Subject Code	Subject Name	Course Outcomes:
18MAT11	CALCULUS AND LINEAR ALGEBRA	**COl** : 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 rates of change of multivariate functions and solve problems related to composite functions and Jacobians. **C03** : Apply the concept of change of order of integration and variables to evaluate multiple integrals and their usage in computing the area and volumes. **C04** : Solve first order linear/nonlinear differential equation analytically using standard methods **COS** : Make use of matrix theory for solving system of linear equations and compute eigenvalues and eigenvectors required for matrix diagonalizationprocess.
18PHY12/22	**ENGINEERING PHYSICS**	**1.** Understand various types of oscillations and their implications, the role of Shock waves in various fields and Recognize the elastic properties of materials for engineering applications . 2. Realize the interrelation between time varying electric field and magnetic field, the transverse nature of the EM waves and their role in optical fibercommunication. 3. Compute Eigen values, Eigen functions, momentum of Atomic and subatomic particles using Time independent 1-D Schrodin ger's wave equation. 4. Apprehend theoretical background of laser, construction and working ofdifferent types oflaser and its applications in different fields 5. Understand various electrical and thermal properties of materials like conductors, semiconductors and dielectrics using different theoretical models
18ELE13/23	**BASIC ELECTRICAL ENGINEERING**	1 Analyse D.C andA.C circuits. Explain the principle of operation andconstruction of single phasetransformers. Explain the principle of operation and construction of DC machines andsynchronous machines. Explain the principle of operation and construction of three phaseinduction motors. Discuss concepts of electrical wiring, circuit protecting devices andearthing.

18CIV14/24	ELEMENTS OF CIVIL ENGINEERING AND MECHANICS	1. Mention the applications of various fields of Civil Engineering. 2. Compute the resultant of given force system subjected to various loads. 3. 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. 4. Locate the Centroid and compute the Moment of Inertia of regular and built-up sections. 5. Express the relationship between the motion of bodies and analyze the bodies in motion.
18EGDL15/25	ENGINEERING GRAPHICS	**COl** Prepare engineering drawings as per BIS conventions mentioned in therelevant codes. **CO2** Produce computer generated drawings using CAD software. **C03** Use the knowledge of orthographic projections to represent engineeringinformation / concepts and present the same in the form of drawings. **C04** Develop isometric drawings of simple objects reading the orthographicprojections of those objects. **COS** Convert pictorial and isometric views of simple objects to orthographicviews.
18PHYL16/26	ENGINEERING PHYSICS LABORATORY	1. Apprehend the concepts of interference oflight, diffraction oflight, Fermi energy and magnetic effect of current 2. Understand the principles of operations of optical fibers and semiconductor devices such as Photodiode, and NPN transistor using simple circuits 3. Determine elastic moduli and moment of inertia of given materials with the help of suggested procedures 4. Recognize the resonance concept and its practical applications 5. Understand the importance of measurement procedure, honest recordingand representing the data, reproduction of final results
18ELEL17/27	BASIC ELECTRICAL ENGINEERING LABORATORY	Identify the common electrical components and measuring instrumentsused for conducting experiments in the electrical laboratory. Compare power factor oflamps. Determine impedance of an electrical circuit and power consumed in a 3phase load. Determine earth resistance and understand two way and three way controloflamps.
18EGH18	TECHNICAL ENGLISH - I	CO 1: Use grammatical English and essentials of language skills and identify the nuances of phonetics, intonation and flawless pronunciation CO2: Implement English vocabulary at command and language proficiency CO 3: Identify common errors in spoken and written communication

		CO 4: Understand and improve the non verbal communication and kinesics CO 5: Perform well in campus recruitment, engineering and all other general competitive examinations
: **18MAT21**	ADVANCED CALCULUS ANDNUMERICAL METHODS	**COl** : Illustrate the applications of multivariate calculus to understand the solenoidal and irrotational vectors and also exhibit the inter dependence ofl ine, surface and volume integrals. **CO2** : Demonstrate various physical models through higher order differentialequations and solve such linear ordinary differential equations. **Co3:** Construct a variety of partial differential equations and solution by exact methods/method of separation of variables . **C04** : Explain the applications of infinite series and obtain series solution of ordinary differential equations. **Cos:** Apply the knowledge of numerical methods in the modeling of various physical and engineering phenomena.
18CHE12/22	**ENGINEERING CHEMISTRY**	**COl:** Use of free energy in equilibria, rationalize bulk properties and processes using thermodynamic considerations, electrochemical energy systems. **CO2** : Causes & effects of corrosion of metals and control of corrosion. Modification of surface properties of metals to develop resistance to corrosion, wear, tear, impact etc. by electroplating and electroless plating. **C03** : Production & consumption of energy for industrialization of country and living standards of people. Electrochemical and concentration cells. Classical, modem batteries and fuel cells. Utilization of solar energy for different useful forms of energy. **C04:** Environmental pollution, waste management and water chemistry. **COS** : Different techniq ues of in strumental method s of analysis. Fundamental principles ofnano materi als.
18CPS13/23	**C PROGRAMMING FORPROBLEM SOLVING**	Illustrate simple algorithms from the different domains such asmathematics , physics, etc. Construct aprogramming solution to the given problem using C.Identify and correct the syntax and logical errors in C programs. Modularize the given problem using functions and structures .
: **18ELN14/24**	**BASIC ELECTRONICS**	• Describe the operation of diodes, BJT, FET and Operational Amplifiers. • Design and explain the construction ofrectifiers, regulators, amplifiers andoscillators. • Describe general operating principles ofSCRs and its application. • Explain the working and design of Fixed voltage IC regulator using 7805andAstable

		oscillatorusingTimer IC 555. • Explain the different number system and their conversions and constructsimple combinational and sequential logic circuits using Flip-Flops. • Describe the basic principle of operation of communication system andmobile phones.
18ME15/25	ELEMENTS OF MECHANICAL ENGINEERING	CO1 Identify different sources of energy and their conversion process. CO2 Explain the working principle of hydraulic turbines , pumps, ICengines and refrigeration. CO3 Recognize various metal joining processes and power transmissionelements. CO4 Understand the properties of common engineering materials and theirapplications in engineering industry. COS Discuss the working of conventional machine tools, machiningprocesses, tools and accessories. CO6 Describe the advanced manufacturing systems.
18CHEL16/26	ENGINEERING CHEMISTRY LABORATORY	CO l: Handling different types of instruments for analysis of materials using small quantities of materials involved for quick and accurate results. CO2: Carrying out different types oftitrations for estimation of concerned in materials using comparatively more quantities of materials involved for good results.
18CPL17/27	C PROGRAMMING LABORATORY	
18EGH28	TECHNICAL ENGLISH - II	CO 1: Identify common errors in spoken and written communication CO2: Get familiarized with English vocabulary and language proficiency CO 3: Improve nature and style of sensible writing and acquire employmentand workplace communication skills CO 4: Improve their Technical Communication Skills through TechnicalReading and Writing practices CO 5: Perform well in campus recruitment, engineering and all other generalcompetitive examinations