PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH

LESSON PLAN

Session-2023-2024

Discipline: Electrical Engg. Semester: 4th

Subject: Generation Transmission & Distribution.

Name of the Teaching Faculty: Subesh Chandra Nayak

Subject: Generation Transmission & Distribution — No. of Days/per week class allotted : 4

Semester From Date : 16-01-2024 To Date : 26-04-2024 — No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
1	1	Choice of site for Thermal, Hydel and Nuclear power plant and their advantages & disadvantages.
	2	Block diagram of Thermal Power Plant and it's equipments.
	3	Discussion of Thermal Power Plant according to the Block (layout) diagram.
	4	Layout of Hydroelectric Power Plant. Principle and discussion of Hydroelectric Power Plant.
2	5	Layout of Nuclear Power Station. Principle and discussion of various stages of Nuclear Power Plant.
	6	Introduction to Solar Power Plant (Photovoltaic Cells)
	7	Efficiency of Power Plant. Simple Numericals
	8	Layout of Transmission & Distribution Scheme.
3	9	Voltage regulation & Efficiency of transmission.
	10	Kelvins law for economical size of conductor.
	11	Corona and Corona loss on transmission lines.
	12	Numericals on Corona loss & Kelvin's law.

Signature of the Faculty

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Week	Class Day	Theory /Practical Topics
4	13	Types of Supports, Size and Spacing of Conductor.
	14	Types of Conductor Materials.
	15	Types of insulator and Cross arms.
	16	Types of insulator and cross arms. Defination of Sag.
5	17	Sag in overhead overhead transmission line with support at same level & different level. (formula derivation)
	18	Sag in overhead line with effect of wind and ice loading (formula derivation)
	19	Simple Numericals on Sag.
	20	Various types of numericals on Sag.
6	21	Classification of overhead transmission lines. Voltage regulation & efficiency of transmission lines.
	22	% age transmission efficiency of single phase short transmission line
	23	Effect of load power faction on regulation and efficiency.
	24	Numericals on Transmission Efficiency.

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Week	Class Day	Theory /Practical Topics
7	25	Medium Transmission lines.
	26	Numericals on Medium Transmission lines.
	27	EHV Transmission.
	28	EHV AC Transmission.
8	29	Reasons for adoption of EHV AC transmission.
	30	Problems involved in EHV transmission.
	31	HVDC transmission
	32	Advantages and limitations of HVDC transmission system.
9	33	Comparision between EHV AC and HVDC transmission system.
	34	Introduction to Distribution system.
	35	Connection Schemes of Distribution System. Radial, Ring main & Interconnected system.
	36	DC Distribution Distribution fed at one end.

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Week	Class Day	Theory /Practical Topics
10	37	Distribution fed at both the ends.
	38	Ring distributors. Numericals on distribution fed at one end and both ends.
	39	AC Distribution System. Method of Solving AC Distribution problems.
	40	Three Phase four wire Star Connected System.
11	41	Underground Cables, Construction of Cables.
	42	Cable insulation. Insulating Materials for Cables.
	43	Classification of Cables.
	44	Types of L.T and H.T. Cables with constructional features.
12	45	Methods of Cable laying.
	46	Localization of Cable faults: Murray and Varley loop test for short circuit fault/ Earth fault.
	47	Causes of low Power factor and methods of improvement of power factor in power System.
	48	Factors affecting the economics of generation. Define and explain load Curves.

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Week	Class Day	Theory /Practical Topics
13	49	Define and explain Demand factor & Maximum Demand.
	50	Define and explain Load factor and Diversity factor.
	51	Define & explain Plant Capacity factor peakload and Baseload on Power Station.
	52	Discussion of Simple Numericals
14	53	Desirable characteristics of a Tariff.
	54	Explain Flat rate, block rate, two part and maximum demand Tariff.
	55	Formula on different types of Tariff.
	56	Numericals on different types of Tariff.
15	57	Layout of LT and HT Substation and discussion
	58	Layout and discussion of EHT substation.
	59	Earthing of Substation.
	60	Earthing of transmission & distribution lines.

Signature of the Faculty