DRONACHARYA
College of Engineering

Khentawas, Farrukh Nagar, Gurugram, Haryana
Approved by: All India Council for Technical Education (AICTE), New Delhi
Affiliated to: Gurugram University, Gurugram

DEPARTMENT OF MECHANICAL ENGINEERING

ACADEMIC YEAR 2023-24

SEMESTER III

Mathematics-III

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Solve field problems in engineering involving PDEs.
(CO2)	Formulate and solve problems involving random variables
(CO3)	Apply statistical methods for analysing experimental data.
(CO4)	Acquire a solid understanding of linear algebra and its applications in engineering
(CO5)	Enhance mathematical reasoning and critical thinking
(CO6)	Gain knowledge of Probability and its types

Fluid Mechanics

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Expedite the properties of fluid along with pressure measurement techniques and concept of stability.
(CO2)	Understand the characteristics of fluid and application of continuity and Bermoulli's equation.
(CO3)	Conceptualisation of boundary layer, laminar and turbulent flow.
(CO4)	Analyse flows through pipes and open channels.
(CO5)	Apply the principles of conservation of mass, momentum, and energy to analyze fluid flow problems
(CO6)	Comprehend the concept of boundary layers and be able to analyze flow phenomena near solid surfaces

Thermodynamics

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Apply energy balance to systems and control volumes, in situations involving heat and work interactions
(CO2)	Evaluate changes in thermodynamic properties of substances
(CO3)	Evaluate the performance of energy conversion devices
(CO4)	Differentiate between high grade and low grade energies.
(CO5)	Comprehend thermodynamic principles to analyze and solve problems related to energy transfer and conversionin engineering systems
(CO6)	Analyze and evaluate the behavior of thermodynamic systems, such as ideal gases, mixtures, and pure substances

Industrial Automation

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Apply automation principles and strategies and model manufacturing systems
(CO2)	Design automated storage and retrieval systems and employ robots in material handling
(CO3)	Implement concepts of automation in inspection and testing
(CO4)	Apply PLC timers and counters for the control of industrial processes
(CO5)	Design of Hydraulic Circuit and pneumatic circuit for manufacturing application
(CO6)	Monitor production using smart sensors based on Industry 4.0 techniques
(CO7)	Implement artificial intelligence based systems and IOT in manufacturing

Strength of Materials

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Recognise various types loads applied on machine components of simple geometry and understand the nature ofinternal stresses that will develop within the components
(CO2)	Evaluate the strains and deformation that will result due to the elastic stresses developed within the materials forsimple types of loading
(CO3)	Analyze stress and strain in various structural components, including axial stress and strain, shear stress and strain,and bending stress and strain
(CO4)	Determine important material properties, such as modulus of elasticity, yield strength, ultimate strength, andtoughness
(CO5)	Analyze the behavior of structural components subjected to axial and torsional loading
(CO6)	Familiar with energy methods, such as strain energy and virtual work principles.

Production Process-I

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Demonstrate the knowledge about different sand moulding and metal casting processes.
(CO2)	Understand the plastic deformation of metals under rolling, extrusion, forging and sheet metal working.
(CO3)	Acquire knowledge about basic welding processes and their selection for fabrication of different components.
(CO4)	Learn about different gear manufacturing and gear finishing operations.
(CO5)	Acquire the basics of powder metallurgy.
(CO6)	Understand the different measuring instrument for surface finish

Fluid Mechanics _Lab

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand the techniques and concept of stability.
(CO2)	Learning continuity and Bernoulli's equation.
(CO3)	Analyse discharge measuring devices and hydraulic coefficients.
(CO4)	Knowledge of different types of pipe losses and determine the velocity profile in a pipe.

Strength of Materials_Lab

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Learn the principles of mechanics of solids and engineering.
(CO2)	Preparation of formal Laboratory reports describing the results of experiments.
(CO3)	Acquire to operate basic instruments in the mechanics of materials Lab.
(CO4)	Able to understand the concepts of stress, strain of materials and ability to interpret the data from theexperiments.

Thermodynamics_Lab

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Vapour power cycles and find and compare different cycles based on their performance parameters andefficiencies
(CO2)	Steam boilers, their types and components.
(CO3)	Fundamentals of flow of steam through a nozzle
(CO4)	Steam turbines and can calculate their work done and efficiencies.
(CO5)	Types and working of condensers and compressors and define their different types of efficiencies

Constitution of India

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi inIndian politics.
(CO2)	Discuss the intellectual origins of the framework of argument that informed the conceptualization of socialreforms leading to revolution in India
(CO3)	Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the IndianConstitution.
(CO4)	Discuss the passage of the Hindu Code Bill of 1956. The examination of the regular students will be conductedby the concerned college/Institute internally.