

Dhanalakshmi Srinivasan Engineering College

(Autonomous) – R 2023

Course Outcomes (COs)

Course Name with subject code: COMMUNICATIVE ENGLISH/ U23HST11

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C101.1	Remember appropriate words in a situational conversation.
C101.2	Gain understanding of basic grammatical structures and use them in right context.
C101.3	Read and infer the denotative and connotative meanings of technical texts.
C101.4	Write Dialogue, Letter and paragraphs on various topics.
C101.5	Make the students prepare effective notes for main sources available.
C101.6	Enhance them to give operational talk.

Course Name with subject code: MATRICES AND CALCULUS / U23MAT12

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C102.1	Use the matrix algebra methods for solving practical problems.
C102.2	Use both the limit definition and rules of differentiation to differentiate functions.
C102.3	Apply differential calculus tools in solving various application problems.
C102.4	Able to use differential calculus ideas on several variable functions.
C102.5	Apply multiple integral ideas in solving areas, volumes and other practical problems.
C102.6	Solve the ordinary differential equations using different techniques for that model engineering problems.

**Course Name with subject code: PHYSICS FOR ENGINEERS AND TECHNOLOGISTS /
U23PHT13**

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C103.1	Differentiate the elastic and plastic nature of the materials.
C103.2	Know the experimental techniques in both production and applications of ultrasonic waves.
C103.3	Gain knowledge in the basics of quantum mechanics concepts.
C103.4	Develop new devices based on LASER source.
C103.5	Understand the advantages of optical fiber than metal wire.
C103.6	Demonstrate the some useful experiments based on optical fibre

**Course Name with subject code: CHEMISTRY FOR ENGINEERING & TECHNOLOGY /
U23CYT14**

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C104.1	Understand types (addition, condensation, copolymerization), mechanisms, functionality, and degree of polymerization.
C104.2	Learn about types, isotherms, and applications in pollution control.
C104.3	Acquire knowledge of thermodynamic terminology, including the second law and entropy changes.
C104.4	Understand laws, quantum efficiency, and processes like fluorescence and phosphorescence.
C104.5	Gain insights into the phase rule's components and its application in one-component and two-component systems.
C104.6	Learn about alloying, its significance, and effects on ferrous and non-ferrous alloys, including examples like Nichrome and Stainless steel.

Course Name with subject code: ENGINEERING GRAPHICS / U23GET16

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C105.1	Identify the significance of graphics in engineering applications.
C105.2	Project straight lines inclined to both principal planes and determine true lengths and inclinations.
C105.3	Apply orthographic projection techniques to project solids.
C105.4	Apply the principles of development to prisms, pyramids, cylinders, and cones.
C105.5	Combine two solid objects in simple vertical positions using isometric projection.
C105.6	Utilize the isometric scale effectively.

Course Name with subject code: ENGINEERING PRACTICES LABORATORY / U23GEL14

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C106.1	Draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; Saw; plan; make joints in wood materials used in common household wood work.
C106.2	Wire various electrical joints in common household electrical wire work.
C106.3	Weld various joints in steel plates using arc welding work; Machine various simple processes like turning, drilling, tapping in parts; Assemble simple mechanical assembly of common House hold equipments; Make a tray out of metal sheet using sheet metal work.
C106.4	Solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.

C106.5	Apply fundamental engineering principles to analyze and solve real-world problems.
C106.6	Demonstrate proficiency in using engineering tools and equipment.

**Course Name with subject code: PHYSICS AND CHEMISTRY LABORATORY/
U23BSP11**

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C107.1	Understand the functioning of various physics laboratory equipment.
C107.2	Observe and tabulate experimental data.
C107.3	Solve problems individually and collaboratively.
C107.4	Analyse the quality of water samples with respect to their acidity, alkalinity
C107.5	Determine the amount of hardness in the water
C107.6	Analyse quantitatively the impurities in solution by electro analytical techniques

Course Name with subject code: ENGLISH LABORATORY/ U23HSP12

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C108.1	Understand the functioning of various physics laboratory equipment.
C108.2	Observe and tabulate experimental data.
C108.3	Solve problems individually and collaboratively.
C108.4	Analyse the quality of water samples with respect to their acidity, alkalinity
C108.5	Determine the amount of hardness in the water
C108.6	Analyse quantitatively the impurities in solution by electro analytical techniques

Course Name with subject code: PROFESSIONAL ENGLISH/ U23HST21

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C111.1	Compare and contrast products and ideas in technical texts.
C111.2	Identify cause and effects in events, industrial processes through technical texts.
C111.3	Analyze problems in order to arrive at feasible solutions and communicate them orally and in the written format.
C111.4	Motivate students to write reports and winning job applications.
C111.5	Recall and comprehend different discourses and genres of texts.
C111.6	Making the students to become virtuous presenters.

Course Name with subject code: STATISTICS AND NUMERICAL METHODS / U23MAT22

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C112.1	Apply the concept of testing of hypothesis for small and large samples in real life problems.
C112.2	Apply the basic concepts of classifications of design of experiments in the field of agriculture.
C112.3	Solve the algebraic and transcendental equations.
C112.4	Understand the knowledge of numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.

C112.5	Solve the ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.
C112.6	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.

Course Name with subject code: PHYSICS FOR ELECTRICAL AND ELECTRONICS ENGINEERS/ U23PHT24

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C113.1	Know basics of crystallography and its importance for varied materials properties.
C113.2	Gain knowledge on the magnetic and super conductor properties of materials and their applications.
C113.3	Use the dielectric and insulating materials in electronic devices.
C113.4	Illustrate the SMA and metallic glasses.
C113.5	Get knowledge on newly developed materials in micro and nano scale.
C113.6	Summarize the different structures of CNT in Nano range

Course Name with subject code PROBLEM SOLVING AND PYTHON PROGRAMMING/ U23GET15

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C114.1	Develop algorithmic solutions to simple computational problems.
C114.2	Develop and execute simple Python programs.
C114.3	Write simple Python programs using conditionals and loops for solving problems.
C114.4	Decompose a Python program into functions.

C114.5	Represent compound data using Python lists, tuples, dictionaries etc.
C114.6	Read and write data from/to files in Python programs.

Course Name with subject code: ELECTRON DEVICES / U23ECT21

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C115.1	Understand the concepts of semiconductor theory concepts.
C115.2	Summarize the working principle and characteristics of BJTs.
C115.3	Interpret the working principle and characteristics of FETs.
C115.4	Explain the characteristic of Special Semiconductor devices.
C115.5	Discuss the operations of Rectifiers and Regulators.
C115.6	Explain the various applications of Diode.

Course Name with subject code: CIRCUIT ANALYSIS / U23EET22

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C116.1	Analyze the basic electrical circuits
C116.2	Understand and apply various circuit theorems
C116.3	Analyze various Resonance circuits

C116.4	Analyze transient response and know the concepts of coupled circuits
C116.5	Verify various two port networks
C116.6	Solve the different three phase circuits.

**Course Name with subject code: PROBLEM SOLVING AND PYTHON PROGRAMMING
LABORATORY/ U22GEP23**

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C117.1	Develop algorithmic solutions to simple computational problems
C117.2	Develop and execute simple Python programs.
C117.3	Implement programs in Python using conditionals and loops for solving problems.
C117.4	Deploy functions to decompose a Python program.
C117.5	Process compound data using Python data structures.
C117.6	Utilize Python packages in developing software applications.

**Course Name with subject code: DEVICES AND CIRCUIT ANALYSIS LABORATORY /
U23ECP21**

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C118.1	Analyze the characteristics of diodes.

C118.2	Interpret the characteristics of semiconductor devices.
C118.3	Apply the basic knowledge on power devices.
C118.4	Select a right semiconductor device for a given application.
C118.5	Verify and analyze the various electrical theorems.
C118.6	Identify and apply the above hardware experiments in modern tools.

Course Name with subject code: COMMUNICATION LABORATORY/ U23HSP22

COURSE OUTCOMES:	
Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C119.1	Distinguish their technical competency through language skill.
C119.2	Predict context effectively in-group discussions held in a formal / semi-formal discussions.
C119.3	Understanding candidates' key characteristics.
C119.4	Finding personality traits by sharing and comparing thoughts and ability.
C119.5	Understanding the value of ethics.(rules and regulations).
C119.6	Construct emails and effective job applications.

**Course Name with subject code: RANDOM PROCESSES AND LINEAR ALGEBRA/
U23MAT34**

	Course Outcomes
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Course Code	<i>Upon completion of the course, the students will be able to:</i>
C201.1	Understand the fundamental concepts of probability with a thorough knowledge of standard distributions that can describe certain real-life phenomenon.
C201.2	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications.
C201.3	Apply the concept of random processes in engineering disciplines.
C201.4	Understand the concept of Vector spaces, subspaces, bases and dimensions.
C201.5	Understand the relationship between a linear transformation and its matrix representation.
C201.6	Understand Least square approximation method allow the analyst to determine the way of fitting a curve of a chart of data points.

Course Name with subject code: C PROGRAMMING AND DATA STRUCTURES / U23CST35

Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C202.1	Develop C programs for any real world/technical application.
C202.2	Apply advanced features of C in solving problems.
C202.3	Write functions to implement linear and non-linear data structure operations.
C202.4	Suggest and use appropriate linear/non-linear data structure operations for solving a given problem.
C202.5	Appropriately use sort and search algorithms for a given application.
C202.6	Apply appropriate hash functions that result in a collision free scenario for data storage and retrieval.

Course Name with subject code: DIGITAL SYSTEMS DESIGN / U23ECT31

Course Outcomes

Course Code	<i>Upon completion of the course, the students will be able to:</i>
C203.1	Use Boolean algebra and simplification procedures relevant to digital logic.
C203.2	Design various combinational digital circuits using logic gates.
C203.3	Analyse and design synchronous sequential circuits.
C203.4	Analyse and design asynchronous sequential circuits.
C203.5	Build logic gates and use programmable devices.
C203.6	Understand the concepts of memory devices

Course Name with subject code: ELECTRONIC CIRCUITS / U23ECT32

Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C204.1	Discuss the stability factors of various biasing techniques used in BJT.
C204.2	Compute the hybrid model for different amplifiers.
C204.3	Manipulate the high frequency analysis of single and multi stage amplifiers.
C204.4	Illustrate the concept of oscillators in Electronic Circuits.
C204.5	Illustrate the concept of Feedback amplifiers and tuned amplifier.
C204.6	Demonstrate the working of multivibrator and time base circuits.

Course Name with subject code: SIGNALS AND SYSTEMS / U23ECT33

Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C205.1	Analyze the properties of signals & systems.

C205.2	Analyze CT and DT signal.
C205.3	Apply Fourier transform, Laplace transform and Z transform in signal analysis.
C205.4	Analyze continuous time LTI systems using Fourier and Laplace Transforms.
C205.5	Analyze discrete time LTI systems using Z transform.
C205.6	Analyze the Different signals in other fields.

Course Name with subject code ELECTROMAGNETIC FIELDS / U23ECT34

Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C206.1	Apply the concepts of electric and magnetic fields to practical engineering problems
C206.2	Apply elementary solution techniques for electrostatics and magneto statics equations.
C206.3	Interpret Maxwell's equations for time dependent electromagnetic fields.
C206.4	Determine parameters such as frequency, phase constant, velocity, skin depth and associated intrinsic impedance for different media.
C206.5	Distinguish among linear polarization, circular polarization, and elliptical polarization, with right-hand/left-hand orientation.
C206.6	Ability to derive wave equations for electromagnetic wave propagation in free space and media.

**Course Name with subject code ELECTRONIC CIRCUITS AND DIGITAL LABORATORY /
U23ECP31**

Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C207.1	Design and Test the frequency response of Transistors
C207.2	Design and Test BJT/JFET amplifiers.
C207.3	Measure CMRR in differential amplifier.
C207.4	Simulate and analyze amplifier and Oscillator circuits using Simulation Software.
C207.5	Demonstrate various combinational circuits like Adder, Subtractor, and Code convertors.
C207.6	Demonstrate various combinational and Sequential circuits.

**Course Name with subject code: PROFESSIONAL DEVELOPMENT AND LIFE SKILLS
LABORATORY / U23HSP31**

Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C208.1	Organize an effective group discussion.
C208.2	Develop confidence to attend job interviews.
C208.3	Explain their opinion effectively in oral medium of communication
C208.4	Prove as technical managers and problem solvers.
C208.5	Motivate themselves to move smartly in professional society.
C208.6	Build hope to prove their entrepreneurial ship.

**Course Name with subject code: C PROGRAMMING AND DATA STRUCTURES
LABORATORY / U23CSP33**

Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C209.1	Use different constructs of C and develop applications
C209.2	Write functions to implement linear and non-linear data structure operations
C209.3	Suggest and use the appropriate linear / non-linear data structure operations for a given problem
C209.4	Apply appropriate hash functions that result in a collision free scenario for data storage and Retrieval
C209.5	Implement Sorting algorithms for a given application
C209.6	Implement searching algorithms for a given application

Course Name with subject code: COMMUNICATION SYSTEMS /U23ECT41

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C210.1	Gain knowledge in amplitude modulation techniques
C210.2	Understand the concepts of Random Process to the design of communication systems
C210.3	Gain knowledge in digital techniques
C210.4	Understand the concepts of Digital modulation techniques
C210.5	Gain knowledge in sampling and quantization
C210.6	Understand the importance of demodulation techniques

Course Name with subject code: LINEAR INTEGRATED CIRCUITS / U23ECT42

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C211.1	Design linear and nonlinear applications of OP – AMPS
C211.2	Design Various op-amp applications
C211.3	Design applications using Timer ICs and PLL
C211.4	Design ADC and DAC using OP – AMPS
C211.5	Generate waveforms using OP – AMP Circuits
C211.6	Analyze special function ICs

Course Name with subject code: DIGITAL SIGNAL PROCESSING /U23ECT43

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C212.1	Apply DFT for the analysis of digital signals & systems
C212.2	Design FIR filters
C212.3	Design IIR filters
C212.4	Characterize finite Word length effect on filters
C212.5	Understand the Concepts of Digital Signal Processors
C212.6	Understand the applications of DSP

Course Name with subject code: NETWORKS AND SECURITY /U23ECT44

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C213.1	Explain the Network Models, layers and functions.
C213.2	Categorize and classify the routing protocols.
C213.3	List the functions of the transport and application layer.
C213.4	Evaluate and choose the network security mechanisms.
C213.5	Explain the various algorithms.
C213.6	Discuss the hardware security attacks and counter measures.

Course Name with subject code: CONTROL SYSTEMS /U23ECT45

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C214.1	Compute the transfer function of different physical systems
C214.2	Analyse the time domain specification and calculate the steady state error.
C214.3	Illustrate the frequency response characteristics of open loop and closed loop system response.
C214.4	Analyse the stability using Routh and root locus techniques.
C214.5	Illustrate the state space model of a physical system and discuss the concepts of sampled data control system.
C214.6	Gain the knowledge on state variable representations

**Course Name with subject code: ENVIRONMENTAL SCIENCES AND
ENGINEERING/U23GET41**

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C215.1	Demonstrate a comprehensive understanding of the world's biodiversity and the importance of its conservation.
C215.2	Discover knowledge in ecological perspective and value of environment
C215.3	Categorize different types of pollutions and their control measures.
C215.4	Understand the significance of various natural resources and its management.
C215.5	Analyse global environmental problems and come out with best possible solutions.
C215.6	Understand environmental laws and sustainable development.

**Course Name with subject code COMMUNICATION SYSTEMS LABORATORY
/U23ECP41**

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C216.1	Design of AM, FM & Digital Modulators for specific applications.
C216.2	Compute the sampling frequency for digital modulation.
C216.3	Simulate & validate the various functional modules of Communication system.
C216.4	Demonstrate their knowledge in base band signalling schemes through implementation of digital modulation schemes.
C216.5	Apply various channel coding schemes & demonstrate their capabilities towards the improvement of the noise performance of Communication system.
C216.6	Simulate various Coherent and Non Coherent Modulation Schemes.

**Course Name with subject code: LINEAR INTEGRATED CIRCUITS LABORATORY
/U23ECP42**

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C217.1	Design various basic op-amp circuits.
C217.2	Analyze various types of feedback amplifiers
C217.3	Design oscillators, tuned amplifiers, wave-shaping circuits and multivibrators
C217.4	Design and simulate feedback amplifiers, oscillators, tuned amplifiers, wave- shaping circuits and multivibrators, filters using Software Tool.
C217.5	Design amplifiers, oscillators, D-A converters using operational amplifiers.
C217.6	Design filters using op-amp and perform an experiment on frequency response.

**Course Name with subject code: SIGNAL PROCESSING AND NETWORKS
LABORATORY / U23ECP43**

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C218.1	Compute DFT and FFT algorithms.
C218.2	Design the FIR and IIR filters.
C218.3	Analyze the quantization errors in filters and avoiding.
C218.4	Understand the Multirate Digital Signal Processing.
C218.5	Understand and write program using DSP Processors.
C218.6	Gain Knowledge on various signal processors.

Course Name with subject code: WIRELESS COMMUNICATION /U23ECT51

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C301.1	Understand The Concept And Design of A Cellular System.
C301.2	Understand Mobile Radio Propagation and Various Digital Modulation Techniques.
C301.3	Understand The Concepts of Multiple Access Techniques And Wireless Network.
C301.4	Characterize a wireless channel and evolve the system design specifications.
C301.5	Design a cellular system based on resource availability and traffic demands.
C301.6	Summarize the principles and applications of wireless systems and standards

Course Name with subject code: VLSI AND CHIP DESIGN / U23ECT52

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C302.1	In depth knowledge of MOS technology
C302.2	Understand Combinational Logic Circuits and Design Principles
C302.3	Understand Sequential Logic Circuits and Clocking Strategies
C302.4	Understand Memory architecture and building blocks
C302.5	Understand the HDL
C302.6	Understand the ASIC Design Process and Testing.

Course Name with subject code: TRANSMISSION LINES AND RF SYSTEMS
/U23ECT53

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C303.1	Explain the characteristics of transmission lines and its losses
C303.2	Write about the standing wave ratio and input impedance in high frequency transmission lines
C303.3	Analyze impedance matching by stubs using smith charts
C303.4	Analyze the characteristics of TE and TM waves
C303.5	Design a RF transceiver system for wireless communication.
C303.6	Design RF Passive components using filters.

Course Name with subject code: MICROPROCESSORS AND MICROCONTROLLERS
/U23ECT54

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C304.1	Understand the architecture of microprocessor/ microcontroller and their operation.
C304.2	To study the addressing modes for Processors and Controllers.
C304.3	To study the Interrupts and Interrupt Service Routines for Processors and Controllers.
C304.4	Demonstrate programming skills in assembly language for Processors and Controllers.
C304.5	Analyze various interfacing techniques and apply them for the design of processor / Controller based systems.
C304.6	To study multiprocessor and high end processor configurations.

**Course Name with subject code: MICROPROCESSORS AND MICROCONTROLLERS
LABORATORY /U23ECP51**

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C305.1	Explain and Implement 8086 instructions for ALU operations.
C305.2	Interface the ADC / DAC Display using 8051 Trainer kit.
C305.3	Interface sensors to 8051 trainer kit using ADC and DAC.
C305.4	Interface and control the operations of stepper motor.
C305.5	Explain and Implement 8051 instructions for ALU operations
C305.6	Simulate the 8051 micro controller based operations.

Course Name with subject code: VLSI LABORATORY /U23ECP52

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C306.1	Write HDL code for basic as well as advanced digital integrated circuit.
C306.2	Import the logic modules into FPGA Boards.
C306.3	Synthesize Place and Route the digital ICs.
C306.4	Design, Simulate and Extract the layouts of Digital & Analog IC Blocks using EDA tools.
C306.5	Test and Verification of IC design.
C306.6	Simulate various IC design.

Course Name with subject code: EMBEDDED SYSTEMS AND IOT DESIGN
/U23ECT61

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C307.1	Explain the architecture and features of 8051.
C307.2	Develop a model of an embedded system.
C307.3	List the concepts of real time operating systems.
C307.4	Learn the architecture and protocols of IoT.
C307.5	Design an IoT based system for any application
C307.6	Able to understand the application areas of IOT

Course Name with subject code: ARTIFICIAL INTELLIGENCE AND MACHINE
LEARNING /U23ITT62

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C308.1	Use appropriate search algorithms for problem solving.
C308.2	Apply reasoning under uncertainty.
C308.3	Build supervised learning models.
C308.4	Build ensembling and unsupervised models.
C308.5	Build deep learning neural network models.
C308.6	Explain the concept of batch normalization and regularization.

Course Name with subject code: INTERNET OF THINGS LABORATORY /U23CSP62

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C309.1	Understand the concept of Internet of Things.
C309.2	Implement interfacing of various sensors with Arduino / Raspberry Pi.
C309.3	Demonstrate the ability to transmit data wirelessly between different devices.
C309.4	Show an ability to upload/ download sensor data on cloud an server.
C309.5	Implement IoT based street light control system.
C309.6	Implement IoT based weather monitoring system.

Course Name with subject code: HUMAN VALUES AND ETHICS / U23GET61

Course Code	Course Outcomes
	<i>On Successful completion of the course, Students will be able to,</i>
C401.1	Identify the importance of democratic, secular and scientific values in harmonious functioning of social life.
C401.2	Practice democratic and scientific values in both their personal and professional life.
C401.3	Find rational solutions to social problems.
C401.4	Behave in an ethical manner in society.
C401.5	Practice critical thinking and the pursuit of truth.
C401.6	Describe the responsibility and duties of citizen.

Course Name with subject code: COGNITIVE RADIO / U23ECT71

Course Outcomes

Course Code	<i>On Successful completion of the course, Students will be able to,</i>
C402.1	Describe the basics of the software defined radios.
C402.2	Understand the fundamental concepts of cognitive radio networks.
C402.3	Design the wireless networks based on the cognitive radios
C402.4	Explain the concepts behind the wireless networks and next generation networks
C402.5	Recognize the concepts of cooperative spectrum sensing and handoff process
C402.6	Analyze the concept of next generation wireless networks.

Course Name with subject code: Project Phase I/ U23ECP71

Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C403.1	Identify and formulate real-world engineering problems based on literature survey and societal needs.
C403.2	Conduct an extensive literature review to analyze existing solutions and technologies.
C403.3	Define clear project objectives, scope, and methodology aligned with engineering principles.
C403.4	Develop a detailed plan of action including initial design concepts or simulation models.
C403.5	Demonstrate effective communication skills through technical seminar presentations and preliminary reporting.
C403.6	Work collaboratively in a team environment while adhering to professional ethics and project management practices.

Course Name with subject code: Project Work (Phase II)/ U23ECP81

Course Code	Course Outcomes
	<i>Upon completion of the course, the students will be able to:</i>
C407.1	Identify and formulate the research problem clearly and precisely based on prior work.
C407.2	Design and develop effective solutions to the identified engineering problem.
C407.3	Analyze and solve complex problems through experiments, simulations, and data interpretation.
C407.4	Plan, implement, and execute the project systematically with efficient resource and time management.
C407.5	Write detailed technical reports and document the project work comprehensively.
C407.6	Present project outcomes effectively through seminars, demonstrating communication and presentation skills.