MRK Institute of Technology
(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)
An ISO 9001: 2008 Certified Institution

MRK Institute of Technology
Nattarmangalam Village,
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DEPARTMENT OF M ENGINEERING
2021 REGULATION-COURSE OUTCOMES

SEMESTER	COURSE CODE	COURSE NAME	COURSE ID	COURSE OUTCOME
III	MA3351	TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS	CO 1	Understand how to solve the given standard partial differential equations.
			CO 2	Solve differential equations using Fourier series analysis which plays a vital role in engineering applications.
			CO 3	Appreciate the physical significance of Fourier series techniques in solving one- and two dimensional heat flow problems and one-dimensional wave equations.
			CO 4	Understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.
			CO 5	Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems
III	ME3351	ENGINEERING MECHANICS	CO 1	Illustrate the vector and scalar representation of forces and moments
			CO 2	Analyse the rigid body in equilibrium
			CO 3	Evaluate the properties of distributed forces
			CO 4	Determine the friction and the effects by the laws of friction
			CO 5	Calculate dynamic forces exerted in rigid body
III	ME3391	ENGINEERING THERMODYNAMICS	CO 1	Apply the zeroth and first law of thermodynamics by formulating temperature scales and calculating the property changes in closed and open engineering systems.
			CO 2	Apply the second law of thermodynamics in analysing the performance of thermal devices through energy and entropy calculations.
			CO 3	Apply the second law of thermodynamics in evaluating the various properties of steam through steam tables and Mollier chart.
			CO 4	Apply the properties of pure substance in computing the macroscopic properties of ideal and real gases using gas laws and appropriate thermodynamic relations.

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			CO 5	Apply the properties of gas mixtures in calculating the properties of gas mixtures and applying various thermodynamic relations to calculate property changes.
III	CE3391	FLUID MECHANICS AND MACHINERY	CO 1	Understand the properties and behaviour in static conditions. Also, to understand the conservation laws applicable to fluids and its application through fluid kinematics and dynamics
			CO 2	Estimate losses in pipelines for both laminar and turbulent conditions and analysis of pipes connected in series and parallel. Also, to understand the concept of boundary layer and its thickness on the flat solid surface.
			CO 3	Formulate the relationship among the parameters involved in the given fluid phenomenon and to predict the performances of prototype by model studies
			CO 4	Explain the working principles of various turbines and design the various types of turbines.
			CO 5	Explain the working principles of centrifugal, reciprocating and rotary pumps and design the centrifugal and reciprocating pumps
III	ME3392	ENGINEERING MATERIALS AND METALLURGY	CO 1	Explain alloys and phase diagram, Iron-Iron carbon diagram and steel classification.
			CO 2	Explain isothermal transformation, continuous cooling diagrams and different heat treatment processes.
			CO 3	Clarify the effect of alloying elements on ferrous and non-ferrous metals.
			CO 4	Summarize the properties and applications of non-metallic materials.
			CO 5	Explain the testing of mechanical properties.
III	ME3393	MANUFACTURING PROCESSES	CO 1	Explain the principle of different metal casting processes.
			CO 2	Describe the various metal joining processes.
			CO 3	Illustrate the different bulk deformation processes.
			CO 4	Apply the various sheet metal forming process.
			CO 5	Apply suitable molding technique for manufacturing of plastics components.

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III	ME3381	COMPUTER AIDED MACHINE DRAWING	CO 1	Prepare standard drawing layout for modelled assemblies with BoM.
			CO 2	Model orthogonal views of machine components.
			CO 3	Prepare standard drawing layout for modelled parts
III	ME3382	MANUFACTURING TECHNOLOGY LABORATORY	CO 1	Demonstrate the safety precautions exercised in the mechanical workshop and join two metals using GMAW.
			CO 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.
			CO 3	The students become make the gears using gear making machines and analyze the defects in the cast and machined components
III	GE3361	PROFESSIONAL DEVELOPMENT	CO 1	Use MS Word to create quality documents, by structuring and organizing content for their day to day technical and academic requirements
			CO 2	Use MS EXCEL to perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding
			CO 3	Use MS PowerPoint to create high quality academic presentations by including common tables, charts, graphs, interlinking other elements, and using media objects.
IV	ME3491	THEORY OF MACHINES	CO 1	Discuss the basics of mechanism.
			CO 2	Solve problems on gears and gear trains.
			CO 3	Examine friction in machine elements.
			CO 4	Calculate static and dynamic forces of mechanisms.
			CO 5	Calculate the balancing masses and their locations of reciprocating and rotating masses. Computing the frequency of free vibration, forced vibration and damping coefficient.
IV	ME3451	THERMAL ENGINEERING	CO 1	Apply thermodynamic concepts to different air standard cycles and solve problems.
			CO 2	To solve problems in steam nozzle and calculate critical pressure ratio.
			CO 3	Explain the flow in steam turbines, draw velocity diagrams, flow in Gas turbines and solve problems.

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			CO 4	Explain the functioning and features of IC engine, components and auxiliaries.
			CO 5	Calculate the various performance parameters of IC engines
IV	ME3492	HYDRAULICS AND PNEUMATICS	CO 1	Apply the working principles of fluid power systems and hydraulic pumps.
			CO 2	Apply the working principles of hydraulic actuators and control components.
			CO 3	Design and develop hydraulic circuits and systems.
			CO 4	Apply the working principles of pneumatic circuits and power system and its components.
			CO 5	Identify various troubles shooting methods in fluid power systems.
IV	ME3493	MANUFACTURING TECHNOLOGY	CO 1	Apply the mechanism of metal removal process and to identify the factors involved in improving machinability.
			CO 2	Describe the constructional and operational features of centre lathe and other special purpose lathes.
			CO 3	Describe the constructional and operational features of reciprocating machine tools.
			CO 4	Apply the constructional features and working principles of CNC machine tools.
			CO 5	Demonstrate the Program CNC machine tools through planning, writing codes and setting up CNC machine tools to manufacture a given component.
IV	CE3491	STRENGTH OF MATERIALS	CO 1	Understand the concepts of stress and strain in simple and compound bars, the importance of principal stresses and principal planes.
			CO 2	Understand the load transferring mechanism in beams and stress distribution due to shearing force and bending moment.
			CO 3	Apply basic equation of torsion in designing of shafts and helical springs
			CO 4	Calculate slope and deflection in beams using different methods.
			CO 5	Analyze thin and thick shells for applied pressures.

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IV	CE3481	STRENGTH OF MATERIALS AND FLUID MACHINERY LABORATORY	CO 1	Determine the tensile, torsion and hardness properties of metals by testing
			CO 2	Determine the stiffness properties of helical and carriage spring
			CO 3	Apply the conservation laws to determine the coefficient of discharge of a venturimeter and finding the friction factor of given pipe
			CO 4	Apply the fluid static and momentum principles to determine the metacentric height and forces due to impact of jet
			CO 5	Determine the performance characteristics of turbine, rotodynamic pump and positive displacement pump.
IV	ME3461	THERMAL ENGINEERING LABORATORY	CO 1	Conduct tests to evaluate performance characteristics of IC engines
			CO 2	Conduct tests to evaluate the performance of refrigeration cycle
			CO 3	Conduct tests to evaluate Performance and Energy Balance on a Steam Generator.