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 ROBOTICS AND AUTOMATION 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

Electronic Devices and Circuits

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Explain the structure and working operation of basic electronic devices.
(CO2)	Able to identify and differentiate both active and passive elements
(CO3)	Analyse the characteristics of different electronic devices such as diodes and transistors
(CO4)	Choose and adapt the required components to construct an amplifier circuit.
(CO5)	Employ the acquired knowledge in design and analysis of oscillators

Digital Electronics

Course Outcome (CO)	Details of Course Outcomes
(CO1)	To present a problem oriented introductory knowledge of Digital circuits and its applications.
(CO2)	Learn Number system and codes.
(CO3)	Study Boolean algebra and theorems
(CO4)	To focus on the study of electronic circuits
(CO5)	Design and analyze combinational circuits.
(CO6)	Design and analyze synchronous sequential logic circuits.

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

OBJECT ORIENTED PROGRAMMING USING C++

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Describe OOPs concepts.
(CO2)	Use functions and pointers in your C++ program
(CO3)	Understand tokens, expressions, and control structures
(CO4)	Explain arrays and strings and create programs using them
(CO5)	Describe and use constructors and destructors.
(CO6)	Understand and employ file management.

Strength ofMaterials

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.

DIGITAL ELECTRONICS LABORATORY

Course Outcome (CO)	Details of Course Outcomes
(CO1)	To present a problem oriented introductory knowledge of Digital circuits and its applications.
(CO2)	Learn Number system and codes.
(CO3)	Study Boolean algebra and theorems
(CO4)	To focus on the study of electronic circuits
(CO5)	Design and analyze combinational circuits.
(CO6)	Design and analyze synchronous sequential logic circuits.

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

Strength ofMaterials 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.

Object Oriented Programming Using C++ Lab

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Students should develop a strong understanding of the C++ programming language, including its syntax,semantics, and features.
(CO2)	Able to develop programs with reusability
(CO3)	Student will understand how to model the real world scenario using class diagram and be able to exhibitcommunication between objects using sequence diagram.
(CO4)	Students will be able to demonstrate various collection classes.
(CO5)	Students will be able to create and user interfaces and packages
(CO6)	The students will be able to demonstrate programs on exceptions, multithreadi

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 Indiansbefore the arrival of Gandhi in Indian politics.
(CO2)	Discuss the intellectual origins of the framework of argument that informed theconceptualization of social reforms leading to a revolution in India
(CO3)	Exercise his fundamental rights in proper sense at the same time identifies hisresponsibilities in national building.
(CO4)	Discuss the circumstances surrounding the foundation of the Congress Socialist Party[CSP] under the leadership of Jawaharlal Nehru and the eventual failure of theproposal of direct elections through adult suffrage in the Indian Constitution.
(CO5)	Discuss the passage of the Hindu Code Bill of 1956.
(CO6)	Analyse the Indian political system, the powers and functions of the Union, State andLocal Governments in detail.