

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR (M.P.)

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Department of Electronics Engineering

CO Statement for the session July - Dec 2021

Semester	Course	CO	CO Statement
III	140301 Electronics Circuits Design	CO1	Design regulated power supply.
		CO2	Design single stage and multi stage amplifier using BJT.
		CO3	Design oscillators using BJT.
		CO4	Design of the basic Op-Amp Circuits.
		CO5	Design digital circuits such as flip slop, registers, and counters.
		CO6	Design analog to digital converter and digital to analog converter.
	140302 Electronics Measurement & Instrumentation	CO1	Discuss various performance characteristics of an instrument
		CO2	Explain the working principle and applications of various bridges in measurement.
		CO3	Differentiate various transducers
		CO4	Analyze the working principle of various digital instruments and display devices.
		CO5	Measure different parameters using various CROs.
		CO6	Design the A/D and D/A converter.
	140303 Network Theory	CO1	Apply the fundamental concepts in solving and analyzing different Electrical networks
		CO2	Design the coupled circuits.
		CO3	Select appropriate and relevant technique for solvin the Electrical network in different conditions.
		CO4	Evaluate the steady state response and transient response of circuit.
		CO5	Apply mathematics in analyzing and synthesizing the networks in time and frequency domain.
		CO6	Examine the performance of any circuit using two port network.
	140304 Signals & Systems	CO1	Analyze the basic signal and their mathematical description.
		CO2	Analyze the spectral characteristics of continuoustime and discrete time signals.
		CO3	Evaluate the properties of continuous-time and discrete time signals.
		CO4	Analyze the properties of LTI continuous-time and discrete time systems using transform.
		CO5	Evaluate the convolution and response of continuous-time and discrete time systems with respect to any input.
		CO6	Design a block diagram of LTI system corresponding to given differential/ difference equation.

V	140502 EMT	CO1	Describe static and dynamic electric and magnetic fields for technologically important structures.
		CO2	Apply vector calculus to static electric-magnetic fields in different engineering situations.
		CO3	Use boundary conditions for electric and magnetic fields at the interface of two different media.
		CO4	Analyze Maxwell equations in different forms (differential and integral) and apply them to diverse engineering problems.
		CO5	Evaluate Poynting vector and apply Poynting vector theorem in problems.
		CO6	Examine the phenomena of wave propagation in different media and describe the phenomena of reflection of such waves in plane boundaries between homogeneous media.
	140503 Data Communication	CO1	Examine the Concept of Different Layers in Data Communication Networks
		CO2	Analyze the Error and Flow Control in Communication Network
		CO3	Explain the Concepts of MAC Layer
		CO4	Identify the Different Type of Routing Used in IP
		CO5	Discuss the Transport Mechanism in TCP/UDP
	140504 Linear Control Theory	CO1	Calculate the transfer function of feedback control system using Block diagram and Signal flow graph method..
		CO2	Evaluate the time domain response of first & Second order system for different standard inputs.
		CO3	Distinguish various controllers.
		CO4	Calculate steady state error for type 0,1,& 2 system.
		CO5	Determine the (absolute) stability of a closed-loop control system using various methods.
		CO6	Solve control system equations in state variable form.
	140505 Digital Communication	CO1	Describe the various aspects of sampling theorem viz. Aliasing, signal distortion.
CO2		Design the concepts of Digital Communication System.	
CO3		Apply the digital modulation techniques in communication systems.	
CO4		Analyze the performance of digital communication system in terms of error rate and spectral efficiency.	
CO5		Design the concepts of matched filter and correlator detector.	
CO6		Solve problems of efficient source coding and channel coding in communications systems.	
VII	DE-3 Microwave Engineering	CO1	Analyze modes and dominant mode in rectangular waveguide and cylindrical waveguide.
		CO2	Calculate S-Matrix parameters for different port networks, and Microwave resonator.
		CO3	Explain Microwave Network representations, Hplane tee, Magic tee, directional coupler.

		CO4	Design isolator, basic microwave amplifiers, particularly klystrons, magnetron, and RF filters, basic RF oscillator and mixer models.
		CO5	Enumerate and demonstrate application of different diodes in microwave circuits.
		CO6	Analyze different types of transmission lines and measurement parameters related to microwave circuits.
	DE-3 Sattelite & RADAR Communication	CO1	Explain Basic Concepts and Terminologies of Satellite Communication
		CO2	Design the Earth Station and Space Craft System
		CO3	Calculate the Link Power Budget Including Propagation Effects in Satellite.
		CO4	Evaluate the Various Performance Factors Related to the RADAR
		CO5	Explain target Detection and Tracking using Radar Systems.
	DE-3 VLSI Design	CO1	Design different VLSI Circuits.
		CO2	Describe MOSFET fundamentals its manufacturing and fabrication process.
		CO3	Design inverter, parallel and series equivalent circuits and VLSI interconnects.
		CO4	Illustrate circuit diagram, stick diagrams and layouts design rules for MOS.
		CO5	Describe MOS transistor characteristics and its various Performance parameters.
		CO6	Design CMOS subsystems and Semiconductors memories- SRAM DRAM SRAM SPICE models.
	OC-3 (MEMS)	CO1	Describe MEMS, their types and applications.
		CO2	Analyze the Mechatronics system.
		CO3	Analyze the performance characteristics of Sensors and Actuators.
		CO4	Interface Sensors and Actuators using control unit such as Microcontroller and PLC.
		CO5	Construct the prototype of manual Robotic Arm.

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CO Statement for the session January - June 2022

Semester	Course	CO	CO Statement
Semester - II	140211/ 200211 Electronics Devices	CO1	Analyze the properties of semiconductor materials.
		CO2	Understand construction and working of different diodes.
		CO3	Analyze the operation of Bi-polar junction transistors.
		CO4	Examine the working of Field Effect Transistors.
		CO5	Analyze the working of power electronics devices.
	140212/ 200212 Engineering Materials	CO1	Classify engineering materials.
		CO2	Analyze the characteristics of conducting, dielectric and insulating materials.
		CO3	Analyze the characteristics of semi-conducting materials.
		CO4	Describe the energy level for semiconductor materials.
		CO5	Describe nano-materials with their applications.
	140015/ 200015 EEES	CO1	Describe various energy resources, their conversion to electrical power and role in technological & economic development.
		CO2	Understand the basic concepts of sustainable engineering practices.

		CO3	Recognize the impact of pollution on the ecosystem and control policies adopted at national/international levels.
		CO4	Illustrate the concepts of ecosystems and their conservation.
		CO5	Solve practical problems of society in a sustainable and ethical manner.
		CO6	Fulfill professional duties keeping in mind the environmental safety, health, and welfare of public.
Semester - IV	140411/ 200411 Digital Circuits & Systems	CO1	Implement the Boolean expression using basic and universal logic gates
		CO2	Design different combinational logic circuits
		CO3	Design various latches and flip-flops
		CO4	Design various shift registers and counters using flip-flops
		CO5	Analyze different types of logic families, semiconductor memories, & multivibrators.
	140412/ 200412 Analog Integrated Circuits	CO1	Compare the efficiency of various power amplifiers.
		CO2	Analyze the parameters of multistage amplifiers.
		CO3	Design Multivibrator circuits using IC 555.
		CO4	Design the electronic circuits using Operational amplifier.
		CO5	Implement the active filters based on given specifications.
	140413/ 200413 Analog	CO1	Analyze the amplitude modulation, their generation & detection methods.
		CO2	Explain the generation and detection techniques for angle modulated signal.

	Communication	CO3	Explain the working of transmitter and receiver
		CO4	Evaluate the statistical parameters for general PDF/CDF
		CO5	Evaluate the effects of noise on modulation techniques.
	140414/ 200414 Communication Networks	CO1	Design the symmetrical and asymmetrical attenuators.
		CO2	Synthesize the network for a given positive and minimum positive real function.
		CO3	Design passive filters for the given specifications.
		CO4	Analyze the characteristics of various transmission lines.
		CO5	Calculate the impedance and SWR graphically /analytically.
	Semester - VI	140601/ 200601 Microprocess or Interfacing	CO1
CO2			Develop assembly language programming skill for 8085.
CO3			Design memory and I/O interfacing circuits using 8255, 8253/8254, 8257/8237 and 8259A with 8085 microprocessor
CO4			Illustrate 8086 microprocessor architecture and programming skills.
CO5			Discuss 8051 microcontroller architecture and its application in Embedded systems.
140602/ 200602 Digital Signal Processing		CO1	Analyze discrete time system using transform methods
		CO2	Compute DFT using FFT algorithms.

		CO3	To Design IIR Filters
		CO4	To Design FIR Filters.
		CO5	Apply the concept of multi-rate signal processing in practical applications.
140603/ 200603 Data Communication		CO1	Analyze the error and flow control in communication network.
		CO2	Explain the concepts of MAC layer.
		CO3	Identify the different types of routing used in IP.
		CO4	Classify the transport mechanism in TCP/UDP.
		CO5	Explore the different application protocol used in internetworking.
DE-1 Optical Communication		CO1	Explain the basic elements of optical fiber transmission.
		CO2	Discuss fiber fabrication, splicing and optical connectors.
		CO3	Describe the working of optical sources and optical detectors.
		CO4	Calculate the channel impairments like losses and dispersion.
		CO5	Discuss Coherent optical transmission system and optical networks
DE-1 Antenna		CO1	Evaluate various parameters of the antenna.

		CO2	Analyze the design parameters and radiation mechanism of wire antennas.
		CO3	Design antenna array for the given radiation characteristics.
		CO4	Analyze the design parameters and radiation characteristics of Aperture and special antennas.
		CO5	Describe effects of earth and its atmosphere on radio wave propagation.
	DE-1 Telecommuni cation Switching Network	CO1	Describe fundamentals of telecommunication systems and associated technologies
		CO2	Design multi stage switching structures involving time and space switching stages
		CO3	Analyze and evaluate the fundamental telecommunication traffic models.
		CO4	Examine the working of Telephone Networks.
		CO5	Demonstrate broad knowledge of fundamental principles and technical standards underlying Data Networks.