

**DEPARTMENT OF MECHANICAL ENGINEERING**  
**COURSE OUTCOMES (REGULATION 2021)**

**SEMESTER III**

**Course Code / Course Name:** MA3351 / Transforms and Partial Differential Equations:

CO No.	Course Outcomes (Cos)
C201.1	Solve the given standard partial differential equations.
C201.2	Apply the principles of Fourier series to solve engineering problems and evaluate their results in practical applications.
C201.3	Apply Fourier series techniques to solve one- and two-dimensional heat flow problems and one-dimensional wave equations.
C201.4	Apply the mathematical principles of Fourier transforms to formulate and solve engineering-related physical problems.
C201.5	Use the Z-transform techniques to solve given difference equations.

**Course Code / Course Name:** ME3351 / Engineering Mechanics

CO No.	Course Outcomes (Cos)
C202.1	Illustrate the vector and scalar representation of forces and moments.
C202.2	Analyse the rigid body in equilibrium.
C202.3	Evaluate the properties of distributed forces.
C202.4	Determine the friction and the effects by the laws of friction.
C202.5	Calculate dynamic forces exerted in rigid body.

**Course Code / Course Name:** ME3391 / Engineering Thermodynamics

CO No.	Course Outcomes (Cos)
C203.1	Applying zeroth law of Thermodynamics to closed and open system in Engineering system with calculations.
C203.2	Second law of thermodynamics in Engineering system and entropy calculations.
C203.3	For steam application of second law of thermodynamics with steam tables and Mollier chart.
C203.4	Macroscopic law of thermodynamics was analysed for ideal, real gases and pure substance
C203.5	Properties of gas mixer by applying thermodynamic relations can be calculated.

**Course Code / Course Name:** CE3391 / Fluid Mechanics and Machinery

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C204.1	Demonstrate an understanding of the properties and behavior of fluids under static conditions, along with the application of conservation laws through fluid kinematics and dynamics.
C204.2	Analyse energy losses in pipelines for both laminar and turbulent flows, including systems with pipes in series and parallel, and comprehend the concept and measurement of boundary layer thickness on flat surfaces.
C204.3	Establish relationships among parameters governing fluid phenomena and predict prototype performance using model studies.
C204.4	Describe the principles and operations of various turbines and develop designs for different types of turbines.
C204.5	Explain the operational principles of centrifugal, reciprocating, and rotary pumps, and design centrifugal and reciprocating pumps.

**Course Code / Course Name:** ME3392 / Engineering Materials and Metallurgy

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C205.1	Describe alloys, phase diagrams, the Iron-Iron carbon diagram, and the classification of steel.
C205.2	Illustrate isothermal transformation, continuous cooling diagrams, and various heat treatment processes.
C205.3	Analyze the impact of alloying elements on ferrous and non-ferrous metals.
C205.4	Summarize the properties and applications of non-metallic materials.
C205.5	Detail the testing of mechanical properties.

**Course Code / Course Name:** ME3393 / Manufacturing Processes

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C206.1	Explain the principle of different metal casting processes. Defects in sand casting process and remedies.
C206.2	Describe the various types of metal joining processes, welding defects, inspection and remedies.
C206.3	Illustrate the different bulk deformation processes such as forging, rolling, processes and its types.
C206.4	Apply the various sheet metal forming process such as shearing, bending and drawing operation.
C206.5	Apply suitable molding technique for manufacturing of plastics components and typical industrial applications.

**Course Code / Course Name:** ME3381 / Computer Aided Machine Drawing

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C207.1	Understand the Drawing standards to prepare Engineering Drawings as per BIS specifications and codes.
C207.2	Understand and prepare Production Drawings and Assembly drawings with Geometric Dimensioning and Tolerance symbols

C207.3	Create 2D Drawing assemblies of engineering components manually on A3 drawing sheets with title block and Bill of Materials.
C207.4	Create 2D Drawing assemblies and sectional views of engineering components using AutoCAD software with title block and Bill of Materials.
C207.5	Prepare drawings in AutoCAD software using Layers and Blocks.

**Course Code / Course Name:** ME3382 / Manufacturing Technology Laboratory

CO No.	Course Outcomes (Cos)
C208.1	Demonstrate the safety precautions exercised in the mechanical workshop and join two metals using GMAW.
C208.2	The students able to make the work piece as per given shape and size using machining process such as rolling, drawing, turning, shaping, drilling and milling.
C208.3	The students become make the gears using gear making machines and analyze the defects in the cast and machined components
C208.4	Ability to perform cylindrical and centerless grinding machine operations
C208.5	Ability to perform various operations in shaping and drilling machine

**Course Code / Course Name:** GE3361 / Professional Development

CO No.	Course Outcomes (Cos)
C209.1	Demonstrate the ability to create well-structured and professional documents using MS Word for technical and academic purposes.
C209.2	Utilize MS Excel to perform data operations, analyse trends, and visualize data effectively using tables, charts, and graphs.
C209.3	Record and retrieve data using MS Excel to support data-driven decision-making and information sharing.
C209.4	Create interactive and visually appealing academic presentations using MS PowerPoint, incorporating tables, graphs, media objects, and interlinked elements.
C209.5	Analyse and interpret visual data representations and utilize them for effective communication and decision-making.

## SEMESTER IV

**Course Code / Course Name:** ME3491 / Theory of Machines

CO No.	Course Outcomes (Cos)
C210.1	Apply fundamentals of mechanism in machines Find the velocity & acceleration of given link Design the cam for various followers moment.
C210.2	Explain the 2D Projection Find the gear speeds and solve problems on gears
C210.3	Explain the Conversion of Views Solve the problems in friction.
C210.4	Explain basics of Analysis of forces causing motion and vibration.
C210.5	Ability to analyze balancing of rotating and reciprocating engines

**Course Code / Course Name:** ME3451 / Thermal Engineering

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C211.1	Apply thermodynamic concepts to analyze various air standard cycles and solve related problems.
C211.2	Solve problems in steam nozzles, including determining the critical pressure ratio.
C211.3	Describe flow in steam turbines, construct velocity diagrams, analyze gas turbine flow, and solve related problems.
C211.4	Explain the operation, features, components, and auxiliaries of internal combustion engines.
C211.5	Evaluate performance parameters of internal combustion engines through calculations.

**Course Code / Course Name:** ME3492 / Hydraulics and Pneumatics

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C212.1	Utilize the principles of fluid power systems and hydraulic pumps in practical applications.
C212.2	Demonstrate the application of operating principles for hydraulic actuators and control components.
C212.3	Design and develop efficient hydraulic circuits and systems for various applications.
C212.4	Apply the principles of pneumatic circuits, power systems, and their components in real-world scenarios.
C212.5	Diagnose and address troubleshooting methods for fluid power systems effectively.

**Course Code / Course Name:** ME3493 / Manufacturing Technology

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C213.1	Apply the mechanism of metal removal process and to identify the factors involved in improving machinability.
C213.2	Describe the constructional and operational features of centre lathe and other special purpose lathes.
C213.3	Describe the constructional and operational features of reciprocating machine tools.
C213.4	Apply the constructional features and working principles of CNC machine tools.
C213.5	Demonstrate the Program CNC machine tools through planning, writing codes and setting up CNC machine tools to manufacture a given component.

**Course Code / Course Name:** CE3491 / Strength of Materials

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C214.1	Understand the concepts of stress , strain and deformation of solid in simple and compound bars, the importance of principal stresses and principal planes.
C214.2	Understand the types of beams and the load transferring mechanism in beams and stress distribution due to shearing force and bending moment.
C214.3	Apply basic equation of torsion in designing of solid and hallow circular shafts and closed and open coil helical springs and spring in series and parallel.
C214.4	Calculate slope and deflection in beams using different methods like double integration method, macaulay's method, area moment method, conjugate beam method

C214.5	Analyze thin and thick cylindrical shells for applied internal pressures, spherical shells subjected to internal pressure.
--------	--

**Course Code / Course Name:** GE3451 / Environmental Sciences and Sustainability

CO No.	Course Outcomes (Cos)
C215.1	Understand the Concept of Environment and bio diversity, duty of individual in conservation of environment and bio diversity.
C215.2	Create Awareness on Environmental Pollution, its causes, effects and control, management of natural disasters.
C215.3	Understand energy management and conservation and also the importance of new sources of energy.
C215.4	Understand the sustainability and management process and analyse climate changes, concept of carbon credit and the challenges of environmental management.
C215.5	Analyse the role of sustainable urbanization and to understand green materials, energy cycles and explain the rules and regulation of Sustainability practices

**Course Code / Course Name:** CE3481 / Strength of Materials and Fluid Machinery Laboratory

CO No.	Course Outcomes (Cos)
C216.1	Determine the tensile, torsion and hardness properties of metals by testing.
C216.2	Determine the stiffness properties of helical and carriage spring.
C216.3	Apply the conservation laws to determine the coefficient of discharge of a venturimeter and finding the friction factor of given pipe.
C216.4	Apply the fluid static and momentum principles to determine the metacentric height and forces due to impact of jet.
C216.5	Determine the performance characteristics of turbine, rotodynamic pump and positive displacement pump.

**Course Code / Course Name:** ME3461 / Thermal Engineering Laboratory

CO No.	Course Outcomes (Cos)
C217.1	Fuel properties such as viscosity, flash point and fire point are studied.
C217.2	Gained knowledge in performance in constant speed and variable speed tests on IC engines.
C217.3	Performance in diesel engines to measure power, efficiency, fuel consumption and emissions.
C217.4	Knowledge in energy distribution by conducting heat balance tests on IC engines.
C217.5	knowledge in boilers, generator and turbines

## SEMESTER V

**Course Code / Course Name:** ME3591 / Design of Machine Elements

CO No.	Course Outcomes (Cos)
C301.1	Apply the concept in fundamentals of stress analysis, theories of failure and material science to design the machine members subjected to steady and variable stresses

C301.2	Apply the concept and design the power transmission shafts based on strength, rigidity and critical speed and design of flexible and rigid couplings.
C301.3	Design the temporary and permanent structural joints under different loading conditions
C301.4	Design the energy storage elements and engine components.
C301.5	Explain the elements of Sliding contact and rolling contact bearings also understand the designing various rotating components.

**Course Code / Course Name:** ME3592 / Metrology and Measurements

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C302.1	Understand and explain the concepts of measurement and their application in the selection and usage of various metrological instruments.
C302.2	Apply the principles and techniques of linear and angular measuring instruments, as well as methods used in the measurement of assembly and transmission elements in industrial applications.
C302.3	Utilize tolerance symbols and perform tolerance analysis effectively to solve problems in industrial applications involving mechanical assemblies.
C302.4	Utilize principles and techniques of form and surface metrology to evaluate and enhance component quality.
C302.5	Implement advanced measurement techniques to ensure and improve quality control in manufacturing processes.

**Course Code / Course Name:** CME339 / Additive Manufacturing

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C303.1	Explain the development of Additive Manufacturing (AM) and identify its business opportunities and applications.
C303.2	Utilize various software tools, processes, and techniques to create physical objects that meet product development or prototyping requirements using AM.
C303.3	Demonstrate knowledge of vat polymerization and direct energy deposition processes in AM.
C303.4	Analyse powder bed fusion and material extrusion processes for their capabilities and applications.
C303.5	Apply knowledge of binder jetting, material jetting, and sheet lamination processes in real-world applications.

**Course Code / Course Name:** CME380 / Automobile Engineering

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C304.1	Recognize the various parts of the automobile and their functions and materials.
C304.2	Discuss the engine auxiliary systems and engine emission control.
C304.3	Distinguish the working of different types of transmission systems.
C304.4	Explain the Steering, Brakes and Suspension Systems.
C304.5	Predict possible alternate sources of energy for IC Engines.

**Course Code / Course Name:** CME365 / Renewable Energy Technologies

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C305.1	Discuss the Indian and global energy scenario about the generation and consumption of conventional and non-conventional energy resources.
C305.2	Describe the direct and indirect energy conversion of Solar radiation energy technologies and its applications.
C305.3	Explain the various wind energy conversion technologies and its applications.
C305.4	Explore the Thermo-chemical and Bio-Chemical energy conversion technologies to convert Bio-mass into Bio-energy.
C305.5	Discuss the different technologies to generate energy from Ocean and Geothermal resources.

**Course Code / Course Name:** MX3084 / Disaster Risk Reduction and Management

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C306.1	Describes the concepts of Disaster, Vulnerability and Disaster Risk reduction (DRR)
C306.2	Understanding on Hazards, Vulnerability and Disaster Risk Assessment prevention and risk reduction
C306.3	Develop disaster response skills by adopting relevant tools and technology
C306.4	Applying awareness of institutional processes for Disaster response in the country.
C306.5	Enhance readiness to confront local disaster risks with foundational preparedness and sensitivity.

**Course Code / Course Name:** ME3581 / Metrology and Dynamics Laboratory

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C307.1	Develop skills in using linear, angular, and advanced metrology instruments for precise measurement of dimensions, angles, and surface parameters.
C307.2	Evaluate the dimensions and functionality of gears, screw threads, and prismatic components using conventional and non-contact measuring techniques, including CNC and CMM tools.
C307.3	Analyse the mass moment of inertia of mechanical components and systems such as flywheels, axles, and rotating bodies, and assess critical speeds of shafts.
C307.4	Perform dynamic analysis of single-degree-of-freedom systems, torsional vibrations, and cam mechanisms, enabling understanding of undamped and forced vibrations in mechanical systems.
C307.5	Conduct experiments on mechanical elements such as governors, gyroscopes, and epicycle gear trains to evaluate their dynamic behaviour and operational characteristics under varying conditions.

**SEMESTER VI**

**Course Code / Course Name:** ME3691 / Heat and Mass Transfer

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C308.1	Apply heat conduction equations for analyzing steady-state and transient conditions in various surface configurations and solve problems.
C308.2	Apply convective heat transfer correlations to study internal and external flows over different surface configurations and solve problems.
C308.3	Apply LMTD and NTU methods to analyze boiling, condensation, and heat exchangers for solving related problems.
C308.4	Apply radiation laws to assess radiative heat transfer between different surfaces and solve problems.
C308.5	Apply mass transfer equations and correlations for solving diffusive and convective transfer problems in various applications.

**Course Code / Course Name:** CME340 / CAD/CAM

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C309.1	Understanding of Projections, Scales, units, GD&T; its 14 symbols, Special characteristics
C309.2	Explain the 2D Projection views, Orthographic view, Axillary view, Full & Half Section views, Broken Section view, Offset Section view, Title Block creation – BOM Creation
C309.3	Explain the Conversion of Views 2D to 3D & 3D to 2D – Parametric and Non-Parametric Modeling.
C309.4	Explain basics of Assembly modeling, Purpose of Assembly modeling & its advantages – Top to Down & BottomUp modeling approaches
C309.5	Apply NC & CNC programming concepts to develop part programme for Lathe & Milling Machines

**Course Code / Course Name:** CME396 / Process Planning and Cost Estimation

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C310.1	Apply the knowledge of engineering fundamentals for process planning
C310.2	Classify various method of production system
C310.3	Analyze the cost estimation for various products after process planning
C310.4	Demonstrate the cost of production for various jobs manufactured by different manufacturing process
C310.5	Identify the Machining time for various operations carried out in different machines

**Course Code / Course Name:** CME344 / Product Life Cycle Management

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C311.1	Understand about different views of product life cycle management, concept network communications and terminology of PLM.



C311.2	Develop the functions and features of product life cycle management, system administration and application integration.
C311.3	Discuss different modules offered in commercial PLM/PDM tools and selection criterion of software for particular applications.
C311.4	Interpret the implement PLM/PDM approaches for industrial applications, financial justification and implementation for business organisation.
C311.5	Integrate product life cycle management, with legacy data bases, CAD,SLM& ERP systems

**Course Code / Course Name:** CME397 / Surface Engineering

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C312.1	Explain the basics of surface characteristics and the various forms of friction that affect both metals and non-metals.
C312.2	Examine the various wear mechanism types and their associated standard measurements.
C312.3	Evaluate the many forms of corrosion and the steps that can be taken to it.
C312.4	Study the various kinds of surface characteristics and methods for altering them.
C312.5	Examine the different kinds of materials that are used in applications involving wear and friction.

**Course Code / Course Name:** OCS352 / IoT Concepts and Applications

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C313.1	Apply the knowledge of mathematics, engineering fundamentals, problem solving approaches and various search techniques to build AI based applications.
C313.2	Understand the design and development of informed search techniques and solve the problems using advanced search techniques and CSP.
C313.3	Build and evaluate machine learning models, including regression and classification by using first principles of mathematics and engineering sciences.
C313.4	Develop and apply supervised learning techniques, including neural networks and decision trees using the knowledge of mathematics, science and engineering fundamentals to solve complex Problems
C313.5	Implement unsupervised learning techniques, including clustering and PCA to build a neural network model mathematics to design a solution for any complex engineering problem.

**Course Code / Course Name:** MX3089 / Industrial Safety

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C314.1	Define basic safety terminologies and explain their significance in the workplace.
C314.2	Identify important statutory regulations and standards related to workplace safety.
C314.3	Demonstrate the ability to conduct and participate in various safety activities in an industrial setting.
C314.4	Analyse workplace exposures and assess potential hazards.
C314.5	Evaluate risks and apply risk assessment techniques to identify hazards and their consequences.

**Course Code / Course Name:** ME3681 / CAD/CAM Laboratory

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C315.1	Create 2D drafts and 3D models using advanced software systems, ensuring precision and adherence to design standards.
C315.2	Develop comprehensive 3D geometric models of parts, sub-assemblies, and assemblies, and seamlessly translate these models into detailed technical drawings.
C315.3	Demonstrate proficiency in manual part creation by simulating CNC programs for accurate operational output.
C315.4	Generate optimized part programs by utilizing G and M codes through state-of-the-art CAM software, enhancing manufacturing efficiency.
C315.5	Simulate CNC machining processes to validate and refine designs, ensuring alignment with production requirements and quality benchmarks.

**Course Code / Course Name:** ME3682 / Heat Transfer Laboratory

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C316.1	Analyse thermal conductivity of pipe insulation, composite walls, insulating powders, oils, and water using standard experimental setups.
C316.2	Determine heat transfer coefficients under natural and forced convection, including heat transfer from pin fins and boiling regimes.
C316.3	Evaluate the friction factor, heat transfer coefficients, and overall effectiveness of tube-in-tube heat exchangers.
C316.4	Measure and validate the Stefan–Boltzmann constant and emissivity of grey surfaces through experimental techniques.
C316.5	Perform calibration of thermocouples and RTDs against standard reference temperatures for accurate thermal measurement.

**SEMESTER VII****Course Code / Course Name:** ME3791 / Mechatronics and IoT

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C401.1	Identify and classify sensors and actuators commonly used in mechatronics systems, considering their applications and characteristics.
C401.2	Develop signal conditioning circuits and demonstrate competency in PLC programming and control for automation tasks.
C401.3	Explain the fundamentals of IoT and Embedded Systems and their relevance in modern engineering applications.
C401.4	Interface and control devices using Arduino and Raspberry Pi for real-time applications.
C401.5	Design and develop innovative mechatronics and IoT-based systems to address real-world challenges effectively.

**Course Code / Course Name:** ME3792 / Computer Integrated Manufacturing

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C402.1	To provide the overview of evolution of automation, CIM and its principles. And CIM application in industrial automation were identified
C402.2	To learn the various Automation tools, include various material handling system also work piece, machineries were identified
C402.3	To train students to apply group technology and FMS. To implement GT and FMS in industries were found
C402.4	To familiarize the computer aided process planning in manufacturing and implementation of industries were calculated
C402.5	To introduce to basics of data transaction, information integration and control of CIM. To collect data and were analysed

**Course Code / Course Name:** GE3791 / Human Values and Ethics

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C403.1	Explain the impact of the French Revolution, American Independence, and the Indian Freedom Movement on the development and implementation of democratic values.
C403.2	Apply secular principles to contemporary issues of religious tolerance and discrimination, proposing practical solutions based on secular values.
C403.3	Analyze the role of evidence-based approaches in validating facts and developing scientific knowledge.
C403.4	Assess the role of inclusive practices in promoting social equity, justice and promote gender equality.
C403.5	Propose ethical guidelines for responsible scientific research, innovation and frameworks for ensuring fairness and accountability in scientific advancements.

**Course Code / Course Name:** GE3792 / Industrial Management

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C404.1	Study the basic of management, approaches, key contributors, business types and trade union in organizations
C404.2	Examine Planning, organizing and staffing function in professional setting
C404.3	Analyse leadership ,control and decision –making roles in management
C404.4	Discuss the organizational theory in professional organization.
C404.5	Apply principles of productivity and modern concepts in management in professional organization.

**Course Code / Course Name:** OCS351 / Artificial Intelligence and Machine Learning Fundamentals

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C405.1	Apply the knowledge of mathematics, engineering fundamentals, problem solving approaches and various search techniques to build AI based applications.

C405.2	Understand the design and development of informed search techniques and solve the problems using advanced search techniques and CSP.
C405.3	Build and evaluate machine learning models, including regression and classification by using first principles of mathematics and engineering sciences.
C405.4	Develop and apply supervised learning techniques, including neural networks and decision trees using the knowledge of mathematics, science and engineering fundamentals to solve complex Problems
C405.5	Implement unsupervised learning techniques, including clustering and PCA to build a neural network model mathematics to design a solution for any complex engineering problem.

**Course Code / Course Name:** OML351 / Introduction to non-destructive testing

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C406.1	Utilize various NDT techniques to identify defects.
C406.2	Demonstrate a foundational understanding of surface NDE techniques to perform inspections in compliance with established protocols.
C406.3	Calibrate the instrument and employ thermography and eddy current testing to detect in-service damage to components.
C406.4	Evaluate and compare various UT (Ultrasonic Testing) and AET (Acoustic Emission Testing) methods to select the most appropriate NDT procedures, ensuring a comprehensive and accurate assessment.
C406.5	Analyze how different factors affect the testing and interpret the findings of radiography tests.

**Course Code / Course Name:** OIM353 / Production Planning and Control

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C407.1	Understand the concept of Production planning and control and prepare production plans for given production process.
C407.2	Apply the concepts and different methods of Work study of a production process and improve its efficiency.
C407.3	Analyze Production capabilities of single product and multi product systems and do value analysis for an industrial product.
C407.4	Prepare Master Production schedule for Flow production and Batch production and create the Material Requirement Plan.
C407.5	Determine the Economic Order quantity and lot size in the Inventory Control using ABC analysis, Two bin system and Ordering cycle system.

**Course Code / Course Name:** ME3781 / Mechatronics and IoT Laboratory

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C408.1	Understand the concept of mechatronics and apply it to the design, modeling, and analysis of basic electrical and hydraulic systems.
C408.2	Demonstrate hands-on proficiency in the control of linear and rotary actuators.

C408.3	Explain the concepts and fundamentals of the Internet of Things (IoT), including sensors, actuators, and IoT boards.
C408.4	Integrate sensors, actuators, and IoT boards into mechatronic systems to achieve desired functionalities.
C408.5	Analyze the performance and applications of IoT-enabled mechatronic systems in real-world

## SEMESTER VIII

**Course Code / Course Name:** ME3811 / Project Work/ Internship

<b>CO No.</b>	<b>Course Outcomes (Cos)</b>
C409.1	Tackle challenging practical problems by formulating and implementing appropriate methodologies, ensuring systematic analysis and effective resolution of real-world issues.
C409.2	Develop the ability to independently resolve challenges by applying structured methodologies, gaining essential problem-solving skills through project work completion.
C409.3	Transform innovative ideas into functional prototypes by leveraging multi-disciplinary skills, converting novel concepts into working models while fostering effective team collaboration.
C409.4	Contribute actively to teamwork challenges by engaging in group efforts, preparing professional presentations, and meticulously documenting all aspects of design and development work.
C409.5	Execute comprehensive design and project tasks by managing the process from initial concept to final documentation, enhancing multi-disciplinary expertise, teamwork, and professional presentation skills.