Department of Electronics and Telecommunication Engg.

Course Outcomes (CO)

Semester III

3ETC01 ENGINEERING MATHEMATICS-III

After successfully completing the course, the students will be able to:

CO1 .Demonstrate the knowledge of differential equations to solve engineering problems of analog systems.

CO2 . Apply Laplace transform to solve differential equations.

CO3. Apply knowledge of vector calculus.

CO4. Comprehend knowledge of complex analysis in terms of complex variables, harmonic functions and conformal mapping.

CO5. Apply numerical methods to obtain approximate solutions to mathematical problems.

CO6. Identify and solve certain forms of partial difference equations as applied to discrete systems.

3ETC02 ELECTRONIC DEVICES & CIRCUITS

After successfully completing the course, the students will be able to:

CO1.Comprehend the knowledge of diode, filter and its applications in rectifier and regulator circuits.

CO2. Understand basics of wave shaping

CO3. Understand basics of BJT and their operational parameters.

CO4. Understand feedback concept, topologies oscillator with applications.

CO5 Implement and analyze multistage amplifier circuits.

CO6. Understand basics of JFET, MOSFET, UJT and their operational parameters.

3ETC03 DIGITAL SYSTEM DESIGN

After successfully completing the course, the students will be able to:

CO1. Understand number systems and its conversion, basic logic gates with truth table and arithmetic operations using 1's and 2's compliment.

CO 2.Use Boolean algebra to solve logic functions, minimization techniques using K map.

CO 3. Identify, analyze and design combinational logic circuits.

CO 4. Understand and design sequential logic circuits.

CO 5. Understand digital logic families and their characteristics. Use the knowledge of semiconductor memories and mapping of memories, programmable logic devices in digital design.

CO 6. Analyze and design clocked sequential logic circuits.

3ETC04 ELECTROMAGNETIC WAVES

After successfully completing the course, the students will be able to:

CO1. Understand the coordinate systems and vector integrals.

CO2. Evaluate Electric Field Intensity for different charge distributions.

CO3. Evaluate Magnetic Field Intensity due to current carrying conductors.

CO4. Understand scientifically about Maxwell's equations & Boundary conditions.

CO5. Characterize uniform plane wave & can calculate reflection and transmission coefficient of waves   at media interface.

CO6. Understand principle of radiation and radiation characteristics of theoretical & practical antennas.

3ETC05 OBJECT ORIENTED PROGRAMMING

After successfully completing the course, the students will be able to:

C01. Justify the basics of object-oriented programming concepts such as data types,

functions, classes, objects, constructors, inheritance, overloading etc.

CO2. Design, implement, test, and debug simple programs in C++.

CO3 Describe how the class mechanism supports encapsulation and information hiding..

CO4. To know the concept of operator overloading

CO5. Understand inheritance in C++

CO6. Design and test the implementation of Java programming concepts

4ETC01 ANALOG AND DIGITAL COMMUNICATION (4ETC01)

After successfully completing the course, the students will be able to:

CO1. Understand the necessity of modulation and identify the various components of analog and Digital communication systems.

CO2. Compare and contrast the strengths and weaknesses of various communication systems.

CO3. Apply the concepts of Probability theory in communication systems.

CO4. Analyze the performance of various pulse modulation scheme

CO5. Understand basic building blocks of digital communication system and formatting of digital signal.

CO6. Understand concepts of information theory and analyze information transmission over   communication

4ETC02 ANALOG CIRCUITS

After successfully completing the course, the students will be able to:

CO1. Comprehend the knowledge of basic concepts and performance parameters of Op-Amp & Perform evaluation of the switching behavior of semiconductor devices.

CO2.Analyze and design linear and linear applications of Op-Amp

CO3. Use Op-Amp for implementation of non-linear applications.

CO4. Implement voltage regulators and Op-Amp as instrumentation amplifier

CO5. Use IC 555 and IC 565 for synthesizing the waveform generators

CO6. Comprehend the knowledge of PLL, its applications and data converters

4ETC03 NETWORK THEORY

After successfully completing the lab, the students will be able to

CO1. Analyze electrical circuits using Mesh and Node analysis.

CO2. Apply suitable Network Theorem to analyze electrical circuits.

CO3. Draw oriented Graph of the network to determine their currents and voltages.

CO4. To implement the concept of Laplace Transform for electrical circuit analysis.

CO5. To apply Two-Port network theory for electrical network analysis.

CO6. To evaluate different Network Functions.

4ETC04 SIGNALS & SYSTEMS

After successfully completing the course, the students will be able to:

1. Understand the continuous time signals and systems mathematically and their classification along with the
    mathematical operations that can be performed on them.
2. Understand the spectral characteristics of continuous-time periodic signals using Fourier series.
3. Analyze the spectral characteristics of continuous-time aperiodic signals and systems using Fourier Transform.
4. Apply the Laplace transform for analysis of continuous-time systems.
5. Understand the Discrete Time signals and systems mathematically and understand their classification along
    with the mathematical operations that can be performed on them.
6. Analyze the spectral characteristics of Discrete Time signals and systems using Discrete Time Fourier Transform.

Semester IV

4ETC05 VALUES & ETHICS (HS)

After successfully completing the course, the students will be able to:

1. Students are expected to become more aware of themselves, and their surroundings (family, society, nature)
2. They would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.
3. They would have better critical ability.

4. They would also become sensitive to their commitment towards what they have understood (human values, human relationship, and human society).
5. It is hoped that they would be able to apply what they have learnt to their own self in different day-today settings in real life, at least a beginning would be made in this direction.
6. They would learn typical holistic technologies, management models and production systems,
Strategy for transition from the present state to Universal Human Order.

5ETC01 MICROCONTROLLER

After successfully completing the course, the students will be able to:

CO1. Attain the knowledge of Microprocessor 8085
CO2. Understand the Interfacing of various peripheral devices with Microprocessor 8085
CO3. Attain the knowledge of Microcontroller 8051
CO4. Understand assembly language & C Programming for Microcontrollers
CO5. Understand the Interfacing of various peripheral devices with Microcontroller 8051
CO6. Gain knowledge of advance Microcontrollers
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5ETC02 CONTROL SYSTEM
After successfully completing the course, the students will be able to:

CO1. Understand mathematical models of electrical, mechanical and electromechanical systems.
CO2. Determine transfer functions from block diagrams and signal flow graph.
CO3. Evaluate transient response and steady state response parameters.
CO4. Analyze stability of the LTI system using Routh criterion and root locus
CO5. Analyze stability of the LTI system using bode plot and Nyquist criterion
CO6. Create the state model and Evaluate response of the system using state variable method

5ETC03 DIGITAL SIGNAL PROCESSING
After successfully completing the course, the students will be able to:

CO1. Manipulate the discrete time signals and identify the type system.
CO2. Compute the Z-transform of a sequence, identify its region of convergence and compute the inverse Z-transform.
CO3. Evaluate the Fourier transform of a signal.
CO4. Design FIR and IIR filters.
CO5. Understand the concepts of Multirate Digital Signal Processing and need of Filter banks.
CO6. Understand the application of Digital Signal Processing.

5ETC04) FIBER OPTICS COMMUNICATION (PROFESSIONAL ELECTIVE -1)

After successfully completing the course, the students will be able to:

CO1. Understand the principles fiber-optic communication, the components and Losses and dispersion in fiber.

CO2. Understand the properties of the optical fibers and optical components in sources.

CO3. Understand operation of lasers, LEDs, and detectors in fiber

CO4. Analyze system performance of optical communication systems in networks

CO5. Understand the block diagram of FOC System with Power budgeting parameters.

CO6. To apply the knowledge of fiber optical components, links, and systems.

5ETC05 INTRODUCTION TO JAVA

After successfully completing the course, the students will be able to:

CO1. Fundamentals of Object-Oriented Programming and can build & run a basic application at their own

CO2. Use of selection & repetition statements in Java Program, dealing with methods and playing with classes and objects in real world

CO3. To create and process single dimensional & multidimensional arrays, to handle strings in Java

CO4. To create interactive graphical user interface in a desktop application using AWT and/or SWING Components.

CO5. To handle exceptions and create user defined exception, also learns file handling in Java.

CO6. To learn concept of multithreading; create, manage threads; and purpose of synchronization

6ETC01 COMMUNICATION NETWORKS

After successfully completing the course, the students will be able to:

1. Identify different types of network devices and their functions within a network.

2. Understand the basic functions of data logical link control and media access control and protocol used in this layers.

3. Distinguish between the layers of the OSI and TCP/IP model.

4. Analyze, specify and design routing strategies for an IP based networking infrastructure

5. Understand the concept of reliable and unreliable transfer protocol of data and how TCP and UDP implement these concepts.

6. Understand various Application layer Protocols\

6ETC02 COMPUTER ARCHITECTURE

After successfully completing the course, the students will be able to:

CO1. Learn how computers work
CO2. Analyse the performance of computers
CO3. Perform floating point arithmetic operations and design ALU as per the requirement
CO4. Know how computers are designed & built
CO5. Understand and design different types of memory systems
CO6. Understand issues affecting recent processors

6ETC03 SATELLITE COMMUNICATION

After successfully completing the course, the students will be able to:

CO 1. Visualize the architecture of satellite systems as a means of high speed, high range communication system.

CO 2. State various aspects related to satellite systems such as orbital equations, sub-systems in a satellite

CO 3. Solve numerical problems related to orbital motion and design of link budget for the given parameters and conditions.

CO 4. Learn advanced techniques and regulatory aspects of satellite communication

CO 5. Understand role of satellite in various applications

CO 6. Understand VSAT and GPS

Semester V

6ETC05 ENGINEERING ECONOMICS

After successfully completing the course, the students will be able to:

CO1. Learn basics of Engineering Economics
CO2. Understand and compute the production cost
CO3. Study different cash flow method
CO4. To evaluate Engineering alternativess
CO5. Understand depreciation analysis
CO6. Understand Indian Banking System

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7ETC1 CRYPTOGRAPHY & NETWORK SECURITY

After successfully completing the course, the students will be able to:

CO1. Understand basic cryptographic algorithms.
CO2. Attain the knowledge of message and web authentication and security issues.
CO3. Identify information system requirements
CO4. Understand the current legal issues towards information security
CO5. Discuss the fundamental ideas of public-key cryptography
CO6. Understand Intrusions and intrusion detection
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7ETC2 DIGITAL IMAGE AND VIDEO PROCESSING

After successfully completing the course, the students will be able to:

CO1. Comprehend fundamentals of digital image processing.
CO2. Understand & apply knowledge of spatial domain and frequency domain filtering to digital images.
CO3. Analysis of image segmentation and morphological techniques.
CO4. Understand image degradation model and its restoration; analyze various image compression techniques based on redundancy features.
CO5. Understand the Fundamentals of digital video processing.
CO6. Comprehend motion estimation and video processing applications.

7ETC03 PROJECT MANAGEMENT & ENTREPRENEURSHIP

After successfully completing the course, the students will be able to:

CO1. Understand basic concept of Project management
CO 2. Attain the knowledge of cost estimation & working capital
CO 3. Prepare Cost Sheets, balance sheets and Cash Flow statements
CO 4. Understand the Entrepreneurial competencies & traits
CO 5. Discuss the Management skills for Entrepreneurs
CO 6. Understand Social Entrepreneurship

7ETC4 MOBILE COMMUNICATION NETWORK

After successfully completing the course, the students will be able to:

CO 1. Explain basic concept of Cellular systems and standards
CO 2. Demonstrate knowledge of Signal propagation model
CO 3. Compare different multiple access techniques in mobile communication.
CO 4. Summarizes the concept of rake receiver
CO 5. Demonstrate advance knowledge of MIMO
CO 6. Compare different Mobile Communication Systems and standard

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ANTENNA & PROPOGATION (7ETC05)

After successfully completing the course, the students will be able to:

CO 1. Describe the basic concepts and applications of Antenna systems.
CO 2. Determine the radiation pattern and directivity of antenna arrays.
CO 3. Describe the concept of Huygens Principle & Babinet's Principle.
CO 4. Understated the properties of broadband antennas and micro strip antennas.
CO 5. Describe the basic principles of smart antenna systems.
CO 6. Understand different ways of propagation of radio waves.

8ETC01 EMBEDDED SYSTEMS

After successfully completing the course, the students will be able to:

CO 1. Recognize the concept of Embedded Systems
CO 2. Summarize the quality attributes of Embedded System
CO 3. Articulate the architecture and inbuilt peripherals of AVR Microcontroller
CO 4. Evaluate the programming of AVR Microcontroller in C
CO 5. Compare task, process & threads in Real Time Embedded System
CO 6. Assess validation and debugging of Embedded System

8ETC02 CRYPTOGRAPHY AND NETWORK SECURITY

After successfully completing the course, the students will be able to:

CO 1. Understand basic cryptographic algorithms
CO 2. Attain the knowledge of message and web authentication and security issues.
CO 3. Identify information system requirements
CO 4. Understand the current legal issues towards information security
CO 5. Discuss the fundamental ideas of public-key cryptography
CO 6. Understand Intrusions and intrusion detection.

Semester VI

8ETC03 BIOMEDICAL ELECTRONICS

After successfully completing the course, the students will be able to:

CO 1. Understand fundamentals of Medical Instrumentation, Biomedical Signals and Electrode.
CO 2. Identify and classify various Biomedical Transducers.
CO 3. Illustrate the significance of human signals and recording techniques
CO 4. Familiarize with Modern medical imaging systems.
CO 5. Conceptualize requirements and importance of Patient Care and Monitoring and Safety.
CO 6. Describe the function and necessity of Physiological and electrotherapy equipments

8ETC04 INFORMATION THEORY AND CODING

After successfully completing the course, the students will be able to:

CO 1. Understand the concept of information and entropy
CO 2. Understand Shannon's theorem for coding
CO 3. Calculation of channel capacity
CO 4. Discuss the various capacity reduction based coding techniques for text, audio and speech type of data
CO 5. Compare various capacity reduction based coding techniques for image and video type of data.
CO 6. Implement various error control techniques for Convolutional codes.