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

Course Outcomes

FY BTech Electrical Engineering– Sem I(2023 Pattern)

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.

Applied Physics (2300103A)
At the end of this course, students will be able to

CO2300103A.1 Describe basics of electromagnetic, 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 andoptical 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

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.

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.

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 and prepare and deliver Presentations.

Electrical Wiring Systems (2300117D)

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

CO2300117D.1 Dismantle and identify various parts of the electrical home appliances.
CO2300117D.2 Locate or recognize the fault location in the appliance.
CO2300117D.3 Use the appropriate tools, machines, meter, or devices to repair the appliances.
CO2300117D.4 Assemble the repaired appliances and make it operational.

Liberal Learning, Sports, Yoga, Art (2300115A)

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

CO2300115A.1 Write critics about books and films and understand the problem of rural India
CO2300115A.2 Present the knowledge gained by all co-curricular activities.
CO2300115A.3 Perform yoga and poly sports of his own development

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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.

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

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.

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

Power Generation Technologies (2300118D)

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

CO2300118D.1 Identify components and elaborate on the working principle of conventional and non-conventional power plants.
CO2300118D.2 Recognize the importance and opportunities of renewable energies.
CO2300118D.3 Calculate the power output of wind solar, and hydropower plants.
CO2300118D.4 Compare and evaluate the environmental and social impacts of various generation technologies.

Indian Knowledge System (2300116A)

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

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

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 processes.
CO2300111A.4 Fabricate the simple mechanical parts

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 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.