



SAPTHAGIRI COLLEGE OF ENGINEERING

(Affiliated to VTU, Belagavi and approved by AICTE, New Delhi)
 #14/5, Chikkasandra, Hesarahatta main road, Bengaluru-560057

DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

I Year Information Science and Engineering

Course Code	Course Name	Course Outcomes-On completion of this course the students will be able to
18MAT11	Calculus and Linear Algebra	<p>CO1: Find the angle between radius vector and tangent, Pedal Equations, curvature, radius of curvature and their applications.</p> <p>CO2: Find the Taylor's and Maclaurin's series, indeterminate forms, partial differentiation, Maxima and Minima for a function of two variables.</p> <p>CO3: Evaluate the double and triple integrals, and by changing the order of integration, using Beta and Gamma functions and their application.</p> <p>CO4: Solve linear and non-linear ordinary differential equations.</p> <p>CO5: Solve the system of linear equations and to compute the Eigen value, Eigen vectors for diagonalization.</p>
18PHY12/22	Engineering Physics	<p>CO1: Classify various types of oscillations and their implications, the role of Shock waves in various fields Engineering and Technical fields.</p> <p>CO2: Recognize the elastic properties of materials for engineering applications.</p> <p>CO3: Realize the interrelation between time varying electric field and magnetic field, the transverse nature of the EM waves and their role in optical fiber communication.</p> <p>CO4: Compute Eigen values, Eigen functions of a particles using Time independent 1-D Schrodinger's wave equation and apprehend theoretical background of different types of laser and its applications in various fields.</p> <p>CO5: Distinguish various electrical and thermal properties of materials like conductors, semiconductors and dielectrics using different theoretical models.</p>
		<p>CO1: Analyse D.C circuits.</p> <p>CO2: Analyse A.C circuits</p> <p>CO3: Explain the principle of operation and construction of single phase transformers. Discuss concepts of</p>

18ELE13/23	Basic Electrical Engineering	<p>electrical wiring, circuit protecting devices and earthing</p> <p>CO4: Explain the principle of operation and construction of DC machine and its performance.</p> <p>CO5: Explain the principle of operation and construction of synchronous machines and three phase induction motors.</p>
18CIV14/24	Elements of Civil Engineering and Mechanics	<p>CO1: Mention the applications of various fields of Civil Engineering.</p> <p>CO2: Compute the resultant of given force system subjected to various loads.</p> <p>CO3: Comprehend the action of Forces, Moments and other loads on systems of rigid bodies and compute the reactive forces that develop as a result of the external loads.</p> <p>CO4: Locate the Centroid and compute the Moment of Inertia of regular and built-up sections.</p> <p>CO5: Express the relationship between the motions of bodies and analyze the bodies in motion.</p> <p>CO6: Apply the concepts of kinetics and kinematics, to understand about curvilinear and rectilinear motion and to analyze the various problems based on these.</p>
18EGDL15/25	Engineering Graphics	<p>CO1: Demonstrate the usage of CAD software.</p> <p>CO2: Draw orthographic projections of points, lines, planes and solids.</p> <p>CO3: Generate the development of lateral surfaces of solids.</p> <p>CO4: Covert orthographic views to isometric projections of solids and vice-versa.</p>
18PHYL16/17	Engineering Physics Laboratory	<p>CO1: Apprehend the concepts of interference of light, diffraction of light, Fermi energy and magnetic effect of current</p> <p>CO2: Understand the principles of operations of optical fibers and Semiconductor devices such as Photodiode, and NPN transistor using Simple circuits</p> <p>CO3: Determine elastic moduli and moment of inertia of given materials with the help of suggested procedures</p> <p>CO4: Recognize the resonance concept and its practical applications</p> <p>CO5: Understand the importance of measurement procedure, honest recording and representing the data, reproduction of final results</p>
		<p>CO1: Identify common electrical components, measuring instruments used in electrical laboratory and understand basic electrical laws such as Ohm's Law, Kirchhoff's Current Law, and Kirchhoff's Voltage Law, then, verify the same in simple electrical circuits.</p> <p>CO2: Compare the power consumed and power factor of various types of lamps, such as</p>

18ELEL17/27	Basic Electrical Engineering Laboratory	<p>Incandescent lamps, Fluorescent Lamps, and LED lamps.</p> <p>CO3: Understand the operation of two-way and three-way control of lamps in domestic wiring.</p> <p>CO4: Determine the various parameters of a choke coil, such as impedance, resistance, inductance, and quality factor.</p> <p>CO5: Establish star and delta type of connections using three numbers of single-phase loads and verify the phase and line relationships of voltage and currents.</p> <p>CO6: Determine and verify the total power consumed by a three phase star connected load using the two-wattmeter method.</p> <p>CO7: Understand the effects of open and short circuits in a simple electrical circuit.</p>
18EGH18	Technical English-I	<p>CO 1: Use grammatical English and essentials of language skills and identify the nuances of phonetics, intonation and flawless pronunciation</p> <p>CO2: Implement English vocabulary at command and language proficiency</p> <p>CO3: Identify common errors in spoken and written communication</p> <p>CO4: Understand and improve the non verbal communication and kinesics</p> <p>CO5: Perform well in campus recruitment, engineering and all other general competitive examinations.</p>
18MAT21	Advanced calculus and numerical methods	<p>CO1: Find the velocity, acceleration, gradient, curl and divergence</p> <p>CO2: Solve linear ordinary differential equations.</p> <p>CO3: Form and solve partial differential equations.</p> <p>CO4: Solve the infinite series and power series solutions.</p> <p>CO5: Solve algebraic and transcendental equations, interpolating polynomials, Intermediate values and evaluation of integrals using appropriate numerical techniques.</p>
18CHE12/22	Engineering Chemistry	<p>CO1: Analyze use of thermodynamics concepts to understand and to calculate potential value and nature of different classes of batteries applications.</p> <p>CO2: Analyze the understand nature of corrosion of different metals, causes and their protection through different techniques.</p> <p>CO3: Analyze calorific value of solid or liquid fuel and understand utilization of various energy sources.</p> <p>CO4: Explain the source sand effects of environmental pollution, the knowledge of waste management and assessment of water quality parameters</p> <p>CO5: Use instruments for various quantitative analysis and prepare the nonmaterial's and their applications.</p>

18CPS13/23	C Programming for Problem Solving	<p>CO1: Illustrate simple algorithms from the different domains such as mathematics, physics, etc.</p> <p>CO2: Construct a programming solution to the given problem using C.</p> <p>CO3: Identify and correct the syntax and logical errors in C programs.</p> <p>CO4: Modularize the given problem using functions and structures.</p>
18ELN14/24	Basic Electronics	<p>CO1: Apply the Knowledge of Semiconductor diode for designing Regulated power supply Using Rectifier, filter and IC regulator.</p> <p>CO2: Describe the construction, working and operation of JFET, MOSFET also discuss the Operating Principles of SCR with the Phase control application.</p> <p>CO3: Explain the Various Op-Amp parameters and using Op-amp design basic application like Inverting, non -inverting amplifier, Integrator differentiator etc.</p> <p>CO4: Use BJT for applications like amplifier and switch for power control, Describe the Principles operation of feedback amplifier and oscillators.</p> <p>CO5: Explain the different number system and their conversions and construct simple combinational and sequential logic circuits using Flip-Flops.</p> <p>CO6: Describe the basic principle of operation of communication system and mobile phones.</p>
18ME15/25	Elements of Mechanical Engineering	<p>CO1: Explain various sources of energy and conversion, basics of thermodynamics and properties of steam.</p> <p>CO2: Describe the principles & operations of boilers, hydraulic turbines and hydraulic pumps.</p> <p>CO3: Describe principles and operations of internal combustion engines, refrigeration and air-conditioning.</p> <p>CO4: Explain basics of engineering materials and various joining processes of metals.</p> <p>CO5: Describe power transmission methods by belt and gear drives and estimation of velocity ratios.</p> <p>CO6: Explain different machining processes by lathe, milling machines and basics of CNC machines and robotics</p>
18CHEL16/26	Engineering Chemistry Laboratory	<p>CO1: Handling different types of instruments for analysis of materials using small Quantities of materials involved for quick and accurate results.</p> <p>CO2: Carrying out different types of titrations for estimation of concerned in materials using comparatively more quantities of materials involved for good results.</p>

18CPL17/27	C Programming Laboratory	<p>CO1: Write algorithms, flowcharts and program for simple problems.</p> <p>CO2: Correct syntax and logical errors to execute a program.</p> <p>CO3: Write iterative and wherever possible recursive programs.</p> <p>CO4: Demonstrate use of functions, arrays, strings, structures and pointers in problem solving.</p>
18EGH28	Technical English-II	<p>CO1: Improve the functional effectiveness through better workplace communication skills.</p> <p>CO2: Acquire basic proficiency in English reading and listening, comprehensions, writing and speaking skills.</p> <p>CO3: Write campus recruitment exams, engineering competitive exams and all other general competitive exams.</p> <p>CO4: Improve business and technical communication skills and technical writing skills.</p>

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