COs & POs CORRELATION FOR B.TECH. (EIC)

3rd Semester

HAS-201: Mathematics-III

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Understand about complex variables and Cauchy theorem and Cauchy's integral formula, Taylor's and Laurent's series, singularities
CO2	Analyse about Fourier Series, its representation and Fourier expansion of odd and even functions, half range series, Parseval's formula and practical harmonic analysis
CO3	Learn about Partial Differential Equations and applications to the wave equation, one dimensional heat flow, two dimensional heat flow, Laplace equation (two dimensional) and Laplace equation in polar co-ordinates.
CO4	Understand about Fourier Transform, properties and applications of Fourier Transform

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	1	3	3	2	1	2	1	2	3	2	3	3
CO2	3	1	1	2	2	2	1	2	2	1	1	1	3	3
CO3	2	1	2	2	1	2	3	2	2	3	1	2	3	3
CO4	2	1	2	2	3	2	3	2	3	1	3	1	3	3

E-203: Electrical Engineering Materials & Semiconductor Devices

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Understand the concept of materials.
CO2	Get the basic knowledge about the Electric and Magnetic circuits.
CO3	Gain knowledge about semiconductor materials and devices.
CO4	Analyse the concept of fabrication
CO5	Learn the concept of biasing.
CO6	Gain knowledge about various bipolar and MOS devices.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	1	2	2	2	1	2	1	1	2	3	2	3	3
CO2	3	2	2	2	2	3	2	3	2	3	3	2	3	3
CO3	3	2	1	1	2	2	1	3	2	3	1	2	3	3
CO4	2	3	1	1	3	3	1	1	3	1	2	2	3	3
CO5	3	2	2	3	1	1	2	2	2	2	3	3	3	3
CO6	3	3	2	2	2	2	1	1	2	2	3	2	3	3

E-205: Network Analysis and Synthesis

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Solve the Network problems using differential equation approach and transform methods.
CO2	Study the transient response of series and parallel A.C. circuits.
CO3	Study the application of Laplace transforms to circuit analysis.
CO4	Synthesize LC, RC & RL networks.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	2	1	1	1	2	1	1	3	1	1	3	3
CO2	2	3	2	2	3	1	2	1	1	3	2	2	3	3
CO3	2	2	1	2	1	1	3	1	1	2	2	2	3	3
CO4	2	2	1	2	3	1	1	1	1	3	3	1	3	3

EIC-207: Electromechanical Energy Conversion

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Know basics of various types of electric machines, singly excited magnetic field system, dynamic equations.
CO2	Understand theory, various tests, calculate various parameters of transformers.
CO3	Design d.c machine depending on the performance characteristics & use them in various applications.
CO4	Understand the basic principles of Induction machines, synchronous machines and their characteristics

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	1	3	1	1	1	3	1	1	3	3	3
CO2	3	2	2	2	1	1	3	1	2	2	3	1	3	3
CO3	3	2	1	2	3	1	2	1	2	1	1	2	3	3
CO4	3	2	1	1	2	1	3	1	3	1	2	2	3	3

E-209: Electrical Measurement and Measuring Instruments

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Know various types of errors and characteristics of instruments.
CO2	Learn the concept of measuring instruments.
CO3	Understand the principle and working of various types of measuring instruments.
CO4	Understand the principle and working of various types of wattmeters and energy meters.
CO5	Understand the principle and working of various types of Instrument Transformers.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	2	3	2	2	2	1	1	1	3	2	3	1	3	3
CO2	2	3	3	2	2	1	3	1	1	1	1	3	3	3
CO3	3	3	2	1	2	1	2	1	3	1	3	3	3	3
CO4	2	2	3	1	2	1	1	1	1	1	2	1	3	3
CO5	2	3	3	2	2	1	1	1	1	1	1	2	3	3

E-211: Analog Electronics

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Understand diodes as a device, rectifier circuits, filter circuits and application of diode as clipper and clamper circuits.
CO2	Learn the concepts of transistor and their characteristics, analysis of transistor amplifier using h parameters.
CO3	Learn the concept of biasing and different biasing techniques and compensation techniques.
CO4	Understand the concept of hybrid model of transistor at high frequency.
CO5	Understand the concept of FET, V-I characteristics and small signal model of FET. Also discuss biasing of FET and application of FET as VVR.
CO6	Understand the concept of regulated power supply and IC regulator.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	1	2	2	1	2	2	2	2	2	2	3	3
CO2	2	1	3	2	2	1	2	1	3	3	2	2	3	3
CO3	3	3	1	2	2	1	2	1	2	2	2	2	3	3
CO4	3	2	2	2	2	1	2	1	2	3	2	2	3	3
CO5	3	2	2	2	3	2	2	2	2	3	2	3	3	3
CO6	3	2	2	2	3	2	2	2	3	3	2	2	3	3

4th Semester

MGMT-201: Economics for Engineers

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Understand about Micro and Macro Economics
CO2	Get the knowledge about Relationship between Science, Engineering, Technology and Economic Development
CO3	Gain the knowledge about capital budgeting
CO4	Understand about Time Value of Money concepts and application
CO5	Understand about Meaning of Demand and Law of Demand

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	2	2	3	2	2	2	1	1	1	3	3	2	3	3
CO2	3	2	2	3	1	2	2	1	2	1	2	3	3	3
CO3	2	2	1	1	2	2	1	3	1	3	1	3	3	3
CO4	2	2	1	2	3	3	3	2	1	2	3	3	3	3
CO5	2	2	2	2	3	3	3	2	1	2	3	1	3	3

E-204: Electronics Instrumentation

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Get the knowledge about the working of CRO, Sampling and storage oscilloscope.
CO2	Learn the operation of Electronic Instruments used for measurement of voltage, current and other circuit parameters like Q-Factor.
CO3	Understand the working of pulse generators, signal generators, function generators, wave analysers, distortion analysers, spectrum analyser, Harmonic analyser and power analyser.
CO4	Understand the working of DCA, frequency measurements, period measurements, universal counter and digital meters.
CO5	Understand the construction and working of different display devices like Nixie tubes, LED‘s LCD‘s and discharge devices.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	2	2	2	2	1	1	1	2	2	3	3	3
CO2	3	2	2	2	2	1	2	1	1	2	2	3	3	3
CO3	2	2	2	2	2	1	2	1	1	2	2	3	3	3
CO4	3	2	2	2	1	1	2	1	2	1	3	2	3	3
CO5	3	2	2	1	2	2	1	2	1	1	3	3	3	3

E-206: Computational Techniques

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Know about Newton‘s forward and backward interpolation formulae
CO2	Get the knowledge about Central difference interpolation formula
CO3	Understand about Gauss forward and backward interpolation formulae.
CO4	Learn about Langrages interpolation formula and Newton‘s divided difference formulae.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	2	3	2	1	2	1	2	2	1	1	3	3
CO2	3	3	2	3	2	1	3	1	2	1	1	1	3	3
CO3	2	1	3	2	2	1	3	1	2	1	1	3	3	3
CO4	3	2	3	2	2	1	1	1	2	3	1	3	3	3

E-208: Digital Electronics

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Represent numerical values in various number systems and perform number conversions between different number systems.
CO2	Analyze and design digital combinational circuits like decoders, encoders, multiplexers, and de-multiplexers including arithmetic circuits (half adder, full adder, multiplier).
CO3	Analyze sequential digital circuits like flip-flops, registers, counters.
CO4	Understand the nomenclature and technology in the area of memory devices: ROM, RAM, PROM, PLD, FPGAs, etc.
CO5	Understand the importance and need for verification, testing of digital logic and design for testability.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	2	2	2	1	1	2	2	1	2	2	3	3
CO2	3	3	3	2	2	1	2	1	2	1	3	2	3	3
CO3	3	3	3	2	2	1	2	1	2	1	3	2	3	3
CO4	2	2	2	2	1	1	1	2	2	1	2	1	3	3
CO5	3	3	3	2	2	1	2	1	1	1	2	2	3	3

E-210: Control Systems-I

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Determine transfer function models of electrical, electronics and electroelectronics systems
CO2	Represent a set sof algebraic equations by block diagram and signal flow graphs.
CO3	Determine specified transfer functions from block diagrams and graphical methods.
CO4	Evaluate robustness/sensitivity of systems with and without feedback.
CO5	Relate time response of both continuous and discrete systems to poles and zeros.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	2	2	2	2	1	1	2	1	1	1	1	2	3	3
CO2	3	3	2	2	3	1	2	1	3	1	3	3	3	3
CO3	3	3	3	1	3	1	3	1	1	3	2	2	3	3
CO4	3	2	3	3	1	1	2	1	3	3	2	1	3	3
CO5	3	2	2	1	2	1	2	1	3	3	3	2	3	3

E-212: Electro Magnetic Field Theory

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Apply vector calculus to understand the behavior of static electric fields in standard configurations.
CO2	Apply vector calculus to understand the behavior of static magnetic fields in standard configurations.
CO3	Describe and analyze electromagnetic wave propagation in free-space.
CO4	Understand and analyze transmission lines.
CO5	Describe the concepts of transmission line.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	2	2	1	1	1	1	2	1	1	2	3	3
CO2	3	2	2	2	1	1	1	1	2	1	1	2	3	3
CO3	3	2	2	2	1	1	1	1	2	1	1	2	3	3
CO4	3	2	2	2	1	1	1	1	2	1	1	2	3	3
CO5	3	2	2	2	1	1	1	1	2	1	1	2	3	3

5th Semester

EIC-301: Transducer & Signal Conditioning

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Understand the various types of instruments and their characteristics.
CO2	Know the criteria for selection of transducers.
CO3	Explain the various types of measurements carried out by transducers
CO4	Get knowledge about the various types of signal conditioning techniques.
CO5	Understand the various types of A/D converters and D/A converters.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	2	2	2	1	2	2	2	3	2	2	3	3
CO2	3	2	3	2	2	1	2	1	2	2	3	1	3	3
CO3	2	2	2	1	1	1	2	1	1	2	2	2	3	3
CO4	2	2	2	2	1	1	2	1	1	2	2	2	3	3
CO5	2	2	2	2	2	1	2	1	2	2	2	1	3	3

EIC-303: Non Linear Control System

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Difference between Linear and Nonlinear system
CO2	Various methods for analyzing the structure and behaviour of nonlinear feedback systems.
CO3	Solve problems using classical methods for stability analysis of nonlinear dynamical systems, such as describing function and phase-plane analysis.
CO4	Solve control design problems and analyse the stability using Lyapunov design methods and feedback

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	3	1	1	3	1	3	3	3	3	3	3
CO2	3	3	2	2	1	1	2	3	3	1	3	2	3	3
CO3	3	3	2	2	3	2	3	2	1	2	2	2	3	3
CO4	2	2	3	1	2	2	1	3	3	2	3	3	3	3

E-305: Analog Integrated Circuits

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Know the concept of single and multistage amplifier, RC coupled amplifier and effect of emitter by pass capacitor and coupling capacitor on low frequency response of RC coupled amplifier.
CO2	Understand basic concept of negative feedback and their effects, also understand different types of negative feedback.
CO3	Learn the basic concept of oscillators and circuits of RC phase shift and wein bridge oscillator.
CO4	Find the difference between power and voltage amplifier, concept of Class A, Class B and Class C power amplifier, concept of push pull amplifiers.
CO5	Understand basics of Operational amplifier and their linear and non linear application, concept of multivibrator using 555 IC and its applications.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	2	2	2	1	3	1	3	2	1	3	3	3
CO2	3	3	2	2	2	1	2	1	2	2	3	2	3	3
CO3	3	3	2	2	2	1	2	1	2	2	3	2	3	3
CO4	3	3	2	2	2	1	2	1	2	2	3	2	3	3
CO5	3	3	2	2	2	1	2	1	2	2	3	2	3	3

E-309: Power Electronics

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Understand about various power semiconductor devices and their characteristics.
CO2	Analyze the characteristics of different power electronics switches and selection of components for different applications.
CO3	Understand the analysis and design of various single phase and three phase power converter circuits and knowledge of their applications.
CO4	Identify the basic requirements for power electronics based design application.
CO5	Understand the use of power converters in commercial and industrial applications

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	1	3	2	2	3	1	3	3	2	3	3	3	3
CO2	1	2	3	2	1	2	2	1	2	1	3	3	3	3
CO3	2	2	1	1	3	3	3	1	1	1	3	2	3	3
CO4	2	1	3	1	3	3	2	3	2	2	1	2	3	3
CO5	2	3	3	1	2	2	2	3	2	1	3	3	3	3

E-311: Microprocessors and Interfacing

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Understand the architecture and Operations of 8085 and 8086 microprocessor
CO2	Know about the addressing modes & instruction set of 8085 & 8086.
CO3	Get the knowledge about the various types of interrupts of 8085 and 8086 microprocessor
CO4	Develop an understanding of programming for microprocessors 8085 & 8086 with programming techniques
CO5	Understand various peripheral devices (8255, 8254, 8259 and 8257)

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	2	2	3	2	3	3	2	2	2	1	3	3
CO2	2	3	3	2	2	3	1	3	3	3	3	3	3	3
CO3	3	2	3	3	1	2	2	2	3	1	3	2	3	3
CO4	2	3	3	2	2	1	1	2	3	2	2	1	3	3
CO5	3	2	1	1	2	3	1	1	3	2	2	1	3	3

6th Semester

E-302: Digital System Design

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Design, simulate , built and debug complex combinational and sequential circuits based on an abstract functional specification.
CO2	Represent complex digital circuits in the form of the hierarchically organized VHDL design/simulation software tools
CO3	The student will be able to apply entity/architecture modeling approaches in VHDL for representation of component inputs and outputs as well as internal signals, variables and states of components.
CO4	Develop VHDL architectural representations of systems and components using models representing structure, behavior, or data flow concepts describing the internal structure or external behavior of the circuit.
CO5	Decompose a complex digital system design problem into various sets of interconnected components and evaluate the relative merits of alternative designs.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	3	2	3	1	1	1	2	2	2	2	3	3
CO2	3	3	2	2	3	1	1	1	2	2	2	2	3	3
CO3	3	3	2	2	3	1	1	1	2	2	2	2	3	3
CO4	3	3	3	2	3	1	1	1	2	1	1	2	3	3
CO5	3	2	2	2	3	1	1	1	2	2	2	2	3	3

EIC-304: Telemetry, Data Processing and Recording

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Know about various communication technologies.
CO2	Use basic telemetry system for information transfer.
CO3	Implementing hardware circuit for remote location access.
CO4	Gain the idea about various transmission channels.
CO5	Use of electromagnetic radiation in remote telemetry system and its applications.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	2	2	2	3	2	1	2	1	1	2	3	1	3	3
CO2	3	2	3	1	1	1	3	1	3	2	3	1	3	3
CO3	2	2	2	3	2	1	2	1	2	1	2	1	3	3
CO4	2	3	1	2	3	1	3	1	3	1	1	3	3	3
CO5	2	2	3	1	2	1	1	1	3	2	1	1	3	3

EIC-306: Computer Networks

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Understand the types of topology and their advantages as well as disadvantages.
CO2	Know about the concept of Ip addressing and its usage in networking.
CO3	Understand the Concept of OSI and TCP/IP reference model in detail.
CO4	Analyse the various error detection and correction mechanism used in data communication.
CO5	Find how the packet reaches from source to destination in communication networks.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	1	2	3	3	1	3	1	2	3	3	2	3	3
CO2	3	3	2	1	1	1	1	1	2	2	1	3	3	3
CO3	3	3	3	1	3	1	3	1	2	3	3	2	3	3
CO4	2	1	2	3	2	1	3	1	3	1	3	2	3	3
CO5	2	3	1	2	1	1	3	1	1	2	3	3	3	3

EIC-308: Computer Based Instrumentation and Control

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Understand different components used for plant automation and control system, different types of control system i. e feedback, feedforward, inference, ratio, cascaded and modern control system.
CO2	Gain knowledge about the on-going contemporary issues in the field of control and Instrumentation used for plant automation.
CO3	Analyse the concept of distributed, centralized computer control schemes.
CO4	Learn about direct digital control (DDC), its software and their comparison.
CO5	Gain the concept of sampling, multiplexing, ADC, DAC and their need for plant automation.
CO6	Understand different types of data transfer schemes and serial data communication standards.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	3	2	2	1	3	1	2	2	1	2	3	3
CO2	2	3	2	2	2	1	3	2	1	3	3	1	3	3
CO3	2	2	2	2	1	3	1	2	2	2	2	3	3	3
CO4	2	2	3	3	3	1	3	1	2	3	1	2	3	3
CO5	2	2	3	2	2	1	2	1	2	1	2	3	3	3
CO6	2	2	2	2	3	1	2	1	2	3	1	2	3	3

EIC-310: Industrial Process Control

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Understand the basic principles & importance of process control in industrial process plants;
CO2	Evaluate First order, second order, and integrating systems including dead time are treated with basic controller algorithms
CO3	Analyse the dynamic behavior of processes and develop good understanding of their behavior in different situations
CO4	Understand for defining controller structure with respect to controlled process and perform parameters tuning in order to assure required performance of the system.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	2	2	3	1	2	1	2	1	1	2	3	2	3	3
CO2	3	3	3	2	1	1	1	1	1	1	3	1	3	3
CO3	3	2	1	3	1	1	2	1	1	2	3	3	3	3
CO4	3	3	1	2	1	1	2	1	1	2	1	1	3	3

EIC-312: Bio Medical Instrumentation

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Understand the various types of bio-electric signals, bio-medical recorders & display systems.
CO2	Learn about the oscilloscopes bio-medical measurements.
CO3	Understand the various types of BP measurement techniques.
CO4	Get the knowledge about the basic principles and applications of MRI and Ultrasonic imaging techniques.
CO5	Understand the various types of pacemakers & defibrillators.
CO6	Analyse the components of bio-telemetry and its applications required for patient care.
CO7	Understand the various types of LASERs & their applications in Bio-medical field.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	2	1	1	1	2	2	2	3	2	1	3	3
CO2	2	2	2	1	2	1	2	3	2	2	2	2	3	3
CO3	3	3	3	2	3	1	2	3	2	3	1	2	3	3
CO4	3	2	3	1	1	1	2	2	3	3	2	2	3	3
CO5	2	2	2	2	2	1	1	2	2	2	2	2	3	3
CO6	2	1	1	2	2	1	3	2	2	2	1	3	3	3
CO7	2	1	3	2	2	1	1	2	3	2	1	3	3	3

8th Semester

E-402: Digital Signal Processing

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Analyse about various types of signals and their representation and their implementation on MAT LAB.
CO2	Understand Discrete-Time Systems and their implementation on MAT LAB.
CO3	Know about sampling of signals and and their implementation on MAT LAB.
CO4	Understand z-transform, its properties and their implementation on MAT LAB.
CO5	Analyse various types of filters, their structures and their implementation on MAT LAB.
CO6	Understand multirate digital signal processing multirate digital signal processing

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	2	2	1	1	1	1	2	2	2	2	3	3
CO2	3	3	2	2	1	1	1	1	2	2	2	2	3	3
CO3	3	3	2	2	1	1	1	1	2	2	2	2	3	3
CO4	3	3	2	2	1	1	1	1	2	2	2	2	3	3
CO5	3	3	2	2	1	1	1	1	2	2	2	2	3	3
CO6	3	3	2	2	1	1	1	1	2	2	2	2	3	3

EIC-404: Embedded System Design

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Understand embedded system, microcontrollers and its basis of classification.
CO2	Describe the operation of microcontrollers 8051 and PIC.
CO3	Understand the working of different working blocks of microcontrollers 8051 and PIC.
CO4	Understand the instruction set and addressing modes of microcontrollers 8051 and PIC.
CO5	Understand different inbuilt features/ modules of 8051 and PIC and way of writing assembly language programs using instructions and features of both controllers.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	2	2	2	1	2	1	3	3	3	2	3	3
CO2	2	3	1	2	1	1	1	1	1	1	1	1	3	3
CO3	2	1	2	3	2	1	1	1	1	3	3	2	3	3
CO4	3	3	2	1	1	1	2	1	2	3	2	2	3	3
CO5	3	3	3	1	1	1	2	1	1	2	3	1	3	3

EIC-406: Operation Research

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Know about Different types of o.r. models
CO2	Get the knowledg about Linear Programming problem-Formulation and graphical solution
CO3	Understand about Dual simplex method. Sensitivity analysis
CO4	Understand about Network minimisation, shortest route problem, Maximum flow problem and project of scheduling by PERT, CPM

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	1	2	1	1	1	1	2	1	1	3	3
CO2	3	2	1	2	3	1	1	1	3	2	1	1	3	3
CO3	2	2	1	1	2	1	1	1	1	3	3	1	3	3
CO4	3	3	1	2	1	1	3	1	2	1	3	1	3	3

EIC-408: Robotics Engineering Automation

Course Objectives: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Understand about robot components and robot structure
CO2	Know about Robot Kinematics
CO3	Describe about Kinematics Analysis and Inverse Kinematics Analysis
CO4	Understand about Robot Dynamics Analysis
CO5	Understand about Trajectory Planning

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	2	1	1	1	2	1	3	1	1	3	3	3
CO2	3	3	2	3	3	1	3	1	3	2	2	1	3	3
CO3	3	2	2	2	1	1	1	1	3	2	2	3	3	3
CO4	2	2	2	1	1	2	1	3	1	3	2	3	3	3
CO5	3	2	2	2	2	2	1	1	2	1	1	3	3	3

EIC-410: Fuzzy Control System

Course Objectives: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Understand the basic knowledge of the Fuzzy control and its advantages & shortcomings on the industrial applications.
CO2	Understand the mathematical operations of fuzzy sets &fuzzy relations e.g. composition, extension principle, compositional rule of inference.
CO3	Understand FKBC architecture, various design parameters and the procedure to choose these.
CO4	Understand the non- linear nature of fuzzy controller and various types of FKBCs like Sugeno, Sliding Mode FKBC etc.
CO5	Understand various approaches for adaptive fuzzy control design & performance evaluation e.g. model based controller, self-organising controller, membership function tuning using performance criterion.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	2	2	3	2	2	1	1	3	1	1	2	2	3	3
CO2	3	2	2	2	2	1	1	1	2	1	2	3	3	3
CO3	3	2	2	2	2	1	1	1	2	1	3	2	3	3
CO4	3	2	2	2	2	1	2	1	1	2	2	3	3	3
CO5	2	2	3	2	1	2	1	1	2	2	1	3	3	3

EIC-412: Stochastic Control

Course Objectives: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Understand the stochastic processes & limitation of deterministic control & processes.
CO2	Solve the problems related to various types of probability.
CO3	Analyse the problems by applying Asymptotic theorems, poison theorems & Bay's theorems
CO4	Understand the random variables & solve the problems of mean, variance & moments.
CO5	Understand Bay's theorem & solve the problems using Bay's Theorem.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	3	3	2	1	3	1	1	2	1	3	3	3
CO2	3	3	2	2	3	1	1	1	1	1	2	1	3	3
CO3	3	2	3	1	3	1	2	1	1	2	3	1	3	3
CO4	3	2	2	3	1	1	3	1	3	2	2	2	3	3
CO5	2	2	2	2	1	1	2	1	1	2	2	3	3	3