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DEPARTMENT OF ELECTRICAL ENGINEERING

Govt. Polytechnic, Balasore

LESSON PLAN FOR ACADEMIC SESSION - 2023-24
GENERATION TRANSMISSION & DISTRIBUTION

Course Code : Th.4	**Semester : 4th**
Total Periods : 60 Periods	**Examination : 3 Hours**
Theory Periods : 4 P/Week	**Internal Assessment : 20 Marks**
Tutorial : -	**End Semester Examination : 80 Marks**
Maximum Marks : 100	
Semester From Date : 16/01/2024	**To Date : 8/05/2024**
Name of Teaching Faculty : Er. Radha Rani Panda	

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

	4th	Sag in overhead line with support at same level
5th	1st	Sag in overhead line with support at different level.
	2nd	Sag in overhead line with support at different level. (approximate formula effect of wind, ice and temperature on sag)
	3rd	Simple problem on sag.
	4th	**PERFORMANCE OF SHORT & MEDIUM LINES** Calculation of regulation and efficiency of short lines
6th	1st	Problems on performance of Short lines
	2nd	Calculation of regulation and efficiency of medium lines
	3rd	Problems on performance of medium lines
	4th	Calculation of regulation and efficiency of medium lines
7th	1st	Calculation of regulation and efficiency of medium lines
	2nd	Problems on performance of medium lines
	3rd	**EHV TRANSMISSION** EHV AC transmission
	4th	Reasons for adoption of EHV AC transmission
8th	1st	Problems involved in EHV transmission.
	2nd	Problems involved in EHV transmission
	3rd	HV DC transmission
	4th	Advantages of HVDC transmission system
9th	1st	Limitations of HVDC transmission system
	2nd	**DISTRIBUTION SYSTEMS** Introduction to Distribution System. Connection Schemes of Distribution System: Radial system
	3rd	Connection Schemes of Distribution System: Ring Main and Inter connected system
	4th	DC distributions. Distributor fed at one End
10th	1st	Distributor fed at both the ends.
	2nd	Ring distributors
	3rd	AC distribution system. Method of solving AC distribution problem.
	4th	Three phase four wire star connected system arrangement
11th	1st	**UNDERGROUND CABLES** Cable insulation and classification of cables.
	2nd	Types of L. T. cables with constructional features
	3rd	Types of H.T. cables with constructional features
	4th	Methods of cable lying
12th	1st	Localization of cable faults: Murray loop test for short circuit fault / Earth fault
	2nd	Varley loop test for short circuit fault / Earth fault
	3rd	**ECONOMIC ASPECTS** Causes of low power factor
	4th	Methods of improvement of power factor in power system.
13th	1st	Factors affecting the economics of generation
	2nd	Define and explain Load curves. Demand factor.
	3rd	Maximum demand. Load factor. Diversity factor.

		Plant capacity factor.
	4th	Peak load and Base load on power station.
14th	1st	**TYPES OF TARIFF** Desirable characteristic of a tariff
	2nd	Explain flat rate, block rate tariff. (Solve Problems)
	3rd	Explain two part and maximum demand tariff. (Solve Problems)
	4th	**SUBSTATION** Layout of LT substation.
15th	1st	Layout of HT substation
	2nd	Layout of EHT substation
	3rd	Layout of EHT substation
	4th	Earthing of Substation, transmission and distribution lines