



Course Outcomes

FY B Tech – Sem I (2023 Pattern)

Subject 1: Linear Algebra and Differential Calculus (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 determination of purity and properties of material.

CO2300104A.3 Illustrate causes and preventive measures of ill effect of hard water and corrosion

CO2300104A.4 Analyse 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)

At the end of this course, Students will be able to

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 give applications.

CO2300105A.6 Calculate and analyze transformer efficiency, regulation and LT, HT electricity bill.

Subject 4: Engineering Drawing (2300110A)

At the end of this course, Students will be able to

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.



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CO2300110A.4. Apply manual and computerized graphical tools to solve practical problems.

Subject 5: Communication Skills (2300112A)

At the end of this course, Students will be able to

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 and prepare and deliver Presentations.

Subject 6: Introduction to Matlab (2300117H)

At the end of this course, Students will be able to

CO2300117H.1 Explain the main features of the MATLAB development environment

CO2300117H.2 Use the MATLAB GUI effectively

CO2300117H.3 Design simple algorithms to solve problems

CO2300117H.4 Write simple programs in MATLAB to solve scientific and mathematical problems

CO2300117H.5 Demonstrate Matlab applications to robotics

FY B Tech – Sem II (2023 Pattern)

Subject 1: Differential Equations and Integral Calculus (2300102A)

At the end of this course, Students will be able to

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 multi variate 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 2: Applied Physics (2300103A)

At the end of this course, Students will be able to

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

Subject 3: 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 4: Programming in C (2300108A)

At the end of this course, Students will be able to

CO2300108A.1 Illustrate algorithm, flowchart for a given problem

CO2300108A.2 Apply fundamentals of 'C' programming to solve a given problem

CO2300108A.3 Build a solution for a given problem using conditional and

iterative algorithmic constructs

CO2300108A.4 Use arrays and functions in developing programs

CO2300108A.5 Develop program using structure

Subject 5: Fundamentals of Robotics (2300118H)

At the end of this course, Students will be able to

CO2300118H.1 Explain the importance of robots and the field of robotics

CO2300118H.2 Classify robots based on design, locomotion, application, control, and special features

CO2300118H.3 Describe working principle of various end effect or sensor

CO2300118H.4 Explain the different ways robots are programmed and controlled to perform various tasks.

CO2300118H.5 Demonstrate knowledge of industrial robots to perform simple tasks

Subject 6: Indian Knowledge System (2300116A)

At the end of this course, Students will be able to

CO2300116A.1 Understand the term 'Indian Knowledge System' its 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 7: Workshop Practice (2300111A)

At the end of this course, Students will be able to

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



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processes.

CO2300111A.4 Fabricate the simple mechanical parts

Subject 8: Engineering Explorations (2300115B)

At the end of this course, Students will be able to

CO2300115B.1 Apply principles from several disciplines.

CO2300115B.2 Demonstrate long-term retention of knowledge and skills

CO2300115B.3 Function effectively as a team to accomplish a desired goal.

CO2300115B.4 Explore an Engineering Product and prepare its Mindmap

CO2300115B.5 Enhance their learning ability to solve practical problems.