

BLACK DIAMOND SCHOOL OF ENGINEERING, JHARSUGUDA**LESSON PLAN**
Session (2022-2023)

Discipline: Electrical	Semester: 4 th , Summer/2023	Name of the Faculty: Ahsutosh Panda, (Lecturer)
Subject: Generation, Transmission & Distribution (Theory-4)	No. of Days/week: 04	Start Date: 13/02/2023 End Date: 23/05/2023

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

	4th	Derive for sag in overhead line with support at same level.
4th	1st	Derive for sag in overhead line with support at different level.
	2nd	Approximate formula effect of wind, ice and temperature on sag simple problem.
	3rd	Problems on sag with support at different level.
	4th	Problems on sag on taking the effect of wind, ice and temperature.
5th	1st	PERFORMANCE OF SHORT & MEDIUM LINES Calculation of regulation and efficiency of short transmission line.
	2nd	Calculation of regulation and efficiency of medium transmission line by nominal T-method
	3rd	Calculation of regulation and efficiency of medium transmission line by nominal pie-method, Problems on Nominal-T & Nominal- π method.
	4th	Quiz Test-2
6th	1st	EHV TRANSMISSION Explain EHV AC transmission. Explain HVDC transmission.
	2nd	Reasons for adoption of EHV AC transmission
	3rd	Problems involved in EHV transmission.
	4th	Advantages and Limitations of HVDC transmission system
7th	1st	DISTRIBUTION SYSTEMS Introduction to Distribution System.
	2nd	Connection Schemes of Distribution System (Radial, Ring Main)
	3rd	Connection Schemes of Inter connected system Distribution System
	4th	DC Distributor- Distributor fed at one end & problems
8th	1st	DC Distributor- Distributor fed at both end & problems
	2nd	Ring Distributors & Problems.
	3rd	Method of solving AC distribution & problems

	4th	Three phase -four wire star connected system arrangement.
9th	1st	Numerical problem on D.C distributor
	2nd	UNDERGROUND CABLES Cable insulation and classification of cables
	3rd	Types of L. T. & H.T. cables with constructional feature.
	4th	Explain Methods of cable lying
10th	1st	Localization of cable faults – Murray loop test for short circuit fault
	2nd	Localization of cable faults – Murray loop test for Earth fault.
	3rd	ECONOMIC ASPECTS Causes of low power factor
	4th	Methods of improvement of power factor
11th	1st	Factors affecting the economics of generation: (Define and explain) Load curves, Demand factor, Maximum demand, Load factor.
	2nd	Diversity factor, Plant capacity factor.
	3rd	Numerical problems on different factors
	4th	Numerical problems on different factors.
12th	1st	Peak load and Base load on power station.
	2nd	TYPES OF TARIFF Desirable characteristic of a tariff.
	3rd	flat rate and two part tariff
	4th	block rate tariff with problems
13th	1st	Numerical problem on tariff
	2nd	Numerical problem on tariff
	3rd	SUBSTATION Layout of LT substation.
	4th	Layout of HT substation.
14th	1st	Layout of EHT substation.
	2nd	Earthling of Substation, transmission and distribution lines
	3rd	Review Class
	4th	Quiz Test-2

15th	1st	Expected Questions Discussion & Practice Test 1
	2nd	Expected Questions Discussion & Practice Test 2
	3rd	Expected Questions Discussion & Practice Test 3
	4th	Expected Questions Discussion & Practice Test 4