



Course Outcomes:

FY BTech – 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 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 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



Department of Artificial Intelligence and Data Science
K. K. Wagh Institute of Engineering Education and Research
Hirabai Haridas Vidyanagari, Amrut Dham, Panchavati, Nashik-422003

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 (FYE2300108A)

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

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)

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: :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



Department of Artificial Intelligence and Data Science
K. K. Wagh Institute of Engineering Education and Research
Hirabai Haridas Vidyanagari, Amrut Dham, Panchavati, Nashik-422003

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

FY BTech – Sem II (2023 Pattern)

Subject 1: Differential 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 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 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 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 given 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.

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

Subject 5: Computational Thinking and Problem Solving (FYE2300116D)

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

CO2300116D.1 Illustrate the concept of Computational Thinking and its application for problem solving

CO2300116D.2 Illustrate the concept of Computational Thinking and its application for problem solving

CO2300116D.3 Develop a step by step strategy for solving a problem

CO2300116D.4 Apply searching and sorting approaches

CO2300116D.5 Solve the problem by identifying repeated patterns

Subject 6: Python Programming (FYE2300115A)

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

CO2300115A.1 Use the core concepts of python to write a python program



Department of Artificial Intelligence and Data Science
K. K. Wagh Institute of Engineering Education and Research
Hirabai Haridas Vidyanagari, Amrut Dham, Panchavati, Nashik-422003

CO2300115A.2 Apply control structure and loops to build a solution for a given problem

CO2300115A.3 Develop a python program using arrays and strings

CO2300115A.4 Build a solution for a given problem using lists, sets, tuples, dictionaries

CO2300115A.5 Develop programs using functions