	COMMUNICATIVE ENGLISH

Course Outcomes:

CO1	Understand the context, topic, and pieces of specific information from social or Transactional dialogues.
CO2	Apply grammatical structures to formulate sentences and correct word forms.
CO3	Analyze discourse markers to speak clearly on a specific topic in informal discussions.
CO4	Evaluate reading / listening texts and to write summaries based on global comprehension of these texts.
CO5	Create a coherent paragraph, essay, and resume.

	COMMUNICATIVE ENGLISH LAB

Course Outcomes:

CO1	Understand the different aspects of the English language proficiency with emphasison LSRW skills.
CO2	Apply communication skills through various language learning activities.
CO3	Analyze the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking comprehension.
CO4	Evaluate and exhibit professionalism in participating in debates and group discussions
CO5	Create effective Course Objectives

	LINEAR ALGEBRA & CALCULUS

Course Outcomes:

CO1	Develop and use of matrix algebra techniques that are needed by engineers for practicalapplications.
CO2	Utilize mean value theorems to real life problems.
CO3	Familiarize with functions of several variables which is useful in optimization.
CO4	Learn important tools of calculus in higher dimensions.
CO5	Familiarize with double and triple integrals of functions of several variables in two dimensions using Cartesian and polar coordinates and in three dimensions using cylindrical and spherical coordinates.

	DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS

Course Outcomes:

CO1	Solve the differential equations related to various engineering fields.
CO2	Identify solution methods for partial differential equations that model physical processes.
CO3	Interpret the physical meaning of different operators such as gradient, curl and divergence.
CO4	Estimate the work done against a field, circulation and flux using vector calculus.

	ENGINEERING PHYSICS

Course Outcomes:

CO1	Analyze the intensity variation of light due to polarization, interference and diffraction
CO2	Familiarize with the basics of crystals and their structures.
CO3	Explain fundamentals of quantum mechanics and apply it to one dimensional motion ofparticles.
CO4	Summarize various types of polarization of dielectrics and classify the magnetic materials.
CO5	Explain the basic concepts of Quantum Mechanics and the band theory of solids.CO6: Identify the type of semiconductor using Hall effect.

	ENGINEERING PHYSICS LAB

Course Outcomes:

CO1	Operate optical instruments like travelling microscope and spectrometer.
CO2	Estimate the wavelengths of different colours using diffraction grating.
CO3	Plot the intensity of the magnetic field of circular coil carrying current with distance.
CO4	Evaluate dielectric constant and magnetic susceptibility for dielectric and magnetic materials respectively.
CO5	Calculate the band gap of a given semiconductor. CO6: Identify the type of semiconductor using Hall effect.

	ENGINEERING CHEMISTRY

Course Outcomes:

CO1	Demonstrate the corrosion prevention methods and factors affecting corrosion.
CO2	Explain the preparation, properties, and applications of thermoplastics &thermosetting, elastomers & conducting polymers
CO3	Explain calorific values, octane number, refining of petroleum and cracking of oils.
CO4	Explain the setting and hardening of cement.
CO5	Summarize the concepts of colloids, micelle and nanomaterials.

	ENGINEERING CHEMISTRY LAB

Course Outcomes:

CO1	Determine the cell constant and conductance of solutions.
CO2	Prepare advanced polymer materials.
CO3	Determine the physical properties like surface tension, adsorption and viscosity.
CO4	Estimate the Iron and Calcium in cement.
CO5	Calculate the hardness of water.

	CHEMISTRY

Course Outcomes:

CO1	Compare the materials of construction for battery and electrochemical sensors.
CO2	Explain the preparation, properties, and applications of thermoplastics & thermosetting &elastomers conducting polymers.
CO3	Explain the principles of spectrometry, slc in separation of solid and liquid mixtures.
CO4	Apply the principle of Band diagrams in the application of conductors and semiconductors.
CO5	Summarize the concepts of Instrumental methods.

	CHEMISTRY LAB

Course Outcomes:

CO1	Determine the cell constant and conductance of solutions.
CO2	Prepare advanced polymer Bakelite materials.
CO3	Measure the strength of an acid present in secondary batteries.
CO4	Analyse the IR spectra of some organic compounds.
CO5	: Calculate strength of acid in Pb-Acid battery.

	BASIC CIVIL AND MECHANICAL ENGINEERING

PART A: BASIC CIVIL ENGINEERING

Course Outcomes:

CO1	Understand various sub-divisions of Civil Engineering and to appreciate their role inensuring better society.
CO2	Know the concepts of surveying and to understand the measurement of distances, anglesand levels through surveying.
CO3	Realize the importance of Transportation in nation's economy and the engineeringmeasures related to Transportation.
CO4	Understand the importance of Water Storage and Conveyance Structures so that the socialresponsibilities of water conservation will be appreciated.
CO5	: Understand the basic characteristics of Civil Engineering Materials and attain knowledgeon prefabricated technology.

PART B: BASIC MECHANICAL ENGINEERING

Course Outcomes:

CO1	Understand the different manufacturing processes.
CO2	Explain the basics of thermal engineering and its applications.
CO3	Describe the working of different mechanical power transmission systems and powerplants.
CO4	Describe the basics of robotics and its applications.

	ENGINEERING WORKSHOP

Course Outcomes:

CO1	Identify workshop tools and their operational capabilities.
CO2	Practice on manufacturing of components using workshop trades including fitting,carpentry, foundry and welding.
CO3	: Apply fitting operations in various applications.
CO4	Apply basic electrical engineering knowledge for House Wiring Practice

	BASIC ELECTRICAL & ELECTRONICS ENGINEERING

Course Outcomes:

CO1	Describe fundamental laws, operating principles of motors/generators, MC/MI instruments (L2)
CO2	Demonstrate the working of electrical machines, measuring instruments and power generation stations. (L2)
CO3	Apply mathematical tools and fundamental concepts to derive various equations relatedto electrical circuits and machines. (L3)
CO4	Calculate electrical load and electricity bill of residential and commercial buildings. (L4)

	ELECTRICAL & ELECTRONICS ENGINEERING WORKSHOP

PART A: ELECTRICAL ENGINEERING LAB

Course Outcomes:

CO1	Measure voltage, current and power in an electrical circuit. (L3)
CO2	Prepare advanced polymer Bakelite materials. Measure of Resistance using Wheat stone bridge (L4)
CO3	Discover critical field resistance and critical speed of DC shunt generators. (L4) .
CO4	Investigate the effect of reactive power and power factor in electrical loads. (L5)

PART B: ELECTRONICS ENGINEERING LAB

Course Outcomes:

CO1	Identify & testing of various electronic components.
CO2	: Understand the usage of electronic measuring instruments.
CO3	Plot and discuss the characteristics of various electron devices. .
CO4	Explain the operation of a digital circuit.

	IT WORKSHOP

Course Outcomes:

CO1	Perform Hardware troubleshooting.
CO2	Understand Hardware components and inter dependencies.
CO3	Safeguard computer systems from viruses/worms.
CO4	Document/ Presentation preparation.
CO5	Perform calculations using spreadsheets.

	ENGINEERING GRAPHICS

Course Outcomes:

CO1	Understand the principles of engineering drawing, including engineering curves, scales,orthographic and isometric projections.
CO2	Draw and interpret orthographic projections of points, lines, planes and solids in front,top and side views.
CO3	Understand and draw projection of solids in various positions in first quadrant
CO4	Explain principles behind development of surfaces.
CO5	Prepare isometric and perspective sections of simple solids.

	INTRODUCTION TO PROGRAMMING

Course Outcomes:

CO1	Understand basics of computers, the concept of algorithm and algorithmic thinking.
CO2	Analyse a problem and develop an algorithm to solve it.
CO3	Implement various algorithms using the C programming language.
CO4	Understand more advanced features of C language.
CO5	Develop problem-solving skills and the ability to debug and optimize the code.

	COMPUTER PROGRAMMING LAB

Course Outcomes:

CO1	Read, understand, and trace the execution of programs written in C language.
CO2	Select the right control structure for solving the problem.
CO3	Develop C programs which utilize memory efficiently using programming constructs likepointers.
CO4	Develop, Debug and Execute programs to demonstrate the applications of arrays, functions, basic concepts of pointers in C.

	ENGINEERING MECHANICS

Course Outcomes:

CO1	Understand the fundamental concepts in mechanics and determine the frictional forcesfor bodies in contact.
CO2	Analyze different force systems such as concurrent, coplanar and spatial systems andcalculate their resultant forces and moments.
CO3	Calculate the centroids, center of gravity and moment of inertia of different geometricalshapes.
CO4	Apply the principles of work-energy and impulse-momentum to solve the problems ofrectilinear and curvilinear motion of a particle.
CO5	Solve the problems involving the translational and rotational motion of rigid bodies.

	ENGINEERING MECHANICS & BUILDING PRACTICES LAB

Course Outcomes:

CO1	Evaluate the coefficient of friction between two different surfaces and between theinclined plane and the roller.
CO2	Verify Law of Parallelogram of forces and Law of Moment using force polygon and bellcrank lever.
CO3	Determine the Centre of gravity different configurations
CO4	Understand the Quality Testing and Assessment Procedures and principles of Non-Destructive Testing.
CO5	Exposure to safety practices in the construction industry.

	ENGINEERING MECHANICS LAB

Course Outcomes:

CO1	Evaluate the coefficient of friction between two different surfaces and between theinclined plane and the roller.
CO2	Verify Law of Parallelogram of forces and Law of Moment using force polygon and bellcrank lever.
CO3	Determine the Centre of gravity and Moment of Inertia of different configurations.
CO4	Verify the equilibrium conditions of a rigid body under the action of different force systems.

	ELECTRICAL CIRCUIT ANALYSIS -I

Course Outcomes:

CO1	Remembering the basic electrical elements and different fundamental laws.
CO2	Understand the network reduction techniques, transformations, concept of self-inductance and mutual inductance, phasor diagrams, resonance and network theorems.
CO3	Apply the concepts to obtain various mathematical and graphical representations.
CO4	Analyse nodal and mesh networks, series and parallel circuits, steady state response, different circuit topologies (with R, L and C components).
CO5	Evaluation of Network theorems, electrical, magnetic and single-phase circuits.

	ELECTRICAL CIRCUITS LAB

Course Outcomes:

CO1	Understand the concepts of network theorems, node and mesh networks, series and parallel resonance and Locus diagrams.
CO2	Apply various theorems to compare practical results obtained with theoretical calculations.
CO3	Determine self, mutual inductances and coefficient of coupling values, parameters of choke coil.
CO4	Analyse different circuit characteristics with the help of fundamental laws and variousconfigurations.
CO5	Create locus diagrams of RL, RC series circuits and examine series and parallel resonance.

	NETWORK ANALYSIS

Course Outcomes:

CO1	Understand basic electrical circuits with nodal and mesh analysis.
CO2	Analyse the circuit using network simplification theorems.
CO3	Find Transient response and Steady state response of a network.
CO4	Analyse electrical networks in the Laplace domain.
CO5	Compute the parameters of a two-port network.

	NETWORK ANALYSIS AND SIMULATION LABORATORY

Course Outcomes:

CO1	Verify Kirchoff's laws and network theorems.
CO2	Measure time constants of RL & RC circuits.
CO3	Analyze behavior of RLC circuit for different cases.
CO4	Design resonant circuit for given specifications.
CO5	Characterize and model the network in terms of all network parameters.

	DATA STRUCTURES

Course Outcomes:

CO1	Verify Kirchoff's laws and network theorems.Explain the role of linear data structures in organizing and accessing data efficiently inalgorithms.
CO2	Design, implement, and apply linked lists for dynamic data storage, demonstrating understanding of memory allocation.
CO3	: Develop programs using stacks to handle recursive algorithms, manage program states,and solve related problems.
CO4	Apply queue-based algorithms for efficient task scheduling and breadth-first traversal in graphs and distinguish between deques and priority queues, and apply them appropriately to solve data management challenges.
CO5	Devise novel solutions to small scale programming challenges involving data structures such as stacks, queues, Trees.
CO6	Recognize scenarios where hashing is advantageous, and design hash-based solutions forspecific problems.

	DATA STRUCTURES LAB

Course Outcomes:

CO1	Explain the role of linear data structures in organizing and accessing data efficiently in algorithms.
CO2	Design, implement, and apply linked lists for dynamic data storage, demonstrating understanding of memory allocation.
CO3	Develop programs using stacks to handle recursive algorithms, manage program states, and solve related problems.
CO4	Apply queue-based algorithms for efficient task scheduling and breadth-first traversal in graphs and distinguish between deques and priority queues and apply them appropriately to solve data management challenges.
CO5	Recognize scenarios where hashing is advantageous, and design hash-based solutions forspecific problems.

	HEALTH AND WELLNESS, YOGA AND SPORTS

Course Outcomes:

CO1	Understand the importance of yoga and sports for Physical fitness and sound health.
CO2	Demonstrate an understanding of health-related fitness components.
CO3	Compare and contrast various activities that help enhance their health.
CO4	Assess current personal fitness levels.
CO5	Develop Positive Personality

	NSS/NCC/SCOUTS & GUIDES/COMMUNITY SERVICE

Course Outcomes:

CO1	Understand the importance of discipline, character and service motto.
CO2	Solve some societal issues by applying acquired knowledge, facts, and techniques.
CO3	Explore human relationships by analyzing social problems.
CO4	Determine to extend their help for the fellow beings and downtrodden people.
CO5	Develop leadership skills and civic responsibilities.