B Tech First Year (1st / 2nd semester) (Common to All Branches)

Subject Code AP100102
APPLIED PHYSICS
CO1: Describe the basic concepts of Quantum mechanics.
CO2: Interpret the Interference and Diffraction.
CO3: Describe the electronic properties of a system.
CO4: Superconductivity and the Acoustics.
CO5: Apply the functions of Laser and Fibre Optics.

Subject Code EE100103
BASIC ELECTRICAL ENGINEERING
On successful completion of the course, the student will be able to:
CO1:- Apply network theorems to solve electrical DC circuits.
CO2:-Understand the concept of sinusoidal quantities and solve single phase AC circuits.
CO3:- Analyze the three phase AC circuits and solve series and parallel magnetic circuits.
CO4:- Understand the basic operating principle, types, efficiency of Transformers
CO5:-Understand the basic operating principle, types of machines.

Subject Cod CE100104
ENVIRONMENT AND ECOLOGY
On successful completion of the course, the student will be able to:
CO1:- Discuss multidisciplinary nature of the environment studies and nature resources.
CO2:- Describe water and air pollution.
CO3:- Describe solid, soil and noise pollution.
CO4:- Discuss the ecosystem and the importance of biodiversity.
CO5 Discuss consequence of over population and need of energy and water conservation.

Subject Code ME100105
ENGINEERING GRAPHICS AND DESIGN
On successful completion of the course, the student will be able to:
CO1: Demonstrate an understanding of convention for lines, letters, dimensioning and scale in engineering drawing.
CO2: Describe the principles of projection and draw orthographic projections of points and Lines.
CO3: Draw orthographic projections of planes and solids.
CO4: Draw orthographic projections of section of solids & construct development of its lateral surfaces.
CO5: Convert pictorial view of an object to orthographic views and orthographic view to isometric view.

Subject CodeAC100202
APPLIED CHEMISTRY

On successful completion of the course, the student will be able to:
CO1:- Explain the quality, composition of fuel and solve the related problems.
CO2:- Describe the boiler trouble, water treatment techniques and solve the related problems.
CO3:- Apply the concept of corrosion to increase the life of materials of operating units.
CO4:- Discuss the principles, instrumentations and applications of UV & IR techniques.
CO5:- Explore the benefits and applications of nano materials

Subject Code CS100203
PROGRAMMING FOR PROBLEM SOLVING

On successful completion of the course, the student will be able to:
CO1: Formulate simple algorithms, draw flowcharts for arithmetic and logical problems and to write, test and execute the C programs and correct syntax and logical errors.
CO2: Implement conditional branching and iteration.
CO3: Analyzes, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage.
CO4: Decompose a problem into functions and synthesize a complete program and use of recursion.
CO5: Use arrays, structures and files to solve for solving Mathematical and Engineering problems.

Subject Code HM100204
PROFESSIONAL COMMUNICATION IN ENGLISH

CO1:-The students will be able to demonstrate a better understanding of the communication process by identifying, explaining, and applying current communication theories as they relate to various contexts and learn to use standard formats, techniques and principles to gain credibility in business setting.
CO2:- The students will be able to listen, read, comprehend and synthesize information from different sources and respond appropriately.
CO3:- The students will be able to demonstrate different modes of expression in written communication, develop the fundamental skills and techniques in drafting effective business documents.
CO4:- The students will be able to demonstrate the various oral communication situations to elicit desired results.
CO5:- The students will be able to demonstrate the ability to identify and solve common grammar errors to develop grammatical accuracy.

Subject Code ME100205
ENGINEERING MECHANICS

On successful completion of the course, the student will be able to:
CO1: Apply basic concepts and laws of mechanics to determine resultant and analyze the systems of Forces.
CO2: Analyze static system by applying law of friction/principle of virtual work.
CO3: Determine the centroid, second moment of area and product of inertia of simple and composite, plane figures and centre of gravity and mass moment of inertia of simple and composite bodies.
CO4: Analyze problem related to kinematics of a particle and rigid bodies.
CO5: Analyze problem related to kinetics of rigid bodies.

B. Tech. Civil Engineering 3rd semester

Subject Code: CE101302
Introduction to Fluid Mechanics

On successful completion of the course, the student will be able to:
CO 1**:** Apply the concept of fluid statics in different engineering problem.
CO 2: Apply the principle of fluid kinematics.
CO 3: Apply the energy and momentum principle.
CO 4: Analyse the pipe flow and open channel flow.
CO 5**:** Analyse the flow through mouthpiece, orifice, notch and weir.

Subject Code: CE101303
Mechanics Of Solids

On successful completion of the course, the student will be able to:
CO 1: Define and explain the basic concepts of Mechanics of Solids and to be able apply the stress-strain equations to find out stress-strain in bars.
CO2: Analyze stresses and strains in a rectangular element and to find out the maximum stress in an inclined plane and its location.
CO3: Draw bending moment and shear force diagram for loaded beams and to be able to find out bending and shear stresses at the cross-section of the beam.
CO4: Calculate the critical load for columns and be capable of analyzing dams and retaining walls.
CO5: Apply the concepts of unsymmetrical bending and torsion to solve the power transmission problems along with design of spring for shock-absorption.

Subject Code: CE101304
PLANE SURVEYING

CO1: Understand various methods of surveying.
CO2: Estimate distance, angle and height through different instruments.
CO3: Prepare plans using Theodolite surveys.
CO4: Adopt appropriate survey method for field problems.
CO5: Set out simple circular curves.

Subject Code: CE101305
CONSTRUCTION MATERIAL

On successful completion of the course, the student will be able to:
CO1: Identify properties of common building material.
CO2: Understand basic concepts of Timber and Eco-friendly Material.
CO3: Describe characteristic of Composite and Miscellaneous material in construction
CO4: Extend the knowledge about characteristic of paint, varnishes etc.
CO5: Extend the knowledge about steel, aluminium, glass etc.

B. Tech. Civil Engineering 4th semester

Subject Code CE101402
BUILDING PLANNING AND CONSTRUCTION DRAWING

On successful completion of the course, the student will be able to:
CO1: Students are expected to understand various methods of general principles of planning.
CO2: Students are expected to understand drawing plan, layout plan of single, double story residential buildings, foundation, floors, roof, and ceiling.
CO3: Students are expected to understand drawing of elevation & section of single & double story buildings
CO4: Students are expected to understand doors and windows and elements of perspective.
CO5: Students are expected to understand building construction works.

Subject Code: CE101403
SURVEYING & GEOMATICS

On successful completion of the course, the student will be able to:
CO1: Deal with the various aspects of Trilateration and Triangulation.
CO2: Do the relevant computations, errors and observations.
CO3: Gain and apply the knowledge of Tacheometery, various modern survey instruments.
CO4: Apply the concepts of Photographic and aerial surveying and GPS.
CO5: Efficiently deal with the Hydrographic surveying.

Subject Code:
CE101404 Hydraulic Engineering

On successful completion of the course, the student will be able to:
CO1: Analyse turbulent flow in pipe and solve problems of pipe network.
CO2: Analyse Boundary layer and calculate drag and lift.
CO3: Analyse flow in open channel. CO4: Apply the Dimensional analysis for fluid flow problem.
CO5: Analyse the flow in Turbine & Pumps.

Subject Code:
CE101405 Transportation Engineering-I

On successful completion of the course, the student will be able to:
CO1: Students are expected to understand highway planning &design.
CO2: Students are expected to understand traffic Engineering.
CO3: Students are expected to understand & evaluate highway construction material.
CO4: Students are expected to develop exposure in pavement design.
CO5: Students are expected to learn airport planning.

B. Tech. (Civil Engineering) Fifth Semester

Subject Code: CE101501
Structural Analysis –II

CO1: Leaner is able to differentiate and analyze the different kinds of structures- determinate and indeterminate.
CO2: Learner is able to apply suitable method for given structure - rigid jointed or pin-jointed plane frames.
CO3: Leaner is able to analyze indeterminate beams and frame (sway and non-sway) using Moment distribution method.
CO4: Leaner is able to analyze indeterminate beams and frame (sway and non-sway) using slope deflection method.
CO5: Learner is able to draw influence line diagram for determinate and indeterminate beams using Muller Breslau principle and is able to apply it for finding out maximum values of stress function.

Subject Code: CE101502
Structural Engineering Design – I

On successful completion of the course, the student will be able to:
CO1: The student will be able to understand the importance of RCC, various design philosophies used in structure engineering design and design of rectangular beam using working stress method.
CO2: The student will be able to analyze and design rectangular beam section using Limit State method.
CO3: The student will be able to analyze and design T-beam section and slab using Limit State method.
CO4: The student will be able to analyze and design Compression members using Limit State method.
CO5: The student will be able to analyze and design single footing and stairs using Limit State method.

Subject Code: CE101503
Geotech Engineering – I

After studying this course, students will be able to:
CO-1: Know about soil and development of soil mechanics and soil formation and characteristic of soil
CO-2: Field identification, soil classification system
CO-3: Study the lab experiments and simulations of experiment result with the theoretical characteristic of soil.
CO-4: Study of different theory Newmart Charts, Westergaard and Boussinesq equation.
CO-5: Able to find at experiment, shear strength of soil and different method of soil exploration

Subject Code: CE101504
Transportation Engineering –II

On successful completion of the course, the student will be able to:
CO1:- Students will be able to learn about different components of Rail section
CO2:- Students will be able to learn about geometric design of railway track.
CO3:- Students will be able to learn about different stresses and elements of railway track.
CO4:- Students will be able to learn about details of construction of Tunnel.
CO5:- Students will be able to learn about Harbour structures.

B. Tech. Electrical Engineering Third Semester

Subject Code: EE104302
GENERATION OF ELECTRICAL ENERGY

After learning the course the Students should be able to:
CO1: Successfully applies advanced concepts of electrical power generation and development of electric systems.
CO2: Understand the operation and working of various conventional power generation methods.
CO3: Understand the operation and working of various non- conventional power generation methods.

Subject Code: EE104303
ELECTRICAL MACHINES-I

CO1: Infer the operating concepts of single phase and autotransformer phase for examining their performance.
CO2: Apply the knowledge of vector groups to analyse three phase transformers under different conditions.
CO3: Interpret the operating concepts and related tests of DC machine for examining its performance.
CO4: Analyse different industrial and domestic applications of transformer and DC machine.
CO5: Learn about the fundamentals of three phase induction machines.

Subject Code: EE104304
ANALOG ELECTRONICS CIRCUITS-I

At the end of this course, students will demonstrate the ability to
CO1: Understand the basic functions of electronic devices and circuits.
CO2: Design and analyze the simple existing electronic circuits.
CO3: Implement new electronic circuits for various applications.

Subject Code: EE104305
ELECTRICAL CIRCUITS & NETWORK ANALYSIS

Students will be able to:-
CO1: Analyze various electrical circuits, their simplification techniques and synthesis.
CO2: Evaluate the responses by applying network theorems to electrical circuits, analyze circuits in the sinusoidal steady state. And the transient response of electrical circuits.
CO3: Analyze the response of electrical circuits using Laplace Transform for standard inputs.
CO4: Analyze two port circuit behavior with different parameters.

B. Tech. Electrical Engineering Fourth Semester

Subject Code: EE104401
POWER SYSTEM-I

After learning the course the Students should be able to:
CO1: Describe the concept of different grids and components of power system.
CO2: Calculate various line parameters for different configurations of transmission lines and cables.
CO3: Describe the analysis and design the future expansion of existing system by using power flow analysis.

Subject Code: EE104402
Electro Magnetic Fields

Student will be able to:-
CO1: To differentiate different types of coordinate systems and use them for solving the problems of electromagnetic field theory so as to apply the theory in practical problems.
CO2: Compute electric field intensity, electric flux & potential for various charge distribution and to describe static electric and magnetic fields, their behavior in different media, associated laws, equations, boundary conditions and electromagnetic potentials.
CO3: Compute magnetic field intensity and magnetic flux density using associated laws and theorems.
CO4: To use integral and point form of Maxwell`s equations for solving the problems of electromagnetic field theory and to describe time varying fields, propagation of electromagnetic waves in different media.

Subject Code: EE104403
Digital Electronics

Students will be able to:-
CO1: Design, build, test, troubleshoot, and evaluate digital circuits with conclusions needed in any project design.
CO2: Design basic digital circuits and also advanced circuits like Combinational logic circuits, sequential logic circuits which is core requirement in any circuitry.
CO3: Construct a small memory subsystem & will able to use PLDs for logic implementation.

Subject Code: EE104404
ELECTRICAL MEASUREMENT & MEASURING INSTRUMENTS

Students will be able to:-
CO1: Understand the types of resistances and its measuring techniques.
CO2: Calculate the inductance, capacitance and frequency under measurement by using AC bridges.
CO3: Understand various electronic or digital meters and its significance.
CO4: Understand the working and uses of various measuring devices and instruments employed for different electrical quantity measurements.

Subject Code: EE104405
ELECTRICAL MACHINES-II

After learning the course the Students should be able to:
CO1: To introduce synchronous and induction machines.
CO2: To analyze the concepts of rotating magnetic fields and operation of three phase Induction Motors.
CO3: To understand the starting, speed control of three phase induction motors.
CO4: To understand the working of Single-phase induction motors and special motors.
CO5: To analyze the performance, characteristics and operation of synchronous machines.

B. Tech. Electrical Engineering Fifth Semester

Subject Code: EE104501
Control Systems Engineering

After learning the course the Students should be able to:
CO1: Ability to acquire and apply fundamental principles of science and technology.
CO2: Analyze continuous systems mathematically through the use of Laplace functions and state equations form.
CO3: Represent any physical system in both transfer functions and state equations form.
CO4: Apply classical design methods to improve the performance of continuous controlled system.

Subject Code: EE104502
Signals and Systems

On completion of this course, the students:
CO1: have the knowledge of various signals and systems.
CO2: knows the properties of various transforms.
CO3: can design various systems to get desire output.

Subject Code: EE104503
Power System-II

Students will be able to:-
CO1: Explain the purposes of protection, in relation to major types of apparatus, protection principle, dangers and criteria.
CO2: Choose and justify a suitable protection system for a specified application.
CO3: Analyze and compare specified protection systems
CO4: Illustrate the function of various CBs and related switching issues.

Subject Code: EE104504
ANALOG ELECTRONICCIRCUITS-II

On completion of this course, the students will be able to:
CO1: understand the working of various integrated circuits.
CO2: to design various circuits using operational amplifiers and other ICs for various applications.

Subject Code: EE104522
Microprocessor & Microcontrollers

Students will be able to: -
CO1: Understand the basic architecture of Microprocessor 8085.
CO2: Understand various instructions and their application in programming
CO3: Understand memory organization and mapping.
CO4: Learn about other interfacing chips.

B. Tech. Electrical Engineering Sixth Semester

Subject Code: EE104601
Power Electronics

On successful completion of the course, the student will be able to:
CO1: To gain knowledge of various application of semiconductor switches by understanding their static and dynamic characteristics.
CO2: To understand the performance characteristics of controlled AC-DC converters for R, RL & RLE loads.
CO3: To gain knowledge on basic DC-DC converters and their operation under continuous /discontinuous mode of conduction for RLE loads
CO4: To identify and formulate the requirements for four quadrant operation of DC motor.
CO5: To differentiate and understand the significance of various commutation circuits and their consequence on device stress
CO6: To understand the principle of DC-AC conversion and the different topology for three phase to three phase and single phase to single phase DC-AC conversion.

Subject Code: EE104602
Switchgear &Protection

Students will be able to:-
CO1: Explain the purposes of protection, in relation to major types of apparatus, protection principle, dangers and criteria.
CO2: Choose and justify a suitable protection system for a specified application.
CO3: Analyze and compare specified protection systems
CO4: Illustrate the function of various CBs and related switching issues.

Subject Code: EE104603
Instrumentation Techniques

Students will be able to:-
CO1: Student can understand the use of CT and PT as a protective and measuring device.
CO2: Student would be able to select proper transducer for measurement of various Electrical quantities.
CO3: Student will have the basic concepts to make use of DAS and Recorders in industries.
CO4: Students will able to explain the architecture and module of PLC.
CO5: Student can write programs for different processes using PLC.

Subject Code: EE104621
Digital Signal Processing

On completion of this course, the students will be able to:
CO1: Apply the concept of digital signal processing in various applications.
CO2: Apply DFT and FFT to get the desire outputs.
CO3: Implement FIR filters.
CO4: Implement IIR filters.

Subject Code: EE104622
Digital Control System

On completion of this course, the students will be able to:
CO1: Use z transform to convert analog filter into digital filter.
CO2: Analyze the performance of filters.
CO3: Use of sampling techniques used in the communication.
CO4: Can design digital filters and control their performance.
CO5: Understand the optimization problem in control system.

Subject Code: EE104623
Computer Aided Design of Electrical Machine

After learning the course the Students should be able to:
CO1: Understand general concepts of CAD.
CO2: Calculate the various parameters required for designing.
CO3: Understand and implement CAD for AC electrical machine for a given power rating.

Subject Code: EE104624
Smart Grid Systems

On successful completion of the course, the student will be able to:
CO1: Understand the concept and evolution of smart grid.
CO2: Smart grid communication and measurement technologies like Phasor Measurement Unit (PMU), Smart meters, Wide Area Monitoring system (WAMS) etc.
CO3: Power quality issues in micro grids like modelling and stability analysis, regulatory standards and economics and basic smart grid concepts.
CO4: Know about the information and Communication Technology for Smart Grids.
CO5: Understanding the concept of Distributed Energy Resources.

Subject Code: EE104625
Line Commutated And Active PWM Rectifiers

On successful completion of the course, the student will be able to:
CO1: understand principles of. controlled rectifier circuits
CO2: To understand the operation of line-commutated rectifiers, 6 pulse and multi pulse configurations.
CO3: To gain knowledge on the operation of PWM rectifiers operation in rectification and regeneration.
CO4: To understand the basics of Boost converter.
CO5: To gain knowledge of the principles bidirectional boost converter.

Renewable Energy Sources

Students will be able to:-
CO1: To Understand the Need, importance and scope of non-conventional and alternate energy resources.
CO2: To understand role significance of solar energy and importance of Wind Energy.
CO3:.To get the utilization of Biogas plants and geothermal energy
CO4: To understand the role of ocean energy in the Energy Generation
CO5: To understand the concept of energy Conservation.

Subject Code: EE100642
Industrial Automation & PLC

At the end of the course, the students can:
CO1: Identify different components of an automation system.
CO2: Interface the given I/O device with appropriate PLC module.
CO3: Prepare a PLC ladder program for given application.
CO4: Select suitable motor drives for special applications.
CO5: Prepare a simple SCADA application.

First Year B. Tech. - I, (Common to All Branches), Course Outcomes
APPLIED MATHEMATICS-I

On successful completion of the course, the student will be able to:

CO1:-Apply the concept of Rank of Matrices and Cayley-Hamilton Theorem on problems of linear equations. Implement the concept of Eigen values and vectors in Engineering problems.

CO2:-Apply the method of Successive Differentiation for Expansion of functions and Tracing of simple curves.

CO3:-Solve the problems of Maxima & Minima of functions of two variables and use Jacobians in formulation of practical problems.

CO4:-Apply integration for Rectification, Quadrature and Volume of revolution and apply Differentiation under the integral sign to definite integrals.

CO5:-Solve Linear as well as Nonlinear Differential Equations of first order. Also, to solve Differential Equation of Higher Order.

First Year B. Tech. II (Common to All Branches), Course Outcomes
APPLIED MATHEMATICS-II

On successful completion of the course, the student will be able to:

CO 1. Use the concept of convergence and tool of power series in various problems of advanced Mathematics.

CO 2. Implement the De Moivre's theorem for finding roots of Complex numbers and use the Method of separation into real and imaginary parts in the study of complex calculus. Also use the relation between roots & coefficient and transformation to solve Algebraic Equations.

CO 3. Use the Multivariable Integral Calculus for finding Area and Volume and to employ the Beta and Gamma functions for evaluating Improper definite integrals.

CO 4. Differentiate and Integrate Vector functions and apply Stoke's, Gauss and Divergence theorem for easier evaluation.

CO 5. Fit Linear and Second order Parabolic curves to given set of data. And use Correlation and Regression for Interpolation or Extrapolation.

First Year B.Tech. I SEM (TCS-CSBS), Course Outcomes
Subject Code: AM102102Subject Name: Statistics, Probability, Calculus

On successful completion of the course, the student will be able to:

CO1: Students will be able to understand basic knowledge of statistics in Engineering.
CO2: Students will be able to apply tool of statistics in Engineering.
CO 3: Students will be able to apply the concept of conditional probability, Mathematical expectation and moments
CO 4: *Students will be able to* apply the concept of probability distribution in advanced engineering**.**
CO5: Students will be able understand basic concept of differential calculus, Integral calculus and its application.

B. Tech. IV SEM (TCS-CSBS), Course Outcomes
Subject Code: OPERATION RESEARCH

CO1: - To study the concept of optimizing performance measure. And to solve different types of OR problems by using Building Mathematical Models.

CO2: To Study The Linear Programming problems. by using simplex Algorithm Methods, Dual Simplex methods.

CO3: To solve The Transportation and assignment problems by using NWCR methods and also to do optimality test by using MODI Methods.

CO4: To Study the Project scheduling techniques by Gantt chatt , PERT, CPM and also to study the concept of project crashing/time cost.

CO5: To study the Inventory Control models by using EOQ and POQ Models for different price break systems.

APPLIED MATHEMATICS-III

Second Year B. Tech.-III, Civil Engineering, Course Outcomes

On successful completion of the course, the student will be able to:

CO1: To have a thorough knowledge of PDE which arise in mathematical descriptions of situations in Engineering.

CO2: To make the students understand that Fourier series analysis is powerful methods where the formulas are integrals and to have knowledge of expanding periodic functions that explore variety of applications of Fourier series.

CO3: To provide knowledge of Laplace transform of elementary functions including its properties and applications to solve ordinary differentials equations.

CO4: To study about a quantity that may take any of a given range of values that can't be predicted as it is but can be described in terms of their probability .

CO5: To provide a sound background of complex analysis to perform a thorough investigation of major theorems of complex analysis and to apply these ideas to a wide range of problems that include the evaluation of both complex line integrals and real integrals.

Second Year B. Tech. -CSE & IT 3rd semester Subject Code: AM100302

Engineering Mathematics

On successful completion of the course, the student will be able to:

CO 1. To have a thorough knowledge of PDE which arise in mathematical descriptions of situations in Engineering.

CO 2. To make the students understand that Fourier series analysis is powerful methods where the formulas are integrals and to have knowledge of expanding periodic functions that explore variety of applications of Fourier series.

CO3. To provide knowledge of Laplace transform of elementary functions including its properties and applications to solve ordinary differentials equations.

CO4. To study about a quantity that may take any of a given range of values that can't be predicted as it is but can be described in terms of their probability

CO5. To study the technique of estimating the values of a function for any intermediate value of the independent variable.

Second Year B. Tech. –CSE & IT 4th semester Subject Code- AM100401

Discrete Structure

Course Outcomes: After completion of this course students will be –

1. Able to apply mathematical logic and Boolean algebra in switching circuits & logic circuits.
2. Familiar with set theory, relation and functions.
3. Familiar with algebraic structures, graph theory and combinatorics.
4. Able to solve problems in various fields in computer science, especially networking

Department of Electrical and Electronics

Third Sem

Subject Code: EEE103302
Electrical Circuit Analysis

CO1: Apply the knowledge of basic electric circuit concepts.
CO2: Analyze the circuit using circuit simplification theorems.
CO3: Infer and evaluate coupled circuits and network performance under resonance condition.
CO4: Analyze three phase balanced and unbalanced poly phase
CO5: Analyze and evaluate the power calculations for steady state sinusoidal waveforms.

Subject Code: EEE103303
Electrical Machine- I

CO1:-. Understand the fundamentals and working of transformers
CO2:- Draw the equivalent circuit diagrams of various transformers
CO3:-Analyse the load profile, voltage regulations and efficiency under various operating conditions
CO4:-Understand the working principle and construction of direct current machines
CO5:- Understand the needs and requirements of various types of d.c. machine operations like starting, speed control, tests etc.

Subject Code: EEE103304
Solid State Devices

CO1:-Characterize diodes based on their characteristics and applicability.
CO2:-Utilize diodes in rectifier circuits, filters and voltage regulators.
CO3:- Learn to design transistor biasing circuit and calculating its stability.
CO4:- Design characteristics of FET and MOSFET. CO5:- Design and develop feedback and oscillators circuits.

Subject Code: EEE103305
Fundamental of Electrical Power Generation and Renewable Engineering
CO1:- Extract features that can be used for a particular machine learning approach in various IOT
CO2:- To compare and contrast pros and cons of various machine learning techniques and to get an
CO3:- Obtain I-V characteristics and performance analysis of Solar cell/module/Array modelling.
CO4:- Identify various components of Wind Energy Conversion system.
CO5:-Differentiate other non-conventional energy: MHD, Geothermal, Tidal power, Ocean thermal energy, and Biomass power plants. .

Department of Electrical and Electronics

Fourth Sem

Subject Code:EEE103401
Network Analysis and Synthesis

CO1: Apply the knowledge of differential equations, Laplace transforms and simplify the networks.
CO2: Analyze the circuit using Network simplification theorems and analyze the waveforms using Fourier series
CO3: Infer and evaluate transient response, steady state response, network functions.
CO4: Evaluate two-port network parameters and symmetrical networks
CO5: Synthesize one port network using Foster and Cauer Forms.

Subject Code: EEE103402
Electro Magnetic Field

CO1: Compute electric field intensity for various charge distribution
CO2: Compute Electric flux & potential for various charge distribution
CO3: Compute solution of Laplace and Poisson's equations
CO4: Compute magnetic field intensity and magnetic flux density using Ampere's circuital Law and Stoke's theorem.
CO5: Compute force and torque for various current carrying elements.
CO6.Enlist Maxwell's equations for time varying fields and solve them for specific regular geometries

Subject Code: EEE103403
Digital Electronics

CO1. Be able to design, build, test, troubleshoot, and evaluate digital circuits.
CO2. Be able to utilize computer software such as Electronic Work Bench (Multisim).
CO3. Be able to evaluate and revise designs as actual performance is reviewed.
CO4. Be able to prepare a written report that effectively communicates the objective, the design procedure, the experimental results, and the conclusion for any project design.

Subject Code: EEE103405
IOT& Instrumentation

CO1. The students should be able to Measure low, medium & high Resistances using suitable instruments.
CO2. The students should be able to determine the value of inductor and capacitor with the help of A.C. Bridge & they can draw phasor diagram of bridges.
CO3. The students should be able to select proper instrument for measurement various Electrical elements.
CO4. Understand general concepts of Internet of Things.
CO5. Apply design concept to IoT solutions, Analyze various M2M and IoT architectures

Subject Code:EEE103401
Electrical Machines II

CO1 Understand the construction, working principles of synchronous and three-phase induction machines
CO2 Draw the equivalent circuit diagrams under various load conditions
CO3 Analyze the load profile, voltage regulations and efficiency in various operating conditions
CO4 Understand the needs and requirements of various types of machine operations like starting, speed control, tests etc
CO5 Understand the needs and requirements of Three phase induction machine operations like starting, speed control, tests etc

Department of Electrical and Electronics

Fifth Sem

Subject Code
EEE103501 Control System Engineering

CO1. Ability to acquire and apply fundamental principles of science and technology.
CO2. Analyze continuous systems mathematically through the use of Laplace functions and state equations form.
CO3. Represent any physical system in both transfer functions and state equations form.
CO4. Apply classical design methods to improve the performance of continuous controlled system.
CO5 Identify the needs of different types of controllers and compensator to ascertain the required dynamic response from the system.

Subject Code:
EEE103502 MICRO PROCESSOR AND MICRO CONTROLLER

CO1: Understand the basic architecture of Microprocessor 8085 Microcontroller 8051.
CO2: Understand various instructions and their application in programming.
CO3: Understand memory organization and mapping.
CO4: Understand how to Design different interfacing applications using microcontrollers and peripherals.
CO5: Demonstrate the limitations and strengths of different types of microcontrollers and their comparison.

Subject Code:
EEE103503 Electrical Power System
CO1: Student will be to calculate the resistance, inductance and capacitance of transmission line.
CO2: Student will be able to learn how to model the element in power system and able to carry out studies of load flow, transient stability, harmonics and other relevant studies
CO3: Understand memory organization and mapping.
CO4: Student will be able to calculate the voltage regulation of line and analyze the voltage profile of the transmission line.
CO5: Student will gain an understanding of VAR control using component to improve p.f, location of capacitor, operation of load tap changing can be examine.
CO6: Student will be able to calculate the sag,
tension and mechanical stress of a transmission line
CO7: Student will be able to learn different types of conductor and cable with its performance and will able to understand the effect of surges in line

Subject Code EEE103504 Integrated Circuit

CO1 The students will have a thorough understanding of operational amplifiers with linear integrated circuits.
CO2 The students will be able to design circuits using operational amplifiers for various applications.
CO3 Learn about various techniques to develop A/D and D/A convertors
C04 Explain and compare the working of multivibrators using special application IC 555 and general purpose OPAMP.
CO5 Illustrate the function of application specific ICs such as Voltage regulators

Subject Code:
EEE103525 Hybrid Electric Vehicle Technology

CO1. State the various parts of the battery and their functions.
CO2. Describe discharging and charging process of a lithium ion battery.
CO3. Describe the components of a fuel cell and explain the purpose of each one.
CO4. Explain and analyse dynamic fuel cell behaviour.
CO5. Understand - how fuel cells are used for every day purposes: road, water and air transport vehicles, portable and stationary use.

Department of Electrical and Electronics

Sixth Sem

Subject Code:
EEE103601 Power Electronics Device & Circuits

CO1: To gain knowledge of various application of semiconductor switches by understanding their static and dynamic characteristics.
CO2: To understand the performance characteristics of controlled AC-DC converters for R, RL & RLE loads.
CO3: To gain knowledge on basic DC-DC converters and their operation under continuous /discontinuous mode of conduction for RLE loads
CO4: To identify and formulate the requirements for four quadrant operation of DC motor.
CO5: To differentiate and understand the significance of various commutation circuits and their consequence on device stress
CO6: To understand the principle of DC-AC conversion and the different topology for three phase to three phase and single phase to single phase DC-AC conversion.

Subject Code
EEE103602 Signals & Systems

CO1:- Analyze different types of signals.
CO2:- Analyze different types of systems.
CO3:- Represent continuous and discrete systems in time and frequency domain using Laplace and Z-Transform.
CO4:- Students will understand the Fourier series, and Fourier transforms.
CO5:- Students will understand the process of sampling and the effects of under-sampling.

Subject Code:
EEE103603 Power System Analysis

CO1: Student should be able to make a one line representation of Power System.
CO2: Student should be able to evaluate fault currents for different faults at different locations in Power System.
CO3: Students should be able to identify cases of stable and unstable Power Systems.
CO4: Analyse the steady state and transient stability of power system networks.
CO5: Analyse the voltage profile of any given power system network using iterative methods.

Subject Code:
EEE103622 Testing and Commissioning of Electrical Equipments

CO1: After studying the subject students will be able to understand the common problems arising while commissioning of electric equipments.
CO2: They will also be able to learn about the routine tests to be performed and maintenance measures for various equipments.
CO3: Trouble shooting chart for various electrical equipment's, machines and domestic appliances.
CO4: Preparation of maintenance schedule of different equipment and machines.
CO5: Familiar about electrical safety regulations and rules during maintenance

B. Tech Second Year (3rd semester)
Computer Science and Engg.

Subject Code :-CS102301
Object Oriented Programming with C++

1) Students will understand the concepts of flow of control, abstraction, pointer and recursion.
2) Analyse a simple programming problem specification.
3) Design a high-level solution to the problem using functional abstraction and general imperative programming language constructs.
4) Write, compile, execute and debug a C++ program which maps the high-level design onto concrete C++ programming constructs.

Subject Code:- CS102302
Data Structure

CO1 Understand the concept of ADT
CO2 Identify data structures suitable to solve problems
CO3 Develop and analyze algorithms for stacks, queues
CO4 Develop algorithms for binary trees and graphs
CO5 Implement sorting and searching algorithms
CO6 Implement symbol table using hashing techniques

Subject Code:- CS102303
Operating System

1. To learn what is operating system and how it makes computers work.
2. To know how operating system manages complexity through appropriate abstraction of CPU, memory, files, semaphores etc.
3. To get knowledge about different components of operating system like Process Management, Concurrency mechanisms.
4. To get knowledge about Deadlock handling, Memory Management techniques
5. To get knowledge about Virtual Memory, File System
6. To learn what is Secondary Storage Management, Security & protection etc.
7. Students will be able to Work confidently in Unix/Linux environment.
8. Students will understand different kernel algorithms and its usage.

Subject Code:- CS102304
Digital Electronics and Logic Design

1. Use digital electronics in the present contemporary world.
2. Design various combinational digital circuits using logic gates.
3. Do the analysis and design procedures for synchronous and asynchronous sequential circuits.
4. Use the semiconductor memories and related technology.
5. Use electronic circuits involved in the design of logic gates.

B.Tech. Fourth Semester
Computer Science and Eng.

Subject Code CS102401
Computer System Architecture and Microprocessor

CO1. Identify the basic hardware components of a computer system.
CO2. Familiarize themselves with binary and hexadecimal number systems including computer arithmetic.
CO3. Familiarize themselves with functional units of the processor such as the register file and arithmetic logical unit.
CO4. Understand basics functionality of systems: parallel, pipelined, superscalar and RISC/CISC architectures.
CO5. Represent system design in appropriate formats; addressing modes, an instruction sets as per the system configuration requirements.

Subject Code:-CS102402
Java Programming

CO1. To construct Java programs using features of Object-oriented programming.
CO2. Able to explain object and package construction process.
CO3. To construct robust Java programs using exception handling and String class.
CO4. To develop java programs using multithreading and File Handling
CO5. To design and develop application programs using UI components and Database connectivity.

Subject Code :-CS102403
Analysis and Design of Algorithms

CO1. Design algorithms for various computing problems.
CO2. Analyze the time and space complexity of algorithms.
CO3. Critically analyze the different algorithm design techniques for a given problem.
CO4. Modify existing algorithms to improve efficiency.
CO5. To Understand how to apply various algorithms.

Subject Code:-CS102404
Database Management System

CO1. Be familiar with basic concepts of RDBMS, Relational data model & be able to write relational algebra expressions for queries;
CO2. Be familiar with basic database storage structures and access techniques: file and page organizations, indexing methods including B-tree and hashing;
CO3. Understand DML, DDL and will be able to construct queries using SQL by knowing the importance of data & its requirements in any applications;
CO4. Utilize a database modeling technique for a single entity class, a one-to-one (1:1) relationship between entity classes, a one-to-many (1:M) relationship between entity classes, a many-tomany (M:M) relationship between entity classes, and recursive relationships;
CO5. Be familiar with the basic issues of transaction, its processing and concurrency control.

B.Tech. Fifth Semester
Computer Science and Eng.

Subject Code CS102501
Theory Of Computation

CO1.Design finite automata to accept a set of strings of a language.
CO2.Determine whether the given language is regular or not.
CO3.Design context free grammars to generate strings of context free language.
CO4.Design push down automata and the equivalent context free grammars and Design Turingmachine.
CO5.Distinguish between computability and non-computability, Decidability and un-decidability.

Subject Code CS102502
Computer Network

CO1: Describe the basis and structure of an abstract layered Network protocol model.
CO2: understand the working of network protocols.
CO3: Students will have deep understanding of various protocols used at Data Link Layer and will be able to analyze the advantages and disadvantages of various available protocols for flow and error control.
CO4: Students will be able to analyze various Ethernet standards and will be able to choose an appropriate standard according to requirement of LAN.
CO5: Students will be able to use various network based applications.

Subject Code CS102503
Introduction to Data Science

CO1 Basic Concepts of DataScience
CO2 Understanding of reading data and manipulation
CO3understand data cleaning , dimentionality reduction
CO4understand and analyse data
CO5use visualization of data to capture data insight and build model

Subject Code CS102504
Internet of Things

CO1. Students will familiar with the concepts of Internet of Things.
CO2. Students will familiar with IoT Architecture
CO3. Students will ready to Analyze basic protocols in wireless sensor network
CO4. Students will be capable to design IoT applications in different domain and be able to analyze their performance
CO5. Capable to implement basic IoT applications on embedded platform.

Subject Code:- CS102524
Cryptography & Network Security

CO1. Student will be able to understand basic cryptographic algorithms, message.
CO2. Student will be able to understand web authentication and security issues.
CO3. Ability to identify information system requirements for both of them such as client and server.
CO4. Ability to understand the current legal issues towards information security.

Department of Electronics and Telecommunication Engineering
Third Semester

Subject Code Name :
AM100301 APPLIED MATHEMATICS-III

CO1. To have a thorough knowledge of PDE which arise in mathematical descriptions of situations in Engineering.
CO2. To make the students understand that Fourier series analysis is powerful methods where the formulas are integrals and to have knowledge of expanding periodic functions that explore variety of applications of Fourier series.
CO3. To provide knowledge of Laplace transform of elementary functions including its properties and applications to solve ordinary differentials equations.
CO4. To study about a quantity that may take any of a given range of values that can't be predicted as it is but can be described in terms of their probability.
CO5. To provide a sound background of complex analysis to perform a thorough investigation of major theorems of complex analysis and to apply these ideas to a wide range of problems that include the evaluation of both complex line integrals and real integrals.

Subject Code Name :
ET105302 Electronic Devices

CO1: The student is able to gain complete knowledge of transport phenomena in semiconductor."
CO:2 Students are able to design practical circuit using diodes.
CO:3 Students understand the concepts of DC analysis of BJT.
CO:4 Students understand the necessity of Biasing and stabilization.
CO:5 Students understand the concept of FET and MOSFET. Students are able to differentiate between BJT and FETs.

Subject Code Name :
ET105303 Digital System Design

CO1: Employ Binary Codes & Boolean algebra
CO2: Employ circuit minimization techniques.
CO3:Design and analyze combinational logic circuits such as adders, subtractors, multiplexers,
CO4: Design and analyze Sequential logic circuits such as flip-flops, shift registers and counters,
CO5: Design and analyze of Finite State Machine.

Subject Code Name :
ET105304 Network Analysis

CO1: Understand basics electrical circuits with nodal and mesh analysis and to analyze two port parameters.
CO2: Understand the behavior of passive elements and their impact on network.
CO3: Apply Laplace Transform for steady state and transient analysis
CO4: Appreciate electrical network theorems.
CO5: Appreciate the sinusoidal steady state analysis.

Subject Code Name :
ET105305 Signals and Systems

CO1:- The student will be able to understand the classification of signals and systems.
CO2:- Gain knowledge about the frequency domain analysis of continuous time and discrete time signals.
CO3:-Use the Z-transform techniques to solve the system equations
CO4:-Acquire basic knowledge in linear time invariant systems
CO5:-Analyze the state space analysis using LTI systems

Department of Electronics and Telecommunication Engineering

Fourth Semester

Subject Code Name :
ET105401 Analog Communication

CO1:-Understand the signal analysis performed in communication.
CO2:-To gain knowledge of amplitude Modulation and Demodulation Techniques.
CO3.. To gain knowledge of Frequency Modulation and Demodulation Techniques.
CO4. To gain knowledge of Various Receivers that used in the Communication.
CO5. To study about various Noise sources and its impact on analog communication system

Subject Code Name :
ET105402 Analog Electronics

CO1: Student is able to understand ac analysis of BJT amplifier at Low frequencies.
CO2: Student is able to understand ac analysis of BJT
amplifier at High Frequencies.
CO3: Student gets knowledge of multistage amplifier and power amplifier.
CO4: The concepts of feedback used in amplifier are understood.
CO5: Student is able to understand the concepts of Oscillator

Subject Code Name :
ET105403 Electromagnetic Field Theory

CO1:- Understand the phenomenon of Basic tools for Electromagnatics.
CO2:-Calculate electric field, Potential, from stationary and dynamic charge and solve simple electrostatic boundary problems
CO3:- :-Calculate Magnatic field, Potential, from stationary and dynamic charge.
CO4:- Calculate Magnatic force, torque and solve simple magnatostatic boundary problems.
CO5:-Understand the phenomenon of wave propagation with the aid of Maxwell's equations. Gain Knowledge of time varying field.

Subject Code Name :
ET105404 IOT AND INSTRUMENTATION

CO1:-Students will be acquainted with basics of measurement system and Transducers.
CO2:-Students are able to acquire knowledge of measurement of velocity, temperature, pressure and flow.
CO3:- Understand general concepts of Internet of Things
CO4:- Apply design concept to IoT solutions, Analyze various M2M and IoT architectures
CO5:- Students are able to acquire knowledge of measurement IoT Architechture and its applications

Subject Code Name :
ET105405 Microcontroller & Embedded System

CO1:- To understand Microcontroller 8051 its architecture and its instruction set.
CO2:- Gain knowledge about Counter/timer and interrupts in 8051 Microcontroller and Programming concepts.
CO3:- Students will be able to do serial communication programming and gain knowledge of serial communication.
CO4:- Students will be able to understand interfacing Microcontroller 8051 with devices.
CO5:- Students will be able to understand embedded system and its real time applications.

Department of Electronics and Telecommunication Engineering

Sixth Semester

Subject Code Name :
ET105601 Digital System Design using VHDL

CO1. Students are able to design any digital hardware circuit using PLDs
CO2.Students are expected to understand VHDL programming concepts.
CO3. Students are able to write VHDL code of any combination circuits.
CO4. Students are able to write VHDL code of any Sequential circuits.
CO5. Students are expected to understand about FSM and their programming in VHDL.

Subject Code Name :
ET105602 Control Systems

CO1:-Model physical control systems using BDRT, SFG.
CO2:- Analyze feedback characteristics and time response analysis of P, PI, and PD & PID Controllers.
CO3:- Analyze the stability of control system in time domain using Routh- Hurwitz and Root-locus techniques
CO4:- Analyze the stability of control system in frequency domain using Polar plots, Bode plots and Nyquist Plots.
CO5:- Analyze and design the state model of feedback controllers.

Subject Code Name :
ET105603 Digital Signal Processing

CO1:Syn the size discrete time signals from analog signal.
CO2:Use time domain and frequency domain analysis tools.
CO3:Apply for ward and Reverse Transformation.
CO4:Visualize various applications of DSP and explore further possibilities.
CO5: Design IIR and FIR filters

Subject Code Name :
ET105621 Information Theory and coding

CO1. Students will be able to analyze source coding techniques like the Huffman encoding, Shannon Fanoencoding , Lempel Ziv encoding and Run Length encoding.
CO2. Students will be able to categorize different types of channels and can determine capacity of a given channel.
CO3. Students will be able to encode and decode using Block codes and Cyclic codes.
CO4. Students will be able to use graphical method, polynomial and polynomial matrix to describe convolution codes.
CO5. Students will be able to use the mathematical tools developed including primitive element to study BCH codes, and can draw tanner graph of LDPC codes

Subject Code Name :
ET100643 Operating System

CO1. The student will be able to learn the various functionalities of OS.
CO2. The student will be able to use the various algorithms and techniques to perform the various jobs performed by operating systems
CO3.The student will be able to get the overview of how operating system is designed.
CO4. The student will be able to demonstrate how various resources are managed by operating system

Department of Information Technology

Third Semester

Subject Code Name :
AM100302 Engineering Mathematics

CO 1. To have a thorough knowledge of PDE which arise in mathematical descriptions of situations in Engineering
CO 2. To make the students understand that Fourier series analysis is powerful methods where the formulas are integrals and to have knowledge of expanding periodic functions that explore variety of applications of Fourier series.
CO3. To provide knowledge of Laplace transform of Elementary functions including its properties and applications to solve ordinary differentials equations.
CO4. To study about a quantity that may take any of a given range of values that can't be predicted as it is but can be described in terms of their probability
CO5. To study the technique of estimating the values of a function for any intermediate value of the independent variable

Subject Code Name :
IT106301 Digital Electronics

CO 1. Able to design Digital Ckts.
CO2. Able to design & Implement Various Combinational Ckts
CO 3. Synchronous and Asynchronous counters.
CO 4 .Able to analyze Sequencial Ckts.
CO5. Implement different Memory devices and Digital Integrated Circuits:

Subject Code Name :
IT106302 OBJECT ORIENTED PROGRAMMING III

CO 1. Understand object-oriented programming features in C++.
CO2. Apply the features like Polymorphism and Inheritance to program design and implementation
CO3. Understand the concepts of Late binding and Exception Handling
CO4. Understand and apply the files concepts in OOPS
CO5. Understand the Object Oriented Analysis and Design modeling

Subject Code Name :
IT106303 COMPUTER ORGANIZATION & ARCHITECTURE

CO1. Draw the functional block diagram of a single bus architecture of a computer and describe the function of the instruction execution cycle, RTL interpretation of instructions, addressing modes, instruction set.
CO2. Write assembly language program for specified microprocessor for computing 16 bit multiplication, division and I/O device interface (ADC, Control circuit, serial port communication).
CO3. Write a flowchart for Concurrent access to memory and cache coherency in Parallel Processors and describe the process.
CO4. Given a CPU organization and instruction, design a memory module and analyze its operation by interfacing with the CPU.
CO5. Given a CPU organization, assess its performance, and apply design techniques to enhance performance using pipelining, parallelism and RISC methodology.

Subject Code Name :
IT106304 DATA STRUCTURES AND ALGORITHM ANALYSIS

CO1.Distinguish between different types of data structures such as stacks, queues and linked lists and their application on real world problems.
CO2.Perform Comparative study of algorithms for searching and sorting and to select the best one on the basis of performance analysis of different algorithms for real world problems.
CO3.Identify and design algorithmic solutions for different realworld problems and then analyze them using different performance analysis parameters and techniques
CO4.Examine the different aspects of Binary Trees and make use of these concepts to efficiently allocate memory for Binary, AVL, B-tree, m-way search trees.
CO5.Illustrate techniques to fully depict Graphs and identify the optimum ways for arrangement of nodes

Department of Information Technology

Fourth Semester

Subject Code Name :
IT106402 Programming in Java

CO 1. Apply Java in developing Object Oriented code.
CO 2. Analyze and apply feature of OOPS such as inheritance, polymorphism etc in implementation of program
CO 3. Apply the knowledge of Multi-threading and Streams in developing Java applications.
CO 4. Implement of GUI and Networking in Java run time environment(JVM)
CO 5. Design and develop Java based applications for solutions to real world problems.

Subject Code Name :
IT106403 COMPUTER NETWORKS

CO1. To Explain the functions of the different layer of the OSI Protocol.
CO2. Draw the functional block diagram of wide-area networks (WANs), local area networks (LANs) andWireless LANs (WLANs) describe the function of eachblock.
CO3.For a given requirement (small scale) of wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs) design it based on the market available component
CO4. For a given problem related TCP/IP protocol developed the network programming.
CO5. Configure DNS DDNS, TELNET, EMAIL, File Transfer Protocol (FTP), WWW, HTTP, SNMP, Bluetooth, Firewalls using open source available software and tools.

Subject Code Name :
IT106404 Design Analysis of Algorithm

CO 1. Apply design principles and concepts to algorithm design.
CO 2. Have the mathematical foundation in analysis of algorithms
CO3. Understand different algorithmic design strategies
CO4. Analyze the efficiency of algorithms using time and space complexity theory
CO5. Implementation of different algorithm for complexity measurement.

Subject Code Name :
IT106405 Database Management System

CO 1. Describe the basic concepts of RDMBS and relational data model Be familiar with the relational database theory, and be able to write relational algebra expressions for queries.
CO 2. Understand DML, DDL and will be able to construct queries using SQL by knowing the importance of data &its requirements in any applications.
CO 3. Be familiar with the basic issues of transaction, its processing and concurrency control.
CO 4. Able to translate DB designs from relational notation to ER notation & con Perform normalization once redundancies have been eliminated.
CO 5. Be familiar with basic db storage structures, access techniques: file / page organizations, indexing methods including B-tree, hashing.

Department of Information Technology

Fifth Semester

Subject Code IT106501
Artificial Intelligence and Machine Learning

CO:1 Apply the knowledge and skills of heuristic search and game playing for solving real time problems
CO:2 Apply Artificial Neural Networks and implement the various layers.
CO:3 Ability to work with Logistic Regression and Support Vector Machine
CO:4 Apply suitable Machine learning and its algorithms.
CO:5 Develop learning models and Advanced Learning methods and Clustering.

Subject Code IT106502
Theory of Computation

On successful completion of the course, the student will be able to:
CO1: Construct finite state machines and minimize them. **CO2:** Design regular expressions and to prove the equivalence of languages described by finite state machines and regular expressions
CO3: Design grammars and simplify context free grammars
CO4: Construct pushdown automata and to prove the equivalence of languages described by pushdown automata and context free grammars
CO5: Solve various problems of applying Turing Machines

Subject code IT106503
Software Engineering & Project Management
CO1. Identify suitable life cycle models to be used.
CO2. Analyze a problem and identify and define the computing requirements to the problem.
CO3. Translate a requirement specification to a design using an appropriate software engineering methodology.
CO4. Formulate appropriate testing strategy for the given software system.
CO5. Develop software projects based on current technology, by managing resources economically and keeping ethical values.

Subject code IT106504
Operating System

By the end of the course you should be able to-
CO1. Describe the general architecture of computers and operating system
CO2. Understand and analyse theory and implementation of: processes, resource control (concurrency etc.), physical and virtual memory, scheduling, I/O and les.
CO3. Categorize the operating system's resource management techniques, dead lock management techniques, memory management techniques.C5
CO4. Description of protection and security and also the Comparison of UNIX and Windows based OS
CO5. Defining I/O systems, Device Management Policies and Secondary Storage Structure and Evaluation of various Disk Scheduling Algorithms.

Department of Mechanical Engineering

Third Semester

Subject Code Name :
AM100301 Applied Mathematics – III

CO1: To have a thorough knowledge of PDE which arise in mathematical descriptions of situations in Engineering.
CO2: To make the students understand that Fourier series analysis is powerful methods where the formulas are integrals and to have knowledge of expanding periodic functions that explore variety of applications of Fourier series.
CO3: To provide knowledge of Laplace transform of elementary functions including its properties and applications to solve ordinary differentials equations.
CO4: To study about a quantity that may take any of a given range of values that can't be predicted as it is but can be described in terms of their probability
CO5: To provide a sound background of complex analysis to perform a thorough investigation of major theorems of complex analysis and to apply these ideas to a wide range of problems that includes the evaluation of both complex line integrals and real integrals.

Subject Code Name :
ME107301 Strength of Materials

CO1: Apply the concept of stress and strain to analyze various types of structures.
CO2: Determine the distribution of shear force, bending moment and transverse shear stress along the loaded beam
CO3: Determine the deflections and slope of loaded flexural members.
CO4: Analyze shaft and springs under torsional load.
CO5: Analyze various structural elements subjected to combine stresses/combined loads.

Subject Code Name :
ME107302 Material Science

CO1: Explain crystal structure and Imperfection in crystal structure and define basic mechanical properties of materials & explain the theories of deformation.
CO2: Understand the nature of dislocations and its role in the plastic deformation processes. Explain the processes of solidification of metals and effects of final grain size on mechanical properties of materials
CO3: Understand and interpret the phase diagrams which relates to the design and control of heat-treating processes.
CO4: Get the knowledge about composition, properties and application of various ferrous alloys, non-ferrous metals and alloys.
CO5: Explain mechanical and thermal properties of ceramics and various types of composites.

Subject Code Name :
ME107303 Measurement, Control and Sensing Tools

CO1: Acquire knowledge and hands-on competence in applying the concepts of measurement and metrology in the design and development of mechanical systems.
CO2: Demonstrate creativeness in designing new systems components and processes in the field of engineering.
CO3: Work effectively with engineering and science teams as well as with multidisciplinary designs.
CO4: Skillfully use modern engineering tools and techniques.
CO5: To develop concepts for mechanical engineering design, analysis and application.

Subject Code Name :
ME107304 Thermodynamics

CO1: Apply basic concepts and first law of thermodynamics to analyze thermodynamics system.
CO2: Apply the concepts of second law of thermodynamics and entropy to analyze thermodynamics system.
CO3: Apply the concepts of energy to solve related problems
CO4: Explain the equations of state and thermodynamic properties of real gases and calculate properties of mixture of ideal non- reactive gases.
CO5: Analyze processes involving pure substances.

Department of Mechanical Engineering

Fourth Semester

Subject Code Name :
ME107401 KINEMATICS OF MACHINES

CO1: Apply knowledge of Kinematics of machine for understanding, formulating and solving engineering problems.
CO2: Acquire knowledge and hands-on competence in applying the concepts kinematics of machine in the design and development of mechanical systems.
CO3: Demonstrate creativeness in designing new systems components and processes in the field of engineering
CO4: Identify, analysis, and solve mechanical engineering problems useful to the society.
CO5: Work effectively with engineering and science teams as well as with multidisciplinary designs

Subject Code Name:
ME107402 MANUFACTURING PROCESS

CO1: Acquire knowledge and hands-on competence in applying the concepts of manufacturing science in the design and development of mechanical systems.
CO2: Demonstrate creativeness in designing new systems components and processes in the field of engineering in general and mechanical engineering in particular.
CO3: Work effectively with engineering and science teams as well as with multidisciplinary designs.
CO4: Skilfully use modern engineering tools and techniques for mechanical engineering design, analysis and application.
CO5: Acquire knowledge, construction, working and various machining operations of milling, broaching, drilling, reaming and boring machines

Subject Code Name :
ME107403 FLUID MECHANICS & MACHINES

CO1: Explain fluid properties and basic principles of fluid statics and analyze the problem related to manometry, forces on submerge plane, buoyancy and flotation.
CO2: Explain basic principles of fluid kinematics and analyze related practical problem
CO3: Explain basic principles of fluid dynamics and analyze related practical problem.
CO4: Derive relationships for various flow characteristics of laminar flow, turbulent flow and energy losses in pipe flow and apply to analyze related practical problems.
CO5: Apply dimensional analysis to derive a relationship among connected variables and apply model laws to predict the behavior of the prototype in given circumstances.

Subject Code Name :
ME107404 ME107404 TURBO MACHINERY
CO1: Apply knowledge of turbo machinery for understanding steam turbines
CO2: Explain basic principles of Impulse reaction turbines and analyze related practical problem
CO3: Explain basic principles of state point locus and reheat factor and analyze related practical problem
CO4: Explain gas turbines and analyze the problem related to gas turbines
CO5: Explain compressors and analyze the problem related to turbo compressors and axial flow compressors

Subject Code Name :
ME107405 PROGRAMMING WITH PYTHON
CO1: Read and write simple Python programs and to develop Python programs with conditionals and loops
CO2: Apply the use of Numpy Library for performing various data processing activities
CO3: Apply the use of Pandas library for data handling activities and Matplotlib for data visualization activities
CO4: Solve problems based on engineering applications using Python
CO5: Solve problems based on engineering mechanics using Python

Department of Mechanical Engineering

Fifth Semester

Design of Machine Elements
Course Code ME107501

At the end of this course, the students are expected to be able to:
CO1: Apply knowledge of machine design for understanding, formulating and solving engineering problems.
CO2: Acquire knowledge and hands-on competence in applying the concepts in the design and development of mechanical systems.
CO3: Demonstrate creativeness in designing new systems components and processes in the field of engineering.
CO4: Identify, analysis, and solve mechanical engineering problems useful to the society.
CO5: Work effectively with engineering and science teams as well as with multidisciplinary designs.

Heat and Mass Transfer
Course Code ME107502

CO1 Compute temperature distribution in steady-state heat conduction
CO2 Understand and interpret heat transfer through extended surfaces.
CO3 Interpret and compute forced and free convective heat transfer.
CO4 Understand the principles of radiation heat transfer and understand the numerical formula for heat conduction problems. Design heat exchangers using LMTD and NTU methods.
CO5 Use computer software to solve basic Heat Transfer problems**.**

Artificial Intelligence &Machine Learning Applications in Mechanical engineering
Course Code ME107503

At the end of this course, the students are expected to be able to:
CO1: Demonstrate fundamentals of artificial intelligence and machine learning.
CO2: Apply the concepts of feature extraction and selection techniques for processing data set.
CO3: Apply the machine learning algorithm for classification and regression based problem in the field of mechanical engineering.
CO4: Devise and Develop a machine learning model using various steps.
CO5: Explain concepts of reinforced and deep learning and simulate machine learning model in mechanical engineering problems.

Dynamics of Machines
Course Code ME107504

At the end of this course, the students are expected to be able to:
CO1: Explain principles of operation of mechanical governors and analyze its performance parameters. **CO2:** Determine the forces and couples for static and dynamic conditions of four-bar mechanisms and slider crank mechanisms to keep the system in equilibrium.
CO3: Determine gyroscopic couple and effects related to plane disc, aero plane, ship and two wheels and four wheels vehicles.
CO4: Apply the theory of balancing to rotating and reciprocating masses.
CO5: Explain principles of vibrations of different systems and analyze related practical problems.

B. Tech. Sixth Semester-
MECHANICAL ENGINEERING

Subject Code ME107601
Refrigeration and Air Conditioning

Student will be able to:
CO 1 Understand to introduce students to basic refrigeration cycles, systems and components.
CO 2 Compute identify analyze and design basic refrigeration cycle incorporating air and air craft refrigeration system.
CO 3 Analyze Vapor compression and vapor absorption refrigeration system.
CO 4Identify and name various refrigerants.
CO 5Understand the principles of psychrometry and human comfort and will be able to design air conditioning system as per the cooling load.

Course Code ME107602
Finite Element Methods

At the end of this course, the students are expected to be able to:
CO1: Apply knowledge of finite element method for understanding, formulating and solving engineering problems.
CO2: Identify the application and characteristics of FEA/FEM elements such as one-dimensional bars, beams elements.
CO3:Derive and develop element characteristic equation and generation of global equation.
CO4: Able to apply suitable boundary conditions to a global equation for plate and shell element.
CO5: Identify, analysis, and solve dynamic problems and solve them displacements, vibration or frequency induced.

Subject Code
ME107603 CAD/CAM/CAPP

At the end of this course, the students are expected to be able to:
CO1: Understand the various CAD/CAM/ and CAPP processes.
CO2: Acquire knowledge and hands-on competence in applying the concepts of CNC machine tools and its control systems.
CO3: Acquire knowledge and hands-on competence in applying the concepts of CNC programming and computer aided part programming.
CO4: Demonstrate creativeness in flow of information in a production organization using CAPP
CO5: Identify and analyze various automated material handling systems using the concept of CIM

MCA Ist Semester

C++ Programming and Data Structure
Subject Code CA261101

CO1:Students will be able to understand the concepts of programming designing and learn about object oriented programming concepts and features of OOPs using C++
CO2: Students learns about importance of Inheritance and Polymorphism.
CO3: Students will be able to understand Linear data structures (such as arrays, linked lists, stacks, queues, priority queues.
CO4: Student learns about concepts of Non Linear Data Structures (such as trees, graphs and their applications).
CO5: Students will be able to write and implement various sorting and searching algorithms.

ADVANCE DATABASE MANAGEMENT SYSTEM
Subject Code CA261102

CO1:-Student will understand architecture of database and design schema for a real world problem.
CO2:- Student will learn and implement query on database.
CO3:- Student will learn to Normalize Database for handling redundancy.
CO4:- Student will learn Handling of concurrent transaction on database.
CO5:- Student will learn Fundamentals of Data warehousing and mining.

Software Engineering

Subject Code CA261103

CO1: Student have a fair idea about the importance of using software engineering principles in real life projects and to pick an appropriate software development model for developing systems

CO2: Student will be able to prepare software requirement sheet for a real life project, keeping in mind the properties of an SRS document and able to use mathematical models for calculating the size, cost and duration of real life projects

CO3: Student will be able to design objected oriented structure of real time applications.

CO4: Student will be able to test the developed system using different testing techniques

CO5: Student will be able to know the methods to apply Software Reengineering Process to existing software.

Mathematical Foundation of Computer Science

Subject Code CA261104

CO1: Able to apply mathematical logic and Boolean algebra in switching circuits & logic circuits.

CO2: Able to determine the type of a relation and apply the knowledge using Hass diagram.

CO3: Familiar with set theory and recursive function. Also, they will construct the grammars.

CO4: Familiar with graph theory and its applicability in various computer applications.

CO5: Able to solve problems in various fields in computer application using the basic concepts of group theory and coding.

Professional Communication Skills

Subject Code CA261105

CO1: Able to understand the basics of communication, barriers to communication and how to overcome them.

CO2: Able to correspond clearly and learn to handle correspondence and able to respond to job advertisements and write resume.

CO3: Able to write reports in the correct format and able to know how to prepare and present technical and nontechnical proposals.

CO4: Able to write notice, agenda and minutes related to meetings and also able to learn how to prepare and face interviews.

CO5: Able to write grammatically correct English.

MCA II[nd] Semester

Programming with Java

Subject Code CA261201

After successful completion of the course:

CO1:Students will be able to write OOPs programs, be able to handle Strings.

CO2:Students will be able to handle runtime errors, and will be able to create multi-threads.

CO3:Students will gain skills in network programming using Java network APIs, TCP / IP sockets, and distribute application development using RMI.

CO4:Students will be able to create I / O interfaces using event handling via the Swing API and AWT API and will be able to develop standalone software.

CO5:Students will obtain the skill to develop the website using APPLET and Servlet

Computer Networks

Subject Code CA261202

On successful completion of the course, the student will be able to:

CO1:The students will be able to understand the structure and organization of computer networks role of each layer, functioning of physical layer.

CO2:The students will have in depth understanding of data link layer and network layer concepts and protocol design.

CO3: The students will have in depth understanding of user support layers concepts and protocol design.

CO4: The student will be able to understand how to host a website in the web server and maintenance.

CO5: The students will be able to understand the basic concepts of network security concepts; including authentication, integrity and system security design challenges.

Artificial Intelligence & Expert System

Subject Code CA261203

On successful completion of the course, the student will be able to:

CO1:Students develop an ability to visualize AI problems and importance of searching and control strategies.

CO2:Studentslearns various algorithms used in AI game playing and how to prune state space using heuristics.

CO3:Student will have understanding of different knowledge representation structure and inference mechanism with ability to apply them in intelligent solutions of complex problem.

CO4:Students will develop skills needed for processing of natural language at syntactic and semantic level using Grammar and also how important planning is while designing solution strategies.

CO5:Student will be able to understand working of Expert system and importance of learning module in expert system.

Operating System with Unix

Subject Code CA261204

On successful completion of the course, the student will be able to:

CO1: The students will be able to understand concepts relating to operating system, such as types of operating system, file system organization.

CO2:The students will be able to understand concepts and problem solutions related with CPU Scheduling, virtual memory and deadlocks.

CO3:The students will be able to understand Operating system concepts in the context of Unix Operating system .

CO4:The students will be able to understand Internal representation of Unix files and various System calls.

CO5:The students will be able to understand Unix process structure, and working of kernel.

(Elective-I)

Introduction to Management Functions **(Elective-I)**

Subject Code CA261221

On successful completion of the course, the student will be able to :

CO1: Students will be able to understand the theoretical understanding of management and administration and to develop insights into the step-bystep processes involved in the development of plan.

CO2: Students will be able to adapt the concept of motivation and ways to apply motivation technique in real world and also to use communication as an effective tool for management.

CO3: Students will be able to apply functional knowledge of management real world.

CO4: The student will be able to understand the basics of HRM and to analyze formal and informal relation in an organization.

CO5: Students will be able to understand how to make balance sheets, profit & loss and trial balance.

Organization Change and Development**(Elective-I)**

Subject Code CA261222

On successful completion of the course, the student will be able to :

CO1: The students will get familiarized with basic organizational processes required to bring about organizational development.

CO2: The students will be able to understand the necessity of organizational change and strategies to manage the same

CO3: The students will be able to analyse and apply organisational development interventions as per business needs

CO4: The students will be able to understand how change affects organizations and countries throughout the world.

Behavioral perspectives in Management**(Elective-I)**

Subject Code CA261223

On successful completion of the course, the student will be able to :

CO1: To analyze and compare different models used to explain individual behavior related to personality and authority.

CO2: To identify the various leadership styles and the role of leaders in a decision making process.

CO3: Able to integrate interpersonal with relation and coordination.

CO4: To exhibit stress management techniques in social and professional behavior.

CO5: To identify the processes used in developing teams and resolving conflicts

Enterprise Resource Planning**(Elective-I)**

Subject Code CA261224

On successful completion of the course, the student will be able to :

CO1: Student will acquire an understanding of business process, organizational functional areas, need of reengineering, business process efficiency.

CO2: Student will be aware of advantages of an enterprise, how technology acts as business process enabler.

CO3: Student will be able to select best ERP vendor, Contracts with vendors, consultants and employees.

CO4: Student will have an understanding of ERP modules. ERP project management and monitoring, Pitfalls of ERP packages, ERP implementation lifecycle, Implementation methodology, organizing the implementation

CO5: Students are expected to realize the problems involved in designing and building ecommerce systems.

Digital Marketing**(Elective-I)**

Subject Code CA261225

On successful completion of the course, the student will be able to :

CO1: Students will be able to understand basics of marketing and able to understand how segmentation and targeting can be done.

CO2: Students will be able to understand concepts of Search Engine Optimization (SEO).

CO3: Students will be able to Understand the Role of Email marketing.

CO4: The student will be able to Understand about the basics and importance of web marketing and Social Media marketing channels

CO5: Students will be able to understand about the role of mobile marketing.

MCA III[rd] Semester

Computer Graphics and Image Processing

Subject Code CA261301

On successful completion of the course, the student will be able to:

CO1.Implement the logic of drawing basic output primitive while developing graphical package

CO2.Apply various concepts of 2D clipping operation on objects

CO3.Students will be able use 3D transformation and understands concepts of curves

CO4.Students will be equipped with techniques used in image processing

CO5.Students will have the concept of basic compression techniques for images

Cloud Computing

Subject Code CA261302

On successful completion of the course, the student will be able to:

CO1:- . Understand the concept of virtualization and how this has enabled the development of Cloud Computing

CO2:-Know the fundamentals of cloud, cloud Architectures and types of services in cloud

CO3:-Understand scaling, cloud security and disaster management

CO4:-Design different Applications in cloud

CO5:-Explore some important cloud computing driven commercial systems

Data Science

Subject Code CA261303

CO1:- Students should be familiar with data science tools

CO2:- Students should be able to build a data science model using DS concept

CO3:- Student should be able to visualize data and understand the data semantics.

CO4:- Build data science applications using Python based toolkits.

Elective -II

Formal Language and Automata Theory (**Elective –II)**

Subject Code CA261341

CO1: The students will be able to understand the concepts of computational model

CO2: The students will be able to convert among DFAs, NFAs.

CO3: The students will be able to identify the grammars and languages based on Chomsky hierarchy.

CO4: The students will be able to design FA, PDA, TM for the languages.

CO5:The students will be able to know about decidability and complexity

Neural Network and Fuzzy Logic (**Elective –II)**

Subject Code CA261342

CO1: Students will be able to understand Artificial Neural Network concept with the help of Biological Neural Network

CO2: Students will be able to implement algorithms to train ANN by using learning algorithms

CO3: To student will be able to understand the various architectures of building an ANN

and its applications .

CO4: To student will be able to understand the advanced methods of representing information in ANN like self-organizing networks, associative and competitive learning

CO5: Students will be able to test fuzzy set operations and binary relations

Internet of Things (**Elective –II)**

Subject Code CA261343

On successful completion of the course, the student will be able to :

CO1:Understand the basics of IoT

CO2:Implement the state of the Architecture of an IoT

CO3:Understand design methodology and hardware platforms involved in IoT

CO4:Understand how to analyze and organize the data

CO5:Compare IOT Applications in Industrial & real world.

Analysis and design of Algorithm (**Elective –II)**

Subject Code CA261344

CO1: Students will be able to analysis algorithm.

CO2: Students will be able to understand, dynamic programming & greedy paradigm .

CO3: To student will be able to divide and conquer & backtracking paradigm.

CO4: To student will be able to understand graph algorithm.

CO5: Students will be able to understand NP-Complete problems.

Parallel Computing (**Elective –II)**

Subject Code CA261345

CO1: Students will be able to understand reason about ways to parallelize a problem.

CO2: Students will be able to understand, appreciate and apply parallel and distributed algorithms in problem solving.

CO3: To student will be able to understand the evolution of high performance computing (HPC) with respect to laws and the contemporary notion that involves mobility for data, hardware devices and software

CO4: To student will be able to understand Multiprocessor Architecture.

CO5: Students will be able to understand Algorithms on Array processors.

Elective -III

Natural Language Processing (**Elective –III)**

Subject Code CA261346

CO1: The students will be able to understand concepts fundamental techniques of natural language processing

CO2:The students will be able to understand of the limits of those techniques.

CO3:The students will be able to understand Current research issues, and to evaluate some current and potential applications.

CO4:The students will be able to understand Strategies for Semantic Interpretation

CO5:The students will be able to understand Natural language generation and translation

Mobile Computing (**Elective –III)**

Subject Code CA261347

CO1: Students will learn wireless technologies, tools and frameworks which will help them to understand the mobile and the other wireless communications

CO2: Students will be understands architecture of mobile system

CO3: Students will develop understanding TCP over mobile network.

CO4: Students will have understanding of architecture.

Compiler Design (**Elective –III)**

Subject Code CA261348

CO1: Students will have a concrete view on the theoretical and practical aspects of compiler design

CO2 Students will be able to apply ideas and techniques discussed to various software design

CO3 Students will be able to understand the complexity of compiler.

CO4 Students will be able to understand the working of runtime environment.

Software Project Management (**Elective –III)**

Subject Code CA261349

CO1: Students will be able to develop a project management plan (PMP).

CO2: Students will be able to track project execution through collecting artifacts and metrics according to procedures described in PMP.

CO3:The students will be able to manage project .

CO4:The students will be able to understand Strategies for quaity planning.

CO5:The students will be able to understand Risk management

Block Chain Technology (**Elective –III)**

Subject Code CA261350

On successful completion of the course, the student will be able to:

CO1:- . Explain basic principles of Blockchain

CO2:- . Explain the working and types of blockchain

CO3:- List and describe differences between proof-of-work and proof-of-stake consensus..

CO4:- . Understand Crypto currencies and security mechanisms

CO5:-Understand Crypto currency regulations and application areas of Blockchain

MCA IVth Semester

Cryptography and Network Security

Subject Code CA261401

On successful completion of the course:

CO1. The students will be able to understand cyber security fundamentals.

CO2. The students will have basic understanding of cryptography techniques and function.

CO3. The students will have in depth understanding of network security algorithms including Firewall.

CO4. The students will be able to know various advanced attacking techniques.

CO5. The students will be able to know various cyber security policies.

Big Data Analytics

Subject Code CA261402

On successful completion of the course:

CO1.The students will be able to understand the Big Data Analytics fundamental concepts and visualization techniques.

CO2. The students will be able to understand various techniques used for mining data stream.

CO3. The students will be able to understand Hadoop Concepts.

CO4. The students will be able to Know Hadoop frameworks and big data enabling Technologies.

CO5. The students will be able to understand about concepts of Open Source database such as NOSQL, HBase etc.

Master of Business Administration(MBA)
First Semester

Subject Code MG251101
Principles of Management and Ethics

On successful completion of the course, the student will be able to:

CO1:-Understand and apply management concepts and functions

CO2:-Analyze the role of planning and organizing in business organization.

CO3:-Develop knowledge of staffing, directing, motivation and controlling in changing business scenario.

CO4:-Comprehend the relationship between ethics and business.

CO5:-Examine the elements of good corporate governance

Subject Code MG251102
QUANTITATIVE TECHNIQUES IN MANAGEMENT
On successful completion of the course, the student will be able to:
CO1:-Understand and demonstrate the concept of business mathematics and its application.
CO2:-Determine the value of measure of central tendency and identify the relationship among symmetrical and skewed distribution.
CO3:-Apply concepts of probability relating to theoretical distribution within business context.
CO4:-Analyze and select various tools to solve social research problems.
CO5:-Adapt forecasting tools to improve decision making ability.

Subject Code MG251103
ORGANIZATIONAL BEHAVIOUR

On successful completion of the course, the student will be able to:
CO1:-Illustrate development of organizational behavior and explain the micro and macro approaches.
CO2:-Analyze and compare different models used to explain individual behavior.
CO3:-Apply behavioral concepts, models and theories to real life management situations.
CO4:-Explain group dynamics and demonstrate skills required for working in groups (teambuilding).
CO5:-Evaluate the processes used in developing communication and manage stress.

Subject Code MG251104
MANAGERIAL ECONOMICS

On successful completion of the course, the student will be able to:
CO1:-Explain the key terms in micro-economics, from a managerial perspective.
CO2:-Enabling the importance of Demand and Supply and equilibrium.
CO3:-Illustrating Production and Cost function in managerial economics.
CO4:-.Analyzing perfect and imperfect market conditions to enhancing market knowledge.
CO5:- Develop an understanding on trade cycle and measure of national income.

Subject Code MG251105
MANAGERIAL COMMUNICATION

On successful completion of the course ,the student will be able to:
CO1:-Acquire the basic knowledge of Managerial Communication.
CO2:-Develop practical knowledge in Written Communication.
CO3:- Learn to prepare and deliver presentations.
CO4:- Acquire deep knowledge of organizational meetings, conferences, Team briefing and Interviews.
CO5:- Develop a strong foresight with regards to Corporate Communication.

Subject Code MG251106
FINANCIAL ACCOUNTING

On successful completion of the course, the student will be able to:
CO1:- Comprehend the financial accounting concepts and gaining familiarity with the terminologies
CO2:- Pass the Journal Entries, post them in Ledger and draft the Trial Balance.
CO3:- Construct the financial statements for decision making.
CO4:- Evaluate proposal and determine relationship between items of financial statement.
CO5:- Adapt the financial accounting techniques to facilitate business decisions.

Subject Code MG251107
Business Law

On successful completion of the course, the student Will be able to:
CO1:-Students are able to understand the basic element and fundamental of legal business.
CO2:-Students are able to understand the concept of innovation and legalization of patents. Importance of consumer protection act in current scenario.
CO3:-Students are able to understand the concept legal aspect and process of partnership
CO4:-Students are able to understand the concept of company and process of formation of company.
CO5:-Students are able to understand the different negotiation instruments in current market

Subject Code MG251108
Environment Sustainability & CSR

On successful completion of the course, the student will be able to:
CO1:-Develop a basic knowledge on environment.
CO2:-Gain knowledge on Ecosystem and Biodiversity.
CO3:- Synthesize knowledge on Environmental pollution and social issues.
CO4:-.Understand basic concept of sustainable development.
CO5:-Understand the relevance and importance of CSR.

Master of Business Administration(MBA)
Second Semester

Subject Code MG251201
MANAGEMENT INFORMATION SYSTEM

On successful completion of the course, the student will be able to:
CO1:- Describe the role of information technology and information systems in business
CO2:- Learn the types of information systems supporting the major functional areas of the business. **CO3:-** Identify & analyze the relationship between information systems and organizations.
CO4:- Recommend and apply IT enabled decision support tools.
CO5:- Adapt strategic IT use by society, organizations and individuals.

Subject Code MG251202
Business Research Methods

CO:1 Understand a range of social research methods, techniques and skills for particular research questions in management and business settings;
CO:2 Frame research problem, conduct literature review and formulate hypothesis;
CO:3 Develop survey design, data analysis and a range of quantitative and qualitative research methods;
CO:4 Use statistical tools like Univariate Analysis, Bi- Variate Analysis, Multivariate Analysis, Parametric and Non Parametric Tests etc. With the help of advanced statistical packages like SPSS etc.;
CO:5 Use research methodology in the functional areas of management.

Subject Code:- MG251203
MARKETING MANAGEMENT

On successful completion of the course, the student will be able to:
CO1:- Understand the fundamental concepts of marketing.
CO2:- Explain the inputs and components of a marketing strategy.
CO3:- Explore the information about product management and pricing strategies.
CO4:-Demonstrate marketing communication tools and marketing channel decisions.
CO5:- Develop creative solutions for modern marketing problem.

Subject Code:- MG251204
FINANCIAL MANAGEMENT

CO1:- Classify funding sources and demonstrate knowledge of value of money overtime.
CO2:- Understand and analyze complexities associated with financing decision.
CO3:- Understand the concept of budgeting and evaluate proposals.
CO4:-.Select and apply techniques in management of working capital.
CO5:- Interpret the profit distribution decisions.

Subject Code:- MG251205
HUMAN RESOURCE MANAGEMENT

On successful completion of the course, the student will be able to:
CO1:-Define, explain and illustrate human resource management and its environment.
CO2:-Understand different approaches of HRM.
CO3:-Utilize knowledge to gain competitive advantage through people.
CO4:-Explain the required tools required for managing employees.
CO5:-Explore the latest trends in HR domain.

Subject Code:- MG251206
PRODUCTION AND OPERATIONS MANAGEMENT

On successful completion of the course, the student will be able to:
CO1:- Interpret basic concepts of production and operation management.
CO2:- Classify plant layout and employ economic analysis to select location
CO3:- Examine different dimensions of Quality using TQM, ERP and JIT.
CO4:- Develop sound understanding of SCM in today's business environment.
CO5:- Comprehend and Practice Inventory Management and Methods of Maintenance.

Subject Code:- MG251207
ENTREPRENUERSHIP DEVELOPMENT

On successful completion of the course, the student will be able to:
CO1:-Develop a basic knowledge on entrepreneurship and identify the role of entrepreneur in the economy.
CO2:-Gain knowledge on entrepreneurial theories and characteristics.
CO3:-Synthesize knowledge on identification of business opportunity and analysis of environment.
CO4:-Implement general business concepts, practices and tools to facilitate project success.
CO5:-Learn the initiatives of central and state government and understand problems of entrepreneurs.

Subject Code:- MG251208
ORGANIZATIONAL DEVELOPMENT

On successful completion of the course, the student will be able to:
CO1:- Understand various organizational structures with the techniques of redesigning and identify and evaluate strategies to increase organizational effectiveness.
CO2:- Develop the ability to facilitate change in the organization.
CO3:- Analyze and apply various OD interventions in different organizational settings.
CO4:- Observe the transactions amongst individuals and handle organizational conflicts through various techniques of conflicts resolution to negotiate issues smoothly.
CO5:- Demonstrate the importance of culture, learning, power, politics and empowerment in an organization.

Master of Business Administration(MBA)
Third Semester

Subject Code:- MG251301
CONSUMER BEHAVIOR

On successful completion of the course, the student will be able to:
CO1:-Demonstrate how knowledge of consumer behavior can be applied to marketing.
CO2:-Identify and explain factors which influence consumer behavior
CO3:-Relate internal dynamics such as personality, perception, learning motivation and attitude to the choices consumers make.
CO4:-Use appropriate research approaches including sampling, data collection and questionnaire design for specific marketing situations.
CO5:-In a team, work effectively to prepare a research report on consumer behavior issues within a specific context.

Subject Code:- MG251302
DESIGN THINKING, INNOVATION & CREATIVITY

On successful completion of the course, the student will be able to:
CO1:-Gain in depth knowledge about design thinking in every stage of problem.
CO2:-Apply innovation to real life problems / situations in order to evolve workable solutions
CO3:-Understand and implement creativity as an approach in problem solving
CO4:-Understand the process of evolution of technology and management of technology
CO5:-Comprehend the process of diffusion of technology& process of creation of a new product

Subject Code:- MG251303
OPTIMIZATION METHODS

On successful completion of the course, the student will be able to:
CO1:-The Students will be able to understand LPP and how to use it in decision making process with the help of simplex method.
CO2:-The students will be able to understand transportation problem for distribution system of product in various place with optimum resources.
CO3:-The students will be able to understand and apply assignment problem and Travelling salesman problem for quality production as well as distribution system.
CO4:-The students will be able to understand waiting line model for reduction of Idle time of various service organization as well as production organization.
CO5:- The students will be able to develop strategies related with, reduced project cost and project duration time through network analysis

Subject Code:- MG251321
ADVERTISING AND SALES PROMOTION

On successful completion of the course, the student will be able to:
CO1:-Comprehend the concept of Advertising and Sales Promotion
CO2:-Understand the Perspectives on consumer behavior.
CO3:-Understand Creative strategy: Implementation and Evaluation
CO4:-Comprehend the tools and techniques of Sales promotion
CO5:- Evaluate and revise the effectiveness of the promotional program

Subject Code:- MG251322
SALES MANAGEMENT

On successful completion of the course, the student will be able to:
CO1:-Comprehend the concept of Sales
CO2:-Understand the role on Sales person.
CO3:-Understand Creative strategy: Implementation and Evaluation
CO4:-Comprehend the tools and techniques of Sales Effort.
CO5:-Evaluate and revise the effectiveness of the Sales Force Management

Subject Code:- MG251323
SERVICES MARKETING

On successful completion of the course, the student will be able to:
CO1:-Understand to cope up with various challenges faced by service marketing in commercial &noncommercial environment.
CO2:-Analysis to map the difference between marketing tangible and intangible goods & services, including service marketing mix & other unique trait of service marketing.
CO3:-Discuss and face challenges in service delivery as outlined in a service gap model.
CO4:-To develop strategies associated with the concept of Relationship Marketing.
CO5:-Understand various dimensions of a service offers& key issues regarding customer evaluation of services.

Subject Code:- MG251331
SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

On successful completion of the course, the student will be able to:
CO1:-Comprehend the concept of investment and to analyze the return and risk associated.
CO2:-Understand the fundamental analysis as a technique of investment analysis.
CO3:-Understand the technical analysis as a technique of investment analysis.
CO4:- Comprehend the tools and techniques of portfolio analysis and models of portfolio selection.
CO5:- Evaluate and revise the portfolios created to authenticate their validity with updated investment goals.

Master of Business Administration(MBA)
Fourth Semester

Subject Code:- MG251401
Business Strategy

On successful completion of the course, the student will be able to:
CO1: Explain process and levels of strategic decision Making.
CO2: Develop the critical thinking skills needed to perform external and internal analysis of organizations and their competitive environment
CO3: Predict the various levels of strategic operations in Organizations.
CO4: Assess the issues in strategic implementation
CO5: Analyze and Evaluate challenges Faced by managers in implementing and evaluating strategies

Subject Code:- MG251402
ARTIFICIAL INTELLIGENCE AND DECISION SCIENCE

On successful completion of the course, the student will be able to:
CO1:- The Students will be able to understand Artificial intelligence in detail.
CO2:-The students will be able to understand game theory and its application
CO3:-The students will be able to understand decision making process with the help of decision under certainty and risk criterion.
CO4:-The students will be able to understand Markov Chain process for stead state and specific state condition.
CO5:- The students will be able to understand Simulation process.

Subject Code:- MG251421
Product and Brand Management

On successful completion of the course, the student will be able to:
CO1:- Understand the fundamental concepts of product management.
CO2:- Explain the inputs and components marketing potential and sales forecasting.
CO3:- Explore the information about brand building and brand positioning.
CO4:-Demonstrate Brand Hierarchy and designing & sustaining branding strategy.
CO5:- Develop Brand equity model for appropriate business.

Subject Code:- MG251422
RURAL AND AGRO MARKETING

On successful completion of the course, the student will be able to:
CO1:- Understand the concept of market in rural areas.
CO2:- Comprehend the problems faced by markets in rural areas and the role of government.
CO3:- Understand the marketing process of agricultural produce and inputs.
CO4:- Comprehend the non conventional forms of agribusiness transactions.
CO5:- Understand the nature and role of agricultural finance & credit.

Subject Code:- MG251423
RETAIL MANAGEMENT

On successful completion of the course, the student will be able to:
CO1:- Comprehend the concept of Retail Management
CO2:- Understand the Perspectives on Managing retail business.
CO3:- Understand Merchandise management and price
CO4:- Comprehend the tools and techniques of Retail promotion mix and its strategy
CO5:- evaluate and revise the effectiveness of Supply chain management & vendor relation's role in Retail

Subject Code:- MG251433
Banking Management

On successful completion of the course, the student will be able to:
CO1:- Comprehend the technical terms of Indian financial systems.
CO2:- Recognize the fundamental principles of banking industry and accordingly make the decisions.
CO3:-Execute banking affairs using recent developments.
CO4:-Measure the bank performance based on the strategies discussed.
CO5:-Implement the concepts of banking services in the organization development.