A.Y. 2024-2025
B.E. 3rd Sem

Course: Engineering Mathematics – III **Course Code: (3ETC01)**

At the end of Engineering Mathematics – III course, the students will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Demonstrate the knowledge of differential equations to solve engineering problems of analog systems.	L3
2	Apply Laplace transform to solve differential equations.	L3
3	Apply knowledge of vector calculus	L3
4	Comprehend knowledge of complex analysis in terms of complex variables, harmonic functions and conformal mapping.	L4
5	Apply numerical methods to obtain approximate solutions to mathematical problems	L3
6	Calculate partial difference equations as applied to discrete systems	L3

Course: Electronic Devices and Circuits **Course Code: (3ETC02)**

At the end of Electronic Devices and Circuits course, the students will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Analyze the operation of diodes for various applications.	L4
2	Illustrate wave shaping circuits for various signals	L3
3	Analyze the various configurations of BJT.	L4
4	Apply feedback concepts in various applications	L3
5	Construct the different types of multistage amplifiers	L4
6	Analyze the operation of JFET, MOSFET and UJT	L4

Course: Digital System Design **Course Code: (3ETC03)**

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

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Calculate binary, decimal, hexadecimal, BCD, Excess 3 and gray code and its conversions	L3
2	Apply reduction techniques like k-map and tabular method to the Boolean equations	L3

3	Analyze combinational Logic Circuits like MUX, DMUX, Encoder, decoder, Adder, Subs tractor, magnitude comparator.	L4
4	Analyze Sequential Logic Circuits like Flip flops, counter, shift register	L4
5	Evaluate the digital logic families and their characteristics.	L5
6	Analyze the clocked sequential circuits.	L4

Course: Electromagnetic Waves **Course Code: (3ETC04)**
At the end of Electromagnetic Waves course, the students will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Calculate the coordinate systems and vector integrals.	L3
2	Recommend Electric Field Intensity for different charge distributions.	L5
3	Judge the Magnetic Field Intensity due to current carrying conductors.	L5
4	Categorize Maxwell's equations & Boundary conditions	L4
5	Illustrate the concept of propagation of electromagnetic waves in free space.	L3
6	Evaluate the radiation characteristics of electromagnetic wave theoretical & practical antennas	L5

Course: Object Oriented Programming **Course Code: (3ETC05)**
At the end of Object Oriented Programming course, the students will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate the basic concepts of object-oriented programming such as data types, functions, classes,objects, constructors, inheritance, overloading etc.	L3
2	Analyze the programs in C++.	L4
3	Describe how the class mechanism supports encapsulation and information hiding.	L2
4	Explain the concept of operator overloading.	L2
5	Illustrate the inheritance in C++.	L3
6	Apply Java programming concepts.	L3

Lab: Electronic Devices and Circuits Lab Code: (3ETC06)
At the end of Electronic Devices and Circuits Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Evaluate the operation of various semiconductor devices.	L5
2	Demonstrate the operation of basic circuits using electronic devices.	L3

3	Analyze the performance of electronic circuits.	L4

Lab: Digital System Design **Lab Code: (3ETC07)**
At the end of Digital System Design Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Analyze the code conversion technique from logic Circuit	L4
2	Implement combinational logic circuits.	L3
3	Implement sequential logic circuits.	L3

Lab: Object Oriented Programming Lab Code: (3ETC08)
At the end of Object Oriented Programming Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Execute programs in an object-oriented programming language.	L3
2	Implementation of C++ programming concepts.	L3
3	Implementation of java programming concepts.	L3

Lab: Electronic Workshop Lab Code: (3ETC09)
At the end of Electronic Workshop Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Analyze the basic components of electronics.	L4
2	Apply the basic designing and simulation tools.	L3
3	Apply basic knowledge of components to hardware implementation.	L3

A.Y. 2024-2025

B.E. 4th Sem

Course: Analog & Digital Communication **Course Code: 4ETC01**

At the end of Analog & Digital Communication , the students will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate the various components of analog and digital communication systems	L3
2	Categorize the performance of analog communication system	L4
3	Implement the concepts of Probability theory in communication systems	L3
4	Distinguish the performance of various pulse modulation scheme	L4
5	Analyze the basic building block of digital communication system.	L4
6	Compare the concepts of information theory and analyze information transmission over communication channel.	L4

Course: Analog Circuits **Course Code: 4ETC02**

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

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate the basics and internal structure of Op-amp	L3
2	Apply the concepts and design linear applications of Op-amp	L3
3	Analyze and design nonlinear applications of Op-amp.	L4
4	Implement voltage regulator circuit using IC 723, LM 317.	L3
5	Illustrate the waveform using IC 555 and IC 565	L3
6	Illustrate the knowledge of PLL and its applications.	L3

Course: Network Theory **Course Code: 4ETC03**

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

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Apply suitable Source transformation, Mesh and Node analysis concept to find the current and voltage in the circuit.	L3
2	Apply suitable Network Theorem to analyze electrical circuits.	L3
3	Apply the graph theory technique to determine their currents and voltages of a network.	L3
4	Implement the concept of Laplace Transform for electrical circuit analysis.	L3
5	Apply Two-Port network theory for electrical network analysis.	L4
6	Analyze different Network Functions.	L4

Course: Signals and Systems **Course Code: 4ETC04**

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

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Apply the basic mathematical operations on continuous time signals.	L3
2	Calculate the spectral characteristics of continuous-time periodic signals using Fourier series.	L3
3	Analyze the spectral characteristics of continuous-time aperiodic signals using FT.	L4
4	Apply the Laplace transform for analysis of continuous-time signal.	L3
5	Apply basic mathematical operations on discrete time signals.	L3
6	Analyze the spectral characteristics of discrete-time signals using FT& DTFT.	L4

Course: Values & Ethics **Course Code: 4ETC05**

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

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Practice the significance of value inputs in a classroom and start applying them in their life and profession	L3
2	Distinguish between values and skills, happiness and accumulation of physical facilities, the Self and the Body, Intention and Competence of an individual, etc	L4
3	Apply the role of a human being in ensuring harmony in society and nature.	L3
4	Analyze social responsibility of an engineer	L4
5	Distinguish between professional ethics and professional competence.	L4
6	Illustrate Strategies for Transition towards Value-based Life and Profession.	L3

Lab: Analog and Digital Communication Lab **Lab Code: 4ETC06**

At the end of Analog and Digital Communication Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Analyze performance characteristics of AM/FM receiver	L4
2	Implement line codes used for representation of digital waveforms	L3
3	Assess various MATLAB functions for digital Communication Systems.	L5

Lab: Analog Circuits **Lab Code: 4ETC07**

At the end of Analog Circuits Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Implement & analyze various wave shaping circuits.	L3
2	Demonstrate linear and non-linear applications of Op-Amp.	L3
3	Implement PLL in certain applications.	L3

Lab: Network Theory **Lab Code: (4ETC08)**

At the end of Network Theory Lab, the students will be able to:

LO No.	Lab Outcome Questions	Level of Learning (as per Bloom's Taxonomy)
1	Apply & Verify knowledge of Mesh and Node analysis for a given network.	L3
2	Apply various network theorems to solve networks.	L3
3	Apply knowledge of Two Port network and Network Functions to analyze a given network.	L3

Lab: Signals & Systems **Lab Code: (4ETC09)**

At the end of Signal and Systems Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Analyze the various basic continuous signals.	L4
2	Implement system equations using simulation tools.	L3
3	Demonstrate the concepts of sampling.	L3

A.Y. 2024-2025

B.E. 5th Sem

Course: Microcontroller **Course Code: (5ETC01)**

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

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Categorize addressing modes of Microprocessor 8085.	L4
2	Illustrate Interfacing of various peripheral devices with Microprocessor 8085	L3
3	Distinguish organization of Microcontroller 8051.	L4
4	Implement the programming for Microcontrollers using assembly language & C Programming	L3
5	Demonstrate Interfacing of various peripheral devices with Microcontroller 8051.	L3
6	Compare advanced Microcontrollers with applications.	L4

Course: Control System **Course Code: (5ETC02)**

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

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Apply mathematical models of electrical, mechanical and electromechanical systems.	L3
2	Determine transfer functions from block diagrams and signal flow graphs.	L4
3	Evaluate transient response and steady state response parameters	L5
4	Analyze stability of the LTI system using Routh criterion and root locus	L4
5	Analyze stability of the LTI system using bode plot and Nyquist criterion	L4
6	Analyze the state model and response of the system using state variable method.	L4

Course: Digital Signal Processing **Course Code: (5ETC03)**

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

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Calculate the discrete time signals and identify the type system.	L3
2	Compute the Z-transform of a sequence, identify its region of convergence and compute the inverse Z- transform.	L3
3	Evaluate the Fourier transform of a signal.	L5
4	Analyze the FIR and IIR filters.	L4

5	Apply the concepts of Multirate Digital Signal Processing and the need of Filter banks.	L4
6	Illustrate the application of Digital Signal Processing.	L3

Course: Fiber Optics Communication (PE-I) **Course Code: (5ETC04)**

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

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate the principles fiber-optic communication, the components and Losses and dispersion in fiber	L3
2	Analyze the transmission characteristics of optical fiber.	L4
3	Evaluate the properties of the optical components in sources.	L5
4	Evaluate operation of lasers, LEDs, and detectors in fiber.	L5
5	Analyze the aspects of optical fiber coupler and switches.	L4
6	Analyze WDM and DWDM systems.	L4

Course: Sensors and Transducers **Course Code: (5ETC05)**

At the end of Sensors and Transducers students will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Understand the basic aspect of transducers and sensors.	L2
2	Gain knowledge of statistical characteristics and Errors of the system	L2
3	Realize the fundamental concept about temperature and Velocity measurement	L2
4	Acquire knowledge of measurement of displacement and Humidity	L2
5	Familiarize the basic information about measurement of Pressure, Flow, Level	L2
6	Aware about the basics of Strain gauge and smart sensors	L1

Lab: Microcontroller **Lab Code: (5ETC06)**

At the end of Microcontroller Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Implement assembly language programming of microprocessor	L3
2	Demonstrate microprocessor interfacing with peripheral devices	L3
3	Evaluate embedded C program for the microcontroller programming.	L5

Lab: Digital Signal Processing **Lab Code: (5ETC07)**

At the end of Digital Signal Processing Lab, the students will be able to

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Apply MATLAB software for DSP & its applications.	L3
2	Demonstrate the various basic digital signals.	L3
3	Analyze the digital filters.	L4

Lab: Power Electronic Lab **Code: (5ETC08)**

At the end of Power Electronic Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Analyze the characteristics of various power electronics devices.	L4
2	Demonstrate the operation of converter circuits.	L3
3	Demonstrate the operation of the rectifier circuit.	L3

Lab: Electronic lab based on Instrumentation Lab **Code: (5ETC09)**

At the end of Signals & Systems Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Demonstrate the concepts of various Sensors.	L3
2	Analyze the various physical quantities using transducers.	L4
3	Illustrate an instrumentation amplifier.	L3

A.Y. 2024-2025

B.E. 6th Sem

Course: Communication Network **Course Code: 6ETC01**

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

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Analyze different types of network devices and their functions within a network.	L4
2	Evaluate the basic functions of data logical link control and media access control protocol.	L5
3	Analyze the layers of the OSI and TCP/IP model.	L4
4	Analyze routing strategies for an IP based networking infrastructure.	L4
5	Evaluate the concept of reliable and unreliable transfer protocol of data and how TCP and UDP implement these concepts.	L5
6	Analyze various Application layer Protocols.	L4

Course: Computer Architecture **Course Code: 6ETC02**

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

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate how computers work.	L3
2	Categorize the performance of computers.	L4
3	Calculate floating point arithmetic operations and design ALU as per the requirement.	L3
4	Compare how computers are designed & built.	L4
5	Illustrate different types of memory system.	L3
6	Illustrate issues affecting recent processors.	L3

Course: Satellite Communication (PE-II) **Course Code: 6ETC03**

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

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate the frequency bands used in satellite communication	L3
2	Apply the basics of orbital mechanism, the types of satellite orbits and orbital aspects of Satellite communication.	L3
3	Distinguish the various typical phenomena in satellite communication.	L4
4	Compare different satellite channel parameters.	L4
5	Illustrate the working of different satellite subsystems	L3
6	Illustrate the various services of satellites.	L3

Course: Engineering Economics **Course Code: (6ETC05)**

At the end of Engineering Economics course, students will be able to

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate the basic concept of Engineering Economics.	L3
2	Analyze the theory of production & production cost.	L4
3	Compare the different cash flow methods.	L4
4	Evaluate Engineering alternatives & project evaluation.	L5
5	Compare the depreciation methods & depreciation analysis.	L4
6	Illustrate the Indian Banking System & balance sheet reading.	L3

Course: WIRELESS COMMUNICATION **Course Code: (6ETC04)**

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

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate the evolution of cellular mobile system andunderstand the basic cell fundaments	L2
2	Understand the basic cellular concepts and Cell improvement techniques	L2
3	Analyze and compare propagation mechanisms and multiple access technique	L4
4	Discuss the operation of GSM in detail. L2	L2
5	Describe the architecture of CDMA and compare CDMA with GSM	L2
6	Understand the WiFi and Bluetooth technology.	L2

Lab: Communication Network Lab **Code: (6ETC06)**

At the end of Communication Network Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Configure and manage file, folder, printer, and remote desktop sharing between multiple PCs on a Local Area Network (LAN) with appropriate security settings.	L3
2	Demonstrate installation, partitioning, and formatting of PC hard disks, installation of network drivers, and verification of network interfaces including MAC address identification.	L3
3	Design and implement simple LANs using network devices, network cables, and various topologies (Bus, Ring, Mesh, Star) practically and through simulation software (Packet Tracer), and test connectivity using network commands like Ping.	L3

Lab: Electronic Circuit Design **Lab Code: (6ETC07)**
At the end of Electronic Circuit Design Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate verilog code for various digital electronic circuits.	L3
2	Simulate and Extract the layouts of digital circuit Blocks using ASIC tools.	L4
3	Implement simulate for digital electronic circuit on PLD.	L3

Lab: Python Programming **Lab Code: (6ETC08)**
At the end of Python Programming Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Apply core syntax and semantics of Python programming language.	L3
2	Illustrate the process of structuring the data using Lists, Tuples, Sets and Dictionaries.	L3
3	Implement the regular expressions and built-in functions to navigate the file system.	L3

Lab: Mini Project **Lab Code: (6ETC09)**
At the end of Mini Project, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Apply the practice acquired knowledge within the chosen area of technology for project development.	L3
2	Analyze the technical aspects of the chosen project.	L4
3	Demonstration of the project.	L3

A.Y. 2024-2025

B.E. 7th Sem

Course: Cryptography and Network Security **Course Code: (7ETC01)**

At the end of Cryptography and Network Security course, students will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate security concepts and techniques.	L3
2	Illustrate the Symmetric key cipher techniques.	L3
3	Illustrate the Asymmetric key cipher techniques.	L3
4	Illustrate cryptographic Hash Function.	L3
5	Analyze web security considerations and transport level security.	L4
6	Illustrate the email security concepts.	L4

Course: Digital Image and Video Processing (DIVP) **Course Code: 7ETC02**

At the end of Digital Image and Video Processing course, the students will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate the fundamentals concept of digital image processing.	L3
2	Apply knowledge of spatial domain and frequency domain filtering to digital images.	L3
3	Analysis of image segmentation and morphological techniques.	L4
4	Analyze image compression techniques based on redundancy features, apply image degradation model and its restoration.	L4
5	Apply the Fundamentals steps of digital video processing.	L3
6	Apply motion estimation model for video processing applications.	L3

Course: Project Management & Entrepreneurship **Course Code: 7ETC03**

At the end of Digital Image and Video Processing course, the students will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate basic concept of Project management.	L3
2	Illustrate the Project Financing.	L3
3	Analyze the Cost Sheets, balance sheets and Cash Flow statements, project report.	L4
4	Illustrate the Entrepreneurial competencies & traits.	L3
5	Analyze the Management skills for Entrepreneurs.	L4
6	Illustrate Social Entrepreneurship.	L3

Course:(PE -III) Mobile Communication and Networks (MCN) **Course Code: 7ETC04**

At the end of Mobile Communication and Networks course, the students will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Explain basic concept of Cellular systems and standards.	L2
2	Demonstrate knowledge of Signal propagation model.	L3
3	Compare different multiple access techniques in mobile communication.	L4
4	Summarize the concept of rake receiver.	L2
5	Demonstrate advance knowledge of MIMO.	L3
6	Compare different Mobile Communication Systems and standards.	L4

Course: Introduction To MEMS **PE-IV Course Code: (7ETC05)**

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

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate intrinsic characteristics of MEMS.	L3
2	Illustrate the material properties used in MEMS devices.	L3
3	Analyze the mechanics of solids.	L4
4	Illustrate the fabrication process utilized in MEMS.	L3
5	Distinguish sensors used in MEMS.	L4
6	Illustrate the applications of MEMS.	L3

Lab: Cryptography and Network Security **Lab Code: (7ETC06)**

At the end of Cryptography and Network Security Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Implement Cryptographic algorithms for data encryption using various algorithms.	L3
2	Implement Cryptographic algorithms for data decryption using various algorithms.	L3
3	Apply of the C & Java language for the applications of cryptography.	L3

Lab: Digital Image and Video Processing **Lab Code: (7ETC07)**

At the end of Digital Image and Video Processing Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Describe digital image representation, manipulation and Illustrate the use of histograms.	L3
2	Apply the various Linear and Nonlinear filtering methods on 2D images.	L3
3	Analyze various Morphological operations on binary images and Generate their transformed images.	L4

Lab: Project Management and Entrepreneurship **Lab Code: (7ETC08)**

At the end of Project Management and Entrepreneurship Lab, the students will be able to:

LO No.	Lab Outcome Questions	Level of Learning (as per Bloom's Taxonomy)
1	Design a real time project feasibility report containing Technical, Environmental and Market Appraisal.	L6
2	Evaluate a project Cost Estimation Sheet for any Project.	L5
3	Analyze a project financial statement and Project report for any project.	L4

Lab: Project Stage I (Seminar) **Lab Code: (7ETC09)**
At the end of Project Stage I (Seminar), the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Demonstrate a sound technical knowledge of their selected seminar topic.	L3
2	Analyze problem identification, formulation and solution.	L4
3	Demonstrate the knowledge, skills and attitudes of a professional engineer	L3

A.Y. 2024-2025

B.E. 8th Sem

Course: Embedded System (ES) **Course Code: 8ETC01 At the end of Embedded System course, the students will be able to:**

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate the concept of Embedded Systems and its classification.	L3
2	Analyze the different building block of Embedded System and its attribute.	L4
3	Analysis of image segmentation and morphological techniques.	L4
4	Evaluate the architecture and inbuilt peripherals of AVR Microcontroller.	L5
5	Demonstrate application based on embedded system using C language.	L3
6	Evaluate hardware & software co- design of an Embedded System.	L5

Course: Microwave Theory and Techniques **Course Code: (8ETC02)**

At the end of Microwave Theory and Techniques course, the students will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate the operations of microwave active and passive devices.	L3
2	Illustrate the operations of Semiconductor Microwave Devices.	L3
3	Illustrate characteristics of microwave propagation through waveguide and parallel micro strip line.	L3
4	Illustrate operations of microwave resonators.	L3
5	Use S-parameters for characterization of microwave devices.	L3
6	Calculate various parameters of the microwave system.	L3

Course: Bio-Medical Electronics (PE-V) **Course Code: 8ETC03**

At the end of Bio-Medical Electronics course, the students will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Apply the fundamentals of Medical Instrumentation, Biomedical Signals and Electrode.	L3
2	Identify and classify various Biomedical Transducers.	L4
3	Illustrate the significance of human signals and recording techniques.	L3

4	Analyze with Modern medical imaging systems.	L4
5	Conceptualize requirements and importance of Patient Care and Monitoring and Safety.	L5
6	Analyze the function and necessity of Physiological and electrotherapy equipment.	L4

Course:(PE -VI) 5G-6G Mobile Communication (5G-6G MC) Course Code: 8ETC04

At the end of 5G-6G Mobile Communication course, the students will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate the evolution of mobile communication leading to the introduction of 5G.	L3
2	Explain the mm wave 5G and overview of MIMO.	L2
3	Elaborate the Channel access methods of 5G.	L3
4	Discuss key issues and challenges in 5G deployment.	L2
5	Understand the applications of 5G.	L2
6	Understand the concept of 6G.	L2

Lab: Embedded Systems Lab Code: (8ETC05)

At the end of Embedded System Lab, the students will be able to:

LO No.	Lab Outcome Questions	Level of Learning (as per Bloom's Taxonomy)
1	Analyze the peripherals of embedded systems.	L4
2	Implement embedded C program in AVR microcontroller to perform various tasks.	L3
3	Implement AVR microcontroller interfacing with peripheral devices.	L3

Lab: Microwave Theory and Techniques Lab Code: (8ETC06)

At the end of Microwave Theory and Techniques Lab, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Verify and analyze characteristics of Semiconductor Microwave Devices.	L3
2	Demonstrate and analyze Passive Microwave Devices.	L3
3	Demonstrate and analyze microwave Measurements of VSWR, Insertion Loss, Attenuation and Frequency Sensitivity of Attenuator.	L3

Lab: Project stage - II **Lab Code: (8ETC07)**

At the end of Project stage II, the students will be able to:

LO No.	Lab Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Identify problem identification, formulation and solution.	L1
2	Demonstrate the knowledge, skills and attitudes of a professional engineer.	L3
3	Design engineering solutions to complex problems utilizing a systems approach.	L6