2015 SCHEME COs

SEMESTER III

MA201 LINEAR ALGEBRA AND COMPLEX ANALYSIS
COURSE OUTCOMES:

Students will be able to

S.NO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Understand about complex numbers and functions	Understand (Level 2)
CO2	Understand an idea of Conformal mapping	Understand (Level 2)
CO3	Describe the integration of complex functions	Understand (Level 2)
CO4	Explain various singularities and series expansions	Understand (Level 2)
CO5	Calculate the rank of a matrix and solution of equations using matrix theory and understand the matrix Eigen value problems	Understand (Level 2)

ME201 MECHANICS OF SOLIDS
COURSE OUTCOMES:

SNO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Determine the stresses, strains and displacements of structures by tensorial and graphical (Mohr's circle) approaches	Understand (level 2)
CO2	Analyse the strength of materials using stress-strain relationships for structural and thermal loading	Apply (level 3)
CO3	Perform basic design of shafts subjected to torsional loading and analyse beams subjected to bending moments	Apply (level 3)

CO4	Determine the deformation of structures subjected to various loading conditions using strain energy methods	Understand (level 2)
CO5	Analyse column buckling and appreciate the theories of failures and its relevance in engineering design	Apply (level 3)

ME203 MECHANICS OF FLUIDS

SNO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Calculate pressure variations in accelerating fluids using Euler's and Bernoulli's equations.	Understand (level 2)
CO2	Explain the concepts of flow measurements and flow through pipes	Understand (level 2)
CO3	Apply the momentum and energy equations to fluid flow problems	Apply (level 3)
CO4	Evaluate head loss in pipes and conduits and recommend suitable engineering criteria for fluid flow, power transmission, etc..	Apply (level 3)
CO5	Use dimensional analysis to design physical or numerical experiments applying dynamic similarity.	Apply (level 3)

ME 205 THERMODYNAMICS

Sl. NO	DESCRIPTION	Blooms' Taxonomy Level
CO1	Explain the laws of Thermodynamics	Understand (Level 2)
CO2	Solve problems based on Thermodynamics laws	Apply (Level 3)
CO3	Describe the significance of entropy in various Thermodynamic processes	Understand (Level 2)
CO4	Solve problems of thermodynamics using steam table	Apply (Level 3)
CO5	Explain the properties of gas mixtures and thermochemistry	Understand (Level 2)

ME210 METALLURGY AND MATERIALS ENGINEERING

Sl.NO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Explain crystallography, imperfections and diffusion	Understand (level 2)
CO2	Illustrate various phase diagrams of binary systems	Understand

(level 2)		
CO3	Describe different heat treatment processes of steel	Understand (level 2)
CO4	Explain theory of deformation and failure of metals	Understand (level 2)
CO5	Identify the different alloying elements to improve the properties of ferrous and non-ferrous metals	Apply (level 3)

HS 210 LIFE SKILLS
COURSE OUTCOMES:

Students will be able to

Sl. NO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Build communication competence in engineers both in oral and written communication	Apply (Level 3)
CO2	Develop their skills in leadership	Apply (Level 3)
CO3	Develop verbal and nonverbal skills which are trademarks of a professional	Apply (Level 3)
CO4	Develop particular skills to present ideas and information in an inspiring way	Apply (Level 3)
CO5	Demonstrate their skills in professional as well as in technical writing	Understand (Level 2)

ME 231 COMPUTER AIDED MACHINE DRAWING LAB

SNO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Sketch manual drawings of elevation, plan, end view and sectioned view of machine components with the help of isometric views provided.	Apply (Level 3)
CO2	Assembly and sketch assembled views of mechanical systems.	Apply (Level 3)
CO3	Apply the knowledge of fits and tolerances for machine components.	Apply (Level 3)
CO4	Sketch machine components and assembly using CAD software.	Apply (Level 3)
CO5	Utilize one's ability as an individual or in a team for the effective communication, practical skill and document design	Apply (Level 3)

CE 230: MATERIAL TESTING LAB
COURSE OUTCOMES:

Sl. NO	DESCRIPTION	Blooms' Taxomomy Level
CO1	Calculate the hardness and toughness of a given specimen	Understand (Level 2)

CO2	Obtain the fundamental material properties of given specimen subjected to various loadings	Apply (Level 3)
CO3	Design the concrete mix for the given compressive strength	Apply (Level 3)
CO4	Demonstrate the methodology for concrete cube strength and cylinder strength	Understand (Level 2)
CO5	Utilize one's ability as an individual or in a team for the effective communication, practical skill and document design	Apply (Level 3)

SEMESTER IV
MA202 PROBABILITY DISTRIBUTIONS, TRANSFORMS AND NUMERICAL METHODS
COURSE OUTCOMES:

Sl. NO	DESCRIPTION	Blooms' Taxomomy Level
CO1	Explain discrete probability density functions and probability distributions	Understand (Level 2)
CO2	Explain continuous probability density functions and probability distributions	Understand (Level 2)
CO3	Use Fourier integrals, Fourier transforms , Laplace and inverse Laplace transforms in solving various engineering problems	Apply (Level 3)
CO4	Use the iteration and interpolation methods to solve engineering problems	Apply (Level 3)
CO5	Use the concept of numerical methods and their applications to solve linear systems and first order ODE's	Understand (Level 2)

ME202 ADVANCED MECHANICS OF SOLIDS

SNO.	DESCRIPTION	Bloom's Taxonomy Level
CO1	Develop the concepts of stress and strain analysis in elastic solids	Apply (Level-3)
CO2	Obtain stress strain relationships for elastic solids and use them in elasticity problems	Apply (Level-3)
CO3	Apply the concepts of stress for solving 2D elastic problem	Apply (Level-3)
CO4	Obtain the solution for advanced bending problems	Apply (Level-3)
CO5	Apply energy methods for solving structural mechanics problem and solve torsional problems using St Venant's and Prandtl's Method	Apply (Level-3)

ME 204 THERMAL ENGINEERING

Sl. NO	DESCRIPTION	Blooms' Taxonomy Level

CO1	Explain the theory of steam engineering in the working of Steam	Understand

turbines & steam nozzles	(Level 2)	
CO2	Illustrate the different types of Steam Boilers, Boiler Mountings & Accessories	Understand (Level 2)
CO3	Solve problems related to IC engines using air standard cycles	Apply (Level 3)
CO4	Obtain the performance of I C engines using various parameters	Apply (Level 3)
CO5	Explain the working of different gas turbine systems	Understand (Level 2)

ME206 FLUID MACHINERY

S.NO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Extend the theory of impact of jets on flat and curved surfaces to the working of hydraulic turbines	Understand (level 2)
CO2	Design hydraulic turbine systems for specific output conditions	Apply (level 3)
CO3	Describe the working principle of rotodynamic pumps	Understand (level 2)
CO4	Explain the working principle of positive displacement pumps	Understand (level 2)
CO5	Solve problems related to different types of air compressors	Apply (level 3)

ME220 MANUFACTURING TECHNOLOGY

SL.NO.	DESCRIPTION	Bloom's Taxonomy Level
CO1	Describe various casting processes and technology related to them	Understand (level 2)
CO2	Explain the rolling processes required for getting required shapes of rolled products	Understand (level 2)

CO3	Compare important aspects of forging, drawing, extrusion and location techniques	Understand (level 2)
CO4	Demonstrate sheet metal working processes and their applications to produce various shapes and products	Understand (level 2)
CO5	Select suitable welding processes for different types of joints	Apply (level 3)

HS200 BUSINESS ECONOMICS
COURSE OUTCOMES:
Students will be able to

Sl. NO	DESCRIPTION	Blooms' Taxomomy Level
CO 1	Summarize the relevance of economic concepts from a micro and macro perspective	Understand (Level 2)
CO 2	Describe and relate economic concepts within a micro and macro perspective	Understand (Level 2)

CO 3	Analyze basic economic theories and models critically and to inspect and question its validity in the real world	Analyze (Level 4)
CO 4	Understand different possibilities/solutions by integrating different economic tools/ideas	Understand (Level 2)
CO 5	Evaluate and decide/choose the best possible outcome using different economic tools	Apply (Level 3)

ME 230 FLUID MECHANICS & MACHINES LAB

SNO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Students will be able to select an appropriate pump/turbine with reference to given application/ situation.	Apply (level 3)
CO2	Students will be able to estimate the optimum efficiency of a given pump/turbine under different load and (or) speed conditions	Understand (level 2)

CO3	Students will be able to apply the fundamental principles of fluid mechanics in calculations involving basic flow measuring devices in both closed and open channel flows	Apply (level 3)
CO4	Students will be able to analyze the trends depicted by characteristic curves obtained from the experiments	Analyze (level 4)
CO5	Students will be able to predict the stability of a floating vessel following the principles of metacentric height and radius of gyration	Analyze (level 4)

ME 232 THERMAL ENGINEERING LAB

Sl. No.	DESCRIPTION	Blooms' Taxonomy Level
CO 1	Determine the calorific values of fuels	Understand (Level2)
CO 2	Infer from valve timing diagrams of IC engine	Understand (Level2)
CO 3	Obtain performance parameters of air conditioner and refrigerator	Apply (Level 3)
CO 4	Analyze performance of petrol and diesel engines	Analyze (Level 4)
CO 5	Utilize one's ability as an individual or in a team for the effective communication, practical skill and document design	Apply (Level 3)

SEMESTER V

ME 301 MECHANICS OF MACHINERY
COURSE OUTCOMES:

The students will be able to

SL NO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Explain different types of mechanisms and their inversions, and to calculate their degrees of freedom.	Understand (Level 2)

CO2	Analyze displacement, velocity and acceleration of planar mechanisms	Analyze (Level 4)
CO3	Design a cam for a specified follower motion	Apply (Level 3)
CO4	Describe gear terminologies and types of gears.	Understand (Level 2)
CO5	Analyze simple and compound gear trains.	Analyze (Level 4)
CO6	Construct a mechanism for a specified output motion by synthesis of mechanism	Apply (Level 3)

ME303 MACHINE TOOLS & DIGITAL MANUFACTURING

SL NO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Estimate cutting forces developed in orthogonal and oblique cutting	Apply (level 3)
CO2	Explain the process parameters in a machine tool while machining a job.	Understand (level 2)
CO3	Describe the operational principles of machine tools.	Understand (level 2)
CO4	Understand importance of milling, grinding and super finishing operations.	Understand (level 2)
CO5	Explain the principles of digital manufacturing.	Understand (level 2)

ME305 COMPUTER PROGRAMMING AND NUMERICAL METHODS

SNO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Graduates will have a fundamental idea about computer programming concept, Keywords, Identifiers, Data types, constants & Variables, Operators and structure of C++ program. And will be able to Prepare algorithm and flowchart to solve simple engineering problems.	Apply (Level 3)
CO2	Students will Demonstrate the ability to Write C++ programs to solve simple engineering problems using control statements, arrays and functions.	Apply (Level 3)
CO3	Will be able to Write C++ programs to solve simple engineering problems using pointers, function call by value and function call by reference.	Apply (Level 3)
CO4	Write C++ programs to solve simple engineering programs using Class, Object and concepts like member functions, friend declaration and inheritance.	Apply (Level 3)
CO5	Students will acquire basic knowledge about sources of errors in numerical methods and Solve linear system of equations using Gauss elimination, Gauss-Jordan and Gauss–Seidel methods	Apply (Level 3)

EE 311 ELECTRICAL DRIVES AND CONTROL FOR AUTOMATION

SNO	DESCRIPTION	Blooms' Taxonomy Level
CO1	Describe the construction and operational features of various electrical machines	Understand (Level 2)
CO2	Explain the different methods of starting AC machines	Understand (Level 2)
CO3	Analyze the performance of various electrical machines.	Analyze (Level 4)
CO4	Explain the types of stepper motors.	Understand (Level 2)
CO5	Understand the various controllers used for automation.	Understand (Level 2)

HS 300 PRINCIPLES OF MANAGEMENT

COURSE OUTCOMES:

SL NO	DESCRIPTION	Blooms' Taxomomy Level
CO 1	To compare variety of management practices used	Understand (Level 2)
CO 2	To describe and relate management techniques adopted within an organization	Understand (Level 2)
CO 3	To apply management techniques for meeting current and future management challenges faced by the organization	Apply (Level 3)
CO 4	To express the ethical theories and social responsibility ideologies to create sustainable organizations	Understand (Level 2)
CO 5	To explain principles of management in order to execute the role as a manager	Understand (Level 2)

ME367 NON-DESTRUCTIVE TESTING

Sl. NO	DESCRIPTION	Blooms' Taxonomy Level
CO1	Describe the basic concepts of different types of Non – Destructive Testing and different types of visual inspection tools used for NDT.	Understand (Level 2)
CO2	Understand Liquid Penetration Inspection and its applications	Understand (Level 2)
CO3	Explain Magnetic Particle Inspection and its applications	Understand (Level 2)
CO4	Understand the working principle of Ultrasonic Testing and its components.	Understand (Level 2)
CO5	Illustrate Radiography Testing and Eddy Current Testing	Understand (Level 2)

ME 341 DESIGN PROJECT

SL NO	DESCRIPTION	Blooms' Taxonomy Level
CO1	The students will be able to think innovatively on the development of components, products, processes or technologies in the engineering field	Create (Level 6)
CO2	The students will be able to analyze the problem requirements and arrive workable design solutions	Analyze (Level 4)
CO3	The students will be able to understand the engineering aspects of design with reference to simple products to assess its impact on the society, health, environment and safety	Understand (Level 2)
CO4	The students will be able to develop design that add value to products and solve technical problems	Create (Level 6)

EE 335 ELECTRICAL AND ELECTRONICS LAB

SNO	DESCRIPTION	BLOOMS' Taxonomy Level
CO1	Students will be able to Perform load test on DC shunt, series motors, single phase transformers, 3/1 phase induction motors and analyze its performance characteristics.	Analyze (Level 4)
CO2	Students will be able to perform the load test on shunt generator and predetermine the performance of DC machine when working as motor/generator	Analyze (Level 4)
CO3	Students can determine the efficiency and voltage regulation of a single phase transformer performing OC/SC test	Apply (Level 3)
CO4	Students can determine the open circuit characteristics of self excited generators	Analyze (level 4)
CO5	Students will get awareness in applying rectifier circuits and CE configuration of BJT	Apply (Level 3)

ME331 MANUFACTURING TECHNOLOGY LAB 1

SL NO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Understand the importance of safety in machine tool technology.	Understand (Level 2)
CO2	Hands on experience on lathe machine to perform turning, facing, threading operations and will create models as per product drawings.	Create (Level 6)
CO3	Students select the proper tools to work on a machine for the type of part required.	Apply (Level 3)
CO4	Develop parts by milling, drilling, grinding, welding operations as per the part drawing.	Create (Level 6)
CO5	Utilize one's ability as an individual or in a team for the effective communication, practical skill and document design	Apply (Level 3)

SEMESTER VI

ME 302 HEAT AND MASS TRANSFER

SL. NO.	DESCRIPTION	Bloom's Taxonomy Level
CO1	Solve problems involving steady state heat conduction with and without heat generation in simple geometries.	Apply (level 3)
CO2	Estimate heat transfer coefficients for Natural convection and Forced convection situations using empirical relations.	Apply (level 3)
CO3	Design Heat Exchangers and Fins and evaluate its performance.	Apply (level 3)
CO4	Estimate radiation heat transfer between black body and gray body surfaces.	Apply (level 3)
CO5	Solve problems involving mass transfer due to diffusion, chemical reaction and convection.	Apply (level 3)

ME 304 DYNAMICS OF MACHINERY

COURSE OUTCOMES:
Students are capable of:

SNO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Apply the principles of mechanics in static force analysis of mechanisms	Apply (level 3)
CO2	Conduct analysis of forces in dynamic systems & gears	Analyze (level 4)
CO3	Design flywheels based on turning moment diagram and solve balancing problems in machineries	Apply (level 3)
CO4	Apply the theory of Gyroscope on ships aero planes and automobiles	Apply (level 3)
CO5	Understand free and force vibrations of single and multi-degree freedom system	Understand (Level 2)
CO6	Solve problems on torsional vibrations and transverse vibrations	Apply (level 3)

ME 306 ADVANCED MANUFACTURING TECHNOLOGY

SNO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Explain non- traditional machining process and to appreciate the effect of process parameters on the surface integrity aspects during the non- traditional machining process	Understand (level 2)
CO2	Describe the use of an EDM as a non-traditional method of machining complex and hard materials.	Understand (level 2)
CO3	Prescribe a laser materials processing technique suitable for a given product with material, size, precision, and surface quality requirements	Apply (level 3)
CO4	Program and operate a CNC mill and lathe.	Apply (level 3)
CO5	Select the tool material and machining process parameters.	Apply (level 3)

ME 308 COMPUTER AIDED DESIGN AND ANALYSIS

SNO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Students able to express the concept of CAD/CAM/CIM and Other terminologies used in the development and manufacturing of a product.	Understand (level2)
CO2	Students able to demonstrate different methods for geometric modelling in CAD.	Understand (level2)
CO3	Students able to evaluate the types of curves used in creating a geometry.	Analyze (level 4)
CO4	Students able to formulate stiffness matrix to analyze structural and thermal problems	Analyze (level 4)
CO5	Students analyze structural finite element problems by getting knowledge about various finite element methods.	Analyze (level 4)

ME312 METROLOGY AND INSTRUMENTATION

Sl. No.	DESCRIPTION	Bloom's Taxonomy Level
CO1	Understand the principle of linear and angular measuring instruments	Understand (level 2)
CO2	Demonstrate the ability to apply the principle of limits, fits and tolerance while designing and manufacturing the components of their requirement.	Understand (level 2)
CO3	Explain the fundamentals of various methods for the measurements of screw threads, surface roughness parameters and the working of optical measuring instruments.	Understand (level 2)
CO4	Describe various advanced measuring devices and machine tool metrology.	Understand (level 2)
CO5	Explain various devices for measuring torque, force, strain, stress and temperature.	Understand (level 2)

ME 368 MARKETING MANAGEMENT

S.NO.	DESCRIPTION	Bloom's Taxonomy Level
CO1	Explain the concept of a market, controllable and uncontrollable factors of the marketing system.	Understand (Level 2)
CO2	Summarize marketing planning process and marketing mix variables	Understand (Level 2)
CO3	Explain various market segmentation, targeting and market research	Understand (Level 2)
CO4	Describe consumer behaviour and factors influencing consumer behaviour	Understand (Level 2)

| CO5 | Illustrate different marketing communication tools and sales promotion tools | Understand (Level 2) |

ME 332 COMPUTER AIDED DESIGN AND ANALYSIS LAB

SNO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Develop 3D models of machine components, complex geometries etc. using NX	Apply (Level 3)
CO2	Construct 2D sketches of the assembled parts and provide dimensions and symbols to generate 2D drawing.	Apply (Level 3)
CO3	Conduct FEA structural analysis using ANSYS workbench	Analyze (Level 4)
CO4	Conduct simple flow and thermal analysis problems in ANSYS.	Analyze (Level 4)
CO5	Utilize one's ability as an individual or in a team for the effective communication, practical skill and document design	Apply (Level 3)

ME334 MANUFACTURING TECHNOLOGY LAB II

SL.NO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Apply the concepts of precision and accuracy	Apply (level 3)
CO2	Distinguish between tolerance, allowance and fits	Understand (Level 2)
CO3	Compare different linear measurement devices	Understand (level 2)
CO4	Make use of perth-o-meter to measure surface roughness	Apply (level 3)
CO5	Utilize one's ability as an individual or in a team for the effective communication, practical skill and document design	Apply (level 3)

ME 352 COMPREHENSIVE EXAM

Sl. NO	DESCRIPTION	Blooms' Taxonomy Level
CO1	The students will be confident in discussing the fundamental aspects of any engineering problem/situation and give answers in dealing with them.	Understand (level 2)

SEMESTER VII

ME401 DESIGN OF MACHINE ELEMENTS 1
Students will able to

Sl. NO	DESCRIPTION	Blooms' Taxomomy Level
CO1	Understand the different procedures to be followed in design process and the basic material properties.	Understand (Level 2)
CO2	Estimate the design parameters based on different failure theories and design factors like endurance limit, impact strength etc.	Apply (Level 3)
CO3	Design various threaded and bolted joints.	Apply (Level 3)
CO4	Design the riveted, cotter, knuckle and welded joints.	Apply (Level 3)
CO5	Design different compression springs and leaf springs used.	Apply (Level 3)
CO6	Analyze various shafts and couplings used.	Analyze (Level 4)

ME403 ADVANCED ENERGY ENGINEERING

COURSE OUTCOMES:

Sl. NO	DESCRIPTION	Blooms' Taxomomy Level
CO1	Describe global and Indian energy scenario & compare different conventional power plants.	Understand (Level 2)
CO2	Explain solar energy systems and economic aspects involved and its sustainability attributes.	Understand (Level 2)
CO3	Describe the basics of wind energy and solar-wind hybrid systems	Understand (Level 2)
CO4	Develop the economics of biomass energy conversion processes	Apply (Level 3)
CO5	Explain other Renewable energy sources like Geothermal, Tidal, MHD, small hydro power plants and Fuel cells	Understand (Level 2)
CO6	Describe the Renewable energy sources and Environmental impacts of energy conversion	Understand (Level 2)

ME 405 REFRIGERATION AND AIR CONDITIONING
COURSE OUTCOMES:

SL. NO.	DESCRIPTION	Bloom's Taxonomy Level
CO1	Understand the principles of refrigeration & air-conditioning and basic design considerations.	Understand (level 2)

CO2	To analyze the influence of operating parameters of refrigeration cycles	Analysis (level 4)
CO3	Describe the working of vapor absorption refrigeration system	Understand (level 2)
CO4	Explain the various components of vapor compression refrigeration system	Understand (level 2)
CO5	Perform psychrometric calculations, humidity control and analysis of air-conditioning processes	Understand (level 2)
CO6	Describe the various applications of Refrigeration and air conditioning	Understand (level 2)

ME 407 MECHATRONICS
COURSE OUTCOMES:

Students will be able to

SNO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Understand the basic structure of Mechatronics system, sensors and encoders.	Understand (Level 2)
CO2	Explain various types of hydraulic and pneumatic actuators used.	Understand (Level 2)
CO3	Describe Micro Electro Mechanical System, Deep Reactive Ion Etching (DRIE) and LIGA Process.	Understand (Level 2)
CO4	Select various mechatronics elements in the Design of modern CNC machines	Apply (Level 3)
CO5	Explain system modeling and Mechatronics in Robotics.	Understand (Level 2)
CO6	Understand basics of robotic vision and Mechatronic system case studies	Understand (Level 2)

ME 409 COMPRESSIBLE FLUID FLOW

COURSE OUTCOMES:

Sl. NO	DESCRIPTION	Blooms' Taxomomy Level
CO1	Extend the concepts of mass, momentum and energy conservation for compressible fluid flow.	Understand (Level 2)
CO2	Solve problems in one dimensional steady isentropic compressible flow	Apply (Level 3)
CO3	The students will be able to solve problems related to normal shock in variable area duct.	Apply (Level 3)
CO4	The students will be able to solve problems related to Fanno flow	Apply (Level 3)
CO5	The students will be able to solve problems related to Rayleigh flow	Apply (Level 3)
CO6	The students will be able to describe various flow visualization and measurement techniques in compressible fluid flow	Understand (Level 2)

ME463 AUTOMOBILE ENGINEERING

COURSE OUTCOMES:

Students will be able to

SL NO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Explain different automotive systems and subsystems.	Understand (level 2)
CO2	Describe the different clutch systems and gear box	Understand (level 2)
CO3	Analyze different steering mechanism used in automobile	Apply (level 3)
CO4	Explain the different suspension systems and factors affecting alignment of vehicles	Understand (level 2)
CO5	Analyze different brakes systems used in automobile	Apply (level 3)
CO6	Estimate the aerodynamic design parameters of automobile	Apply (level 3)

ME451 SEMINAR AND PROJECT PRILIMINARY

Sl. NO	DESCRIPTION	Blooms' Taxomomy Level
CO1	The students will be able to explore the recent technological advancements correlating the fundamentals of mechanical engineering.	Understand (level 2)
CO2	The students will be able to identify, define and formulate engineering problems through detailed literature survey.	Analyze (Level 4)
CO3	The students will develop presentation skills with the ability to communicate to audience and also ethical writing skills as a part of report submission.	Apply (level 3)
CO4	The students will be in a position to hypothesize future advancements in their present work.	Evaluate (Level 5)

ME 431 MECHANICAL ENGINEERING LAB

SNO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Ability to apply the principle of heat transfer for quantitative measurement and to compare the results with theoretical values	Apply (Level 3)
CO2	Ability to compute natural frequency of simple vibrating systems	Apply (Level 3)
CO3	Understand the working of different governors, and can predict the stability of mechanical governors.	Evaluate (Level 5)
CO4	Understand the theory behind gyroscopic effect and to predict the effect of gyroscopic couple in different mechanisms.	Evaluate (Level 5)
CO5	To practice calibration of thermometer and pressure gauges	Apply (Level 3)

SEMESTER VIII

ME 402 DESIGN OF MACHINE ELEMENTS II
COURSE OUTCOMES:

Sl. NO	DESCRIPTION	Blooms' Taxonomy Level
CO1	To design of different types of clutches and brakes	Apply (Level 3)
CO2	To select different types of bearing and lubrication system for suitable application	Apply (Level 3)
CO3	To design of spur gear for suitable application	Apply (Level 3)
CO4	To design of helical, bevel and worm gear for suitable application	Apply (Level 3)
CO5	To design of flat belt, v belt and chains for a particular application	Apply (Level 3)
CO6	To design Connecting rod and Pressure vessels.	Apply (Level 3)

ME 404 INDUSTRIAL ENGINEERING
COURSE OUTCOMES:

Sl. NO	DESCRIPTION	Blooms' Taxomomy Level
CO1	Describe the principals and application of Industrial Engineering.	Understand (level 2)
CO2	Explain the principles of plant layout and material handling	Understand (level 2)
CO3	Interpret the use of appropriate principles/methods/ techniques for work measurement ,job Evaluation and merit rating	Understand (level 2)
CO4	Explain the importance of industrial relations and communication	Understand (level 2)
CO5	Explain the production planning and control	Understand (level 2)
CO6	Describe the Quality control and inspection	Understand (level 2)

ME 476 MATERIAL HANDLING & FACILITIES PLANNING

SNO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Understand the value of facility planning on the strategy of a firm	Understand (level 2)
CO2	Explain the different aspects of plant layout	Understand (level 2)

CO3	Describe the safety and environmental aspects in facilities planning	Understand (level 2)
CO4	Explain various material handling systems and classification of material handling equipment	Understand (level 2)
CO5	Selection and Maintenance of material handling equipment with safety and ergonomics aspects	Apply (level 3)

MT482 INDUSTRIAL SAFETY

COURSE OUTCOMES:

The students will

Sl. NO	DESCRIPTION	Blooms' Taxomomy Level
CO1	gain a general concept of safety	Understand (level 2)
CO2	become aware of safety responsibilities of various agencies	Understand (level 2)
CO3	know the occupational health hazards and human factors contributing to industrial accidents,	Understand (level 2)
CO4	learn the concepts of safety management	Understand (level 2)
CO5	understand the need for timely maintenance of equipments, the need and measures for industrial safety control	Understand (level 2)
CO6	become familiar with the general legal rules for an industrial safety practitioner	Understand (level 2)

ME 492 PROJECT

SNO	DESCRIPTION	Bloom's Taxonomy Level
CO1	Ability to effectively gather and interpret information from literature survey and use this knowledge to identify, formulate, analyze and solve complex problems	Evaluate (Level 5)
CO2	Gain the ability to communicate effectively with written, oral, and visual means in a technical setting.	Apply (level 3)
CO3	Ability to use modern design and analysis tools to analyze and evaluate complex problems.	Evaluate (Level 5)
CO4	Students will be able to carry out design calculations and evaluate alternate assumptions, approaches and procedures to fabricate system components related to engineering problems giving consideration to environment and society.	Create (Level 6)
CO5	Ability to serve as effective team member to plan and complete the project/task within a specified budget and time.	Apply (level 3)