MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(Deemed University)

(Declared Under Distinct Category by Ministry of Education, Government of India)

NAAC Accredited with A++ Grade

Department of Electronics and Telecommunication Engineering

List of subject wise Course Outcomes for 2020 admitted batch

Semester	Subject Code & Name	Course Outcomes
I	200111 Electronic Workshop (Lab)	CO1. Evaluate the parameters of basic electronic components. CO2. Calculate the phase shift between two waveforms. CO3. Design small electronics circuits.
II	100102 Energy, Ecology, Environment & Society	CO1. Describe various energy resources, their conversion to electrical power and role in technological & economic development. CO2. Update with national/international power status and renewable power development targets & missions. 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. Fulfil professional duties keeping in mind the environmental safety, health, and welfare of public.
	200211 Electronic 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 EffectTransistors. CO5. Analyze the working of power electronics devices.
	200212 Engineering Materials	CO1. Classify engineering materials. CO2. Analyze the characteristics of dielectric materials. CO3. Analyze the characteristics of semi-conducting materials. CO4. Identify insulating materials for special purposes. CO5. Classify magnetic materials with reference to their properties.
	200211 Electronic Devices (Lab)	CO1. Verify the characteristics of Diode, BJT and MOSFET CO2. Implement the clipper, clamper and rectifier circuits. CO3. Calculate the load and line regulation of zener regulator circuit. CO4. Troubleshoot the already fabricated circuits.
III	200311 Electronics Circuit Design	CO1 Design different diode circuits. CO2 Design the biasing circuits for BJTs. CO3 Examine the working of BJT amplifiers. CO4 Analyze the different parameters of feedback amplifiers. CO5 Design the Oscillator and Tuned amplifier circuits.
	200312 Network Theory	CO1 Analyze the circuits using Kirchoff's laws and Network simplification theorem. CO2 Solve circuits using Tree, Node, Branch, cut-set and Tie set methods. CO3 Evaluate transient response and steady state response. CO4 Examine RL, RC and RLC circuits (DC and AC) using Mesh and Nodal analysis techniques. CO5 Apply the Laplace transform to linear circuits and systems. CO6 Determine ABCD, Z, Y and h parameter of an electrical circuits.
	200313 Signals & Systems	CO1 Describe mathematically the basic continuous-time and discrete along signals with their transformations. CO2 Describe the spectral characteristics of continuous-time and discrete time signals using Fourier transform. CO3 Develop the Z-transform for analysis of discrete time signals and systems. CO4 Analyze the properties of continuous-time and discrete signals. CO5 Calculate the convolution and response of continuous-time and discrete time systems with respect to input.

		200315Electronics Measurement and Instrumentation	CO1 Discuss various performance characteristics of an instrument CO2 Explain the working principle and applications of various bridges and transducers. CO3 Analyze the working principle of various digital instruments and display devices. CO4 Measure different parameters using various CROs. CO5 Design the A/D and D/A converter.
		200311 Electronics Circuit Design (Lab)	CO1 Design the voltage regulator with specific voltage range. CO2 Design the BJT as a switch CO3 Implement the voltage amplifier using BJT. CO4 Analyse the RC and LC oscillator using BJT. CO5 Plot and draw the frequency response of the Tuned amplifier.
IV		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..
		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.
		200413 Analog Communication	CO1. Analyze the amplitude modulation, their generation & detection methods. CO2. Explain the generation and detection techniques for angle modulated signal. 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.
		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.
		200411 Digital Circuits & Systems (Lab)	CO1. Verify the operation of basic logic gates. CO2. Construct the basic gates by using universal gates. CO3. Develop half adder and full adder circuits using their truth table. CO4. Develop the D, RS and JK flip-flops and verify their operation. CO5. Design Counters.
		200412 Analog Integrated Circuits (Lab)	CO1. Design various applications using Op-Amp. CO2. Troubleshoot the already fabricated circuit individually or in a team. CO3. Design various amplifier circuits.
		200413 Analog Communication (Lab)	CO1. Differentiate modulation and demodulation techniques. CO2. Calculate the modulation index for a given modulated wave. CO3. Generate AM, DSB, SSB and FM signals.
		200415PCB Lab	CO1. Design electronic circuits on PCB using software. CO2. Fabricate electronic circuits on PCB.
V		200511 Microprocessor & Interfacing	CO1 Explain the architecture and organization of 8085 microprocessors. 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 microprocessorarchitecture and programming skills. CO5 Discuss 8051 microcontroller architecture ant its application in Embedded systems.
		200511 Microprocessor & Interfacing (Lab)	CO1 Execute the assembly language programs for arithmetic and logical operations with 8085 and 8086 microprocessor. CO2 Design interfacing circuits using 8255 and 8253 with 8085 microprocessors.
		200512 Linear Control Theory	CO1 Determine the transfer function of linear control system. CO2 Evaluate the time domain response of control system for different standard inputs. CO3 Compute the steady state error for type 0,1,2 systems. CO4 Analyze the stability of control system using time and frequency domain methods. CO5 Design proportional, integral, and derivative controller, PD, PI, PID controllers.
		200513 Digital Communication	CO1 Explain the process of sampling and pulse modulation. CO2 Analyze digital modulation systems and line coding schemes. CO3 Describe the different band pass data transmission techniques with spectral analysis. CO4 Determine the base band pulse transmission techniques and error probability. CO5 Illustrate the concepts of information theory and source coding.

		200513 Digital Communication (Lab)	CO1 Understand sampling theorem. CO2 Perform lines coding technique. CO3 Construct different pulse modulation technique. CO4 Implement different digital modulation technique CO5 Evaluate the performance of the digital communication system using MATLAB.
		200515 Minor Project-I	CO1 Identify electronics components and their testing. CO2 Operate measuring instruments (such as multi-meter) and electronics equipments likes CRO, dual-power tracking power supply &function generator. CO3 Design the electronics circuits on bread-board. CO4 Perform soldering and de-soldering of the circuit components properly. CO5 Troubleshoot a not working electronic circuit and to rectify it.
VI		200601 Digital Signal Processing	CO1. Analyze discrete time system using transform methods. CO2. Compute DFT using FFT algorithms. CO3. Design IIR Filters. CO4. Design FIR Filters. CO5. Apply the concept of multi-rate signal processing in practical applications.
		200602 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.
		200611 Optical Communication (DE-1)	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.
		200612 Antenna And Wave Propagation (DE-1)	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.
		200613 Telecommunication Switching and Networks (DE-1)	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.
		Intelligent Control (900104) (OC-1)	CO1. Explain the fundamental principle behind adaptive control. CO2. Estimate various parameter of control system using artificial neural network. CO3. Apply the concept of artificial neural network to the field of control. CO4. Optimize the throughput of the system using optimization methods like Genetic algorithm. CO5. Design fuzzy logic based control system.
		Embedded System (900105) (OC-1)	CO1. Explain the architecture of embedded system and 8051. CO2. Develop assembly language programming skills for 8051. CO3. Analyze the concept of Timers/Counters, Serial communication and interrupt handling processes of 8051 microcontroller. CO4. Interface memory and I/O devices with 8051microcontroller. CO5. Interface Arduino with LED, Switches, Light dependent resistor (LDR), PWM, 16*2 LCD, Serial, L293D for motor interfacing, ADC.
		200601 Digital Signal Processing Lab	CO1. Generate discrete/digital signals using MATLAB CO2. Calculate and Plot convolution of two given DT signal. CO3. Plot frequency response of a given system and verify the properties of LTI system. CO4. Implement FFT of given sequence and identify the reduction of computations using FFT. CO5. Design FIR and IIR filters.
		200606 Minor Project-II	CO1. Design & fabricate project. CO2. To impart skills in fault finding and troubleshooting.
VII		200711 Satellite & Radar Communication (DE-3)	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.

	200712 VLSI Design (DE-3)	CO1 Analyze the working of CMOS Transistors in different Modes of Operation. CO2 Derive the Static Characteristics of Resistive Load, N-Type MOSFET Load CMOS Inverters. CO3 Evaluate the Propagation Delay and Power Dissipation of a CMOS Inverter. CO4 Design a CMOS Logic Circuit and Layout Design for a Given Boolean Function. CO5 Analyze the Design and Operation of Various Semiconductor Memories.	
	200713 Microwave Engineering (DE-3)	CO1 AnalyzeRectangular and Circular Waveguides. CO2 Calculate S- parameters of Microwave components. CO3 Describe the working characteristics and applications of Microwave Tubes. CO4 Explain the working characteristics and applications of Microwave Diodes. CO5 Measure VSWR, Impedance, Frequency, Dielectric Constant Power, Attenuation and phase shift and planar transmission lines.	
	900206 Satellite Systems (OC-2)	CO1 Explain basic concepts and terminologies ofSatellite Communication. CO2 Design the Earth station and Space Craft System. CO3 Explain the Indian Satellite Launchers. CO4 Calculate the Link power budget including Propagation effects in Satellite. CO5 Examine the Indian Regional Navigation Satellite System.	
	900207 Consumer Electronics (OC-2)	CO1 Describe various types ofAudio Systems. CO2 State the working principle ofTelevision System. CO3 Analyze the operation of a Landline Telephone System. CO4 Explain the working ofCellular and MobileSystem. CO5 Explain the working of various Consumer Electronic appliances.	
	900218 MEMS and Mechatronics (OC-3)	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.	
	900219 Multimedia Communication (OC-3)	CO1 Understand the basics of Analog and Digital Video: Video representation and transmission. CO2 Analyze Analog and Digital Video Signals and Systems. CO3 Know the fundamental video processing techniques. CO4 Acquire the basic skill of designing video compression and familiarizing with Video Compression standards. CO5 Know the basic techniques in designing video transmission systems: error control and rate control.	
VIII	Major Project	CO1. Formulate the real world problems. CO2. Express the technical ideas, strategies & methodologies. CO3. Utilize the new tools and techniques to obtain solution of the project. CO4. Prepare project report and oral demonstrations. CO5. Develop skills toward	
	PD Evaluation	CO.1 Develop intellectual curiosity, competency and skills CO2. Develop critical thinking, creativity and effective communication CO3. Display professionalism and ownership of professional growth and learning	