V.S.B.Engineering College, Karur

Department of Electronics and Communication Engineering

PROGRAMME OUTCOMES (POs)

PROGRAM OUTCOMES (POS) Electronics and Communication Engineering Graduates will be able to:	
PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems in the major areas of Electronic and Communication Engineering.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex Electronics engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex Electronics and Communication engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional Electronics and Communication engineering practice.
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.
PO 8	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the Electronics and Communication engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PROGRAM SPECIFIC OUTCOMES (PSO)	
PSO 1	Apply knowledge related to core and specialized fields like Electronic Circuits, Embedded and Communication Systems to solve complex Engineering/Societal problems.
PSO 2	Able to expose their programming skills using latest tools to arrive cost effective and appropriate solutions..
PSO 3	Apply the contextual knowledge with professional ethics to manage different projects in multi disciplinary environment.

COURSE OUTCOMES

HS8151-COMMUNICATIVE ENGLISH

After completing the course, Students are able to

1. Read articles of a general kind in magazines and newspapers.
2. Participate effectively in informal conversations; introduce themselves and their friends and express opinions in English.
3. Comprehend conversations and short talks delivered in English
4. Write short essays of a general kind and personal letters and emails in English.

MA8151 - ENGINEERING MATHEMATICS – I

After completing the course, Students are able to

1. Use both the limit definition and rules of differentiation to differentiate functions.
2. Apply differentiation to solve maxima and minima problems.
3. Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.
4. Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables.
5. Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts.
6. Determine convergence/divergence of improper integrals and evaluate convergent improper integrals.
7. Apply various techniques in solving differential equations.

PH8151 - ENGINEERING PHYSICS

After completing the course, Students are able to

1. Gain knowledge on the basics of properties of matter and its applications.
2. Acquire knowledge on the concepts of waves and optical devices and their applications in fibre optics,
3. Adequate knowledge on the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers,
4. Get knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes.
5. Understand the basics of crystals, their structures and different crystal growth techniques.

CY8151 - ENGINEERING CHEMISTRY

After completing the course, Students are able to

1. Interpret basics of hardness of water, boiler feed water problems and its treatment process in specific reverse osmosis process
2. Interpret basics of hardness of water, boiler feed water problems and its treatment process in specific reverse osmosis process
3. Illustrate the concepts of phase rule and the properties of alloys
4. Identify the types of fuels and their usage in the life span
5. Plan for renewable energy utilization in the twenty first century

GE8151 - PROBLEM SOLVING AND PYTHON PROGRAMMING

After completing the course, Students are able to

1. Develop algorithmic solutions to simple computational problems.
2. Read, write, execute by hand simple Python programs.
3. Structure simple Python programs for solving problems.
4. Decompose a Python program into functions.
5. Represent compound data using Python lists, tuples, dictionaries.
6. Read and write data from/to files in Python Programs.

GE8152 - ENGINEERING GRAPHICS

After completing the course, Students are able to,

1. Familiarize with the fundamentals and standards of Engineering graphics
2. Perform freehand sketching of basic geometrical constructions and multiple views of objects.

3. Project orthographic projections of lines and plane surfaces.
4. Draw projections and solids and development of surfaces.
5. Visualize and to project isometric and perspective sections of simple solids.

GE8161-PROBLEM SOLVING ANDPYTHON PROGRAMMING LABORATORY

After completing the course, Students are able to,

1. Write, test, and debug simple Python programs.
2. Implement Python programs with conditionals and loops.
3. Develop Python programs step-wise by defining functions and calling them.
4. Use Python lists, tuples, dictionaries for representing compound data.
5. Read and write data from/to files in Python.

BS8161 -PHYSICS AND CHEMISTRY LABORATORY

After completing the course, Students are able to,

1. Understand the quantitative chemical analysis of water quality related parameters such as alkalinity and hardness.
2. DO content in water eco system
3. Permissible limit of chloride content in potable water
4. Apply redox reaction to analyse iron content through potentiometric titration
5. Make use of neutralization reaction by instrumental analysis

HS8251 - TECHNICAL ENGLISH

After completing the course, Students are able to,

1. Read technical texts and write area - specific texts effortlessly.
2. Listen and comprehend lectures and talks in their area of specialization successfully
3. Speak appropriately and effectively in varied formal and informal contexts.
4. Write reports and winning job applications.
5. Listening to commentaries of games.

MA8251 - ENGINEERING MATHEMATICS II

After completing the course, Students are able to,

1. Matric Algebra: Eigenvalues and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices.

2. Vector Calculus: Gradient, divergence and curl of a vector point function and related identities. Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification
3. Analytic functions and conformal mappings
4. Complex integration, Taylor's and Laurent's series and Residue theorems
5. Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients

PH8253 - PHYSICS FOR ELECTRONICS ENGINEERING

After completing the course, Students are able to,

1. Gain knowledge on classical and quantum electron theories, and energy band structures.
2. Acquire knowledge on basics of semiconductor physics and its applications in various Devices.
3. Get knowledge on magnetic and dielectric properties of materials,
4. Have the necessary understanding on the functioning of optical materials for optoelectronics.
5. Understand the basics of quantum structures and their applications in spintronics and carbon electronics.

BE8254 - BASIC ELECTRICAL AND INSTRUMENTATION ENGINEERING

After completing the course, Students are able to,

1. Understand the concept of three phase power circuits and measurement.
2. Comprehend the concepts in electrical generators, motors and transformers
3. Choose appropriate measuring instruments for given application

EC8251-ELECTRONIC DEVICES

After completing the course, Students are able to

1. Explain the VI characteristics of semiconductor diode.
2. Describe the equivalent circuit of transistors.
3. Explain the construction of electronic devices like FET and MOSFET.
4. Demonstrate the special semiconductor devices.
5. Explain the power devices and display devices.

EC8252-CIRCUIT ANALYSIS

After completing the course, Students are able to

1. Understand and evaluate the A.C and D.C circuits

2. Apply the circuit theorems in real time.

3. Design and analyse the tuned circuits.

4. Obtain knowledge in the response of transient circuit with different type of excitations.

5. Learnt various parameters in the two port networks

EC8261-CIRCUITS AND DEVICES LABORATORY

After completing the course, Students are able to

1. Analyze the characteristics of basic electronic devices

2. Design RL and RC circuits

3. Verify Thevinin & Norton theorem KVL & KCL, and Super position Theorems.

GE8261- ENGINEERING PRACTICES LABORATORY

After completing the course, Students are able to

1. Fabricate carpentry components and pipe connections including plumbing works. Use welding equipments to join the structures.
2. Carry out the basic machining operations
3. Make the models using sheet metal works
4. Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings Carry out basic home electrical works and appliances
5. Measure the electrical quantities
6. Elaborate on the components, gates, soldering practices.

MA8352-LINEAR ALGEBRA AND PARTIAL DIFFERENTIAL EQUATIONS

After completing the course, Students are able to

1. Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.

2. Demonstrate accurate and efficient use of advanced algebraic techniques.

3. Demonstrate their mastery by solving non - trivial problems related to the concepts and by proving simple theorems about the statements proven by the text.

4. Solve various types of partial differential equations.

5. Solve engineering problems using Fourier series.

EC8393-FUNDAMENTALS OF DATA STRUCTURES IN C

After completing the course, Students are able to

1. Implement linear and non-linear data structure operations using C.
2. Suggest appropriate linear / non-linear data structure for any given data set.
3. Apply hashing concepts for a given problem
4. Modify or suggest new data structure for an application
5. Appropriately choose the sorting algorithm for an application.

EC8351-ELECTRONIC CIRCUITS- I

After completing the course, Students are able to

1. Acquire knowledge of working principles, characteristics and applications of BJT and FET
2. Design and analysis of single stage and multistage amplifiers.
3. Analyze the FET and MOSFET small signal amplifiers**.**
4. Analyze the frequency response characteristics of FET and MOSFET small signal amplifiers.
5. Gain knowledge in analysis and troubleshoot of power supplies.

EC8352-SIGNALS AND SYSTEMS

After completing the course, Students are able to

1. Determine if a given system is linear/causal/stable.
2. Capable of determining the frequency components present in a deterministic signal.
3. Capable of characterizing LTI-CT systems in the time domain and frequency domain.
4. Capable of analyzing the discrete time signals using Fourier and Z transform.
5. Compute the output of LTI-DT systems in the time and frequency domains.

EC8392- DIGITAL ELECTRONICS

After completing the course, Students are able to

1. Use digital electronics in the present contemporary world.
2. Design various combinational digital circuits using logic gates.
3. Do the analysis and design procedures for synchronous and asynchronous sequential circuits.
4. Use the semiconductor memories and related technology.
5. Use electronic circuits involved in the design of logic gates.

EC8391-CONTROL SYSTEMS ENGINEERING

After completing the course, Students are able to

1. Apply transfer function models for analysis physical systems and recall the control system components
2. Analyze the time response and steady state error analysis in first/second order systems.

3. Illustrate the various plots and implement different compensators.

4. Impart the system stability using different techniques.

5. Recognize physical systems as state variable model and state space representation of time system.

EC838- FUNDAMENTALS OF DATA STRUCTURES IN C LABORATORY

After completing the course, Students are able to

1. Write basic and advanced programs in C
2. Implement functions and recursive functions in C
3. Implement data structures using C
4. Choose appropriate sorting algorithm for an application and implement it in a modularized way

EC8361-ANALOG AND DIGITAL CIRCUITS LABORATORY

After completing the course, Students are able to

1. Design and Test rectifiers, filters and regulated power supplies.

2. Design and Test BJT/JFET amplifiers.

3. Differentiate cascade and cascade amplifiers.

4. Analyze the limitation in bandwidth of single stage and multistage amplifier

5. Measure CMRR in differential amplifier

6. Simulate and analyze amplifier circuits using PSpice.

7. Design and Test the digital logic circuit

HS8381- INTERPERSONAL SKILLS/LISTENING & SPEAKING

After completing the course, Students are able to

1. Listen and respond appropriately

2. Participate in group discussions

3. Make effective presentations

4. Participate confidently and appropriately in conversations both formal and informal

MA8451-PROBABILITY AND RANDOM PROCESSES

After completing the course, Students are able to

1. Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.

2. Understand the basic concepts of one and two dimensional random variables and apply in Engineering applications.

3. Apply the concept random processes in engineering disciplines.

4. Understand and apply the concept of correlation and spectral densities.

5. Exposure of various distribution functions and help in acquiring skills in handling situations involving more than one variable. Able to analyze the response of random inputs to linear time invariant systems.

EC8452-ELECTRONIC CIRCUITS-II

After completing the course, Students are able to

1. Design and analyze feedback amplifiers.

2. Design low frequency and high frequency oscillators.

3. Analyze performance of tuned amplifiers.

4. Design wave shaping and multivibrator circuits.

5. Design blocking oscillators and time base generators.

EC8491-COMMUNICATION THEORY

After completing the course, Students are able to

1. Design AM communication systems.

2. Design Angle modulated communication systems

3. Apply the concepts of Random Process to the design of Communication systems.

4. Analyze the noise performance of AM and FM systems.

5. Gain knowledge in sampling and quantization.

EC8451-ELECTROMAGNETIC FIELDS

After completing the course, Students are able to

1. Understand the concept of vector algebra in rectangular, cylindrical and spherical coordinate systems.

2. Display an understanding of fundamental electromagnetic laws and concepts.

3. Analyze the magnetic circuits and materials.

4. Write Maxwell's equations in integral, differential and phasor forms and explain their physical meaning.

5. Explain electromagnetic wave propagation in lossy and in lossless media.

EC8453-LINEAR INTEGRATED CIRCUITS

After completing the course, Students are able to

1. Design linear and nonlinear applications of OP – AMPS

2. Design applications using analog multiplier and PLL
3. Design ADC and DAC using OP – AMPS
4. Generate waveforms using OP – AMP Circuits
5. Analyze special function ICs

GE8291-ENVIRONMENTAL SCIENCE AND ENGINEERING

After completing the course, Students are able to

1. Analyze relationship between biotic and abiotic components, biodiversity and its functions.
2. Apply knowledge to solve environmental problems.
3. Interpret about the natural resources and its conservation and the features of the earth's Interior and surface
4. Compare the role of human beings in solving social issues.
5. Understand about impacts of exponential growth of population.

EC8461-CIRCUITS DESIGN AND SIMULATION LABORATORY

After completing the course, Students are able to

1. Design and analyze various types of electronic circuits
2. Design oscillators
3. Design amplifier circuits
4. Differentiate feedback amplifiers and oscillators
5. Design and simulate feedback amplifiers, oscillators, tuned amplifiers, wave-shaping circuits and multivibrators using SPICE tool.

EC8462- LINEAR INTEGRATED CIRCUITS LABORATORY

After completing the course, Students are able to

1. Design amplifiers, oscillators, D-A converters using operational amplifiers.
2. Design filters using opamp and performs an experiment on frequency response
3. Analyze the working of PLL and describe its application as a frequency multiplier.
4. Design DC power supply using IC's.
5. Analyze the performance of filters, multivibrators, A-D converters and analog multiplier using SPICE.

EC8501 – Digital Communication

After completing the course, Students are able to

1. Discuss about information theory and evaluate the Huffman and Shannon-fano encoding models.
2. Discuss about DPCM, DM, ADPCM and ADM techniques.
3. Explain the line coding and techniques for eliminating ISI in digital communication system
4. Analyze the various pass band digital modulation techniques.
5. Apply error control coding techniques in digital communication system.

EC8553 – Discrete-Time Signal Processing

After completing the course, Students are able to

1. Discuss about the Basic principles of discrete Fourier transform convolution and FFT algorithms.
2. Design and investigate IIR filters using various approximation techniques
3. Design FIR filter using Fourier series, windowing techniques and frequency sampling methods
4. Classify the finite word length effects by understanding the concepts of quantization
5. Discuss the architecture of Digital Signal Processors.

EC8552 – Computer Architecture and Organization

After completing the course, Students are able to

1. Understand the basic structure, data representation, instruction formats and operation of digital computer.
2. Illustrate the fixed point and floating-point arithmetic for ALU operation.
3. Discuss about implementation schemes of data path unit, control unit and pipeline performance.
4. Explain the concept of various memories, interfacing and organization of multiple processors.
5. Discuss parallel processing technique and unconventional architectures.

EC8551 – Communication Networks

After completing the course, Students are able to

1. Illustrate the division of network functionalities into layers.
2. Choose the required functionality at each layer for given application
3. Apply the different routing techniques in networks
4. Identify solution for each functionality at each layer

5. Compare the flow of information from one node to another node in the network

EC8562 – Digital Signal Processing Laboratory

After completing the course, Students are able to

1. Experiment with sequence generation, correlation, convolution and spectrum analysis using DFT
2. Design FIR and IIR filters with known specifications
3. Apply adaptive filtering in equalization for various applications of DSP
4. Demonstrate DSP processors and explain its operation and addressing modes
5. Build FIR and IIR filters and analyze finite word length effects on DSP processors.

EC8561 – Communication Systems Laboratory

After completing the course, Students are able to

1. Design and verify the sampling and TDM circuits
2. Design and verify the AM, FM and its demodulation circuits.
3. Analyze the working of PCM, DM, ADM and demodulation circuits
4. Compile band pass digital signaling schemes through simulation of FSK, PSK, QPSK and QAM techniques.
5. Compile the line coding and error coding schemes to improve the performance of communication systems through simulations.

EC8563 – Communication Networks Laboratory

After completing the course, Students are able to

1. Develop the Communication l between two desktop computers
2. Develop simple applications and sockets using TCP & UDP
3. Develop the various protocols
4. Compare the performances of various routing algorithms
5. Analyze various Routing protocols using NS2 simulations tools

EC8691 – Microprocessors and Microcontrollers

After completing the course, Students are able to

1. To explain about microprocessor architecture and write 8086 assembly language programs
2. To learn about various configurations of 8086 microprocessor and system Bus structure
3. To Illustrate the design aspects of I/O and memory interfacing circuits
4. To learn microcontroller architecture and write 8051 assembly language programs
5. Develop simple applications using 8051 microcontroller based system

EC8095 – VLSI Design

After completing the course, Students are able to

1. Classify the various characteristics of MOS transistors technology and its principles.
2. Explain the design principles of various combinational logic circuits for digital operations.
3. Explain the design principles of various sequential logic circuits for digital operations.
4. Design the arithmetic building blocks using various MOS transistors
5. Classify the various building blocks of FPGA, cell libraries, routing strategies and testing.

EC8652 – Wireless Communication

After completing the course, Students are able to

1. Discuss the wireless channels and various signaling schemes for fading channels.
2. Explain the cellular system and classify the different types of multiple access techniques.
3. Discuss about various signaling schemes for fading channels.
4. Compare multipath mitigation technique and analyze their performance.
5. Discuss about MIMO systems with transmit/receive diversity.

MG8591 – Principles of Management

After completing the course, Students are able to

1. Explain the managerial roles in local and global organization, environmental factors & strategies for International business.
2. Describe the planning process & benefits of MBO and prescribe the decision making model under different conditions.
3. Illustrate the different organization structure, Line & staff authority, staff selection & career development and performance appraisal process.
4. Demonstrate the creativity, innovation and leadership styles through the principles of effective communication and organization culture.
5. Explain the process of control authority, budget preparation, productivity measurement and planning operations in management.

EC8651 – Transmission Lines and RF Systems

After completing the course, Students are able to

1. Analyze the propagation of signals, distortion, loading methods and reflections in low frequency transmission lines.

2. Understand and Analyze signal propagation and measurement of power, VSWR, wavelength at Radio frequencies.
3. To solve transmission lines problems using smith chart.
4. Evaluate the propagation of various modes in TE, TM and TEM waves.
5. Explain the basics of RF systems and its working.

EC8681 – Microprocessors and Microcontrollers Laboratory

After completing the course, Students are able to

1. Demonstrate the ALP programs in 8086.
2. Apply the Arithmetic & logical operations in 8086 microprocessors.
3. Experiment with A/D & D/A, stepper motor, traffic light Interfacing with 8086 Microprocessor.
4. Demonstrate the ALP Programs in 8051.
5. Compile the programs using MASM Software.

EC8661 – VLSI Design Laboratory

After completing the course, Students are able to

1. Develop the Verilog HDL code for basic as well as advanced digital integrated circuits.
2. Build the integrated circuit logics into FPGA
3. Evaluate area, speed, power, delay and path of the integrated circuit modules.
4. Model the analog IC blocks using EDA tools and build the GDSII format.
5. Design the digital integrated circuits and analyze its performance using internal logic analyzer.

EC8611 – Technical Seminar

After completing the course, Students are able to

1. To study research papers for understanding of a new field, in the absence of a textbook, to summarize and review them.
2. To identify promising new directions of various cutting edge technologies.
3. Analyze the various methodologies and technologies and discuss with the team for solving the problem.
4. To impart skills in preparing detailed report describing the project and results.
5. To effectively communicate by making an oral presentation before an evaluation committee.

HS8581 – Professional Communication

After completing the course, Students are able to

1. Develop the employability, career and soft skills.
2. Develop their interview etiquette, presentation and GD skills.
3. Participate confidently in Group Discussions and Job Interviews.
4. Attend job interviews and be successful in them.
5. Develop adequate soft skills required for the workplace.

EC8701 – Antennas and Microwave Engineering

After completing the course, Students are able to

1. Describe Low and high frequency parameters for two port network.
2. Identify RF transistor amplifier stability and impedance matching networks.
3. Explain the operation of various passive comparators.
4. Explain about the working principle of various microwave tubes and the limitations of conventional tubes.
5. Understand microwave generation and to measure microwave parameters.

EC8751 – Optical Communication

After completing the course, Students are able to

1. Explain the basic elements of optical fiber transmission link and types of fiber mode configuration.
2. Classify the various signal degradation factors associated with optical fiber.
3. Explain various sources and connecting techniques in optical communication.
4. Examine fiber optic receiver operation and various fiber parameter measurements.
5. Analyze the optical networks and its associated parameters on system performance.

EC8791 – Embedded and Real Time Systems

After completing the course, Students are able to

1. Describe the architecture and programming of ARM processor.
2. Outline the concepts program level in embedded processor computing.
3. Explain the basic concepts of the real time operating system.
4. Explain the concept of design methodologies techniques for embedded system.
5. Describe model real-time applications using embedded-system concepts.

EC8702 – Adhoc and Wireless Sensor Networks

After completing the course, Students are able to

1. Explain the concepts network architecture &applications of Adhoc & wireless sensor Networks.
2. Analyze the protocol design issues of adhoc & sensor Networks.
3. Design routing protocols for adhoc& wireless sensor networks with respect to some protocol design issues.
4. Analyze the wireless sensor network sensor networks & MAC protocols.
5. Evaluate the QOS related performance measurements of adhoc & sensor networks

EC8711 – Embedded Laboratory

After completing the course, Students are able to

1. Learn the working of ARM processor
2. Understand the Building Blocks of Embedded Systems
3. Learn the concept of memory map and memory interface
4. Write programs to interface memory, I/Os with processor.
5. Study the interrupt performance

EC8761 – Advanced Communication Laboratory

After completing the course, Students are able to

1. Understand the working principle of optical sources, detector, fibers
2. Develop understanding of simple optical communication link
3. Understand the measurement of BER, Pulse broadening.
4. Understand and capture an experimental approach to digital wireless communication.
5. Understand actual communication waveforms that will be sent and received across wireless channel

EC8811 – Project Work

After completing the course, Students are able to

1. Identify challenging practical problems, solutions to cope up with present scenario of electronics and communication engineering field.
2. Analyze the various methodologies and technologies and discuss with the team for solving the problem.
3. Apply technical knowledge and project management skills for solving the problem.
4. Design and develop hardware and/or software for their project specific problem.
5. Prepare the project reports and justify during presentation and demonstration.

Semester V

Professional Elective I

EC8073 – Medical Electronics

After completing the course, Students are able to

1. Discuss the terminologies of electro –physiology and its recording.
2. Determine the measurement techniques of bio-chemical and non-electrical parameters.
3. Categorize the various types of assist devices.
4. Explain the various diathermy and bio telemetry techniques
5. Outline current trends in medical instrumentation

Semester VI

Professional Elective II

EC8004 – Wireless Networks

After completing the course, Students are able to

1. Explain the various protocols and standards of wireless LAN.
2. Describe the protocols for mobile network layer and routing in the mobile ad-hoc network.
3. Illustrate the TCP for mobile transport layer.
4. Discuss about the different wireless WAN architectures.
5. Explain the 4G technologies and its applications.

Semester VII

Professional Elective –III

GE8071 – Disaster Management

After completing the course, Students are able to

1. To provide students an exposure to disasters, their significance and types.
2. To ensure that students begin to understand the relationship between vulnerability, disasters, disaster prevention and risk reduction.
3. To gain a preliminary understanding of approaches of Disaster Risk Reduction (DRR)
4. To enhance awareness of institutional processes in the country.
5. To develop rudimentary ability to respond to their surroundings with potential disaster response in areas where they live, with due sensitivity

Semester VIII

Professional Elective IV

GE8076 – Professional Ethics in Engineering

After completing the course, Students are able to

1. To enable the students to create an awareness on Engineering Ethics and Human Values, to instill Moral and Social Values and Loyalty and to appreciate the rights of others.
2. To evaluate the theory of ethics
3. To apply Experimentation in engineering
4. Analyze the safety and benefit
5. Develop the conduct and responsibility

Semester VIII

Professional Elective V

EC8094 – Satellite Communication

After completing the course, Students are able to

1. Understand the basics of satellite orbits
2. Understand the satellite segment and earth segment
3. Analyze the various methods of satellite access
4. Understand the applications of satellites
5. Understand the basics of satellite Networks

Semester V

Open Elective I

OMD551 – Basic of Biomedical Instrumentation

After completing the course, Students are able to

1. Learn the different bio potential and its propagation.
2. Get Familiarize the different electrode placement for various physiological recording
3. Design bio amplifier for various physiological recording
4. Understand the various technique non electrical physiological measurements
5. Understand the different biochemical measurements

Semester VII

Open Elective - II

OIE751 – Robotics

After completing the course, Students are able to

1. Understand the functions of the basic components of a Robot
2. Study the use of various types of End of Effectors and Sensor
3. Impart knowledge in Robot Kinematics and Programming
4. Learn Robot safety issues and economics.
5. Apply the basic engineering knowledge for the design of robotics