

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Academic Year -2021-22

Course Outcomes

B.TECH.7th SEM

**PROJECT MANAGEMENT
& ENTREPRENEURSHIP
(KHU702)**

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Explain the foundations of project management — including scope, time, cost, quality, and stakeholder management — and discuss their interrelationships in engineering and technology-driven projects.
(CO2)	Apply project planning tools (WBS, Gantt/PERT/CPM, network analysis, resource-levelling) to develop realistic project schedules and budgets.
(CO3)	Analyse and mitigate project risks by using qualitative and quantitative techniques, and recommend appropriate monitoring-and-control strategies.
(CO4)	Evaluate entrepreneurial opportunities through market research, business-model canvassing, and basic financial feasibility to craft a viable start-up plan.
(CO5)	Demonstrate professional communication, ethical decision-making, and teamwork while preparing and presenting a comprehensive project/venture proposal that integrates sustainability and societal considerations.

Power Quality and FACT (KEE074)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand and explain the fundamentals of power quality issues, including voltage sag, swell, interruptions, harmonics, and transients in power systems.
(CO2)	Analyze the causes, effects, and mitigation techniques for various power quality problems in transmission and distribution systems.
(CO3)	Understand the basic principles and types of FACTS devices and their roles in improving power system performance.
(CO4)	Evaluate the impact of various FACTS controllers such as SVC, TCSC, STATCOM, and UPFC on voltage regulation, power flow control, and system stability.
(CO5)	Apply power quality standards and design suitable FACTS-based compensation techniques for enhanced reliability and efficiency of power systems.

Power System Protection (KEN077)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand the fundamental principles of power system protection and various types of faults in electrical systems.
(CO2)	Explain the construction, operating principles, and characteristics of different types of protective relays used in power systems.
(CO3)	Analyze protection schemes for generators, transformers, transmission lines, and busbars.
(CO4)	Evaluate the application and coordination of circuit breakers, fuses, and relays in the power system for fault clearing.
(CO5)	Apply knowledge of modern protection systems including digital/numerical relays and emerging trends in smart grid protection.

RENEWABLE ENERGY RESOURCES (KOE074)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand the need for renewable energy and explain the fundamentals of various renewable energy sources such as solar, wind, biomass, and geothermal.
(CO2)	Analyze the principles, components, and performance of solar photovoltaic and solar thermal energy systems.
(CO3)	Evaluate wind energy conversion systems, their types, characteristics, and power extraction techniques.
(CO4)	Explore the potential of other renewable sources like biomass, small hydropower, ocean, and geothermal energy, including their environmental impact and applications.
(CO5)	Assess the integration of renewable energy sources with the grid and understand policies, challenges, and future trends in sustainable energy development.

Industrial Automation & PLC Lab (KEN751)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand the architecture, components, and working principles of Programmable Logic Controllers (PLCs) and industrial automation systems.
(CO2)	Develop and simulate basic PLC programs using ladder logic for automation of simple industrial tasks.
(CO3)	Implement real-time control applications such as motor control, level control, and sequencing operations using PLC hardware and software.
(CO4)	Integrate sensors, actuators, and Human Machine Interfaces (HMIs) with PLCs for industrial monitoring and control systems.
(CO5)	Demonstrate troubleshooting, safety, and documentation practices while working with industrial automation setups.

Mini Project (KEN-752)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Identify and define a real-world engineering problem and develop clear project objectives through research and problem analysis.
(CO2)	Design and develop appropriate hardware/software-based solutions by applying knowledge of core electrical and electronics engineering concepts.
(CO3)	Use modern engineering tools, simulation software, and lab equipment for effective implementation and testing of the mini project.
(CO4)	Work effectively as a team member, demonstrating project planning, coordination, and time management skills.
(CO5)	Prepare technical reports and deliver oral presentations effectively, demonstrating professionalism, innovation, and adherence to ethical standards.

Project (KEN-753)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Identify, formulate, and define a real-life engineering problem by conducting a thorough literature review and applying interdisciplinary knowledge.
(CO2)	Design, model, and develop innovative solutions or prototypes using appropriate tools, technologies, and engineering principles.
(CO3)	Perform detailed testing, validation, and analysis of the implemented system or product to ensure functionality and reliability.
(CO4)	Demonstrate project management skills including planning, teamwork, time management, and resource allocation throughout the project lifecycle.
(CO5)	Communicate the technical aspects of the project effectively through well-documented reports and presentations, while adhering to ethical, environmental, and professional standards.