

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN Session-2024-2025

Semester: 4th Discipline: Electrical Engg.

Subject: Generation Transmission & Distribution (GTD)

Name of the Teaching Faculty: Subesh Chandra Nayak

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

Semester From Date : 4-2-2025 To Date: 17-05-2025 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 its 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	Kelvin's law for Economical size of Conductor.
	11	Corona & Corona loss on Transmission lines.
	12	Numericals on Corona loss & Kelvin's law.


Signature of the Faculty

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

Semester From Date : 04-02-2025 To Date: 17-05-2025 No. of Weeks : 15

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. Definition of Sag .
5	17	Sag in overhead transmission line with Support at same level and 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 factor on regulation and efficiency .
	24	Numericals on Transmission Efficiency .



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Semester From Date : 04-02-2025 To Date: 17-05-2025 No. of Weeks : 15

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 systems
9	33	Comparison 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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Semester From Date : 04-02-2025 To Date: 17-05-2025 No. of Weeks : 15

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 & Varley loop test for short circuit fault/Earth fault.
	47	Causes of low Power factor and method of improvement of power factor in power system.
	48	Factors affecting the economics of generation. Define and explain load curves.


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Semester From Date : 04-02-2025 To Date: 17-05-2025 No. of Weeks : 15

Week	Class Day	Theory / Practical Topics
13	49	Defined Explain Demand factor and Maximum Demand.
	50	Defined Explain Load factor and Diversity factor
	51	Define and explain Plant Capacity factor, peak load and base load 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