

# 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 - December 2020

Semester	Course	CO	CO Statement
Semester - III	140301/200301 Electronics-I	CO1	Analyze the characteristics of various engineering materials.
		CO2	Design any diode, and transistor circuits.
		CO3	Analyze any transistorized circuits for any given specification.
		CO4	Design Analog circuits.
		CO5	Examine the working of transistor based circuits.
		CO6	Examine basic construction of feedback circuits and their application.
	140302/200302 Digital Circuit & Systems	CO1	Simplify Boolean expression using K-Map, & Its Implementation using logic gates.
		CO2	Design any logic circuit using Universal Gate.
		CO3	Design various sequential and combinational circuits.
		CO4	Assemble the various Shift register using flip flops.
		CO5	Analyze the different types of semiconductor memories.
		CO6	Design transistor based digital circuits.
	140303/200303 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 solving 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/ 200304 Signal & System	CO1	Analyze the basic signal and their mathematical description.
		CO2	Analyze the spectral characteristics of continuous-time 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.	
Semester - V	140502/200502 Electromagnetic Theory	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	<b>Examine</b> the Concept of Different Layers in Data Communication Networks
		CO2	<b>Analyze</b> the Error and Flow Control in Communication Network
		CO3	<b>Explain</b> the Concepts of MAC Layer
		CO4	<b>Identify</b> the Different Type of Routing Used in IP
		CO5	<b>Discuss</b> the Transport Mechanism in TCP/UDP
140504/200504 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.
200503 Microprocessor and Interfacing		CO1	Explain the architecture and organization of microprocessor 8086, advance microprocessors and microcontroller 8051
		CO2	Develop skill in assembly language programming for 8086 and 8051.
		CO3	Interface memory and I/O devices using different logic devices and interfacing chips/PPI,s
		CO4	Analyze basic idea about interrupt processing, the data transfer schemes and its applications.

		CO5	Distinguish between different types of general purpose programmable peripheral devices viz 8254, PIT,8259 ,PIC,8257 DMA and 8251USART .
		CO6	Design some specific embedded systems using microcontrollers.
Semester - 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 Satellite & 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.

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### CO Statement (Jan - June 2021)

Semester	Course	CO	CO Statement
II	140211/ 200211 Electronics Devices	CO1	<b>Analyze</b> the properties of semiconductor materials.
		CO2	<b>Understand</b> construction and working of different diodes.
		CO3	<b>Analyze</b> the operation of Bi-polar junction transistors.
		CO4	<b>Examine</b> the working of Field Effect Transistors.
		CO5	<b>Analyze</b> the working of power electronics devices.
	140212/ 200212 Engineering Materials	CO1	<b>Classify</b> engineering materials.
		CO2	<b>Analyze</b> the characteristics of conducting, dielectric and insulating materials.
		CO3	<b>Analyze</b> the characteristics of semi-conducting materials.
		CO4	<b>Describe</b> the energy level for semiconductor materials.
		CO5	<b>Describe</b> nano-materials with their applications.

	100015/ 20015 EEES	CO1	<b>Describe</b> various energy resources, their conversion to electrical power and role in technological & economic development.
		CO2	<b>Understand</b> the basic concepts of sustainable engineering practices.
		CO3	<b>Recognize</b> the impact of pollution on the ecosystem and control policies adopted at national/international levels.
		CO4	<b>Illustrate</b> the concepts of ecosystems and their conservation.
		CO5	<b>Solve</b> practical problems of society in a sustainable and ethical manner.
		CO6	<b>Fulfill</b> professional duties keeping in mind the environmental safety, health, and welfare of public.
IV	140401/200401 Electronics-II	CO1	Analyze the characteristics of an amplifier.
		CO2	Design the tuned amplifier with the given parameters.
		CO3	Compare various power amplifiers.
		CO4	Design the multistage amplifiers.
		CO5	Design the various electronics circuits using Operational amplifier.
		CO6	Design the active filters based on given specifications
	140402/200402 Analog Communication	CO1	<b>Analyze</b> the amplitude modulation, their generation & detection methods.
		CO2	<b>Explain</b> the generation and detection techniques for angle modulated signal.

		CO3	<b>Explain</b> the working of transmitter and receiver
		CO4	<b>Evaluate</b> the statistical parameters for general PDF/CDF
		CO5	<b>Evaluate</b> the effects of noise on modulation techniques.
140403/200403 Communication Networks		CO1	<b>Compute</b> the various parameters of different passive networks.
		CO2	<b>Design</b> the symmetrical and asymmetrical attenuators.
		CO3	<b>Synthesize</b> the network for a given positive and minimum positive real function.
		CO4	<b>Design</b> passive filters for the given specifications.
		CO5	<b>Analyze</b> the characteristics of various transmission lines.
		CO6	<b>Calculate</b> the impedance and SWR graphically /analytically.
	140404/ 200404 Electronics Measurement & Instrumentation		CO1
		CO2	<b>Explain</b> the working principle and applications of various bridges in measurement.
		CO3	<b>Differentiate</b> various transducers
		CO4	<b>Analyze</b> the working principle of various digital instruments and display devices.
		CO5	<b>Measure</b> different parameters using various CROs.
		CO6	<b>Design</b> the A/D and D/A converter.

VI	140601/200601 Microprocessor Interfacing	CO1	Explain the architecture and organization of microprocessor 8086, advance microprocessors and microcontroller 8051
		CO2	Develop skill in assembly language programming for 8086 and 8051.
		CO3	Interface memory and I/O devices using different logic devices and interfacing chips/PPI,s
		CO4	Analyze basic idea about interrupt processing, the data transfer schemes and its applications.
		CO5	Distinguish between different types of general purpose programmable peripheral devices viz 8254, PIT,8259 ,PIC,8257 DMA and 8251USART .
		CO6	Design some specific embedded systems using microcontrollers.
	140602/200602 DSP	CO1	<b>Differentiate</b> between continuous and discrete time signal & systems.
		CO2	<b>Analysis</b> of discrete time systems using ztransform.
		CO3	<b>Design</b> of simple digital filters by placing poles and zeros and their structure implementation.
		CO4	<b>Compute</b> discrete Fourier transform and its efficient implementation using fast algorithm.
		CO5	<b>Design</b> of Linear Phase FIR filters.
		CO6	<b>Design</b> IIR filter to meet specified magnitude/phase response characteristics
	DE-1 Optical Communication	CO1	<b>Explain</b> the basic elements of optical fiber transmission.
		CO2	<b>Discuss</b> fiber fabrication, splicing and optical connectors.
		CO3	<b>Describe</b> the working of optical sources and optical detectors.
		CO4	<b>Calculate</b> the channel impairments like losses and dispersion.
		CO5	<b>Discuss</b> Coherent optical transmission system and optical networks

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