics describe the robot anatomy
			C412.2	Demonstrate the knowledge of end effector and its types
			C412.3	Understand the concept of kinematics of robot and sensors
			C412.4	Remember the concept of robot programming
			C412.5	Apply the Knowledge of application of robot
			C412.6	Evaluate the analytical problems for selection of robots
	Project &	C413	C413.1	Apply the knowledge of engineering

	Seminar			fundamentals for the solution of engineering problems
			C413.2	Ability to identify,formulat and analyse engineering problems using basic engeneering sciences and moder tools
			C413.3	To acquire knowledge to assess societal, health, safety, legal issues
			C413.4	Demonstrate knowledge for sustainable development using ethical practice
			C413.5	Develop ability to work as a leader and as a member of multi desiplinary
			C413.6	Ability to manage project and finance

Department of Management Studies (M.B.A.)	
Course Otcomes- Sem-I	
MBA/101	**Principle and Practices of Management-**
Sr. No	**Course Outcomes**
1	Student will understand the influence of historical forces on the current practice of management and Summarize the elementary concepts, principles and theories of management
2	Student will understand to analyze effective application of PPM knowledge to diagnose and solve organizational problems and develop optimal managerial decisions.
3	Students will be able to specify that how the managerial task of planning,organizing, directing & controlling can be executed in variety of circumstances.
4	Student will understand to evaluate leadership styles to anticipate the consequences of each leadership style.
5	Students can analyze effective application of PPM knowledge to diagnose and solve organizational problems and develop optimal managerial decisions
MBA/102	**Managerial Economics**
Sr.No	**Course Outcomes**
1	Students will be able to apply the economic way of thinking to individual decisions and business decisions
2	Students will understand the demand and supply analysis in business applications
3	Students will understand the concepts of cost, nature of production and its relationship to Business operations.
4	Analyse the causes and consequences of different market conditions.
5	Integrate the concept of price and output decisions of firms under various market structure.
MBA/103	**Managerial Skills Development**
Sr.No	**Course Outcomes**
1	Student will understand the importance of skills required to develop leadership/managerial positions
2	To understand the importance of communications for running the business
3	Students will undertand the importance of written communication through digital communication
4	Student will undertand the importancee of body language, kinesics and public speaking
5	Student will undertand the importance of meetings, report writing, brainstorming and case analysis.

MBA/104	**Accounting for Managers**
Sr.No	**Course Outcomes**
1	Student will understand basic concept of financial accounting
2	Student will understand financial statements analysis
3	Student will understand inventory valuation methods
4	Student will understand basic concept of management aaccounting
5	Student will understand basic concept of costing for decision making
MBA/105	**Organizational Behaviour and Effectiveness**
Sr.No	**Course Outcomes**
1	Student will understand the individual behaviours
2	Student will understand group behaviours
3	Student will understand basic concepts of organization changes
4	Student will understand basics of organizational processes
5	Student will understand the organizational effectiveness
MBA/106	**Business Ethics**
Sr.No	**Course Outcomes**
1	Student will undwerstand the importance of old traditions like Karma and Holistic management.
2	Student will undwerstand how the role of ethics, moral and values plays and important role in business
3	In present globalization era and changing behaviourial aspects, student will undertand important aspects of ethics and values
4	Student will undertand the correlation between human and science values
5	Student will undertand how to cope up and overcome with stress Management
MBA/107	**Management Information System**
Sr.No	**Course Outcomes**
1	Evaluate the role of information systems in today's competitive business environment
2	Define an information system from both a technical and business perspective and distinguish between computer literacy and information systems literacy
3	Identfy the major management challenges to building and using information systems in organizations
4	analyze the role played by the six major types of information systems in organizations and their relationship to each other
5	evaluate the benefits and limitations of enterprise systems

MBA/108	**Quantitative Methods**
Sr.No	**Course Outcomes**
1	Student will undertand the mathematical apllication in business module
2	Student will undertand the importance of Mitrices, Determinants and Arithmatic Progression
3	Student will understand the frequency distribution and its aanalysis along with dispersion
4	Student will undertand the various types of analysis like correlation, regression, time series and forecasting
5	Student will undertand the probability theory and graphical solution methods.

Department of Management Studies (M.B.A.)	
Course Otcomes- Sem-II	
MBA/201	**Business Environment**
Sr. No	**Course Outcomes**
1	Students would be acquainted with business objectives, dynamics of business and environment, various types of business environment and its analysis
2	students will understand the various types of business environment and can assess the business environment of an organization
3	Students would be acquainted with various strategies of Global Trade. They would also discuss Foreign Trade in India, Foreign Direct Investments and its implications on Indian Industries.
4	Students would be acquainted with various strategies of Global Trade.
5	Students will be able to know the state Policies, Economic Legislations & economic reforms laid by the Governement.
MBA/202	**Research Methodology**
Sr.No	**Course Outcomes**
1	Students will understand the concept and process of Business research in business environment.
2	Students will Be able to formulate research problem,objectives and develop a sufficiently coherent research design.
3	Students will Have basic knowledge on qualitative, quantitative as well as measurement & scaling techniques. and develope sampling design
4	Students will have a basic awareness of data analysis, including descriptive & inferential measures.
5	Students will be able to write & develop independent thinking for critically analyzing research reports
MBA/203	**Human Resource Management**
Sr.No	**Course Outcomes**

1	Students will understand Human Resource Planning and Information system
2	Students will understand how to develop human resource in present era
3	Students will understand how to motivate human resource
4	Students will understand importance of retention human resource in an organization
5	Students will understand the importance of updating the knowledge with Human Resource.
MBA/ 204	**Financial Management**
Sr.No	**Course Outcomes**
1	Students will understand Financial Statement Analysis
2	Students will understand how to frame optimum capital structure
3	Students will understand different sources of raising capital
4	Students will understand capital budgeting
5	Students will understand working capital management
MBA/ 205	**Marketing Management**
Sr.No	**Course Outcomes**
1	Understand basic concept of Marketing management
2	Understand how to identify market potentilal for products/services
3	understand basics of adverisement -branding & Packaging in marketing
4	Understand importance of channels and logistics management in marketing
5	Understand importance of market research for products/services developments
MBA/ 206	**Production and Operations Management**
Sr.No	**Course Outcomes**
1	Students will understand the role of manufacturing system plant layout
2	Students will understand operations decision in PPC
3	Students will understand capacity planning and quality controll
4	Students will understand the work study and type of maintenance
5	Students will understand various types of maaterial handing equipments
MBA/ 207	**Logistic Management**
Sr.No	**Course Outcomes**
1	Students will understand importance of logistics
2	Students will understand distrubution system
3	Students will understand the importance of location in logistics management
4	Students will understand the importance of inventory management in logistics
5	Students will understand the changes took place in international logistics management

MBA/ 208	Management Science
Sr.No	Course Outcomes
1	Students will understand the types of decision making process
2	Students will understand linear programming and algoritham
3	Students will understand the various models of transportation
4	Students will understand the nework analysis
5	Students will understand game theory and simulation

Department of Management Studies (M.B.A.)	
Course Otcomes- Sem-III	
MBA/301	Business Law
Sr. No	Course Outcomes
1	Understand the different types of contracts in business and legal provisions in Inida regarding contracts
2	Understand in detail the contract of sales of goods and its application in business transactions
3	Understand in detail the use of negotiable instruments in business transactions and laws governing to it
4	Understand the legal provisions for incorporating, managing and winding up of company
5	Understand the provisions given in IT Act.consumer protection Act and Copyright and patents law and their application in business
MBA/3101/F	Indian Financial System
Sr.No	Course Outcomes
1	The students are familiarized with operational dimensions of Indian Financial System
2	understanding the working of different types of Financial Markets
3	Understand in detail the role and significance of Financial Market Intermediaries
4	understanding the working, functioning of Financial Institutions
5	Aquire the knowledge of Financial Instruments and Hawala
MBA/3102/F	Banking System
Sr.No	Course Outcomes
1	Students will understand the Banking and financial system in India,Various types of banks and their special features.
2	students will get aware about the banking regulations,process of licensing,loans & advances alongwith the major issues in banking.
3	Students will come to know the role of RBI in economy,its provisions for agricultural development and Industrial development
4	Students will aquire the knowledge of risk management in bank and the importance of sound credit culture

5	student will be well known about how the management of banking services works in all perspectives.
MBA/3103/F	**Working Capital Management**
Sr.No	**Course Outcomes**
1	To acquaint the students with the importance of the working capital and the techniques used for effective working capital management.
2	To be able to manage the cash flows using various cash flow techniques
3	students will be able to measures Liquidity and optimum cash balance position
4	Appying Inventory models to evalaute the Inventory levels
5	understand the Credit Policies, Credit Terms and Collection Policies and apply in Receivables management
MBA/3104/F	**International Financial Management**
Sr.No	**Course Outcomes**
1	Students will understand the International Financial Systems
2	Students will understand the international financial market
3	Students will understand the role of intermediaries in International financial transactions
4	Students will understand the importance of International Financial Institutions
5	Students will understand various instruments used in International Financial Markets
MBA/3105/F	**Investment Science**
Sr.No	**Course Outcomes**
1	Students will understand the importance of various types of Investments
2	Students will understand the present investment market and its intermediaries
3	Students will understand the theory of Interest, NPV, IRR framework
4	Students will understand the investment in Debt Securities
5	Students will understand the investment in Equities and Dividend Models
MBA/3106/F	**Risk Management**
Sr.No	**Course Outcomes**
1	Students will understand basics of Risk Management
2	Students will understand the process of Risk Assesment
3	Students will understand the correlation between risk and organization
4	Students will understand how to repsond to various types of risks
5	Students will understand the Internal Audit Functions and Reporting on Risk Management
MBA/32	**International Marketing Strategy**

01/M	
Sr.No	**Course Outcomes**
1	Understand Importance of global and international marketing
2	Study the Importance of global and international marketing
3	Examine Financial, ethical, and organizational issues involved in international marketing
4	Analyse Specific international issues affecting the 4Ps
5	Study Motives to internationalization & different market entry modes
MBA/3202/M	**Sales & Distribution Management**
Sr.No	**Course Outcomes**
1	Students will understand the role of sales organization
2	Students will understand sales planning and budgeting
3	Students will understand the importance od sales force management
4	Students will understand the importance of logistics in SDM
5	Students will understand the distribution analysis in SDM
MBA/3203/M	**Consumer Behaviour**
Sr.No	**Course Outcomes**
1	Understand basic importance of Consumer behaviour in marketing
2	Understand various types of consumer decision models
3	Understand Consumer Psychology related to buying process
4	Understand the family and social influences on consumer buying behaviors
5	Understand industrial buying behaviours
MBA/3204/M	**Advertising Management**
Sr.No	**Course Outcomes**
1	Students will understand the scope and role of Advertisement in Present era.
2	Students will understand the importance of Marketing Communication Process
3	Students will understand advertising planning and its objectives
4	Students will understand media planning and its objectives
5	Students will understand the advertising organization
MBA/3205/M	**Brand Management**
Sr.No	**Course Outcomes**
1	Understand key principles of branding
2	Explain branding concepts and ideas in their own words
3	Develop a brand, including positioning and communication
4	Impart in depth knowledge to the students regarding the theory and practice of commodity, Products, Brands, Branding & Brand

	Management
5	Understand the concepts like brand equity and brand performance
MBA/3206/M	**Agrobusiness Marketing**
Sr.No	**Course Outcomes**
1	Students will understand Ermerging Inssues in Indian Agriculture Business
2	Students will understand how agriculture marketing is different from other marketing
3	Students will understand the importance agri business management
4	Students will understand the promotional activities required for agri businesses
5	Students will understand the role of ICT in Agri Marketing
MBA/3301/H	**Management of Industrial Relations**
Sr.No	**Course Outcomes**
1	Students should able to elaborate the concept of Industrial Relations.
2	The students should able to illustrate the role of trade union in the industrial setup.
3	Students should able to outline the important causes & impact of industrial disputes.
4	Students should able to elaborate Industrial Dispute settlement procedures.
5	To familiarize with the role of management and unions in the promotions of.
MBA/3302/H	**Human Relations & Legal Framework**
Sr.No	**Course Outcomes**
1	Students will understand the Present Labour Law
2	Students will understand the importance of trade unions and Industrial disputes
3	Students will understand the role of compensation in various firms
4	Students will understand minimum wages act
5	Students will understand the laws related to factories
MBA/3303/H	**Compensation Management**
Sr.No	**Course Outcomes**
1	Students will understand basic concepts of compensation management
2	Students will understand how to diagnosis the compensation problems
3	Students will understand how to formulate compensation packages
4	Students will understand varios components of compensation
5	Students will understand basic strategies of compensation management
MBA/3304/H	**Human Resource Development**

Sr.No	Course Outcomes
1	Demonstrate an understanding of key terms, theories/concepts and practices within the field of HRM
2	Demonstrate competence in development and problem-solving in the area of HR Management.
3	Provide innovative solutions to problems in the fields of HRM.
4	Human Resource Development examines the activities and processes that impact on organisational and individual learning.
5	The major objective of the course is to explain and demonstrate the contribution of HRD in an organization and enable student to develop an ability to .
MBA/3305/H	**Management of Training & Development**
Sr.No	**Course Outcomes**
1	Importance of trainings to the stakeholders i.e. employees and employers
2	Understand how to do training assessment for types of employees
3	Understand importance of training climates and how to develop training module
4	Undersatnd importance of training tools and aids in training.
5	Understand how to measure impact of training and it's continuous process.
MBA/3306/H	**Performance Management**
Sr.No	**Course Outcomes**
1	Understand the concept of performance management and different advantages of implementing well-designed performance management systems.
2	Analyse the challenges to performance management system in specific organizational climate and ways to overcome the challenges
3	Manage underperformance using a defined performance improvement process
4	Understand different approaches to performance measurement
5	Underastand the llinkage between pay and performance and design effective performance based reward system

Department of Management Studies (M.B.A.)	
Course Otcomes- Sem-IV	
MBA/401	**Strategic Management**
Sr. No	**Course Outcomes**
1	Understanding about basis strategic management process & application of Mckinsey Model
2	Understand various strategic Analysis like SWOT & Internal Corporate
3	Understand the strategic financial analysis
4	Understands Merger , aquisition and disinvestment strategies
5	How to implement various strategies in Business and corporates life.
MBA/4101	**Financial Decision Analysis**

/CGF	
Sr.No	**Course Outcomes**
1	Students will understand various analysis for making financial decisions
2	Students will understand the risk and uncertainty in financial decision making process
3	Students will understand various alternatives for financial decisions
4	Students will understand financial restructuring decisions
5	Students will understand fonancial decisions models
MBA/4102 /CGF	**Security Analysis And Portfolio Mangement**
Sr.No	**Course Outcomes**
1	Students will understand the basic concepts of Security Analysis
2	Students will understand the basic concepts of Fundamental Analysis
3	Students will understand Portfolio Management
4	Students will understand various models of securities
5	Students will understand portfolio investment process
MBA/4103 /CGF	**Financial Derivatives**
Sr.No	**Course Outcomes**
1	Students will understand basic concepts of Financial Derivaties
2	Students will understand basic concepts and meaning of Forward Contracts
3	Students will understand basic concepts and meaning of Future Contracts
4	Students will undertsand basic concepts and meaning of Options
5	Students will understand basic concepts and meaning of SWAP
MBA/4104 /CGF	**Management Of Financial Services**
Sr.No	**Course Outcomes**
1	Students will understand Financial Systems and Market
2	Students will understand Risk in Financial Services
3	Students will understand various types of Financial Services
4	Students will understand Credit Rating Process
5	Students will understand Venture Capitals
MBA/4105 /CGF	**Foreign Exchange Market**
Sr.No	**Course Outcomes**
1	Students will understand evolution of International Financial System
2	Students will understand basics of Foreign Exchange Markets
3	Students will understand Exposure Management
4	Students will understand currency futures and options
5	Students will understand Euro Currency Market

MBA/4106 /CGF	**Insurance Management**
Sr.No	**Course Outcomes**
1	Students will understand the various operations involved in managing insurance as well as financing and risk diversification strategies of insurance companies
2	Students will understand the importance of the principle of 'proximate' cause, the universal principle of insurance, and its application to locate the real cause of loss or damage under an insurance policy.
3	Students will understand various types of insurance products,different pension plans.
4	This topic will helps students undesrtand the indepth procedure of various types of insurance viz.,taking out, renewal,cancellation etc.
5	Students will understand the concept of health insurance,automobile insurance,agriculture insurance & property insurance,its functioning & prospects.
MBA/4201 /SM	**Sales Promotion Management**
Sr.No	**Course Outcomes**
1	Students will understand sales promotion and marketing mix
2	Students will understand consumer behaviour and sales promotion
3	Students will understand the impact of sales promotion on sales
4	Students will understand sales promotion planning process and budget
5	Students will understand basic strategies of sales promotion techniques
MBA/4202 /SM	**Marketing Of Services**
Sr.No	**Course Outcomes**
1	Understand importance of Marketing of services in todays GDP of nation
2	Understand Consumer behaviour linked with service marketing
3	Understand marketing process link with service marketing -Part I
4	Understand marketing process link with service marketing -Part II
5	Understand importance of service marketing in employment generation in various sectors like travel , tourism, hospitality, medical.
MBA/4203 /SM	**Marketing for Non-Profit Organisations and Social Services**
Sr.No	**Course Outcomes**
1	Students will understand scope and application of marketing in context of NPOs
2	Students will understand setting marketing objectives for NPO&SS
3	Students will understand market segmentation for NPO&SS
4	Students will understand print and electronic media used for NPO&SS

5	Students will understand marketing strategies of NPO&SS
MBA/4204 /SM	**Retail Marketing**
Sr.No	**Course Outcomes**
1	Students will understand basics of retailing
2	Students will understand retail marketing mix
3	Students will understand retail locations
4	Students will understand retail communication mix
5	Students will understand retail strategies
MBA/4205 /SM	**Rural Marketing**
Sr.No	**Course Outcomes**
1	Students will understand difference between Urban Vs Rural Marketing
2	Students will understand Rural Consumer Behaviour
3	Students will understand Information System for Rural Marketing
4	Students will understand Product Strategy for Rural Marketing
5	Students will understand Promotional Startegies for Rural Marketing
MBA/4206 /SM	**International Marketing Environment**
Sr.No	**Course Outcomes**
1	Develope an understanding of major issues related to international marketing
2	Develope skills in researching and analyzing trends in global markets and in modern marketing practice
3	Assess an organization's ability to enter and compete in international markets.
4	Understand implications of global environmental factors for business, and of major international marketing management concepts, strategies and practices
5	Develop better analytical and decision-making skills which are essential for effective planning, organizing and controlling of foreign operations
MBA/4301 /OB	**Human Behaviour at Work Place**
Sr.No	**Course Outcomes**
1	Students will understand basics of organization behaviour
2	Students will understand overview od OB focusing at individul level
3	Students will understand the importance of job satisfaction
4	Students will understand learnings and learning behaviour
5	Students will understand OB at Organization level.
MBA/4302 /OB	**Organizational Development and Intervention Strategies**

Sr.No	Course Outcomes
1	Students will understand basic concepts of OD
2	Students will understand the OD techniques
3	Students will understand OD evaluation
4	Students will understand organization changes as per OD
5	Students will understand organizational intervention
MBA/4303 /OB	**Management Of Group Process**
Sr.No	**Course Outcomes**
1	Analyze the complexities associated with management of the group behavior.
2	Principles and practices of management is an introductory course on management process from managers' perspective.
3	Understanding and managing group processes, Interpersonal Communication
4	Student will undertsnd how do managers develop group cohesiveness
5	Students will understand the conceptual framework of management and organizational behavior.
MBA/4304 /OB	**Corporate Leadership Management**
Sr.No	**Course Outcomes**
1	Apply leadership theory and practice to decision-making and actions as a manager
2	Recognize the implications of leadership style and its impact on team and organization performance
3	Apply leadership theory and practice to decision-making and actions as a manager
4	Identify and critically assess assumptions that influence decisions and actions on management, leadership, teamwork and relationship building
5	Evaluate your leadership capacity using an action learning approach to development
MBA/4305 /OB	**Knowledge Management**
Sr.No	**Course Outcomes**
1	Understand the concept of knowledge management and its imporatnce in todays knowledge based society
2	Understand different approaches to knowledge management and selecting the suitable approach as per the nature of business
3	Identify technologies that are most useful for capturing/acquiring, organizing, distributing, and sharing knowledge within an enterprise
4	Identify some of the key tools and techniques used in knowledge management applications.
5	Assess the role and influence the politics of knowledge management policy and practice in a range of contexts

MBA/4306 /OB	International HRM
Sr.No	**Course Outcomes**
1	Students will understand basics of International HRM
2	Students will understand International Bsuness and Cultures
3	Students will understand the importance of International culture and organizational performances
4	Students will understand International HRM functions
5	Students will understand International Projects and HRM