

### **3ETC1 Course Name: Engineering Mathematics-III**

#### **Course Outcomes:**

Upon successful completion of this course, the student will be able to:

1. Demonstrate the knowledge of differential equations to solve engineering problems of analog systems.
2. Apply Laplace transform to solve differential equations.
3. Apply knowledge of vector calculus.
4. Comprehend knowledge of complex analysis in terms of complex variables, harmonic functions and conformal mapping.
5. Apply numerical methods to obtain approximate solutions to mathematical problems.
6. Identify and solve certain forms of partial difference equations as applied to discrete systems.

### **3ETC02 Course Name: Object Oriented Programming**

#### **Course Outcomes**

At the end of the course, students will be able to:

- **K403.1** To **Understand** the difference between the top-down and bottom-up approach and **describe** the object-oriented programming in connection with C++
- **K403.2** To **explain** the concept of Class, Objects, Functions & Constructors.
- **K403.3** To **demonstrate** the use of Inheritance & Overloading unary & binary Operators in C++.
- **K403.4** To Understand the Basic Concepts of java .
- **K403.5** To **demonstrate** the concept of Class ,objects ,Methods in java.
- **K403.6** To **demonstrate** the use of Multiple inheritance & interface in java.

### **3ETC03 Course Name: Electronic Devices And Circuits**

#### **Course Outcomes:**

Upon successful completion of this course, the student will be able to:

1. Comprehend the knowledge of diode and its applications in rectifier and regulator circuits.
2. Understand basics of BJT, JFET, MOSFET, UJT and their operational parameters.
3. Understand feedback concept, topologies and their applications.
4. Implement and analyze various electronic circuits.

### 3ETC04 Course Name: Digital System Design

#### Course Outcomes:-

Upon successful completion of this course, the student will be able to:

1. Use Boolean algebra to solve logic functions, minimization techniques, number systems and its conversion, arithmetic functions.
2. Identify, analyze and design combinational and sequential circuits.
3. Understand digital logic families and their characteristics.
4. Use the knowledge of semiconductor memories and mapping of memories, programmable logic devices in digital design

### 3ETC05 Course Name: Electromagnetic Wave

#### Course Outcomes:-

Upon successful completion of this course, the student 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

### 4ETC01 Course Name : Analog and Digital Communication

#### Course Outcomes:-

Upon successful completion of this course, the student will be able to:

- CO1 **Identify** the necessity of modulation; **describe and compare** different analog modulation schemes in analog communication systems.
- CO2 **Describe** different analog demodulation schemes in analog communication systems; **compare** and **contrast** the strengths and weaknesses of various receivers in

communication systems.

- CO3 **Apply** probability theory to **analyze** random process and its properties as well as for performance analysis of FM in presence of noise.
- CO4 **Discuss** Sampling theorem and Nyquist criteria; **analyze and compare** different sampling techniques along with the performance of various pulse modulation schemes.
- CO5 **Discuss and summarize** basic building blocks of digital communication system, information theory and line coding.
- CO6 **Discuss** concepts of digital modulation techniques also **analyze** information transmission through communication channel.

#### **4ETC02 Course Name :Signal & System**

##### **Course Outcomes:-**

Upon successful completion of this course, the student will be able to:

- CO1 Describe signals mathematically and understand how to perform mathematical operations on signals and systems.
- CO2 Analyze the spectral characteristics of continuous-time periodic and a periodic signals using Fourier analysis.
- CO3 Classify systems based on their properties and determine the response of LTI system.
- CO4 Analyze system properties based on impulse response and Fourier analysis.
- CO5 Understand the process of sampling and its effects.
- CO6 Apply the Laplace transform for analysis of continuous-time and discrete-time systems.

#### **4ETC03 Course Name: Analog Circuit**

##### **Course Outcomes:**

Upon successful completion of this course, the student will be able to:

1. Analyze different wave shaping circuits.
2. Perform evaluation of the switching behavior of semiconductor devices.
3. Comprehend the knowledge of basic concepts and performance parameters of Op-Amp.
4. Use Op-Amp for implementation of linear and non-linear applications.
5. Comprehend the knowledge of PLL, its applications and data converters

#### **4ETC04 Course Name: Network Theory**

##### **Course Outcomes:**

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

1. Analyze electrical circuits using Mesh and Node analysis.
2. Apply suitable Network Theorem to analyze electrical circuits.
3. Draw oriented Graph of the network to determine their currents and voltages.
4. To implement the concept of Laplace Transform for electrical circuit analysis.
5. To apply Two-Port network theory for electrical network analysis.
6. To evaluate different Network Functions.

#### **5ET1 Course Name: Microcontroller (5ETC01)**

##### **Course Outcomes:**

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

#### **5ET2 Course Name: Power Electronics & Drives**

##### **Course Outcomes:**

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

- CO1 Analyze the characteristics of various power electronics devices.
- CO2 Understand SCR firing circuits, commutation techniques.
- CO3 Design and develop power electronic circuits for various applications.
- CO4 To illustrate the operation of various DC and AC motors.
- CO5 Know various applications of power converters in AC and DC drives.

### **5ET3 Course Name: Digital Signal Processing**

#### **Course Outcomes:**

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 architecture of DSP processor TMS320C54XX.

### **5ET4 Course Name: Control System**

#### **Course Outcomes:**

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

1. Understand mathematical models of electrical, mechanical and electromechanical systems.
2. Determine transfer functions from block diagrams and signal flow graph.
3. Evaluate transient response and steady state response parameters.
4. Analyze stability of the LTI system using Routh criterion and root locus
5. Analyze stability of the LTI system using bode plot and Nyquist criterion
6. Create the state model and Evaluate response of the system using state variable method.

### **5KS05 Course Name: Entrepreneurship**

#### **Course Outcomes:**

On completion of the course, the students will be able to

1. Develop awareness about entrepreneurship and successful entrepreneurs.
2. Develop an entrepreneurial mind-set by learning key skills such as design, personal selling, and communication. Analyze performance of different digital modulation techniques.
3. Understand the DNA of an entrepreneur and assess their strengths and weaknesses from an entrepreneurial perspective

## **6ET1 Course Name: Microcontroller Programming & Application**

### **Course Outcomes:**

On completion of the course, the students will be able to

- CO1 Use various members of AVR family.
- CO2 Program AVR Microcontroller in assembly language and C language.
- CO3 Use different inbuilt block of AVR.
- CO4 Implement a system for dedicated applications.
- CO5 Understand different serial protocols and IDE tools for AVR.

## **6ET3 Course Name: Digital Communication**

### **Course Outcomes:**

Upon successful completion of this course, the student will be able to:

1. Understand basic building blocks of digital communication system and formatting of digital signal.
2. Understand concepts of information theory and analyze information transmission over communication channel.
3. Analyze performance of different digital modulation techniques.
4. Understand methods to mitigate inter symbol interference in baseband transmission system.
5. Implement different error control coding schemes for the reliable transmission.
6. Understand various multiple access schemes and spreading techniques.
- 7.

## **6FEIT05 Course Name: E - Commerce**

### **Course Outcomes:**

Upon successful completion of this course, the student will be able to:

- CO1 Describe the major types of E-commerce.
- CO2 Analyze the impact of E-commerce on business models and strategy.
- CO3 Explain the process that should be followed in building an E-commerce presence.
  
- CO4 Understand the processes of developing and implementing websites.
- CO5 Identify the key security threats in the E-commerce environment.
- CO6 Describe how procurement and supply chains relate to B2B E-commerce.

## **7ET1 Course Name: VLSI Design**

### **Course Outcomes:**

Upon successful completion of this course, the student will be able to:

- CO1** Gain knowledge about the trends in VLSI semiconductor technology and its impacts on scaling and performance.
- CO2** Enables the students to draw layout, stick diagrams of simple CMOS Circuit
- CO3** Introduction to various IC fabrication process.
- CO4** Draw Layout, Stick diagrams of simple CMOS Circuits
- CO5** Understand Front & Back end design aspects of simple VLSI Digital circuits
- CO6** Model digital circuits with Verilog HDL, simulate, synthesize and prototype in PLDs.

## **7ET2 Course Name: Digital Image Processing**

### **Course Outcomes:**

Upon successful completion of this course, the student will be able to:

1. Explain general terminology of digital image processing
2. Compare and apply different transform for image processing.
3. Explain various image enhancement techniques in spatial and frequency domains.
4. Evaluate the methodologies for image segmentation, Compression and restoration
5. Apply image processing techniques in practical applications.

## **7ET3 Course Name: SFOC**

### **Course Outcomes:**

Upon successful completion of this course, the student will be able to:

6. To understand basics of orbital mechanism, the types of satellite orbits and orbital aspects of satellite communication
7. To understand the various services of satellite.
8. Understand satellite link model.
9. Understand basics of fiber optic communication system
10. Understand functioning of optical sources and detectors.

## **7ET4 Course Name: Industrial Management & Quality Control**

### **Course Outcomes:**

Upon successful completion of this course, the student will be able to:

- CO1 Practice the fundamental principles and functions of business management.
- CO2 Recognize and apply knowledge of marketing and materials management.
- CO3 Interpret and evaluate personnel management and evaluation methods of job rating.
- CO4 Evaluate balance sheet, costing and budgetary aspects, project report, profit and loss statement and ratio analysis.
- CO5 Identify factors controlling quality of design and conformance.
- CO6 Apply professional ethics, Kaizen, Quality Circles, ISO-9000 series and TQM in organization.

## **7ET5 Course Name: PLC and Automation (PELECTIVE-I)**

### **Course Outcomes:**

Upon successful completion of this course, the student will be able to:

- CO1 To understand Basic Architecture of PLC and describe working of various blocks of basic industrial automation system.
- CO2 To study and analyze different input/output peripherals and communication standards used with PLC.
- CO3 To understand Basic Instructions used for Ladder programming.
- CO4 To Develop PLC programs for various Applications.
- CO5 To apply knowledge in interfacing the peripherals with PLC.
- CO6 To understand SCADA and its application of SCADA in industrial automation.

## **8ET1 Course Name: UHF**

### **Course Outcomes:**

Upon successful completion of this course, the student will be able to:

1. Examine the performance of microwave tubes such as klystron, magnetron
2. Explain operations of microwave active devices
3. Explain characteristics of microwave propagation through transmission line.
4. Make use of S-parameters for characterization of microwave components.
5. Measure various parameters of microwave system



## **8ET2 Course Name: Wireless Communication**

### **Course Outcomes:**

Upon successful completion of this course, the student will be able to:

- CO1: To illustrate the evolution of cellular mobile system and understand cellular concepts.
- CO2: To explain design fundamentals of cellular radio system
- CO3: To understand propagation mechanism and fading in mobile radio system.
- CO4: To demonstrate concepts of GSM system
- CO5: To demonstrate concepts of CDMA Digital Cellular Standard
- CO6: To explain the concept of LTE, WLAN and Bluetooth.

## **8ET3 Course Name: Data Communication Network**

### **Course Outcomes:**

Upon successful completion of this course, the student will be able to:

- CO1 Identify different types of network devices and their functions within a network.
- CO2 Describe different types of network topologies, protocols and their services.
- CO3 Analyze and differentiate between the layers of the OSI reference model and TCP/IP model.
- CO4 Understand and apply various types of routing algorithms.
- CO5 Understand and apply concepts of IP addresses in IP address calculation and subnet masking.
- CO6 Analyze and deal with various security issues in data communication network.

## **8ET4 Course Name: Biomedical Engineering**

### **Course Outcomes:**

Upon successful completion of this course, the student will be able to:

- CO1 Understand the importance and association of engineering with medical field.
- CO2 Understand the significance of various human signals and recording techniques.

- CO3 Familiarize with various medical imaging systems, various lifesaving equipment's.
- CO4 Conceptualize patient care & safety requirements and its importance.