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DEPARTMENT OF ELECTRICAL ENGINEERING

Govt. Polytechnic, Balasore

LESSON PLAN FOR ACADEMIC SESSION - 2024-25 GENERATION TRANSMISSION & DISTRIBUTION

Course Code : Th.4	Semester : 4 th
Total Periods : 60 Periods	Examination : 3 Hours
Theory Periods : 4 P/Week	Internal Assessment : 20 Marks
Maximum Marks : 100	End Semester Examination : 80 Marks
Semester From Date : 04/02/2025	To Date : 17/05/2025
Name of Teaching Faculty: Er. Radha Rani Panda , Lect (ELECT)	

WEEK	PERIOD	TOPIC
1st	1 st	GENERATION OF ELECTRICITY Elementary idea on generation of electricity from Thermal Power station.
	2 nd	Elementary idea on generation of electricity from Hydel Power station
	3 rd	Elementary idea on generation of electricity from Nuclear Power station
	4 th	Introduction to Photovoltaic cells.
2 nd	1 st	Introduction to Solar Power Plant
	2 nd	Layout diagram of generating stations.
	3 rd	Layout diagram of generating stations.
	4 th	TRANSMISSION OF ELECTRIC POWER Layout of transmission and distribution scheme
3 rd	1 st	Voltage Regulation & efficiency of transmission
	2 nd	State and explain Kelvin's law for economical size of conductor
	3 rd	State and explain Kelvin's law for economical size of conductor
	4 th	Corona and corona loss on transmission lines.
4 th	1 st	OVER HEAD LINES Types of supports, size and spacing of conductor
	2 nd	Types of conductor materials
	3 rd	State types of insulator and cross arms
	4 th	Sag in overhead line with support at same level
5 th	1 st	Sag in overhead line with support at different level.

	2 nd	Sag in overhead line with support at different level. (approximate formula effect of wind, ice and temperature sag)
	3 rd	Simple problem on sag.
	4 th	PERFORMANCE OF SHORT & MEDIUM LINES Calculation of regulation and efficiency of short lines
6 th	1 st	Problems on performance of Short lines
	2 nd	Calculation of regulation and efficiency of medium lines
	3 rd	Problems on performance of medium lines
	4 th	Calculation of regulation and efficiency of medium lines
7 th	1 st	Calculation of regulation and efficiency of medium lines
	2 nd	Problems on performance of medium lines
	3 rd	EHV TRANSMISSION EHV AC transmission
	4 th	Reasons for adoption of EHV AC transmission
8 th	1 st	Problems involved in EHV transmission.
	2 nd	Problems involved in EHV transmission
	3 rd	HV DC transmission
	4 th	Advantages of HVDC transmission system
9 th	1 st	Limitations of HVDC transmission system
	2 nd	DISTRIBUTION SYSTEMS Introduction to Distribution System. Connection Schemes of Distribution System: Radial system
	3 rd	Connection Schemes of Distribution System: Ring Main and Inter connected system
	4 th	DC distributions. Distributor fed at one End
10 th	1 st	Distributor fed at both the ends.
	2 nd	Ring distributors
	3 rd	AC distribution system. Method of solving AC distribution problem.
	4 th	Three phase four wire star connected system arrangement
11 th	1 st	UNDERGROUND CABLES Cable insulation and classification of cables.
	2 nd	Types of L. T. cables with constructional features
	3 rd	Types of H.T. cables with constructional features
	4 th	Methods of cable lying
12 th	1 st	Localization of cable faults: Murray loop test for short circuit fault / Earth fault
	2 nd	Varley loop test for short circuit fault / Earth fault
	3 rd	ECONOMIC ASPECTS Causes of low power factor
	4 th	Methods of improvement of power factor in power system.
13 th	1 st	Factors affecting the economics of generation
	2 nd	Define and explain Load curves. Demand factor.
	3 rd	Maximum demand. Load factor. Diversity factor. Plant capacity factor.
	4 th	Peak load and Base load on power station.
14 th	1 st	TYPES OF TARIFF

		Desirable characteristic of a tariff
	2 nd	Explain flat rate, block rate tariff. (Solve Problems)
	3 rd	Explain two part and maximum demand tariff. (Solve Problems)
	4 th	SUBSTATION Layout of LT substation.
15 th	1 st	Layout of HT substation
	2 nd	Layout of EHT substation
	3 rd	Layout of EHT substation
	4 th	Earthing of Substation, transmission and distribution lines

Panda
04/02/2025

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