

Government Polytechnic, Balangir

Department of Department of Electrical Engineering

LESSON PLAN 2026-27(WINTER)

NAME OF THE Faculty : Guest Faculty-1

Subject: TH:2- ENERGY CONSERVATION AND AUDIT

Program: Diploma in Electrical Engineering

Semester: 5th

Total Contact Hours: 45

Total Marks: 100

Assessment: Internal Assessment – 30, End Term – 70

COURSE OUTCOMES:

CO1 Interpret energy conservation policies in India.

CO2 Implement energy conservation techniques in electrical machines.

CO3 Apply energy conservation techniques in electrical installations.

CO4 Use cogeneration and tariff for reducing losses.

CO5 Undertake energy audit for electrical systems.

Period	Unit	Topic	Learning Objectives	Activity	Course Outcome	Learning Methodology	Homework
1	I	Introduction to Energy Conservation	Explain importance	Lecture & discussion	CO1	Interactive lecture	Read introduction
2	I	Energy Scenario	Explain energy scenario	Discussion	CO1	Lecture	Notes
3	I	Energy Conservation & Audit	Differentiate concepts	Case study	CO1	Interactive	Assignment
4	I	Energy Conservation Act	Explain provisions	Lecture	CO1	PPT	Study Act
5	I	BEE & MEDA	Explain roles	Discussion	CO1	Lecture	Notes
6	I	Star Labelling	Explain benefits	Survey	CO1	Activity	List appliances
7	I	Revision	Review Unit I	Quiz	CO1	Discussion	Worksheet
8	II	Need for Conservation in Machines	Explain need	Lecture	CO2	PPT	Notes
9	II	Induction Motor Techniques	Explain techniques	Discussion	CO2	Lecture	Assignment
10	II	Power Quality	Improve efficiency	Examples	CO2	Interactive	Practice
11	II	Motor Survey	Conduct survey	Activity	CO2	Activity	Report
12	II	Motor Loading	Match loading	Lecture	CO2	Lecture	Problems
13	II	Idle Running & Star Mode	Reduce losses	Discussion	CO2	Interactive	Notes
14	II	Efficient Motors	Explain features	Video	CO2	ICT	Assignment
15	II	Transformer Conservation	Explain methods	Lecture	CO2	PPT	Notes
16	II	Energy Equipments	APFC,VFD etc	Demo	CO2	Demo	Comparison
17	II	Revision	Review Unit II	Quiz	CO2	Discussion	Worksheet
18	III	Installation Systems	Explain AT&C	Lecture	CO3	PPT	Notes
19	III	Technical Losses	Explain causes	Discussion	CO3	Lecture	Assignment
20	III	Loss Reduction	Reduce I ² R	Numericals	CO3	Problem solving	Problems
21	III	Voltage Optimization	Explain methods	Lecture	CO3	Interactive	Notes
22	III	Reactive Compensation	Explain APFC	Case	CO3	Lecture	Assignment
23	III	Commercial Losses	Explain remedies	Discussion	CO3	Lecture	Notes

24	III	Lighting Systems	Efficient lighting	Survey	CO3	Activity	Report
25	III	Fans & Regulators	Explain saving	Demo	CO3	Demo	Assignment
26	III	Revision	Review Unit III	Quiz	CO3	Discussion	Worksheet
27	IV	Cogeneration	Explain concept	Lecture	CO4	PPT	Notes
28	IV	Types of Cogeneration	Explain types	Discussion	CO4	Lecture	Assignment
29	IV	Steam Turbine Cogeneration	Explain	Video	CO4	ICT	Notes
30	IV	Gas Turbine Cogeneration	Explain	Lecture	CO4	Interactive	Assignment
31	IV	Selection Factors	Explain selection	Case	CO4	Discussion	Report
32	IV	Advantages	Discuss	Seminar	CO4	Collaborative	Notes
33	IV	Tariff Types	Explain	Lecture	CO4	PPT	Assignment
34	IV	Power Factor Tariff	Calculate	Numericals	CO4	Problem solving	Problems
35	IV	Tariff Applications	Reduce bills	Case	CO4	Activity	Worksheet
36	IV	Revision	Review Unit IV	Quiz	CO4	Discussion	Revision
37	V	Energy Audit	Explain audit	Lecture	CO5	PPT	Notes
38	V	Audit Instruments	Identify	Demo	CO5	Demo	Instrument notes
39	V	Questionnaire	Prepare	Activity	CO5	Interactive	Prepare form
40	V	Sankey Diagram	Draw	Exercise	CO5	Lecture	Diagram
41	V	Payback Period	Calculate	Numericals	CO5	Problem solving	Problems
42	V	Audit Procedure	Explain	Case	CO5	Lecture	Assignment
43	V	Audit Report	Prepare	Writing	CO5	Activity	Report
44	V	Comprehensive Revision	Revise	Discussion	CO5	Interactive	Revision
45	All	Class Test	Assessment	Test	CO1-CO5	Assessment	Prepare exam

Signature of Faculty


Signature of HOD