

Session: 2026-27

Commencement: 01 July 2026

Target Completion: 05 November 2026

Total Theory Hours: 45 (3 hours/week)

Learning Outcomes (LOs):

- **LO1:** Interpret energy conservation policies in India.
- **LO2:** Implement energy conservation techniques in electrical machines.
- **LO3:** Apply energy conservation techniques in electrical installations.
- **LO4:** Use Co-generation and relevant tariff for reducing losses in facilities.
- **LO5:** Undertake energy audit for electrical system.

Month	Week	Hrs	Topics to be Covered	LO
July	W1	3	Course Introduction + Energy Conservation Basics: Energy Scenario (Primary & Secondary), National scenario, Energy demand & supply.	LO1
July	W2	3	Energy conservation & Energy audit: concepts & difference, Indian Electricity Act 2001, relevant clauses. BEE & its Roles, OREDA & its Roles, Star Labelling: Need & benefits.	LO1
July	W3	3	Energy Conservation in Electrical Machines: Need in induction motor & transformer, Improving Power quality, Motor survey, Matching motor with loading,	LO2
July	W4	3	Minimizing idle & redundant running of motor, Operating in star mode, Rewinding of motor, Replacement by energy efficient motor	LO2
August	W5	3	Energy conservation in Transformer: Periodic maintenance, Loading sharing, Parallel operation, Isolating techniques	LO2
August	W6	3	Replacement by energy efficient transformers, Energy Conservation Equipment (Soft starters, VFD, APFC, IPFC)	LO2

Month	Week	Hrs	Topics to be Covered	LO
August	W7	3	Energy Conservation in Electrical Installation systems: Aggregated Technical & Commercial losses (ATC), Technical losses & reduction measures	LO3
August	W8	3	Controlling I ² R losses, Optimizing distribution voltage, Balancing phase currents, Compensating reactive power flow	LO3
September	W9	3	Internal Exam	
September	W10	3	Commercial losses, Energy conservation in Lighting System (Lamp replacement, efficient luminaries, light control).	LO3
September	W11	3	Energy conservation in Fans & Electronic regulators + Periodic survey & maintenance programs	LO3
October	W12	3	Energy Conservation through Cogeneration & Tariff: Concept & significance, Types of cogeneration (Topping & Bottoming cycle).	LO4
October	W13	3	Types of cogeneration (Steam turbine, Gas turbine, Reciprocating engine), Factors governing selection, Advantages.	LO4
October	W14	3	Energy Audit: Definition, Audit Instruments, Questionnaire for energy audit , Energy Flow -Sankey diagram, Simple Payback period.	LO5
November	W15	3	Energy Audit Procedure (walk through & detailed), Energy Audit Report format.	LO5

Prepared By :

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