21_CO_FIRST YEAR_SYLLABUS

21MAT11- CALCULUS AND DIFFERENTIAL EQUATIONS	
CO1	Apply the knowledge of calculus to solve problems related to polar curves and its applications in determining the bentness of a curve.
CO2	Learn the notion of partial differentiation to calculate rate of change of multivariate functions and solve problems related to composite functions and Jacobian.
CO3	Solve first-order linear/nonlinear ordinary differential equations analytically using standardmethods.
CO4	Demonstrate various models through higher order differential equations and solve such linearordinarydifferential equations.
CO5	Test the consistency of a system of linear equations and to solve them by direct and iterativemethods.

21PHY12/22- ENGINEERING PHYSICS	
CO1	Interpret the types of Mechanical vibrations and their applications, the role of shock waves in various fields
CO2	Demonstrate the quantization of energy for microscopic system
CO3	Apply Laser and Optical fibers in opto electronic system.
CO4	Illustrate merits of quantum free electronic theory and applications of Hall effect
CO5	Analyse the important of XRD and Electron Microscopy in Nano Material characterization.

21ELE13/23-BASIC ELECTRICAL ENGINEERING	
CO1	Analyze basic DC and AC electric circuits.
CO2	Explain the working principles of transformers and electrical machines.
CO3	Explain the concepts of electric power transmission and distribution of power.
CO4	Understand the wiring methods, electricity billing, and working principles of circuit protective devices and personal safety measures.

21CIV14/24-ELEMENTS OF CIVIL ENGINEERING AND MECHANICS	
CO1	Understand the various fields of civil engineering.
CO2	Compute the resultant of a force system and resolution of a force
CO3	Comprehend the action for forces, moments, and other types of loads on rigid bodies andcompute the reactive forces.
CO4	Locate the centroid and compute the moment of inertia of regular and built-up sections.
CO5	Analyze the bodies in motion.

21EVNL15/25- **Engineering Visualization**	
CO1	Prepare and understand engineering drawings.
CO2	Identify and apply the principles of orthographic projections of lines, planes and solids.
CO3	Identify and apply the principles of orthographic projections and prepare development oflateral surfaces.
CO4	Visualize three dimensional objects and develop isometric projections.
CO5	Visualize engineering components.

21PHYL16/26-ENGINEERING PHYSICS LABORATORY	
CO1	Understand the measuring techniques
CO2	Operate different instruments and be capable to analyze the experimental results.
CO3	Construct the circuits and their analysis.

21ELEL17/27- BASIC ELECTRICAL ENGINEERING LABORATORY	
CO1	Verify KCL and KVL and maximum power transfer theorem for DC circuits. Compare power factors of different types of lamps.
CO2	Compare power factors of different types of lamps.
CO3	Demonstrate the measurement of the impedance of an electrical circuit and power consumed by a3-phase load.
CO4	**A**nalyze two-way and three-way control of lamps.
CO5	Explain the effects of open and short circuits in simple circuits.
CO6	Interpret the suitability of earth resistance measured.

21EGH18- Communicative English	
CO1	Understand and apply the Fundamentals of Communication Skills in their communication skills.
CO2	Identify the nuances of phonetics, intonation and enhance pronunciation skills.
CO3	To impart basic English grammar and essentials of language skills as per present requirement.
CO4	Understand and use all types of English vocabulary and language proficiency.
CO5	Adopt the Techniques of Information Transfer through presentation.

21IDT19/29- INNOVATION AND DESIGN THINKING	
CO1	Appreciate various design process procedure
CO2	Generate and develop design ideas through differenttechnique
CO3	Identify the significance of reverse Engineering to Understand products
CO4	Draw technical drawing for design ideas

21MAT21- ADVANCED CALCULUS AND NUMERICAL METHODS	
CO1	Apply the concept of change of order of integration and change of variables to evaluate multipleintegrals and their usage in computing the area and volume.
CO2	Illustrate the applications of multivariate calculus to understand the solenoidal and irrotationalvectors and also exhibit the interdependence of line, surface, and volume integrals
CO3	Formulate physical problems to partial differential equations and to obtain solutions forstandard practical PDE's.
CO4	Apply the knowledge of numerical methods in modeling various physical and engineeringphenomena.
CO5	Solve first-order ordinary differential equations arising in engineering problems

21CHE12/22- ENGINEERING CHEMISTRY	
CO1	Discuss the electrochemical energy systems such as electrodes and batteries
CO2	Explain the fundamental concepts of corrosion, its control and surface modification methods namely electroplating and electro less plating
CO3	Enumerate the importance, synthesis and applications of polymers Understand Properties and application of nonmaterial
CO4	Describes the principles of green chemistry, understand properties and application alternative fuels
CO5	Illustrate the fundamental principles of water chemistry, applications of volumetric and analytical instrumentation

21PSP13/23- PROBLEM-SOLVING THROUGH PROGRAMMING	
CO1	Elucidate the basic architecture and functionalities of a computer and also recognizethe hardware parts.
CO2	Apply programming constructs of C language to solve the real world problem
CO3	Explore user-defined data structures like arrays in implementing solutions toproblems like searching and sorting
CO4	Explore user-defined data structures like structures, unions and pointers inimplementing solutions
CO5	Design and Develop Solutions to problems using modular programming constructs using functions

21ELN14/24- BASIC ELECTRONICS & COMMUNICATION ENGINEERING	
CO1	Describe the concepts of electronic circuits encompassing power supplies, amplifiers andoscillators.
CO2	Present the basics of digital logic engineering including data representation, circuits and themicrocontroller system with associated sensors and actuators.
CO3	Discuss the characteristics and technological advances of embedded systems.
CO4	Relate to the fundamentals of communication engineering spanning from the frequency spectrumto the various circuits involved including antennas.
CO5	Explain the different modes of communications from wired to wireless and the computinginvolved

21EME15/25- ELEMENTS OF MECHANICAL ENGINEERING	
CO1	Understand basic concepts of mechanical engineering in the fields of energy and its utilization, materials technology, manufacturing techniques, and transmission systems through demonstrations.
CO2	Understand the application of energy sources in Power generation and utilization, Engineering materials, manufacturing, and machining techniques leading to the latest advancements and transmission systems in day to day activities
CO3	Apply the skills in developing simple mechanical elements and processes

21CHEL16/26- ENGINEERING CHEYMISTRY LABORATORY	
CO1	Determine the pKa and coefficient of Viscosity of a given organic liquid
CO2	Estimate The Amount Of Substance Present In The Given Solution Using Potentiometer Conduct metric And Colorimetric.
CO3	Determine the total hardness and chemical oxygen demand in the given solution by volumetric analysis method
CO4	Estimate the percentage of Nickel, copper and Iron in the given analyze solution by volumetric analysis method
CO5	Demonstrate flame photometric estimation of sodium & potassium and the synthesis of nonmaterials by Precipitation method.

21CPL17/27- COMPUTER PROGRAMMING LABORATORY	
CO1	Define the problem statement and identify the need for computer programming
CO2	Make use of C compiler, IDE for programming, identify and correct the syntax andsyntactic errors in programming
CO3	Develop algorithm, flowchart and write programs to solve the given problem
CO4	Demonstrate use of functions, recursive functions, arrays, strings, structures andpointers in problem solving.
CO5	Document the inference and observations made from the implementation

21EGH28- PROFESSIONAL WRITING SKILLS IN ENGLISH	
CO1	To understand and identify the Common Errors in Writing and Speaking.
CO2	To Achieve better Technical writing and Presentation skills.
CO3	To read Technical proposals properly and make them to Write good technical reports.
CO4	Acquire Employment and Workplace communication skills.
CO5	To learn about Techniques of Information Transfer through presentation in different level.

21SFH19/29- SCIENTIFIC FOUNDATIONS OF HEALTH	
CO1	To understand Health and wellness (and its Beliefs)
CO2	To acquire Good Health & It's balance for positive mindset
CO3	To inculcate and develop the healthy lifestyle habits for good health
CO4	To Create of Healthy and caring relationships to meet the requirements of MNC and LPG world
CO5	To adopt the innovative & positive methods to avoid risks from harmful habits in their campus & outsidethe campus.
CO6	To positively fight against harmful diseases for good health through positive mindset.

PROGRAMME COORDINATOR