MAHARAJA AGRASEN INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COs

7th Semester

ETEC 401	Embedded Systems
	Upon completion of the course, the Upon completion of the course, the students will be able to:
CO1	Understand the architecture and features of microcontrollers 8051 and PIC.
CO2	Understand and apply the concepts of ARM processors and understand various Bus structures in programming.
CO3	Understand the concept of embedded software, RTOS and apply it in Embedded Programming.
CO4	Apply the knowledge of embedded operating systems to understand Mutli-Tasking, Scheduling and RTOS linux kernel.

ETEC 403	Optoelectronics and Optical Communication
	Upon completion of the course, the Upon completion of the course, the students will be able to:
CO1	To understand basic optical communication systems and fiber structural characteristics with fabrication.
CO2	To understand and analyze the transmission characteristics in in optical fiber.
CO3	To understand design concept of optoelectronic devices and to analyze the performance of optical receiver.
CO4	To understand the advanced multiplexing techniques and optical networks and its applications.

ETEC-405	Wireless Communication
	Upon completion of the course, the students will be able to:
CO1	To understand the basic concept of wireless communication system.
CO2	To understand and Analyze different mobile signal networks & spread spectrum system.
CO3	To analyze 3G mobile system & different multiple access technique.
CO4	To understand and analyze WLL & global mobile satellite system.

ETEC 419	Radar and Navigation
	Upon completion of the course, the students will be able to:
CO1	Understand, analyze and appreciate the radar system architecture and the wide range of application of radar Systems.
CO2	Differentiate the clutter and moving object and optimum use of radar receiver.
CO3	Analyze features of radar transmitters and display device.
CO4	Distinguish different navigation systems and compare navigation aids for direction findings and range of travel of aircrafts.

ETCS 425	Database Management Syatem
	Upon completion of the course, the students will be able to:
CO1	Define the basic concepts of database management systems. Ability to design entity relationship model
CO2	Convert entity relationship diagrams into RDBMS and formulate SQL queries on the data.
CO3	Able to apply normalization technique for schema refinement
CO4	Able to demonstrate transaction processing and Implementation Technique

ETEC 451	Optical and wireless Communication Lab
	Upon completion of the course, the students will be able to:
CO1	To understand light transmission through optical fiber communication link
CO2	To analyse the transmission parameters and performances of optical fiber.
CO3	To test and measure various optical fiber communication parameters.
CO4	To compare the performance of various optical transmission schemes.

ETEC 453	Embedded Systems Lab
	Upon completion of the course, the students will be able to:
CO1	Understand the importance and working of various I/O pins of Microcontroller 8051 and interfacing modules.
CO2	Design and develop the Interfacing of PIC Microcontroller with various devices like LEDs, 7 segments Displays, Stepper Motors etc.
CO3	Develop programs for ARM processors for Additions / Subtractions / Multiplications / Divisions of data strings.
CO4	Demonstrate ability to effectively work as a team.

ETEC 455	Radar and Navigation Lab
	Upon completion of the course, the students will be able to:
CO1	Understand the basic physical and technical solutions in radar systems for different pupuses.
CO2	Design radar systems and to undertake measurements to characterize and verify the performance of radar systems.
CO3	Devise creative solutions in the design and development of radar equipment and systems.
CO4	Interpret the collected data with simulated results.

ETEC-457	Seminar
	Upon completion of the course, the students will be able to:
CO1	Recognize the upcoming technological developments.
CO2	Understand and conclude the learning process.
CO3	Identify and interpret the acquired knowledge of contemporary issues recognizing the need for lifelong learning.
CO4	Execute and perceive the concepts of the discussed topic along with developing professional and ethical responsibility.

ETEC-459	Minor Project
	Upon completion of the course, the students will be able to:
CO1	Learn the basics of report writing and understand the significance of literature survey in their research/project work.
CO2	Identify and incorporate innovative ideas with the existing technology.
CO3	Develop a flowchart/algorithm of proposed work based on engineering fundamentals
CO4	Apply computer modeling, tool engineering, or fabrication processes to formulate an output of the proposed design problem.

ETEC-461	Industrial Training
	Upon completion of the course, the students will be able to:
CO1	Recognize the appropriate career option and find appropriate placement.
CO2	Understand and Adapt to the actual working environment including rules, regulations and safety practices.
CO3	Enhance, generate and supplement their knowledge and skills.
CO4	Develop competence and demonstrate through experiment the acquired knowledge throughout the training tenure.

8th Semester

ETHS-402	Human Values and Professional Ethics-II (Mahim)
	Upon completion of the course, the students will be able to:
CO1	"Apply Universal Human Values and Professional Ethics to modern technical and professional world to support a harmonious and prosperous life at all the four levels of living."
CO2	"Describe 'social and value dimensions of technology' with the viewpoint of 'Engineers' Responsibility for Safety' by discussing and evaluating various case studies."
CO3	"Generate the ability to analyze systematic ethical decisions on environmental as well as professional global issues and to experiment with situations of personal and professional conflicts."
CO4	"Build team spirit and demonstrate an ethical work culture and feeling of job satisfaction while proposing an urge to practice ethical codes."

ETIT-402	Mobile Computing
	Upon completion of the course, the students will be able to:
CO1	Understand and illustrate the concepts of mobile physical layer and mobile computing architecture
CO2	Integrate the knowledge of mobile data link layer and bluetooth
CO3	Analyze the features of mobile IP network layer and mobile transport layer
CO4	Outline the usage of wireless devices and operating systems and summarizing the concepts of mobile application languages

ETEC 404	Satellite Communication
	Upon completion of the course, the students will be able to:
CO1	Explain the fundamentals and principles of satellite communication, satellite orbits and related geometry. Also understand geostationary and non-geostationary satellites.
CO2	Analyze satellite link design for uplink and downlink with respect to Earth station and classify the various sub systems and segments involved.
CO3	Acquire the knowledge of the different multiple access techniques exercised in satellite communication along with the knowledge of error control coding.
CO4	Demonstrate interconnection of satellite networks and identify the various commercial applications

ETEC -406	Adhoc and Sensor Networks
	Upon completion of the course, the students will be able to:
CO1	Enumerate and illustrate the challenges of Adhoc and wireless sensor networks and its MAC protocol..
CO2	Compare the various routing protocols and transport layer mechanisms.
CO3	Analyze wireless sensor networks and hybrid wireless networks.
CO4	Summarize the architecture, standards, Performance Measures of Geolocation system.

ETEC-428	Next Generation Networks
	Upon completion of the course, the students will be able to:
CO1	Develop the basic knowledge of NGN, its building blocks and various services.
CO2	Understand IP networks, LAN and WAN technologies and topologies.
CO3	Study concept of ATM, MPLS and multiservice networks.
CO4	Understand various NGN applications.

ETEC-452	Satellite & Antenna Communication Lab
	Upon completion of the course, the students will be able to:
CO1	To understand about active and passive satellites and link design concepts
CO2	To understand and analyze satellite monitoring procedures which includes telemetry, tracking and command, etc
CO3	To analyze the various parameters used to classify different types of antennas
CO4	Understand and apply the theorems associated with antennas such as Reciprocity, Polarisation, etc.

ETEC-454	Mobile Computing Lab
	Upon completion of the course, the students will be able to:
CO1	Illustrate the concepts and syntax of various elements of Wireless Markup Language (WML)
CO2	Construct WML pages including static content such as formatted text images and tables
CO3	Executing WML pages with interactive elements such as links, inputs, variables and events.
CO4	Analyze and implement interactive applications using WML and WML Script.

ETEC-456	Major Project
	Upon completion of the course, the students will be able to:
CO1	Work effectively in teams to deal with real world engineering projects.
CO2	Implement innovative ideas using existing technology.
CO3	Develop a prototype/working model of proposed work based on scientific and technical fundamentals
CO4	Link the theoretical and practical knowledge to resolve real world problems as an engineer.