

Program Outcomes

1. **PO-1: Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialisation to the solution of complex engineering problems.
2. **PO-2: Problem analysis:** Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **PO-3: Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **PO-4: Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **PO-5: Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
6. **PO-6: The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **PO-7: Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of need for sustainable development.
8. **PO-8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **PO-9: Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **PO-10: Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **PO-11: Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **PO-12: Life-long learning:** Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

Course Outcomes

YEAR: 1 SEM: 1

Course Name: CALCULUS AND LINEAR ALGEBRA

Sub code: 18MAT11

CO	Course Outcomes
1.	Apply the knowledge of calculus to solve the problems of polar curves and its applications in determining the benefits of bentness of the curve.
2.	Learn the notation of partial differentiation to find rate of change of multivariate functions and Jacobians
3.	Apply the concept of change of order of integration and evaluate the multiple integral and their application in finding area and volumes
4.	Solve the first order linear/nonlinear differential equations using standard methods
5.	Make use of matrix theory for solving system of linear equations and compute eigenvalues and eigenvectors for diagonalization

Course Name: ENGINEERING PHYSICS

Sub code: 18EC12

CO	Course Outcomes
1.	Understand various oscillations and their implications, the role of shock waves in various fields and recognize elastic properties of materials and their engineering applications
2.	Realize the interrelation between the time varying electric field and magnetic field, the transverse nature of EM waves and their role in optical fiber communication
3.	Compute Eigen values and Eigen function, and atomic and subatomic particles using time dependent 1-D Schrodinger wave equation.
4.	Apprehend the theoretical background of laser, construction and working of different types of laser and its applications in different fields
5.	Understand various thermal and electrical properties of materials like, conductors, semiconductors and dielectrics using standard models

Course Name: BASIC ELECTRICAL ENGINEERING

Sub code: 18EC13

CO	Course Outcomes
1.	Analyze dc and ac circuits
2.	Explain the principle of operation and construction of single phase transformers
3.	Explain the principle of operation and construction of dc machines and synchronous machines
4.	Explain the principle of operation and construction of three phase induction motor
5.	Explain the concept of electrical wiring, circuit protecting devices and earthing

CO	Course Outcomes
1.	Mention the applications of various fields of civil engineering
2.	Compute the reactive forces and the effects that develop as a result of the various loads
3.	Comprehend the actions of forces, moments and loads on the system of rigid bodies and compare their reactive forces to reactive loads
4.	Locate the centroid and calculate moment of inertia for regular and built up sections
5.	Express the relation between motion of bodies and analyze bodies in motion

CO	Course Outcomes
1.	Prepare engineering drawing as per BIS conventions mentioned in the relevant codes
2.	Produce computer generated drawing with the usage of CAD software.
3.	Use the knowledge of Orthographic projections, Sections of solids and present the same in the form of drawings
4.	Develop Isometric drawings of objects reading the Orthographic projections of objects
5.	Convert the pictorial and Isometric views of simple objects to Orthographic objects

CO	Course Outcomes
1.	Use grammatical English and essentials of language skills language skills, nuances and flawless pronunciation
2.	Implement English vocabulary at command and language proficiency
3.	Identify common error in spoken and written communication
4.	Understand and improve nonverbal communication and kinesics
5.	Perform well in campus recruitment and other competitive examination

YEAR: 1 SEM: 2

Course Name: ADVANCED CALCULUS AND NUMERICAL METHODS Sub code: 18EC21

CO	Course Outcomes
1.	Illustrate the applications of multivariate calculus and understand the solenoid and irrational vectors and also illustrate the difference of line surface and volume integrals
2.	Demonstrate the various physical models through higher order differential equations and solve them
3.	Construct a variety of partial differential equation and solution by exact Methods/method of separation of variables
4.	Explain the applications of infinite series and obtain series solution of ordinary differential equations
5.	Apply the knowledge of numerical methods in the modeling of various physical and engineering phenomena

Course Name: ENGINEERING CHEMISTRY

Sub code: 18EC22

CO	Course Outcomes
1.	Use of free energy in equilibrium, Rationalize bulk properties using thermodynamic considerations, electrochemical energy systems
2.	Cause and effects of corrosion of metals and control of corrosion. Modification of surface properties of metals to develop resistance to corrosion, wear, tear etc. by electroplating and electroless plating.
3.	Production & consumption of energy for industrialization of country and living standards of people. Electrochemical and concentration cells. Classical, modern battery and fuel cells. Utilization of solar energy for different useful forms of energy.
4.	Environmental pollution, Waste management and water chemistry.
5.	Different techniques of instrumental methods of analysis. Fundamental principles of nono materials.

Course Name: C PROGRAMMING FOR PROBLEM SOLVING

Sub code: 18EC23

CO	Course Outcomes
1.	Illustrate simple algorithms from different domains Such as mathematics, physics etc.
2.	Construct a programming solution to the given problem using
3.	Identify and correct the syntax and logical errors in C programs
4.	Modularize the given problem using functions and structures.

Course Name: BASIC ELECTRONICS

Sub code: 18ELN24

CO	Course Outcomes
1.	Describe the operation of BJT, FET, diode and op-amp
2.	Explain the construction of regulators, oscillators, amplifiers and regulators
3.	Describe the general principles of SCRs and its applications
4.	Explain the working and design of fixed voltage IC regulators using 7805 IC and astable using 555 IC
5.	Explain the different number system and their conversions. Construct simple combinational and sequential circuits using logic gates and f/f
6.	Describe the basic principle of communication system and mobile phones

CO	Course Outcomes
1.	Identify Various Energy sources and their conversion system
2.	Explain the working principle of Boilers, Prime movers such as turbines and IC engines, refrigeration and air-conditioning systems
3.	Recognize the various metal joining processes and power transmission elements
4.	Understand the properties of common engineering materials and their applications in engineering industry
5	Discuss the conventional machine tools, machining process and tools and accessories.