



DEPARTMENT OF SCIENCE AND HUMANITIES

LIET/SH/D-45/2023-24

REV.: 0.0:0.0

LIST OF COURSE OUTCOMES (CO's)

ACADEMIC YEAR: 2023-24

Branch: ECE

COURSE CODE & NAME	CO	CO STATEMENT
C101 Linear Algebra & Calculus	C101.1	Able to determine the rank of a matrix by reducing to echelon form, normal form & solve system of simultaneous linear equations and apply these methods to find the current in electrical circuits using matrices.
	C101.2	Able to find the Eigen values & Eigen vectors of a given matrix, determine the inverse and powers of a matrix using Cayley – Hamilton theorem and identify the rank, nature and index of a Quadratic form.
	C101.3	Utilize mean value theorems to real life problems.
	C101.4	Acquire knowledge on partial differentiation and calculate total derivative, Jacobian and Maxima and Minima of function of several variables.
	C101.5	Able to determine Double integral over a surface and triple integral over a volume and find the areas and volumes of solids using double and triple integrals.
	C102.1	Understand the fundamental principles underlying the classification, synthesis and processing of polymers, including thermoplastics, thermosetting polymers, elastomers, conducting Polymers and biodegradable polymers.
	C102.2	Analyze electrochemical cells in practical applications such as batteries and sensors using the basic principles of

C102 Chemistry		electrochemistry
	C102.3	Outline the fundamental principles, preparations, properties and applications of nano materials, semiconductors, super conductors, super capacitors
	C102.4	Illustrate the basic aspects and components involved in harnessing each type of non conventional energy sources, including hydropower, geothermal power plant, tidal and wave, ocean- thermal, solar thermal power plant.
	C102.5	Understand the fundamental principles of various instrumental techniques used in chemical analysis, including spectroscopic methods (UV-Visible and IR) and chromatographic techniques(HPLC)
C103 Introduction to Programming	C103.1	Understand basics of computers, the concept of algorithm and problem solving analysis.
	C103.2	Understand the concepts of control structures, branching and looping statements.
	C103.3	Apply the concepts of arrays in solving complex problems.
	C103.4	Develop programs on modular programming using functions and strings.
	C103.5	Develop an ability to debug and optimize the code and solve real time problem statements.
C104 Engineering Graphics	C104.1	Construct various geometrical elements such as lines, polygons, standard curves, and scales with accuracy and precision, utilizing standard conventions and methods in engineering graphics.
	C104.2	Depict the orthographic projections of points and straight lines in various orientations relative to reference planes.
	C104.3	Draw the projections of regular planes in various orientations relative to the reference planes.
	C104.4	Construct the projections and sections of various solids, including polyhedra and solids of revolution, in different orientations relative to the reference planes.

	C104.5	Convert isometric views into orthographic views, and create 2D and 3D drawings using AutoCAD.
C105 Basic Electrical & Electronics Engineering	C105.1	Understand the problem solving concepts associated to dc and ac circuits.
	C105.2	Understand the principle and operation of basic electrical machines and measuring Instruments.
	C105.3	Identify the electricity bill calculations and layout representation of electrical power systems.
	C105.4	Understand the operation of various basic semiconductor devices.
	C105.5	Make use of the applications of semiconductor devices.
	C105.6	Analyze the different digital circuits
C106 Chemistry Lab	C105.1	Determine the cell constant and conductance of different solutions.
	C105.2	Prepare advanced polymer Bakelite materials.
	C106.3	Measure the strength of an acid present in secondary batteries.
	C106.4	Determine the amount of acidity of a given samples.
	C106.5	Calculate strength of iron present in a given sample.
C107 Computer Programming Lab	C107.1	Implement and execute the programs written in C language on Windows and Linux OS
	C107.2	Apply conditional and iterative statements to solve real time scenarios in C.
	C107.3	Develop C programs which utilize memory efficiently through arrays and strings.
	C107.4	Develop programs to demonstrate the applications through user defined data types.
	C107.5	Construct programs using structures, unions, and files.
C108	C108.1	Apply theoretical concepts to obtain calculations for the measurement of electrical parameters.
	C108.2	Analyze various characteristics of electrical circuits, electrical machines and measuring instruments.

Electrical &Electronics Engineering Workshop	C108.3	Design suitable circuits and methodologies for the measurement of various electrical parameters, Household and commercial wiring.
	C108.4	Summarize the characteristics of various electronic devices.
	C108.5	Analyze the different digital circuits.
	C108.6	Evaluate the electronic devices with simulation
C109 NSS/NCC/Scouts &Guides/Community Service	C109.1	Understand the importance of discipline, character and service motto.
	C109.2	Outline the needs and problems of the community and solve some societal issues by applying acquired knowledge, facts and techniques
	C109.3	Explore human relationships by analyzing social problems.
	C109.4	Determine to extend their help for fellow beings and downtrodden people.
	C109.5	Develop leadership skills and civic responsibilities.
C110 Differential Equations and Vector Calculus	C110.1	Apply the first order ordinary differential equations to solve various engineering problems.
	C110.2	Apply the higher order ordinary differential equations to solve various engineering problems.
	C110.3	Apply the partial differential equations to solve various engineering problems.
	C110.4	Analyze the behavior of fluid flow, electromagnetic fields, and other physical phenomena in engineering using vector differentiation.
	C110.5	Apply vector integration in a wide range of engineering disciplines.
C111 Engineering Physics	C111.1	Analyze the intensity of variation of light in various phenomenon such as interference, diffraction and polarization,
	C111.2	Identify the properties of crystals structures by X-Ray diffraction principles.
	C111.3	Classify the various types of magnetic and dielectrics materials
	C111.4	Explain the basic concepts of Quantum Mechanics and free

		electron theory.
	C111.5	Recognize the type of semiconductors using Hall Effect.
C112 Communicative English	C112.1	Learn how to understand the context, topic, and specific information from social or transactional dialogues concerning human values. Skim and Scan the content effectively, use capital letters, spelling, content words, parts of speech, word roots, prefixes and suffixes to converse on familiar topics.
	C112.2	Learn how to listen for main and supporting ideas through poetry to appreciate Nature, apply grammatical structures to formulate sentences and use appropriate words and correct word forms, Articles and Prepositions to write coherent paragraphs and make short talks.
	C112.3	Improve communicative competence in formal and informal contexts and for social and academic purposes through biographical sketches to report what was discussed through paraphrasing, summarizing, collocations, tense, and subject-verb agreement
	C112.4	Critically comprehend and appreciate reading /listening texts and to write summaries based on the texts used for inspiration through data interpretation with right voice and speech and jargon
	C112.5	Identify key terms, concepts for motivation and write or present correcting common errors with appropriate technical vocabulary and comprehension.
C113 Basic Civil & Mechanical Engineering	C113.1	Develop the knowledge on principles governing disciplines of Civil Engineering and their role in the development of society.
	C113.2	Apply the concepts of surveying and leveling for the measurement of linear distances, angles and heights.
	C113.3	Apply principles of environmental management to address resources, transportation, water and air quality challenges for sustainable community well-being.
	C113.4	Identify the materials required for suitable engineering

		applications.
	C113.5	Apply working principles of basic and advanced manufacturing processes.
C114 Network Analysis	C114.1	Understand basic electrical circuits with nodal and mesh analysis.
	C114.2	Apply transient behavior of the elements to electrical networks
	C114.3	Analyze the circuits using various network theorems.
	C114.4	Analyze magnetic circuit and resonance of electrical circuits.
	C114.5	Compute the parameters of a two-port network.
C115 Communicative English Lab	C115.1	Understand the different aspects of the English language oral communication with emphasis on Listening and Speaking Skills.
	C115.2	Apply communication skills through various language learning activities.
	C115.3	Analyze the English speech sounds, stress, rhythm and intonation for better listening and speaking comprehension.
	C115.4	Evaluate and exhibit professionalism in participating in debates and group discussions with polite turn-taking strategies and sound more professional while communicating with others
	C115.5	Create effective resonance and prepare them to face interviews and communicate appropriately in corporate settings.
C116 Engineering Physics Lab	C116.1	Apply the working principles of laboratory experiments in optics, electrical and electronics.
	C116.2	Compute the required parameter by suitable formula using experimental values (observed values) in optics, electrical and electronic experiments.
	C116.3	Analyze the experimental results through graphical interpretation.
	C116.4	Recognize the required precautions to carry out the experiment and handling the apparatus in the laboratory.
	C116.5	Demonstrate the working principles, procedures and applications.

C117 IT workshop	C117.1	Understand functions of a CPU, identify peripherals of a computer, components in CPU, assemble and disassembling the PC.
	C117.2	Student individually installs MS windows, Linux, awareness dual boot on PC.
	C117.3	Student get connected to network, connectivity preparation customizes web browsers and search engines.
	C117.4	Students get knowledge about LaTeX, MS Word, EXCEL and PowerPoint.
	C117.5	Experiment with different types of prompts using Chat Gpt simple experiment with GITHUB.
C118 Engineering Workshop	C118.1	Apply wood working skills in real world applications.
	C118.2	Build different parts with fitting in engineering applications.
	C118.3	Apply forging operations for different black smith applications.
	C118.4	Apply different types of basic electric circuit connections.
	C118.5	Understand the basic components, peripherals and basic operations of a computer.
C119 Network Analysis And Simulation Laboratory	C119.1	Understand the verification of basic laws and theorems
	C119.2	Apply the basic laws and theorems to solve the response of the network
	C119.3	Simplify the solution of the network with the help of basic laws and theorems
	C119.4	Validate the response of the network with the theoretical values
	C119.5	Construct the experimental network with suitable values of meters.
C120 Health and Wellness, Yoga and Sports	C120.1	Acquire knowledge about the health, fitness, nutrition and balanced diet.
	C120.2	Acquire knowledge on yoga and their benefits in their study period and how to manage stress and develop positive personality
	C120.3	Student will be able to know about the benefits of sports in their daily life by considering success and failure equally and

		improve leadership skills and build healthy life style.
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