MADHAV INSTITUTE OF TECHNOLOGY AND SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute, Affiliated to R.G.P.V. Bhopal)

Department of Electronics Engineering

CO Statement for the academic session July – Dec 2018

Semester	Subject Name/ Code		CO Statement
Semester - 3	*140302/*200302 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.
	*140303/*200303 Digital Circuits And 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.
	*140304/*200304 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.
	*140305/*200305 Signals And 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.
Semester - 5	BELL502: 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.
	BELL503: Electromagnetic Fields	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.
	BELL504: 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.
	BELL505: 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.
Semester - 7	ELL-701: Advanced Control System	CO1	Describe quantitatively the basics of digital control system.
		CO2	Examine the stability analysis of closed loop system in Z plane.
		CO3	Demonstrate an understanding of nonlinear control system
		CO4	Examine the stability of control system using Root Locus technique.
		CO5	Represent any system by state space model
		CO6	Design PID controller to meet system performance.
	ELL702: 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.
	ELL703: Cellular Mobile Communication	CO1	Build the concepts of wireless communication and cellular systems.
		CO2	Analyze mobile radio propagation models and parameters related to it.

		CO3	Describe about cell splitting, sectoring, cell-site antenna and frequency management for cellular system.
		CO4	Differentiate TDMA and FDMA.
		CO5	Analyze GSM system architecture and its frame structure.
		CO6	Describe spread spectrum multiple access and CDMA.
	ELL704: 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.
	BETL/ELL710 /7445 CMOS TECHNOLOGY	CO1	Describe the CMOS logic circuits.
		CO2	Design different MOS Models.
		CO3	Classify the CMOS Process technology and layout design rules for CMOS circuits.
		CO4	Describe MOS transistor characteristics and its various performance, Parameters that effect the operation the of CMOS circuits.
		CO5	Examine the Semiconductors Memories.
		CO6	Design problems related to programmable logic array.

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Department of Electronics Engineering

CO Statement for Session January - June 2019

Semester	Subject Name		CO Statement
Semester - 4	*140402/*200402 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.
	*140403/*200403 Analog Communication	CO1	**Apply** the concept of multiplexing and modulation in communication engineering.
		CO2	**Analyze** the amplitude modulation and angle modulation with their waveforms
		CO3	**Explain** the generation and detection for various modulation techniques**.**
		CO4	**Explain** the working of transmitter and receiver
		CO5	**Evaluate** the statistical parameters for general PDF/CDF
		CO6	**Evaluate** the effects of noise on different modulation techniques
	*140404/*200404 Communication Networks	CO1	**Compute** the various parameters of different passive networks.
		CO2	**Design** the symmetrical and asymmetrical attenuators.
		CO3	**Synthesize** the network for a given positive and minimum positive real function.

		CO4	**Design** passive filters for the given specifications.
		CO5	**Analyze** the characteristics of various transmission lines.
		CO6	**Calculate** the impedance and SWR graphically /analytically.
	*140405 Electronics Measurement and 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.
	*200405 Stochastic Process	CO1	**Analyze** the different probability distribution functions.
		CO2	**Calculate** Statistical averages.
		CO3	**Evaluate** transformation of random variables.
		CO4	**Classify** random processes
		CO5	**Analyze** the behavior of LTI system with random processes.
Semester - 6	BELL/BETL 601 Antenna and Wave Propagation	CO1	**Analyze** the radiation characteristics of dipole antennas of various lengths.
		CO2	**Evaluate** various parameters of the antenna.
		CO3	**Design** antenna array for the given radiation characteristics.
		CO4	**Analyze** the effect of earth on antenna radiation properties.
		CO5	**Analyze** the design parameters, radiation mechanism, and applications of various practical antennas.
		CO6	**Describe** effects of earth and its atmosphere on radio wave propagation.
	BELL/BETL 602	CO1	**Differentiate** between continuous and discrete

	Digital Signal Processing		time signal & systems.
		CO2	**Analysis** of discrete time systems using ztransform.
		CO3	**Design** of simple digital filters by placing poles and zeros and their structure implementation.
		CO4	**Compute** discrete Fourier transform and its efficient implementation using fast algorithm.
		CO5	**Design** of Linear Phase FIR filters.
		CO6	**Design** IIR filter to meet specified magnitude/phase response characteristics
	BELL/BETL 603 Data Communication	CO1	**Explain** the evolution of computer network and basic concepts of data communication system
		CO2	**Describe** the services of the DATA link layer provided in controlling transmission errors and flow of data
		CO3	**Analyze** the various techniques to alleviate the problem of medium allocation in broadcast network like ALOHA, CSMA etc.
		CO4	**Explain** the principle and protocol for route calculation and be able to perform such calculation in Network layers
		CO5	**Explain** the services and features of transport layer of data networks
		CO6	**Describe** the skills of synchronization in data communication
	BELL/BETL 604 Electronics System 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.

		BELL/BETL 605 Industrial Electronics	CO1	**Analyze** the characteristics of different power semiconductor devices.
			CO2	**Design** phase controlled rectifier circuits.
			CO3	**Design** inverter and chopper circuits.
			CO4	**Analyze** different cyclo converters & AC voltage controllers with their applications.
			CO5	**Express** the principle of different types of recordings.
			CO6	**Characterize** the concept of microphones and speakers.
Semester - 8	BELL/BETL 801 Fiber optics & optical communication	CO1	**Learn** the basic elements of optical fiber transmission link, fiber modes configurations and fabrication techniques.
		CO2	**Classify** various optical sources, fiber splicing techniques, optical connectors with their principles
		CO3	**Analyze** different optical receivers and their noise performances
		CO4	**Calculate** the channel impairments like losses and dispersion
		CO5	**Discuss** Coherent optical transmission system, the installation and performance verification of digital optical fiber link
		CO6	**Discriminate** between different amplifiers and learn variety of networking aspects, FDDI, SONET, WDM
	BELL/BETL 802 Satellite Communication	CO1	**Explain** basic concepts and terminologies of satellite communication
		CO2	**Calculate** the link power budget.
		CO3	**Analyze** the different multiple Access schemes for Satellite communication.
		CO4	**Classify** different Propagation effects in satellite
		CO5	**Solve** problems related to channel coding techniques.
		CO6	**Distinguish** different satellite system
	BELL/BETL 803 TV and RADAR Engg.	CO1	**Explain** the various components of the composite video signal, TV camera tube, and picture tube.
		CO2	**Characterize** various types of monochrome and color television systems.

		CO3	**Analyze** basic factors required for successful transmission and reception of TV signals.
		CO4	**Explain** the advanced topics in digital television and High definition television.
		CO5	**Evaluate** the various performance factors related to the RADAR.
		CO6	**Explain** target detection and tracking using radar systems.
	BELL/BETL 804 Neural Network and Fuzzy systems	CO1	**Explain** the basic concepts of neural networks
		CO2	**Analyze** the concept of human neural structure & ANN.
		CO3	**Analyze** the various feed forward/ feedback neural networks.
		CO4	**Examine** different learning methodologies.
		CO5	**Explain** the concept of fuzziness involved in various systems and fuzzy set theory. .
		CO6	**Analyze** the application of fuzzy logic control to real time systems.