



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

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2023-24

SEMESTER Vth

POWER SYSTEM-I (PCC- EE-301G)

Course Outcome(CO)	Details of Course Outcomes
(CO1)	Understand the concepts of power systems.
(CO2)	Understand the various power system components.
(CO3)	Evaluate fault currents for different types of faults
(CO4)	Understand basic protection schemes and circuit breakers.
(CO5)	Understand concepts of HVDC power transmission and renewable energy generation.

Control system (PCC-EE-305G)

Course Outcome(CO)	Details of Course Outcomes
(CO1)	Understand the modelling of linear-time-invariant systems using transfer function and state space representations.
(CO2)	Understand the concept of stability and its assessment for linear-time invariant systems.
(CO3)	Design simple feedback controllers.

ELECTRONIC MEASUREMENT AND INSTRUMENTATION (PCC-EEE313G)

CourseOutcome(CO)	DetailsofCourseOutcomes
(CO1)	Analyze the performance characteristics of each instrument
(CO2)	Illustrate basic meters such as voltmeters and ammeters.
(CO3)	Explain about different types of signal analyzers.
(CO4)	Explain the basic features of oscilloscope and different types of oscilloscopes
(CO5)	Identify the various parameters that are measurable in electronic instrumentation.
(CO6)	Employ appropriate instruments to measure given sets of parameters.

DIGITAL SYSTEM DESIGN (PEC- EEE-01G)

CourseOutcome(CO)	DetailsofCourseOutcomes
(CO1)	Understand the need & application of hardware description language.
(CO2)	Modeling& simulations of various basic & advanced digital systems using VHDL.
(CO3)	Implementation of various basic & advanced digital systems using FPGAs.
(CO4)	Apply knowledge to design & implement combinational circuits & sequential circuits related to research & industry applications.

Scientific computing (PEC-EEE-03G)

CourseOutcome(CO)	DetailsofCourseOutcomes
(CO1)	Understand the significance of computing methods, their strengths and application areas.
(CO2)	Perform the computations on various data using appropriate computation tools.
(CO3)	Analyze, design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
(CO4)	Understanding of the connection between the description of a concrete problem and the mathematical model that describes it.

(CO5)	Good theoretical insight and the ability to apply theory to the development of methods and techniques for problem solving.
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HVDC Transmission Systems (PEC-EE-05G)

CourseOutcome(CO)	DetailsofCourseOutcomes
(CO1)	Develop the knowledge of HVDC transmission and HVDC converters and the applicability and advantage of HVDC transmission over conventional AC transmission.
(CO2)	Formulate and solve mathematical problems related to rectifier and inverter control methods and learn about different control schemes as well as starting and stopping of DC links
(CO3)	Analyze the different harmonics generated by the converters and their variation with the change in firing angles.
(CO4)	Develop harmonic models and use the knowledge of circuit theory to develop filters and assess the requirement and type of protection for the filters.
(CO5)	Study and understand the nature of faults happening on both the AC and DC sides of the converters and formulate protection schemes for the same.
(CO6)	Review the existing HVDC systems along with MTDC systems and their controls and recognize the need to follow the advancements in both the existing systems and HVDC systems and determine the most economic coexistence of both.

High Voltage Engineering (PEC-EE-07G)

CourseOutcome(CO)	DetailsofCourseOutcomes
(CO1)	Explain conduction and breakdown phenomenon in gases, liquid dielectrics.
(CO2)	Analyze breakdown phenomenon in solid dielectrics.
(CO3)	Explain generation of high voltages and currents
(CO4)	Analyze measurement techniques for high voltages and currents.
(CO5)	Discuss overvoltage phenomenon and insulation coordination in electric power systems.
(CO6)	Perform non-destructive testing of materials and electric apparatus and high-voltage testing of electric apparatus.

Bio-Medical Electronics (PEC-EEE-09G)

CourseOutcome(CO)	DetailsofCourseOutcomes
(CO1)	Understand the application of the electronic systems in biological and medical applications
(CO2)	Understand the practical limitations on the electronic components while handling biosubstances.
(CO3)	Understand and analyze the biological processes like other electronic processes.
(CO4)	Understand the impact of engineering solutions in a societal context and to be able to respond effectively to the needs for sustainable development.
(CO5)	Identify, formulate, research through relevant literature review, and solve engineering problems reaching substantiated conclusions.

Speech and Audio Processing (PEC-EEE-11G)

CourseOutcome(CO)	DetailsofCourseOutcomes
(CO1)	Mathematically model the speech signal
(CO2)	Analyze the quality and properties of speech signal.
(CO3)	Modify and enhance the speech and audio signals
(CO4)	Present and discuss research, both orally and in writing, to other students and scientists
(CO5)	Locate, interpret, and synthesize scientific literature.

ELECTRICAL ENGINEERING MATERIALS (OEC-EE-01G)

CourseOutcome(CO)	DetailsofCourseOutcomes
(CO1)	Learn the basics of materials used in electrical engineering.
(CO2)	Realize the dielectric properties of insulators in static and alternating fields.

(CO3)	Explain the importance of magnetic properties and superconductivity.
(CO4)	Explain the behavior of conductivity of metals and classifications of semiconductor material.

ADDITIVE MANUFACTURING (OEC-ECE332G)

CourseOutcome(CO)	DetailsofCourseOutcomes
(CO1)	Demonstrate the knowledge of Additive Manufacturing and Rapid Prototyping technologies.
(CO2)	Describe different RP techniques.
(CO3)	Discuss fundamentals of Reverse Engineering.
(CO4)	Describe the effects of surface finish and micro structural properties on behaviour for components produced using additive manufacturing
(CO5)	Display an awareness of residual stresses that may occur during additive manufacturing and their effects.

Intelligent Instrumentation (OEC- EEE05G)

CourseOutcome(CO)	DetailsofCourseOutcomes
(CO1)	Understand the basic characteristic of intelligent instrumentation system Knowledge of new sensor technology
(CO2)	Understand the data acquisition system in intelligent instrumentation system
(CO3)	Understand the Signal amplification & attenuation.
(CO4)	To develop the design methodologies for measurement and instrumentation of real world problems
(CO5)	he concepts of intelligent sensor devices, their performance characteristics and signal and system dynamics.

Power Plant Engineering (OEC-EE07G)

CourseOutcome(CO)	DetailsofCourseOutcomes
(CO1)	Understand the basics of Power Plants.
(CO2)	Understand the idea about the power generation by renewable and non-renewable energy resources.

(C03)	Understand about the different types of cycles and natural resources used in power plants and their applications.
(C04)	Understand the principal components and types of nuclear reactors.
(C05)	Estimate different efficiencies associated with power plant systems.

ECONOMICS FOR ENGINEERS (HSMC-01G)

CourseOutcome(CO)	DetailsofCourseOutcomes
(C01)	The students will able to understand the basic concept of economics
(C02)	The student will able to understand the concept of production and cost.
(C03)	The student will able to understand the concept of market.
(C04)	The student will able to understand the concept of privatization, globalization and banks.