Course Outcomes:
F.Y.B.Tech – Sem-I (2023 Pattern)

Subject 1: Linear Algebra (2300101A)
At the end of this course, Students will be able to
CO2300101A.1. Interpret the concepts of Jacobians, rank, quadratic form, canonical form, transformations, Eigen values, Eigen vectors and probability.
CO2300101A.2. Solve problems on linear algebra, partial derivatives and probability.
CO2300101A.3. Apply concepts of linear algebra, differential calculus and probability to engineering problems.
CO2300101A.4. Use computational tools for solving mathematical problems.
CO2300101A.5. Analyze the nature of quadratic forms, extreme values of the function, error and approximations.

Subject 2: Applied Chemistry (2300104A)
At the end of this course, Students will be able to
CO2300104A.1 Describe different techniques used for chemical entities present in fluids, fuel, polymer, alloys.
CO2300104A.2 Select appropriate technology involved in properties of material.
CO2300104A.3 Illustrate causes and preventive measures of ill effect of hard water and corrosion.
CO2300104A.4 Analyze the fluids, fuels and selection of appropriate purification methods.
CO2300104A.5 Compare composition of fuels, purity of water and mitigation for corrosion control.

Subject 3: Fundamentals of Electrical Engineering (2300105A)
CO2300105A.1 Define terminologies and laws related to AC- -DC circuits, machines and batteries.
CO2300105A.2 Demonstrate the need for safety precautions and procedures, components and instruments in the laboratory.
CO2300105A.3 Elaborate construction, working and performance characteristics of electrical machines and protective devices.
CO2300105A.4 Solve problems on AC-DC circuits, work, power and energy using relevant laws and theorems.
CO2300105A.5 Select appropriate machines, protective devices for a given applications.
CO2300105A.6 Calculate and analyze transformer efficiency, regulation and LT, HT electricity bill.

Subject 4: Programming in C (2300108A)
CO2300108A.1. Illustrate the concepts of Computational thinking algorithm flowchart and errors for a given problem
CO2300108A.2. Apply fundamentals of 'C' programming and Conditional Algorithmic constructs to solve a given problem

CO2300108A.3. Build a solution for a given problem using iterative algorithmic constructs and arrays.
CO2300108A.4. Use functions in developing programs.
CO2300108A.5. Develop programs using a structure.

Subject 5: Communication Skills (2300112A)
CO2300112A.1 Develop effective communication skills including Listening, Reading Writing and Speaking.
CO2300112A.2 Practice professional etiquette and present oneself confidently.
CO2300112A.3 Function effectively in heterogeneous teams through the knowledge of team work, Inter -personal relationships, conflict management and leadership quality.
CO2300112A.4 Evaluate oneself by performing SWOC Analysis to introspect about individual's goals and aspirations.
CO2300112A.5 Constructively participate in-group discussion, meetings, prepare, and deliver presentations.

Subject 6: Workshop Practice (2300111A)
CO2300111A.1 Select appropriate machine and cutting tools for a given application.
CO2300111A.2 Describe the process and programming methods for CNC machines and 3D printing.
CO2300111A.3 Apply the basic knowledge of Shop Floor Safety, Machine tools and Manufacturing processes.
CO2300111A.4 Fabricate the simple mechanical parts.

Subject 7: Differential Calculus (2300102A)
CO2300102A.1 Explain types of differential equations, finite differences and multiple integrals.
CO2300102A.2 Solve problems on differential equations and multiple integrals.
CO2300102A.3 Apply concept of numerical methods, differential and multivariate calculus to engineering problems.
CO2300102A.4 Use computational tools for solving mathematical problems.
CO2300102A.5 Analyze the solution of differential equations, numerical differentiation & integration and multiple integrals.

Subject 8: Applied Physics (2300103A)
CO2300103A.1 Describe basics of electromagnetics, advanced materials, wave optics, wave mechanics and environmental energy.
CO2300103A.2 Classify advanced materials, refracting crystals and solar cell.
CO2300103A.3 Explain properties of superconductors, Nano -materials and matter waves.
CO2300103A.4 Calculate characteristics of electromagnetic circuits and optical devices, conductivity, efficiency of solar and wind power unit.
CO2300103A.5 Use concepts of electromagnetic effect, semiconductors, wave optics and wave equations in real life problems

F.Y.B.Tech – Sem-II (2023 Pattern)
Subject 1: Fundamentals of Electronics Engineering (2300107A)
At the end of this course, Students will be able to
CO2300107A.1 Describe the working of semiconductor diodes, transistors and OpAmp.
CO2300107A.2 Explain the basics of number systems, logic gates, Boolean algebra, electronic communication system, AM, FM, cellular concepts and GSM system.
CO2300107A.3 Apply the knowledge of semiconductor diodes, transistors and OpAmp in realization of basic analog circuits.
CO2300107A.4 Apply the knowledge of number systems, logic gates and Boolean algebra in realization of basic digital circuits.
CO2300107A.5 Analyze the basic analog and digital application circuits.

Subject 2: Engineering Drawing (2300110A)
CO2300110A.1 Explain the need of engineering drawing and its standards.
CO2300110A.2 Interpret engineering drawing by visualization.
CO2300110A.3 Draw projections of 2D and 3D objects.
CO2300110A.4 Apply manual and computerized graphical tools to solve practical Problems.

Subject 3: Object Oriented Programming (2300118F)
CO2300118F.1 Illustrate Object Oriented Programming concepts to solve various computing problems using C++
CO2300118F.2 Apply the concept of Inheritance for reusability of a class
CO2300118F.3 Apply Polymorphism to build a solution
CO2300118F.4 Use template and exception handling in a given problem
CO2300118F.5 Use files for developing a program

Subject 4: Indian Knowledge System (2300116A)
CO2300116A.1 Understand the term 'Indian Knowledge System it's framework and key components.
CO2300116A.2 Appreciate the measurement techniques and mathematics in IKS.
CO2300116A.3 Identify and elaborate the applications of IKS in engineering Domain.

Subject 5: Web Designing using PHP / CSS (2300117F)
CO2300117F.1 Understand basics of Internet.
CO2300117F.2 Understand fundamentals of HTML.
CO2300117F.3 Use CSS and HTML for creating Static and Dynamic website.
CO2300117F.4 Apply JavaScript and HTML to create and validate the forms.
CO2300117F.5 Demonstrate the use of server side programming using PHP.

Subject 6: Engineering Explorations (2300115B)
CO2300115B.1 Apply principles from several disciplines.
CO2300115B.2 Demonstrate long -term retention of knowledge and skills acquired.
CO2300115B.3 Function effectively as a team to accomplish a desired goal.
CO2300115B.4 Explore an Engineering Product and prepare its Mind map.
CO2300115B.5 Enhance their learning ability to solve practical problems.

Subject 7: Hardware Support (2300130A)
CO2300130A.1 Understand Motherboards components
CO2300130A.2 Understand CPU Characteristics and Cooling Techniques
CO2300130A.3 Understand various types of printer and assembling of PC
CO2300130A.4 Understand various Laptop Components
CO2300130A.5 Learn troubleshooting of hardware devices and laptop components

Subject 8: Advanced Excel (2300131A)
CO2300131A.1 Understand Custom Data Formats and prepare workbook.
CO2300131A.2 Use scenarios for Data Tables.
CO2300131A.3 Apply standard function for Manipulating Text.
CO2300131A.4 Create Advanced Charts and Pivot tables.
CO2300131A.5 Manage and Share workbook.