**LENDI INSTITUTE OF ENGINEERING AND TECHNOLOGY**
**(Autonomous)**
(Approved by A.I.C.T.E & Affiliated to JNTU, Kakinada)
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## DEPARTMENT OF SCIENCE AND HUMANITIES

## List Of Course Outcomes (CO)

**Regulations: R19** **Branch: ECE**

| COURSECODE &NAME | CO | CO STATEMENT |
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| **SEMESTER-1(I-I)-R19** | | |
| **C101 Numerical Method and Ordinary Differential Equations** | **C101.1** | ***Apply*** the matrix algebra techniques to engineering applications. |
| | **C101.2** | ***Apply*** the concepts of eigen values and eigen vectors to free vibration of a two mass systems. |
| | **C101.3** | ***Apply*** mean value theorems to real world problems. |
| | **C101.4** | ***Apply*** the first order ordinary differential equations to solve various engineering problems. |
| | **C101.5** | ***Apply*** the higher order ordinary differential equations to solve various engineering problems. |
| **C102 English** | **C102.1** | *Understand* the value of Human Conduct for career development through life skills: Ethics & Values and use root words and Prepositions without errors. Gain reading skills for comprehension, specific information, gist, and pleasure through extensive reading. |
| | **C102.2** | *Observe* the significance of imagery in poetry to use it in real-time contexts and learn to use and misuse of Articles, Prefixes, Suffixes, and Punctuation. Gain reading skills for comprehension, specific information, gist, and pleasure through extensive reading. |
| | **C102.3** | *Acquire* conversation skills through drama and enhance the correct use of Nouns, Pronouns, Verbs and Concord to write paragraphs effectively. Gain reading skills for comprehension, specific information, gist, and pleasure through extensive reading. |
| | **C102.4** | *Develop* reading for inspiration, interpretation & innovation and learn to use modifiers, synonyms and antonyms to write essays effectively. Gain reading skills for comprehension, specific information, gist, and pleasure through extensive reading. |
| | **C102.5** | *Learn* meaningful use of language by avoiding meaningless |

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| | | clichés, bureaucratic euphemisms and academic jargon in order to acquire the skill of summarizing. Gain reading skills for comprehension, specific information, gist, and pleasure through extensive reading. |
| **C103 Engineering Physics** | **C103.1** | *Interpret* the interaction of optic energy with matter. |
| | **C103.2** | *Explain* the properties of polarization and Lasers. |
| | **C103.3** | *Classify* the given dielectric and semiconductor material. |
| | **C103.4** | *Analyze* Electromagnetic wave propagation in non-conducting medium. |
| | **C103.5** | *Apply* the principles of Fiber Optics and nano materials to communication. |
| **C104 Network Analysis** | **C104.1** | *Understand* the concepts of passive elements, types of sources and various network reduction techniques. |
| | **C104.2** | *Analyze* steady state behavior of single phase and three phase AC electrical circuits. |
| | **C104.3** | *Solve* DC and AC electrical circuits using theorems, mesh and nodal analysis techniques. |
| | **C104.4** | *Determine* two port network parameters such as Z, Y, ABCD and h parameters for given electrical network. |
| | **C104.5** | *Analyze* transient and steady state behavior of RL, RC & RLC circuits in time and Frequency domain. |
| **C105 Engineering Drawing** | **C105.1** | Apply the basics of engineering drawing to construct the polygons and curves. |
| | **C105.2** | Draw the orthographic projections of points and lines. |
| | **C105.3** | Draw the projections of planes in various conditions. |
| | **C105.4** | Draw the projections of regular solids inclined to one of the planes. |
| | **C105.5** | Imagine the isometric views of orthographic views and vice versa. |
| **C106 Communicative English Lab -I** | **C106.1** | Enhance pronunciation with befitting tone for clarity in a speech to communicate language effectively. |
| | **C106.2** | Participate in short conversations in routine contexts on topics of interest and ask questions and make requests politely |
| | **C106.3** | Listen for specific information, gist, note-taking, note-making and comprehension and develop convincing and negotiating skills through debates |
| | **C106.4** | Acquire effective strategies for good writing and demonstrate the same in summarizing and reporting |
| | **C106.5** | Gain knowledge of grammatical structures and vocabulary for day-to-day successful conversations. |
| **C107 Engineering Physics Laboratory** | **C107.1** | *Apply* the working principles of laboratory experiments in optics, mechanics, electromagnetic and electronics and perform the experiments using required apparatus. |
| | **C107.2** | *Compute* the required parameter by suitable formula using experimental values (observed values) in mechanics, optics, electromagnetic and electronic experiments. |
| | **C107.3** | *Analyze* the experimental results through graphical interpretation. |
| | **C107.4** | *Recognize* the required precautions to carry out the experiment |

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| | | and handling the apparatus in the laboratory. |
| | **C107.5** | *Demonstrate* the working principles, procedures and applications. |
| **C108 Electronics Workshop** | **C108.1** | *Identify* discrete components and IC's with specifications. |
| | **C108.2** | *Assemble* simple electronic circuits over a PCB and usage of EDA tools. |
| | **C108.3** | *Testing* of various components. |
| | **C108.4** | *Demonstrate* disassembling and assembling a personal computer and make the computer ready to use. |
| | **C108.5** | *Make* use of office tools for preparing documentations, spread sheets and presentations. |
| **C109 Constitution of India** | **C109.1** | *Understand* historical background of the constitution making and its importance for building a democratic India. |
| | **C109.2** | *Understand* the functioning of three wings of the government i.e., executive, legislative and judiciary. |
| | **C109.3** | *Understand* the value of the fundamental rights and duties for becoming good citizen of India. |
| | **C109.4** | *Analyze* the decentralization of power between central, state and local self-government. |
| | **C109.5** | *Apply* the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy. |
| **SEMESTER-1(I-II)-R19** | | |
| **C110 Transform Techniques and Partial Differential Equations** | **C110.1** | *Apply* the Laplace transform to solve differential equations and integral equations that arise in various engineering fields. |
| | **C110.2** | *Apply* multivariable calculus to solve optimization problems. |
| | **C110.3** | Find the Fourier series of periodic functions and *evaluate* Fourier integral, Fourier transform and inverse Fourier of a given function. |
| | **C110.4** | *Apply* the partial differential equations to solve various engineering problems. |
| | **C110.5** | *Understand* the concept of Z Transforms and able to solve difference equations. |
| **C111 Complex Variables and Multivariable Calculus** | **C111.1** | ***Apply*** complex integration techniques to find the velocity potential and flux functions of flow problems. |
| | **C111.2** | *Evaluate* complex integrals using contour integration techniques, including Cauchy's integral theorem and residue theorem. |
| | **C111.3** | *Apply* multiple integral methods to find the areas and volumes of solids. |
| | **C111.4** | *Analyze* the behaviour of fluid flow, electromagnetic fields, and other physical phenomena in engineering using vector differentiation. |
| | **C111.5** | *Analyze* quantitative measures (like Volume, Mass, Center of Mass, Surface Area, Moment of Inertia) of physical and |

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| | | engineering fields using multiple integral. |
| **C112 Engineering Chemistry** | **C112.1** | *Distinguish* thermoplastics, thermosetting plastics and elastomers. |
| | **C112.2** | *Design* the metallic materials to prevent the corrosion. |
| | **C112.3** | *Discuss* the working principle and applications of primary, secondary battery cells, fuel cells and Photo Voltaic Cell. |
| | **C112.4** | *Compare* the working principle and materials used in Floppy, CD and pen drive. |
| | **C112.5** | *Illustrate* the preparation, properties and applications of Nano materials and importance of green chemistry. |
| **C113 Problem Solving and Programming using C** | **C113.1** | Develop algorithms and flowcharts and also Understand the compilation, debugging, execution and writing of basic C programs |
| | **C113.2** | Develop C Programs using control and iterative statements |
| | **C113.3** | Develop C programs using Arrays and functions |
| | **C113.4** | Apply the knowledge of strings and pointers in programming |
| | **C113.5** | Comprehend file handling and user defined data types |
| **C114 Basic Electrical Engineering** | **C114.1** | *Determine* the losses and efficiency of a DC Machine. |
| | **C114.2** | *Determine* the losses, efficiency and voltage regulation of a transformer under specific operating conditions. |
| | **C114.3** | *Illustrate* working principles of induction motor and synchronous generator. |
| | **C114.4** | *Understand* the different measuring instruments. |
| | **C114.5** | *Describe* working principles of protection devices used in electrical circuits. |
| **C115 Engineering Chemistry Lab** | **C115.1** | *Explain* the functioning of the instruments such as pH, Viscometer, Conductivity and Potentiometric meters. |
| | **C115.2** | *Interpret* the graphical values to analyze the experimental results. |
| | **C115.3** | *Determine* the concentrations of Acid, Zinc, Iron and Copper. |
| | **C115.4** | *Compare* viscosities of different oils. |
| | **C115.5** | *Prepare* polymers and nano materials. |
| **C116 Communicative English Lab-II** | **C116.1** | *Acquire* Listening skills for answering questions, make formal presentations without graphical elements, prioritize information from reading texts, paraphrase short academic texts and get awareness about plagiarized content and academic ethics. |
| | **C116.2** | *Comprehend* academic lectures by taking notes, make formal presentations on academic topics using PPT slides with relevant graphical elements, distinguish facts from opinions while reading, write formal letters and emails and use a range of vocabulary in formal speech and writing. |
| | **C116.3** | *Participate* in group discussions using appropriate language strategies, comprehend complex texts, produce logically coherent argumentative essays and use appropriate vocabulary to express ideas and opinions. |
| | **C116.4** | *Draw* inferences and conclusions using prior knowledge and |

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| | | verbal cues, express thoughts and ideas accurately and fluently, develop advanced reading skills for a deeper understanding of texts, prepare a CV with a cover letter to seek internship/ job, and understand the use of passive voice in academic writing. |
| | **C116.5** | *Develop* advanced listening skills for in-depth understanding of academic texts, make presentations collaboratively, understand the structure of Project Reports and use grammatically correct structures with a wide range of vocabulary. |
| **C117 Problem Solving and Programming using C Lab** | **C117.1** | Learn Basic computer Installations and Office Tools, Document and present the algorithms, flowcharts and programs in form of user-manual and also apply and practice logical ability to solve the problems |
| | **C117.2** | Understand C programming development environment, compiling, debugging, and linking and executing a program using the development environment |
| | **C117.3** | Analyzing the complexity of problems modularize the problems into small modules and then convert them into programs |
| | **C117.4** | Understand and apply the in-built functions and customized functions for solving the problems. |
| | **C117.5** | Understand and apply the pointers, memory allocation techniques and use of files for dealing with variety of problems. |
| **C118 Basic Electrical Engineering Laboratory** | **C118.1** | *Examine* the performance characteristics of a Transformer with and without load. |
| | **C118.2** | *Distinguish* star and delta connections and can find the line and phase components. |
| | **C118.3** | *Determine* the performance characteristics of DC and AC machines. |
| | **C118.4** | *Organize* the speed of a DC Shunt motor. |
| | **C118.5** | Get exposure to components of LT SWITCHGEAR. |
| **C119 Environmental Science** | **C119.1** | *Understand* about the environment its structure and components, along with the natural resources along with various impacts of over utilization of it. |
| | **C119.2** | *Illustrate* about ecosystem and know the importance of the biodiversity along with biodiversity of India and identify its threats and conservation practices to protect it. |
| | **C119.3** | *Understands* about various attributes of different types of pollution and their impacts on the environment and control methods along with waste management practices. |
| | **C119.4** | *Relate* the current environmental impacts with the societal problems. Identify the environmental legislation of India towards sustainable development. |
| | **C119.5** | *Identify* the current population growth with their impacts and apply the knowledge how to manage environment issues. |