

C. V. RAMAN POLYTECHNIC, BHUBANESWAR

LESSON PLAN **Session (2026-2027)**

Discipline: ELECTRICAL ENGINEERING	Semester: 5 TH Semester, Winter/2026	Name of the Faculty: PALLAVI MISHRA ASST.PROF Email ID: Pallavi.mishra@cvrp.edu.in
Subject Name with code: ENERGY CONSERVATION AND AUDIT (EEPC303)	No. of Days/week: 03 Total No. of Class (Required): 45	Start Date: 01.07.2026 End Date: 05.11.2026

Week	Class Day	Brief description of the Topic/Chapter to be taught
1st	1st	Unit-I: Energy Conservation Basics – Introduction, Primary & Secondary Energy
	2nd	Energy Demand and Supply, National Energy Scenario
	3rd	Energy Conservation and Energy Audit – Concepts and Difference
2nd	1st	Indian Electricity Act 2001 – Relevant Clauses on Energy Conservation
	2nd	Bureau of Energy Efficiency (BEE), Roles and Responsibilities
	3rd	MEDA and Star Labelling – Need and Benefits
3rd	1st	Unit-II: Energy Conservation in Electrical Machines – Need in Induction Motors and Transformers
	2nd	Improving Power Quality and Motor Survey
	3rd	Matching Motor with Loading, Minimizing Idle Running
4th	1st	Star Connection Operation and Motor Rewinding
	2nd	Energy Efficient Motors – Features, Advantages and Applications
	3rd	Energy Conservation in Transformers – Loading Sharing and Parallel Operation
5th	1st	Isolation Techniques and Energy Efficient Transformers
	2nd	Amorphous, Epoxy Resin Cast and Dry Type Transformers
	3rd	Energy Conservation Equipment – Soft Starter, Star-Delta Starter
6th	1st	Variable Frequency Drive (VFD) and Automatic Power Factor Controller

		(APFC)
	2nd	Intelligent P.F. Controller (IPFC)
	3rd	Revision-I (Units I & II)
7th	1st	Unit-III: Energy Conservation in Electrical Installation Systems – Aggregate Technical & Commercial Losses (AT&C)
	2nd	Power System at State, Regional, National and Global Level
	3rd	Measures to Reduce Technical Losses – I ² R Losses and Distribution Voltage
8th	1st	Balancing Phase Currents and Reactive Power Compensation
	2nd	Commercial Losses – Pilferage, Causes and Remedies
	3rd	Maximum Demand Controller, kVAR Controller and APFC
9th	1st	Energy Conservation in Lighting Systems – Efficient Lamps
	2nd	Efficient Luminaires and Lighting Control Gear
	3rd	Separate Transformer, Servo Stabilizer and Maintenance Programs
10th	1st	Energy Conservation in Fans and Electronic Regulators
	2nd	Question Discussion-I
	3rd	Unit-IV: Energy Conservation through Cogeneration and Tariff – Introduction
11th	1st	Cogeneration – Concept, Significance and Types
	2nd	Topping Cycle and Bottoming Cycle
	3rd	Steam Turbine, Gas Turbine and Reciprocating Engine Cogeneration
12th	1st	Factors Governing Selection of Cogeneration System
	2nd	Electricity Tariff – Flat, Special and Time-of-Day Tariff
	3rd	Power Factor Tariff, Maximum Demand Tariff and Load Factor Tariff
13th	1st	Application of Tariff System to Reduce Energy Bills
	2nd	Unit-V: Energy Audit of Electrical Systems – Definition and Need
	3rd	Energy Audit Instruments and Their Uses
14th	1st	Questionnaire for Energy Audit Projects
	2nd	Energy Flow Diagram (Sankey Diagram)
	3rd	Simple Payback Period and Walk-through Audit Procedure
15th	1st	Energy Audit Report Format
	2nd	Revision-II (Units III, IV & V)

	3rd	Question Discussion–II / Final Doubt Clearing
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Signature of the Faculty



Signature of the H.O.D