

Jawahar Education Society's, INSTITUTE OF TECHNOLOGY, MANAGEMENT & RESEARCH, NASHIK.

(Approved by AICTE, New Delhi, DTE, Government of Maharashtra, Affiliated to Savitribai Phule Pune University)

Department of Electrical Engineering

Course Outcomes (CO) Syllabus Pattern:-2019

Class:-BE

Semester:- I

Sr. No	Subject	Course Outcomes (CO)
1	403141: Power System Operation and Control	 CO1: Summarize angle, voltage and frequency stability in the power system control (UN). CO2: Illustrate various ways of interchange of power between interconnected utilities (AP). CO3: Analyze stability and optimal load dispatch using different techniques (AN). CO4: Select appropriate FACTS devices for stable operation of the system (EV).
2	403142: Advanced Control System	 CO1: Explain compensation networks, common nonlinearities, the concept of state, sampling and reconstruction, and concepts of advanced controls CO2: Determine transfer function from state model (Applying) CO3: Test controllability and observability properties of the system (Evaluating) CO4: Design compensators, state feedback controls, and observers for the system (Creating)
3	403143B: Power Quality Management	 CO1: Understand power quality and attribute of power quality CO2: Describe voltage flicker and mitigation of it CO3: Analyze the effect of power system events on voltage sag and its characteristics. CO4: Identify the sources of harmonics and harmonics produced CO5: Select proper method for harmonic mitigation along with methods of power quality monitoring.
4	403144B: Electric and Hybrid Vehicle	 CO1: Analyze the Life Cycle Assessment of Li-ion battery. CO2 : Describe the different types of Li-ion charging methods CO3 : Comprehend the knowledge of drivetrain hybridization. CO4 : Evaluate EV motor sizing. CO5 : Classify Battery Recycling methods.
5	403145: Project Stage I	 CO1: Define the project problem statement and identify the scope of the project. CO2: Search the appropriate research papers, standards and e-resources and write a literature survey. CO3: Identify tools, techniques, methods, concepts, measuring devices, and instruments required for the project to define the methodology of the project. CO4: Justify the selection of electrical, electronic and mechanical components for the project prototyping
6	403147B: Engineering Economics-I	CO1: Discuss concepts related to business and its impact on enterprise.CO2: Illustrate time value of money in economic analysis.



Jawahar Education Society's, INSTITUTE OF TECHNOLOGY, MANAGEMENT & RESEARCH, NASHIK.

(Approved by AICTE, New Delhi, DTE, Government of Maharashtra, Affiliated to Savitribai Phule Pune University)

Department of Electrical Engineering

Course Outcomes (CO)

Syllabus Pattern:-2019

Semester:- II

Sr. No	Subject	Course Outcomes (CO)
1	403148: Switchgear and Protection	 CO1: Understand the fundamentals of protective relaying. CO2: Demonstrate the arc interruption and analyze the RRRV in circuit breakers CO3: Demonstrate the construction and working principle of air brake circuit breakers, SF6 circuit breakers, and a vacuum circuit breaker. CO4: Explain the characteristics of static and digital relays and their applications in power systems. CO5: Apply the differential protection scheme to large transformers, alternators, and induction motors. CO6: Apply distance protection, three stepped protection for transmission line.
2	403149: Advanced Electrical Drives & Control	 CO1: Explain motor load dynamics and multi quadrant operation of drives. CO2: Analyze operation of converter fed and chopper fed DC drives. CO3: Apply different braking methods of D.C. and induction motor drive. CO4: Elaborate vector control for induction motor and BLDC drives. CO5: Elaborate synchronous motor, reluctance motor drive.
3	403150C: Smart Grid	 CO1: Apply the knowledge to differentiate between Conventional and Smart Grid CO2: Describe importance of Supercapacitors. CO3: Identify the need of Smart metering. CO4: Apply the communication technology in smart grid. CO5: Comprehend the issues of micro grid.
4	403151B: Illumination Engineering	 CO1: Define and reproduce various terms in illumination. CO2: Identify various parameters for illumination system design. CO3: Design indoor and outdoor lighting systems. CO4: Enlist state of the art illumination systems.
5	403152: Project Stage II	 CO1: Identify tools, techniques, methods, concepts, measuring devices, and instruments required for the project to define the methodology of the project CO2: Justify the selection of electrical, electronic and mechanical components for the project prototyping CO3: Select the appropriate testing method for system performance evaluation CO4: Interpret results obtained by simulation, and hardware implementation and decide on further action or write a conclusion CO5: Write a project report and research paper on the project work
6	403153B: Engineering Economics-II	CO1: Apply various techniques for evaluation of engineering projects. CO2: Assess cash flow under risk with varying parameters.

Class:-BE