D.N.Patel College of Engineering Shahada
Department of Electronics & Telecommunication Engineering

COURSE OUTCOME

SEMESTER: I^{st}

CLASS: S.Y. (E&TC)

Name of Subject: Engineering Mathematics III

CO1	Solve engineering problems using the principles of solution of differential equations
CO2	Understand analytic function of a complex variable and able to apply Cauchy integral theorem and residue theorem to solve contour integrations.
CO3	Use Fourier transforms and its inverse in practical applications of electronics engineering.
CO4	Apply Laplace transform and its inverse to solve initial value and other related problems
CO5	Know basic statistical techniques required for electronics engineering
CO6	To Understand Functions of Complex Variables (Integral calculus)

Name of Subject: Digital Electronics

CO1	Use the basic logic gates and various reduction techniques of digital logic circuit in detail.
CO2	Design combinational and sequential circuits.
CO3	Design and implement hardware circuit to test performance and application.
CO4	Understand the architecture and use of VHDL for basic operations and Simulate using simulation software.
CO5	Explain the basic concept of Programmable Logic Device
CO6	To lay the foundation for further studies in areas such as communication, VHDL, Computer.

Name of Subject: Electronic Devices & Circuits

CO1	Comply and verify parameters after exciting devices by any stated method.
CO2	Implement circuit and test the performance
CO3	Analyze BJT, JFET and MOSFET for various applications.
CO4	Analyze Feedback amplifiers and oscillators

Name of Subject: Electrical Machines and Instruments

CO1	The ability to formulate and then analyze the working of any electrical machine using mathematical model under loaded and unloaded conditions
CO2	The skill to analyze the response of any electrical machine
CO3	The ability to troubleshoot the operation of an electrical machine
CO4	The ability to select a suitable measuring instrument for a given application
CO5	The ability to estimate and correct deviations in measurements due to the influence of the instrument and due to the accuracy of the instrument
CO6	Understand the different types of transducers

CLASS: T.Y. (E&TC)

Name of Subject: Digital Signal Processing

CO1	Understand use of different transforms and analyze the discrete time signals and systems
CO2	Realize the use of LTI filters for filtering different real-world signals
CO3	Capable of calibrating and resolving different frequencies existing in any signal.
CO4	Design and implement multistage sampling rate converter.

CO5	Design of different types of digital filters for various applications
CO6	Understand concept of sampling rate conversion and DSP processor architecture.

Name of Subject: BTETOE505A Control System Engineering

CO1	Understand the modeling of linear-time-invariant systems using transfer function and state-space representations.
CO2	Understand the concept of stability and its assessment for linear-time invariant systems.
CO3	Design simple feedback controllers
CO4	Understand the elements of control system and their modeling using various Techniques
CO5	Understand the methods for analyzing the time response, the frequency response and the stability of systems
CO6	Understand the state variable analysis method

Name of Subject: Electromagnetic Field Theory

CO1	Understand characteristics and wave propagation on high frequency transmission lines
CO2	Carryout impedance transformation on TL
CO3	Use sections of transmission line sections for realizing circuit elements

CO4	Characterize uniform plane wave
CO5	Calculate reflection and transmission of waves at media interface
CO6	Analyze wave propagation on metallic waveguides in modal form Understand principle of radiation and radiation characteristics of an antenna

Name of Subject: Analog Communication

CO1	Understand and identify the fundamental concepts and various components of analog communication systems.
CO2	Understand the concepts of modulation and demodulation techniques.
CO3	Design circuits to generate modulated and demodulated wave.
CO4	Equip students with various issues related to analog communication such as modulation, demodulation, transmitters and receivers and noise performance.
CO5	Understand the concepts of modulation and demodulation techniques of angle modulation (frequency and phase).
CO6	Explain signal to noise ratio, noise figure and noise temperature for single and cascaded stages in a communication system.
CO7	Develop the ability to compare and contrast the strengths and weaknesses of various Communication systems.

Name of Subject : Power Electronics

CO1	Build and test circuits using power devices such as SCR
CO2	Analyze and design-controlled rectifier, DC to DC converters, DC to AC inverters
CO3	Learn how to analyze these inverters and some basic applications
CO4	Design SMPS.
CO5	To gain the knowledge of Power electronic devices and its applications
CO6	To develop the knowledge about which device to choose for a particular application

CLASS: B.TECH. FINAL YEAR. (E&TC)

Name of Subject: Fiber Optic Communication

CO1	Understand the principles fiber-optic communication, the components and the bandwidth advantages.
CO2	Understand the properties of the optical fibers and optical components.
CO3	Understand operation of lasers, LEDs, and detectors.
CO4	Analyze system performance of optical communication systems.

CO5	Design optical networks and understand non-linear effects in optical fibers.
CO6	Understand basic optical amplifier operation and its effect on signal power and noise in the system.

Name of Subject: Wireless Sensor Networks

CO1	Design wireless sensor networks for a given application
CO2	Understand emerging research areas in the field of sensor networks
CO3	Understand MAC protocols used for different communication standards used in WSN.
CO4	Explore new protocols for WSN.
CO5	Understand the emerging research areas in the field of wireless sensor networks

Name of Subject: Microwave Engineering

CO1	Formulate the wave equation in wave guide for analysis.
CO2	Identify the use of microwave components and devices in microwave applications.
CO3	Understand the working principles of all the microwave tubes.
CO4	Understand the working principles of all the solid-state devices.

CO5	Choose a suitable microwave tube and solid-state device for a particular application.

Name of Subject: Engineering Economics and Financial Mathematics

CO1	After completing this course, students will be able to conduct simple economic studies.
CO2	They will also be able to make evaluation of engineering projects and make decisions related to investment.
CO3	To describe and illustrate the important elements in project finance Using financial calculator and Excel in a variety of problems

SEMESTER: IIND

CLASS: S.Y. (E&TC)

Name of Subject: Signals & Systems

CO1	Understand mathematical description and representation of continuous and discrete time signals and systems
CO2	Develop input output relationship for linear shift invariant system and understand the convolution operator for continuous and discrete time system
CO3	Understand and resolve the signals in frequency domain using Fourier series and Fourier transforms.
CO4	Understand the limitations of Fourier transform and need for Laplace transform and develop the ability to analyze the system in s-domain.
CO5	Students will able to apply the knowledge of state space analysis and real time applications in day to day life.
CO6	Students will able to understand the use of Z-transform

Name of Subject: Python Programming

CO1	Experience with an interpreted Language.
CO2	To build software for real needs

CO3	Prior Introduction to testing software

Name of Subject–Probability Theory and Random Processes

CO1	Understand representation of random signals
CO2	Investigate characteristics of random processes
CO3	Make use of theorems related to random signals
CO4	To understand propagation of random signals in LTI systems
CO5	Understand the axiomatic formulation of modern Probability Theory and think of random variables as an intrinsic need for the analysis of random phenomena.
CO6	Gain knowledge about statistical distributions of one and two dimensional random variables and correlations.

Name of Subject–Networks Theory

CO1	Apply knowledge of mathematics to solve numerical based on network simplification and it will be used to analyze the same.
CO2	Design passive filters and attenuators theoretically and practically. To apply knowledge for design of active filters as well as digital filters and even extend this to advance adaptive filters.

CO3	Identify issues related to transmission of signals, analyze different RLC networks.
CO4	Find technology recognition for the benefit of the society.
CO5	To learn about the comprehensive insight into the principle techniques available for characterizing circuits, networks and their implementation in practice.
CO6	To learn about the use of mathematics, need of different transforms and usefulness of differential equations for analysis of networks.

Name of Subject–Basic Human Rights

CO1	Students will learn to respect others caste, religion, region and culture.
CO2	Students will be aware of their rights as Indian citizen.
CO3	Students will be able to understand the importance of groups and communities in the society.
CO4	Students will be able to realize the philosophical and cultural basis and historical perspectives of human rights3

CLASS: T.Y. (E&TC)

Name of Subject: Computer Network

CO1	To master the terminology and concepts of the OSI reference model and the TCP-IP reference model.
CO2	To master the concepts of protocols, network interfaces, and design/performance issue s in local area networks and wide area networks.
CO3	To be familiar with wireless networking concepts.
CO4	To be familiar with network tools and network programming
CO5	For a given requirement (small scale) of wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs) design it based on the market available component.
CO6	Configure DNS DDNS, TELNET, EMAIL, File Transfer Protocol (FTP), WWW, HTTP, SNMP, Bluetooth, Firewalls using open source available software and tools.

Name of Subject–Employability & Skill Development

CO1	Have skills and preparedness for aptitude tests.
CO2	Be equipped with essential communication skills (writing, verbal and non-verbal)

CO3	Master the presentation skill and be ready for facing interviews.
CO4	Build team and lead it for problem solving.

Name of Subject–Microprocessors and Microcontrollers

CO1	Students get ability to conduct experiments based on interfacing of devices to or interfacing to real world applications
CO2	Students get ability to interface mechanical system to function in multidisciplinary system like in robotics, Automobiles.
CO3	Students can identify and formulate control and monitoring systems using microprocessors.
CO4	Learn use of hardware and software tools
CO5	Develop interfacing to real world devices
CO6	Graduates will be able to design real time controllers using microcontroller-based system.
CO7	Learn importance of microcontroller in designing embedded application

Name of Subject: Digital Communication

CO1	Understand the building blocks of digital communication system
CO2	Analyze the performance of a baseband and passband digital communication system in terms of error rate and spectral efficiency
CO3	Understand mathematical background for communication signal analysis
CO4	Perform the time and frequency domain analysis of the signals in a digital communication system
CO5	Select the blocks in a design of digital communication system
CO6	Analyze Performance of spread spectrum communication system

Name of Subject–Antennas & Wave Propagation.

CO1	Formulate the wave equation and solve it for uniform plane wave.
CO2	Analyze the given wire antenna and its radiation characteristics.
CO3	Identify the suitable antenna for a given communication system.
CO4	To understand the applications of electromagnetic engineering.

CO5	To formulate and solve the Helmholtz wave equation and solve it for Uniform Plane Wave.
CO6	To solve the electric field and magnetic fields for a given wire antenna.

CLASS: B.TECH. FINAL YEAR (E&TC)

NIL