**Course Outcomes 2020-21 Term-I & II**

| CLASS | NAME OF THE SUBJECT | CO | COURSE OUTCOME |
|---|---|---|---|
| FE (Term-I & II ) | **Physics** | | **Physics** |
| | | 817101/ 816101 / 818101/ 822103/824201/819201 /811201/812201 | 1. To study Bragg's Law and introduced to the principles of lasers, types of lasers and applications<br>2. Various terms related to properties of materials such as, permeability, polarization, etc.<br>3. Some of the basic laws related to quantum mechanics as well as magnetic and dielectric properties of materials<br>4. Simple quantum mechanics calculations<br>5. Nanotechnology and their industrial applications. |
| | **Mathematics - I** | 824102/819102/81110 2/812102 | **Mathematics - I**<br>1. Apply differential and integral calculus. Apart from some other applications they will have a basic understanding of Beta and Gamma functions.<br>2. The fallouts of Rolle's Theorem that is fundamental to application of analysis to Engineering problems.<br>3. The tool of Fourier series for learning advanced Engineering Mathematics.<br>4. To deal with functions of several variables that are essential in most branches of Engineering.The essential tool of matrices and linear algebra in a |
| | **Basic Electrical & Electronics Engineering** | 817103/ 816103 / 818103/ 822103/824203/819203 /811203/812203 | **Basic Electrical & Electronics Engineering**<br>1. Students will be able to demonstrate knowledge of circuit analysis using various basic laws and theorems of electrical circuits<br>2. Students will be able to demonstrate and understand definition and relationship of various AC circuits.<br>3. Understand working principle of PN junction diode, Zener diode and their applications.<br>4. Describe different configuration of Bipolar Junction Transistor<br>5. Describe different configurations of FET<br>6. Understand operating principle Power Electronics Devices<br>7. Describe use of the Basic gate and Universal gate |
| | **Programming for Problem Solving** | 817104/ 816104 / 818104/ 822104/824204/819204 /811204/812204 | **Programming for Problem Solving**<br>1. To formulate simple algorithms for arithmetic and logical problems<br>2. Understand the fundamentals of C programming<br>3. To test and execute the programs and correct syntax and logical errors<br>4. Choose the loops and decision making statements to solve the problem<br>5. To decompose a problem into functions and synthesize a complete program using divide and conquer approach<br>6. To use arrays, pointers and structures to formulate algorithms and programs |
| | **Chemistry** | 824101/819101/8111 01 /812101/817201/816 201/818201/822201 | **Chemistry**<br>1. Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.<br>2. Rationalise the ranges of the electrochemistry energies used for exciting different molecular energy levels in various spectroscopic techniques<br>3. Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electropositivity.<br>4.Rationalise bulk properties & processes using thermodynamic considerations<br>5. List major chemical reactions that are used in the synthesis of molecules |
| | **Engineering Graphics** | 824104/819104/811104 /812104/817201/81620 1/818203/822203 | **Engineering Graphics**<br>1. Introduction to engineering design and its place in society<br>2. Exposure to the visual aspects of engineering design<br>3. Exposure to engineering graphics standards<br>4. Exposure to solid modeling. |
| | **English** | 824103/819103 /811103/812103/81720 4 /816204/818204/82220 4 | **English**<br>1. To acquire basic proficiency in English including reading and listening<br>2. To demonstrate proficiency in the use of written English, including proper spelling, Grammar and punctuation.<br>3. To enhance their ability to use spoken words in interpersonal communication, small group interactions and public speaking Comprehension, writing<br>4. Become accomplished technical communicators. |
| | **Workshop Practices Lab** | | **Workshop Practices Lab**<br>1. Able to fabricate components with their own hands.<br>2.Able to set practical knowledge of the dimensional accuracies and dimensional tolerancespossible with different manufacturing processes.<br>3.Able to produce small devices of their interest and able to assemble different components |
| | **Physics Lab** | 817105/ 816105/ 818105 / 822105/824205/819205 / 811205/812205 | **Physics Lab**<br>1. To study Bragg's Law and introduced to the principles of lasers, types of lasers and applications<br>2. Various terms related to properties of materials such as, permeability, polarization, etc.<br>**3. Some of the basic laws related to quantum mechanics as well as magnetic and dielectric properties of materials**<br>4. Simple quantum mechanics calculations<br>5. Nanotechnology and their industrial applications. |
| | **Basic Electrical and Electronics Engineering** | 817106/ 816106/ 818106/ 822106/824206/819206 /811206/812206 | **Basic Electrical and Electronics Engineering Lab.**<br>1. Identify electrical and electronics components/equipments.<br>2. Simplify D.C. network using Superposition Theorem.<br>3. Simplify D.C. network using Thevenin's Theorem.<br>4. Learn diode V-I Characteristic<br>5. Understand B.J.T as a switch<br>6. Understand LED, JFET, SCR V-I characteristics |
| | **Programming for Problem Solving Lab** | 817107/ 816107/ 818107/ 822107/824207/819207 /811207/812207 | **Programming for Problem Solving Lab**<br>1. Understand the fundamentals of C programming.<br>2. Choose the loops and decision making statements to solve the problem.<br>3. Use functions to solve the given problem.<br>4. Implement different Operations on arrays.<br>5. Understand strings and structures.<br>6. Understand the usage of pointers. |
| | **Chemistry Lab** | 824106/819106 /811106/812106/81720 6/816206/818206/8222 06 | **Chemistry Lab**<br>1.Upon successful completion of lab Course, student will be able to: The chemistry laboratory course will consist of experiments illustrating the<br>2.Estimate rate constants of reactions from concentration of reactants/products as a function of time.<br>3.Measure molecular/system properties such as surface tension, viscosity, conductance of solutions, redox potentials, chloride content of water, etc.<br>4.Synthesize a small drug molecule and analyse a salt sample |
| | **Engineering Graphics Lab** | 824108/819108/811108 /812108/817207/81620 7/818207/822207 | **Engineering Graphics Lab**<br>1. Introduction to engineering design and its place in society<br>2. Exposure to the visual aspects of engineering design<br>3. Exposure to engineering graphics standards<br>4. Exposure to solid modeling. |
| | **Workshop Practices Lab** | 824105/819105/811105 /812105/817205/81620 5/818205 /822205 | **Workshop Practices Lab**<br>1. Able to fabricate components with their own hands.<br>2. Able to set practical knowledge of the dimensional accuracies and dimensional tolerances possible with different manufacturing processes.<br>3. Able to produce small devices of their interest and able to assemble different components |
| | **English Lab** | 824107/819107/811107 /812107/817208/81620 6/818206/822208 | **English Lab**<br>1. Students will be sensitized towards recognition of English sound pattern.<br>2. The fluency in speech will be enhanced. |
| | **MATHEMATICS-II** | 817202/816202/8182 02/822202 | **MATHEMATICS-II**<br>1) Use mathematical tools needed in evaluating multiple integrals and their usage.<br>2) Apply effective mathematical tools for the solutions of differential equations that model physical processes.<br>3) Use tools of differentiation and integration of functions of a complex variable that are used in various techniques dealing engineering problems. |
| **SE** | **Mathematics-III** | | **Mathematics-III** |
| **SE** | **SE COMPUTER/IT** | CO-1 | Solve field problems in engineering involving Ordinary differential equations using Laplace Transform. |
| **Sem III** | **Engineering Mathematics-III** | CO-2 | Apply concept of Fourier and Z-transform to solve field problems in engineering |
| | | CO-3 | Formulate and solve problems involving random variables |
| | | CO-4 | Apply statistical methods for analyzing experimental data. |
| | | CO-5 | Understand basic concepts of Fuzzy sets and perform fuzzy set operations |
| **SE** | **SE ELECTRICAL** | CO-1 | Apply methods of solving differential equations to the engineering problems they face in industry. |
| **Sem III** | **Engineering Mathematics-III** | CO-2 | Understand analytic function of a complex variable. Able to apply Cauchy Integral theorem and Cauchy residue theorem to solve contour integrations |
| | | CO-3 | Apply Laplace Transform and Inverse Laplace Transform which are very useful in solving Initial Value Problems. |
| | | CO-4 | Apply Laplace Transform in solving problems related to their engineering field and other future courses. |
| | | CO-5 | Use Fourier transforms, Fourier Sine Transforms, Fourier Cosine transforms, Z transforms and their inverses to solve various integration problems |
| | | CO-6 | Use mathematics in haher studies for analysis and optimal design of system. |
| **SE** | **SE E&TC** | | |
| **Sem IV** | **Engineering Mathematics-III** | CO-1 | Apply methods of solving differential equations to the engineering problems they face in industry |
| | | CO-2 | Understand analytic function of a complex variable. Able to apply Cauchy Integral theorem and Cauchy residue theorem to solve contour integrations |
| | | CO-3 | Solve field problems in engineering involving Ordinary differential equations using Laplace Transform |
| | | CO-4 | Use Fourier transforms, Z transforms and their inverses to solve various integration problems |
| | | CO-5 | Understand the differentiation of vectors and vector valued functions with their physical significance |
| **SE** | **SE CIVIL** | CO-1 | Apply methods of solving differential equations to the engineering problems they face in industry |
| **Sem III** | **Engineering Mathematics-III** | CO-2 | Identify and formulate BVP and solve with given boundary conditions |
| | | CO-3 | Describe and discuss the key terminology, concepts tools and techniques used in statistical analysis |
| | | CO-4 | Apply statistical methods for analyzing experimental data |
| | | CO-5 | Understand the differentiation of vectors and vector valued functions with their physical significance |
| **SE** | **SE CHEMICAL** | | |
| **Sem III** | **Engineering Mathematics-III** | CO-1 | Apply methods of solving differential equations to the engineering problems they face in industry |
| | | CO-2 | Identify and formulate BVP and solve with given boundary conditions |
| | | CO-3 | Solve field problems in engineering involving Ordinary differential equations using Laplace Transform. |
| | | CO-4 | Describe and discuss the key terminology, concepts tools and techniques used in statistical analysis |
| | | CO-5 | Understand the differentiation and Integration of vectors and vector valued functions with their physical significance |
| **SE** | **SE Biotechnology** | CO-1 | Apply knowledge of mathematics in engineering and technology |
| **SEM-III** | **Engineering Mathematics-III** | CO-2 | Identify, formulate and solve engineering problems |
| | | CO-3 | Design Mathematical models for engineering problems and solve them. |
| **SE** | **SE Biotechnology** | CO-1 | Able to use Probability distributions effectively. Also will be able to know a given set of data will follow which distributions |
| **SEM-IV** | **Biostatistics** | CO-2 | Able to calculate the mean and variance of a probability distribution |
| | | CO-3 | Can correlate bivariate data and set relationship among data. |
| | | CO-4 | Use sampling for performing any real experiment which is otherwise very expensive |
| | | CO-5 | Able to use t-test, F-test and chi-square test etc. for Goodness of fit or test hypotheses |
| | | CO-6 | Able to apply Randomization to avoid confounding the variable under investigation with other uncontrollable variables |