Course Outcomes:

F.Y. B.Tech. – Sem I & II

Subject 1: Applied Mathematics-I (FYE221001)

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

CO.221001.1. Interpret the concepts of Jacobians, rank, quadratic form, canonical form, transformations, Eigen values, Eigen vectors and probability

CO.221001.2. Solve problems on linear algebra, partial derivatives and probability.

CO.221001.3. Apply concepts of linear algebra, differential calculus and probability to engineering problems.

CO.221001.4. Use computational tools for solving mathematical problems.

CO.221001.5. Analyze the nature of quadratic forms, extreme values of the function, error and approximations.

Subject 2: Applied Mathematics-II (FYE221002)

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

CO.221002.1. Interpret the concepts of Jacobians, rank, quadratic form, canonical form, transformations, Eigen values, Eigen vectors and probability

CO.221002.2. Solve problems on linear algebra, partial derivatives and probability.

CO.221002.3. Apply concepts of linear algebra, differential calculus and probability to engineering problems.

CO.221002.4. Use computational tools for solving mathematical problems.

CO.221002.5. Analyze the nature of quadratic forms, extreme values of the function, error and approximations.

Subject 3: Applied Physics (A) FYE221003

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

CO221003.1. Understand the basics of computer architecture and solve the problems based on computer arithmetic.

CO221003.2. Classify advanced materials, refracting crystals and solar cell

CO221003.3. Explain properties of superconductors, nano-materials and matter waves

CO221003.4. Calculate characteristics of electromagnetic circuits and optical devices, conductivity, efficiency of solar and wind power unit.

CO221003.5. Use concepts of electromagnetic effect, semiconductors, wave optics and wave equations in real life problems

Subject 4: Applied Physics (B) FYE221004

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

CO221004.1. Describe basics of mechanics, advanced materials, wave optics and environmental energy

CO221004.2. Classify motions is kinematics, advanced materials, refracting crystals and solar cell

CO221004.3. Explain properties of superconductors and nano-materials

CO221004.4. Calculate parameters in kinematics, conductivity, efficiency of solar and wind power unit

CO221004.5. Use knowledge of La s of kinematics, semiconductors and wave optics in real life problems

Subject 5: Applied Chemistry (FYE221005)

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

CO221005.1. Describe different techniques used for chemical entities present in fluids, fuel, polymer, alloys.

CO221005.2. Select appropriate technology involved in determination of purity and properties of material.

CO221005.3. Illustrate causes and preventive measures of ill effect of hard water and corrosion

CO221005.4. Analyze the fluids, fuels and selection of appropriate purification methods.

CO221005.5. Compare composition of fuels, purity of water and mitigation for corrosion control

Subject 6: Fundamentals of Electrical Engineering (FYE221006)

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

CO221006.1 Define terminologies and laws related to AC and batteries.

CO221006.2 Demonstrate the need for safety precautions and procedures, components and instruments in the laboratory.

CO221006.3 Elaborate construction, working and performance characteristics of electrical machines and protective devices.

CO221006.4 Solve problems on AC-DC circuits, work, power and energy using relevant laws and theorems.

CO221006.5 Select appropriate machines, protective devices for a given applications.

CO221006.6 Calculate and analyze transformer efficiency, regulation and LT, HT electricity bill.

Subject 7: Fundamentals of Electronics Engineering (FYE221007)

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

CO221007.1 Describe the working of semiconductor diodes, transistors and OpAmp.

CO221007.2 Explain the basics of number systems, logic gates, Boolean algebra, electronic communication system, AM, FM, cellular concepts and GSM system.

CO221007.3 Apply the knowledge of semiconductor diodes, transistors and OpAmp in realization of basic analog circuits.

CO221007.4 Apply the knowledge of number systems, logic gates and Boolean algebra in realization of basic digital circuits.

CO221007.5 Analyze the basic analog and digital application circuits.

Subject 8: Fundamentals of Mechanical Engineering (FYE221008)

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

CO221008.1 Explain the basic concepts of IC engine, thermodynamics and smart manufacturing.

CO221008.2. Identify various components of electric and hybrid vehicles.

CO221008.3. Apply the knowledge f laws of thermodynamics and heat transfer to heat engine, heat pump
And refrigerator.

CO221008.4 Calculate material parameters for a given application

CO221008.5 Select a suitable power transmission element for a required application.

Subject 9: Engineering Mechanics (FYE221009)

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

CO221009.1 Select appropriate method to solve problems on rigid bodies.

CO221009.2 Extend the concept of engineering mathematics and trigonometry for analyzing structures.

CO221009.3 Construct the free body diagram and correlate active and reactive forces.

CO221009.4 Determine centroid and moment of inertia of plane lamina.

CO221009.5 Apply the concept of work, power, energy and impulse- momentum to solve
Engineering problems.

Subject 10: Programming in C (FYE221010)

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

CO221010.1 Illustrate the concepts of Computational thinking and problem solving

CO221010.2 Develop flowchart, algorithm and a C Program to solve a given problem

CO221010.3 Build a solution for a given problem using control structures

CO221010.4 Use arrays, structures and files in developing programs

CO221010.5 Identify logical and syntactical errors

CO221010.6 Develop programs using functions

Subject 11: Programming in C++ (FYE221011)

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

CO221011.1 Illustrate Object Oriented Programming concepts to solve various computing problems using C++

CO221011.2 Apply the concept of Inheritance for reusability of a class

CO221011.3 Apply Polymorphism to build a solution

CO221011.4 Use template and exception handling in a given problem

CO221011.5 Use files for developing a program

Subject 12: Engineering Drawing (FYE221012)

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

CO221012.1 Explain the need of engineering drawing and its standards.

CO221012.2 Interpret engineering drawing by visualization.

CO221012.3 Draw projections of 2D and 3D objects.

CO221012.4 Apply manual and computerized graphical tools to solve practical problems.

Subject 13: Workshop Practice (FYE221013)

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

CO221013.1 Select appropriate machine and cutting tools for a given application

CO221013.2 Describe the process and programming methods for CNC machines and 3D printing

CO221013.3 Apply the basic knowledge of Shop Floor Safety, Machine tools and Manufacturing processes.

CO221013.4 Fabricate the simple mechanical parts

Subject 14: Communication Skills (FYE221014)

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

CO221014.1 Develop effective communication skills including Listening, Reading, Writing and Speaking

CO221014.2 Practice professional etiquette and present oneself confidently.

CO221014.3 Function effectively in heterogeneous teams through the knowledge of team work, Interpersonal relationships, conflict management and leadership quality.

CO221014.4 Evaluate oneself by performing SWOC Analysis to introspect about individual's goals and aspirations.

CO221014.5 Constructively participate in group discussion, meetings and prepare and deliver Presentations.

Subject 15: Engineering Explorations (FYE221015)

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

CO221015.1 Apply principles from several disciplines.

CO221015.2 Demonstrate long-term retention of knowledge and skills acquired.

CO221015.3 Function effectively as a team to accomplish a desired goal.

CO221015.4 Explore an Engineering Product and prepare its Mind map

CO221015.5 Enhance their learning ability to solve practical problems.

Subject 16: Democracy, Election and Governance (FYE221016)

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

CO221016.1 Understand and practice key principles of Democracy

CO221016.2 Identify how different rights are protected in Democratic systems

CO221016.3 Understand various approaches for Governance.

CO221016.4 Reflect on the various threats and challenges to Democracy