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 ELECTRONICS AND COMMUNICATION ENGINEERING

ACADEMIC YEAR 2023-24

SEMESTER VIII

Embedded Systems (PEC-ECE-415-G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Classify the various types and technologies of microcontroller and embedded system
(CO2)	Illustrate the internal architecture and working of PIC microcontroller
(CO3)	Analyze the internal architecture, working, addressing modes, interfacing and programming of 8051
(CO4)	Illustrate the role, design concept and application of Embedded systems

High Speed Electronics (PEC-ECE-416-G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand significance and the areas of application of high-speed electronics circuits.
(CO2)	Understand the properties of various components used in high speed electronics.
(CO3)	Familiar with quantitatively model and analyze high speed electronic Devices.
(CO4)	Design and analysis of various types of amplifiers and mixers.
(CO5)	Demonstrates the various types of PCB processes technologies and design challenges

MIXED SIGNAL DESIGN (PEC-ECE-421-G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand and apply the concepts for mixed signal MOS circuits.
(CO2)	Study and analyze the characteristics of IC based CMOS filters.
(CO3)	Understand and design of various data converter architecture circuits.
(CO4)	Analyze the signal to noise ratio and modeling of mixed signals.
(CO5)	Study and Design of oscillators and phase lock loop circuits.

Advanced Mobile Communications (PEC-ECE-432-G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	To analyze and compare the different generations of mobile communication technologies from 1G to 5G, and understand the key advancements in each generation..
(CO2)	To explain the potential and different usage scenarios of 5G technology, and describe the technical aspects of 5G, including millimeter wave communication, carrier aggregation, and small cells
(CO3)	To describe the architecture and components of a 5G network, including New Radio (NR), centralized RAN, and multiaccess edge computing (MEC), and understand the concepts of software defined networking (SDN) and network function virtualization (NFV).
(CO4)	To analyze the current state and challenges of 5G deployment, including the issues with spectrum access and usage, connectivity in rural areas, and the potential of non-terrestrial front haul/backhaul solutions such as LEOs and HAP/UAV

SATELLITE COMMUNICATION (PCC-ECE-403-G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	To understand various aspects of satellite communication and satellite link design equations.
(CO2)	To analyze analog and digital satellite communication techniques and signal to noise ratio
(CO3)	To understand various aspects such as orbital equation, subsystems in satellite, link budget and multiple access schemes.
(CO4)	To analyze various special purpose communication satellites.
(CO5)	To understand and analyze LASER communication in satellite-to-satellite communication.

Microwave Theory and Techniques (PCC-ECE-404-G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Analyze and design the different types of waveguides
(CO2)	Classify and visualize the different microwave components and their properties
(CO3)	Explain passive and active microwave devices and design principles.
(CO4)	Justify that during analysis/synthesis of microwave system the different mathematical treatment is required compared to general circuit analysis.
(CO5)	Design microwave systems for different practical applications.

WIRELESS & SATELLITE COMMUNICATION LAB (LC-ECE-406-G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	To Establish connection between earth stations and satellite with different uplink and downlink frequencies.
(CO2)	To understand transfer of audio and video signal through satellite and transmission of telemetry data.
(CO3)	To find out the delay of signal in satellite links.
(CO4)	To analyze and understand the radiation pattern of Yagi Uda & Folded dipole, Circular & Triangular Patch antenna.

(CO5)	To analyze and understand FHSS Modulation & demodulation, DSSS and CDMA Technology.

Renewable Energy Resources (OEC-ECE-417-G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Describe various conventional and nonconventional energy resources
(CO2)	Explain the working principle of Solar Thermal power plant
(CO3)	Describe Geothermal energy resources build smart society applications
(CO4)	Explain working principle of MHD power plant
(CO5)	Discuss working principle of fuel cell
(CO6)	Explain various renewable energy resources

Composite Materials (OEC-ME-455-G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Identify and understand the basic mechanical behavior of composite materials and make sound prediction on the likely behavior of new combinations of materials
(CO2)	Apply the choices made for using certain types of composites in certain applications with reference to composite properties.
(CO3)	Demonstrate a practical understanding of composite properties and fabrication techniques, and to be able to make realistic suggestions for the evaluation of composite behavior, where appropriate
(CO4)	Analyse the micromechanical properties of fibre reinforced composites

BIOSENSORS (OEC-BME-419-G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand the basic principles of biosensing in terms of biological, chemical and optical/photonic responses
(CO2)	Demonstrate knowledge of the general principles of sampling and analysis, statistical presentation and manipulation of data generated by biosensors
(CO3)	Demonstrate familiarity with the literature on biosensors, including up to date knowledge of the state of the art and the direction of future developments
(CO4)	Understand and integrate knowledge from other engineering disciplines, particularly biomedical engineering
(CO5)	Demonstrate knowledge of the industrial and socioeconomic context of biosensor development and market

Disaster Management (OEC-CE-417G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Explain disaster management basics and theory
(CO2)	Compare hazards, disasters and associated natural phenomena and their interrelationships, causes and their effects
(CO3)	Compare anthropogenic hazards, man made disasters and associated activities and their interrelationships of the subsystems
(CO4)	Evaluate by conducting DM study including data search, analysis and presentation of a disaster case study
(CO5)	Understand the execution and implementation of Disaster Management

Solid & Hazardous waste management (OEC –CE-402G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understanding of problems of municipal waste, biomedical waste, hazardous waste, e-waste, industrial waste etc.
(CO2)	Knowledge of legal, institutional and financial aspects of management of solid wastes
(CO3)	Knowledge of legal, institutional and financial aspects of management of solid wastes

(CO4)	Understand engineering, financial and technical options for waste management

OPERATIONS RESEARCH (OEC –ME-402-G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand operational research and linear programming
(CO2)	Study and analyze different deterministic models and advance LP
(CO3)	Study and analyze waiting and project line models
(CO4)	Simulate, validate different models, and study Monte-Carlo methods
(CO5)	Description of decision process and SIMON model types

ELECTRICAL POWER GENERATION (OEC –EE-412G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Analyze and study about energy resources, their trends and generation through power plants
(CO2)	Study and mathematically analyze power generation planning
(CO3)	Description of different conventional sources for power generation
(CO4)	Study of different type of energy conservation and management methods

Project Work II/ Dissertation (PROJ-ECE-408-G)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Detail study of the problem faced in previous semester in topic of project/reseach
(CO2)	Describe methodology to approach the issue laid down
(CO3)	Development of the project hardware/software based.
(CO4)	Optimization of the performance of the work done

(CO5)	Prepare and submit the final report of the project.