SIDDHARTH INSTITUTE OF ENGINEERING AND TECHNOLOGY, KORAPUT
DEPARTMENT OF ELECTRICAL ENGINEERING
LESSON PLAN

Name of the Course : TH-2 : ENERGY CONSERVATION AND AUDIT			
Name of the Faculty: Er. KIRTI YOGADARSINI PAITAL			
Semester from date : 01.07.2026 TO 05.11.2026			
Course Code :	EEPC303	Semester :	5th
Total Periods:	45 Periods	Examination :	3Hrs
Theory Periods :	45 Hrs.	Progressive Assessment :	30
Lecture :	3Hrs/week	End Term Exam :	70
Credit :	3	Total Marks :	100

VISION:

To create competent and industry ready Electrical Diploma Engineers with professional and social values to meet future challenges.

MISSION:

- To prepare diploma holders through "qualitative competency-based education system" to compete with national requirement along with core values.
- To produce dynamic Electrical Engineers to serve the society and industry.
- To develop leadership qualities, communication skills, critical thinking and attitude for lifelong learning.

PROGRAM EDUCATIONAL OBJECTIVES:

PEO1	Applying technical knowledge and skills learned in the field of Electrical Engineering to excel in professional and/or higher education.
PEO2	To provide students an excellent academic environment and make them aware the needs of Society and Industry to become a successful Professional/Entrepreneur.
PEO3	To engage in lifelong learning, career enhancement to adopt to emerging technologies.

COURSE OUTCOME:

CO1	Interpret energy conservation policies in India
CO2	Implement energy conservation techniques in electrical machines
CO3	Apply energy conservation techniques in electrical installation
CO4	Use Co-generation and relevant tariff for reducing losses in facilities
CO5	Undertake energy audit for electrical system

TOPIC WISE DISTRIBUTION OF PERIODS

Unit No.	Topics	Periods
I	Energy Conservation Basics	07
II	Energy Conservation in Electrical machines	10
III	Energy Conservation in Electrical Installation systems	10
IV	Energy Conservation through Cogeneration and Tariff	10
V	Energy Audit of Electrical System	08

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DEPARTMENT OF ELECTRICAL ENGINEERING

Week	Day	Theory Topic	Corresponding CO
1st	MONDAY	NO CLASS	
	TUESDAY	NO CLASS	
	WEDNESDAY	Energy Scenario: Primary & secondary Energy	CO1
2nd	MONDAY	Energy demand and supply, National Scenario	CO1
	TUESDAY	Energy Conservation and energy audit; Concepts and difference	CO1
	WEDNESDAY	Indian Electricity Act2001; relevant clauses of energy conservation	CO1
3rd	MONDAY	BEE and its roles	CO1
	TUESDAY	MEDA and its roles	CO1
	WEDNESDAY	Star Labelling: Need and its benefits	CO1
4th	MONDAY	Need for energy conservation in Induction motor and transformer	CO2
	TUESDAY	Energy conservation techniques in induction motor by Improving the Power quality, Motor survey, Matching motors with loading	CO2
	WEDNESDAY	Minimizing the idle and redundant running of motor, Operation in Star mode, Rewinding of Motor	CO2
5th	MONDAY	Replacement by energy efficient motor, Periodic Maintenances	CO2
	TUESDAY	Energy conservation techniques in transformer, Loading Sharing, Parallel operation, Isolating techniques	CO2
	WEDNESDAY	Replacement by energy efficient transformers, Periodic Maintenances	CO2
6th	MONDAY	Energy Conservation equipment: Soft starters, Automatic star delta converter, Variable frequency drives	CO2
	TUESDAY	Automatic power factor controller (APFC), Intelligent power factor controller (IPFC)	CO2
	WEDNESDAY	Energy efficient motor; significant features, advantages, application and limitation	CO2
7th	MONDAY	Energy efficient transformers, amorphous transformers: epoxy Resin cast transformers/ Dry type of transformers	CO2
	TUESDAY	Aggregated Technical and Commercial losses (ATC), Power system at State, Regional, National, and Global level.	CO3
	WEDNESDAY	Technical losses; causes, measures to reduce by Controlling I^2R losses, Optimizing distribution voltage	CO3
8th	MONDAY	Balancing phase currents, compensating power flow,	CO3
	TUESDAY	Commercial losses: pilferage, causes and remedies	CO3
	WEDNESDAY	Energy conservation equipment: Maximum demand controller, kVAR controller,	CO3
9th	MONDAY	Automatic power factor controller (APFC)	CO3
	TUESDAY	Energy conservation in lighting scheme: Replacing Lamp sources, Using energy efficient luminaries	CO3
	WEDNESDAY	using light controlled gear, Installation separate transformers/servo stabilizer for lighting	CO3

10th	MONDAY	Periodic survey and adequate maintance programs.	CO3
	TUESDAY	Energy conservation techniques in fans, electronic regulators	CO3
	WEDNESDAY	Co-generation and Tariff; concept, significance for energy conservation	CO4
11th	MONDAY	Co-generation, Types of cogeneration on basis of sequence of energy use (Topping cycle, Bottoming cycle)	CO4
	TUESDAY	Types of cogeneration basis of technology (Steam turbine cogeneration	CO4
	WEDNESDAY	Gas turbine cogeneration	CO4
12th	MONDAY	Reciprocating engine cogeneration).	CO4
	TUESDAY	Factors governing the selection of cogeneration system	CO4
	WEDNESDAY	Advantages of cogeneration.	CO4
13th	MONDAY	Tariff: Types of tariff structure: Special tariffs; Time-off-day tariff, Peak-off-day tariff	CO4
	TUESDAY	Power factor tariff, Maximum Demand tariff, Load factor tariff	CO4
	WEDNESDAY	Application of tariff system to reduce energy bill.	CO4
14th	MONDAY	Energy audit (definition as per Energy Conservation Act)	CO5
	TUESDAY	Energy audit instruments and their use.	CO5
	WEDNESDAY	Questionnaire for energy audit projects	CO5
15th	MONDAY	Energy flow diagram (Sankey diagram)	CO5
	TUESDAY	Simple payback period, Energy Audit procedure (walk through audit and detailed audit).	CO5
	WEDNESDAY	Energy Audit report format.	CO5

18/6/26

Signature of Faculty Concerned
(Electrical Engg.)

18/6/26

Head of Department
(Electrical Engg.)

H.O.D.
Electrical Engg
SIET, KORAPUT

12/06/2026

Principal
S.I.E.&T. KORAPUT

Principal
Siddharth Institute of Engineering & Technology Ektaguda, Koraput