

MAHARAJA AGRASEN INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COs

5th Semester

ETHS 301	Communication Skills for Professional
	Upon completion of the course, the students will be able to:
CO1	To understand and implement the communication cycle and development of soft skills for successful career.
CO2	To analyze, create and compile various communication skills for formal written communication like reports, research paper and formal letters.
CO3	To apply the use of paralanguage and various prosodic features for proficiency in communication skills
CO4	To be able to demonstrate all the acquired skills for various public speaking platforms and other formal meetings

EETEC 303	Digital Communication
	Upon completion of the course, the students will be able to:
CO1	Explain the basic blocks of digital communication systems, and differentiate baseband modulation schemes & their electrical representations.
CO2	Develop the understanding of random variables and processes and its associated theorems, and apply to physical phenomena.
CO3	Illustrate the working of digital receiver filters.
CO4	Demonstrate carrier modulation schemes and compare their performance.

EETEC 305	Microprocessors and Microcontrollers
	Upon completion of the course, the students will be able to:
CO1	Understand the internal organization of 8-bit and 16-bit Intel microprocessors and 8051 microcontroller
CO2	Apply the knowledge of microprocessors to develop assembly language programs.
CO3	Design and implement assembly language programs for 8051 microcontroller.
CO4	Design and implement microcomputer systems.

EETEL-307	Control System
	Upon completion of the course, the students will be able to:
CO1	Explain the components of control system to determine transfer function.
CO2	Illustrate transient and steady state of a system and study the response of controllers.
CO3	Analyse control system in frequency domain.
CO4	Determine stability of given system and implement compensating techniques to design simple system.

EETEC 309	Digital System Design
	Upon completion of the course, the students will be able to:
CO1	Explain the concepts of digital circuit utilizing various constructs of VHDL with different data type and modeling.
CO2	Develop the understanding about combinational and sequential circuits synthesizable VHDL code.
CO3	Design of FSM (Mealy and Moore) and its VHDL code.
CO4	Analyze various Asynchronous circuits (without clock) with PLA, PAL & FPGA.

ETMS 311		Industrial Management(Kalpana)	
	Upon completion of the course, the students will be able to:		
CO1	Interpret the concept of Industrial relations, Industrial disputes, Dispute settlement machineries and factory legislation.		
CO2	Implement Trade Unionism and its functioning in India.		
CO3	Apply the concept of work study and method study and their application to office work.		
CO4	Implement the knowledge of control charts for Quality for quality improvement.		

EETEC 351		Digital System Design lab	
	Upon completion of the course, the students will be able to:		
CO1	Create knowledge about different modelling styles of VHDL.		
CO2	Implementation and design of combinational and sequential circuit using VHDL & its simulation.		
CO3	CAD tools for design of Complex Digital Circuits		
CO4	Synthesize (Hardware Generation) the VHDL Code.		

ETHS 351		Communication Skills for Professionals Lab (Parul)	
	Upon completion of the course, the students will be able to:		
CO1	To analyze and develop the habit of reading as well as listening for various purposes and to make the students aware of varied uses and functions of language.		
CO2	To implement the ability for written, oral and graphical communication in both technical and non-technical environments along with an ability to identify and use appropriate technical vocabulary and related literature .		
CO3	To develop an ability to select and apply the knowledge, techniques, skills, and modern tools for conversational skills; i.e. D-day conversation, professional conversation, telephone conversation, interview, group discussions etc		
CO4	To compose an ability to perform effectively as a member or leader for a technical or professional teamwork during an Oral Presentation, PowerPoint Presentation (PPT) & Public Speaking etc..		

EETEC 355		Microprocessors and Microcontrollers	
	Upon completion of the course, the students will be able to:		
CO1	Compile and run microprocessor and microcontroller programs on kits.		
CO2	Compile and simulate microprocessor and microcontroller programs on assembler.		
CO3	Design and program interfacing of microprocessor and their peripheral devices.		
CO4	Demonstrate ability to effectively work as a team.		

EETEC 357		Digital Communication Lab	
	Upon completion of the course, the students will be able to:		
CO1	Demonstrate the concept of Sampling and Quantization.		
CO2	Develop an understanding of analog & digital multiplexing techniques.		
CO3	Demonstrate various digital modulation techniques, and evaluate and compare their performance.		
CO4	Compare and classify different line coding techniques.		

EETEC 359		Industrial Training/ In house electronics W/S	
	Upon completion of the course, the students will be able to:		
CO1	Identify and recognize the field of interest and find the appropriate sources for the guidance.		
CO2	Understand and adapt to the actual working conditions so as to explore beyond the defined curriculum.		
CO3	Enhance, develop and augment their knowledge and skills.		
CO4	Develop competence and demonstrate through project and presentations, the acquired knowledge throughout the training tenure.		

6th Semester

ETEC 302	Microwave Engineering
	Upon completion of the course, the students will be able to:
CO1	To sum up the concept of Maxwell's Equation, Wave Equation & its solution related to Waveguide, Resonators and Micro strip Line.
CO2	To understand and analyze the scattering parameters with the operation of passive waveguide components and microwave circuits.
CO3	To understand the working of different microwave sources and their applications.
CO4	To understand various microwave measurements.

ETEC-304	Information Theory and Coding
	Upon completion of the course, the students will be able to:
CO1	Understand the concept of Information theory and source coding methods.
CO2	Analyse, evaluate and compare the performance of various parameters related to information theory and source coding methods.
CO3	Understand and analyse various error control coding methods and cryptography.
CO4	Design, implement and evaluate the performance of various error control codes.

ETEC 306	Digital Signal Processing
	Upon completion of the course, the students will be able to:
CO1	Illustrate and extend the basic knowledge of DFT, its properties, FFT and its applications
CO2	Develop and interpret the design of FIR and IIR filters and its realization..
CO3	Classify and distinguish quantization errors in Digital Signal Processing.
CO4	Understand the Multi-rate Digital Signal processing

ETEC-308	VLSI Design
	Upon completion of the course, the students will be able to:
CO1	Discuss design flow of VLSI and Explain the phenomenon of MOS technology
CO2	classify static characteristics of MOS ,CMOS inverters
CO3	Design of combinational and sequential circuits using MOS technology.
CO4	Implementations of dynamic logic circuits .

ETEC 310	Data Communication
	Upon completion of the course, the students will be able to:
CO1	Explain OSI layers and TCP/IP Reference Model, their layers and protocols suite.
CO2	Explain and Analyze the communication media, multi access protocols, routing algorithms and networking device
CO3	Apply various techniques and approaches to solve several network related problems.
CO4	Discuss and Evaluate Data link layer and quality of service issues.
CO5	Discuss and Configure optimal routing algorithm, error and flow control mechanism, Transport and Application layer protocols to design a high performance network.

ETEC 314		Antenna and wave propagation
	Upon completion of the course, the students will be able to:	
CO1	To understand basics of antenna radiation mechanism and their parameters.	
CO2	To understand different type's antenna and antenna array.	
CO3	To analyse different antenna such as microstrip, Yagi Uda and smart antenna etc.	
CO4	To understand different EM wave mechanism and antenna measurement.	

ETEC 352		Microwave Engineering Lab
	Upon completion of the course, the students will be able to:	
CO1	To understand the Analysis of Waveguides and to gain complete knowledge about Microwave Components.	
CO2	To Analyze characteristics of microwave junctions and design test bench for measurement of microwave parameters.	
CO3	To gain knowledge about the performance parameters of microwave frequency circuits and identifies design trade-off of microwave frequency communication systems.	
CO4	Design of microwave components and micro strip antenna using HFSS Software.	

ETEC 354		VLSI Design lab
	Upon completion of the course, the students will be able to:	
CO1	Develop the ability to demonstrate tool, apply and analyze mathematical methods of MOSFET.	
CO2	Explain & Design of MOSFET & Inverter	
CO3	Analyze models of CMOS circuits to realize digital functions and logic gates	
CO4	Design of combinational and sequential circuits using Different technology.	

ETEC 356		DSP Lab
	Upon completion of the course, the students will be able to:	
CO1	Compute the convolutions and correlations of discrete-time sequences.	
CO2	Evaluate the DFT of given sequence using user-defined functions	
CO3	Analyze and design FIR and IIR filters to meet specific magnitude and phase requirements.	
CO4	Understand the working of DSP processor and demonstrate its applications.	

ETEC-358		Data Communication Lab
	Upon completion of the course, the students will be able to:	
CO1	Describe and restate Discrete Event System simulation tools.	
CO2	Analyze and Explain concept behind design and configuration of communication networks.	
CO3	Apply in-built classes, packages of discrete system tools to understand real-life networking problem.	
CO4	Evaluate and Understand the network results using different open source logger tools (Wireshark, TcpDump and NS3 NetAnim package).	
CO5	Compare and Choose the best available protocols, techniques and tools.	
CO6	Design communication networks and explore the possible research opportunities.	

ETEC-360		Industrial/ In house training
	Upon completion of the course, the students will be able to:	
CO1	Identify and recognize the field of interest and find the appropriate sources for the guidance.	
CO2	Understand and adapt to the actual working conditions so as to explore beyond the defined curriculum.	
CO3	Enhance, develop and augment their knowledge and skills.	
CO4	Develop competence and demonstrate through project and presentations, the acquired knowledge throughout the training tenure.	