



NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)



LESSON PLAN

SUBJECT : Th-4 (GENERATION TRANSMISSION & DISTRIBUTION)

Name Of The Faculty :- ER BIJAYA KUMAR BEHERA

Branch :- ELECTRICAL ENGINEERING

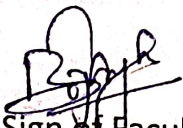
Session :- 2024-25

Semester :- 4TH

Examination :- 2025 (S)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	Generation of electricity	7	8
2	Transmission of electric power	5	6
3	Overhead line	7	8
4	Performance of short & medium lines	7	5
5	EHV transmission	7	8
6	Distribution System	7	11
7	Underground cable	6	9
8	Economic Aspects	6	5
9	Types of tariff	3	6
10	Substation	5	5
TOTAL		60	71


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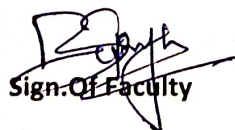

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Discipline: ELECTRICAL ENGINEERING	Semester: 4th	Name of the Teaching Faculty: Er. BIJAYA KUMAR BEHERA
		SESSION-2024-25 EXAMINATION-2025(S)
Week	Class Day	Theory / Practical Topics
1st	1 st	1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear,
	2 nd	1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear,
	3 rd	1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear,
	4 th	1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear,
2nd	1 st	1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear,
	2 nd	1.2 Introduction to Solar Power Plant (Photovoltaic cells)
	3 rd	1.2 Introduction to Solar Power Plant (Photovoltaic cells)
	4 th	1.3 Layout diagram of generating stations
3rd	1 st	TRANSMISSION OF ELECTRIC POWER 2.1 Layout of transmission and distribution scheme.
	2 nd	2.1 Layout of transmission and distribution scheme.
	3 rd	2.2 Voltage Regulation & efficiency of transmission.
	4 th	2.3 State and explain Kelvin's law for economical size of conductor
4th	1 st	2.4 Corona and corona loss on transmission lines.
	2 nd	2.4 Corona and corona loss on transmission lines.
	3 rd	OVER HEAD LINES 3.1 Types of supports, size and spacing of conductor.
	4 th	3.2 Types of conductor materials.
5th	1 st	3.2 Types of conductor materials.
	2 nd	3.3 State types of insulator and cross arms
	3 rd	3.4 Sag in overhead line with support at same level and different level. (approximate formula effect of wind, ice and temperature on sag)
	4 th	3.4 Sag in overhead line with support at same level and different level. (approximate formula effect of wind, ice and temperature on sag)

Week	Class Day	Theory / Practical Topics
6th	1 st	3.5 Simple problem on sag.
	2 nd	3.5 Simple problem on sag.
	3 rd	PERFORMANCE OF SHORT & MEDIUM LINES 4.1. Calculation of regulation and efficiency.
	4 th	PERFORMANCE OF SHORT & MEDIUM LINES 4.1. Calculation of regulation and efficiency.
7th	1 st	PERFORMANCE OF SHORT & MEDIUM LINES 4.1. Calculation of regulation and efficiency.
	2 nd	PERFORMANCE OF SHORT & MEDIUM LINES 4.1. Calculation of regulation and efficiency.
	3 rd	PERFORMANCE OF SHORT & MEDIUM LINES 4.1. Calculation of regulation and efficiency.
	4 th	EHV TRANSMISSION 5.1 EHV AC transmission.
8th	1 st	5.1..1. Reasons for adoption of EHV AC transmission.
	2 nd	5.1..1. Reasons for adoption of EHV AC transmission.
	3 rd	5.1..2. Problems involved in EHV transmission.
	4 th	5.1..2. Problems involved in EHV transmission.
9th	1 st	5.2 HV DC transmission.
	2 nd	5.2 HV DC transmission.
	3 rd	5.2..1. Advantages and Limitations of HVDC transmission system.
	4 th	DISTRIBUTION SYSTEMS 6.1 Introduction to Distribution System.
10th	1 st	6.2 Connection Schemes of Distribution System: (Radial, Ring Main and Inter
	2 nd	6.2 Connection Schemes of Distribution System: (Radial, Ring Main and Inter
	3 rd	6.2 Connection Schemes of Distribution System: (Radial, Ring Main and Inter
	4 th	6.3 DC distributions. 6.3.1 Distributor fed at one End.

Week	Class Day	Theory / Practical Topics
11th	1 st	6.3.2 Distributor fed at both the ends.
	2 nd	6.3.3 Ring distributors.
	3 rd	6.4 AC distribution system. 6.4.1. Method of solving AC distribution problem.
	4 th	6.4 AC distribution system. 6.4.1. Method of solving AC distribution problem.
12th	1 st	6.4.2. Three phase four wire star connected system arrangement.
	2 nd	6.4.2. Three phase four wire star connected system arrangement.
	3 rd	UNDERGROUND CABLES 7.1 Cable insulation and classification of cables.
	4 th	7.1 Cable insulation and classification of cables.
13th	1 st	7.2 Types of L. T. & H.T. cables with constructional features.
	2 nd	7.2 Types of L. T. & H.T. cables with constructional features.
	3 rd	7.3 Methods of cable lying.
	4 th	7.3 Methods of cable lying.
14th	1 st	7.4 Localization of cable faults: Murray and Varley loop test for short circuit fault /
	2 nd	7.4 Localization of cable faults: Murray and Varley loop test for short circuit fault /
	3 rd	7.4 Localization of cable faults: Murray and Varley loop test for short circuit fault / Earth fault
	4 th	ECONOMIC ASPECTS 8.1 Causes of low power factor and methods of improvement of power factor in power system
15th	1 st	8.2 Factors affecting the economics of generation: (Define and explain) 8.2.1 Load curves.
	2 nd	8.2.2 Demand factor. 8.2.3 Maximum demand.
	3 rd	8.2.4 Load factor. 8.2.5 Diversity factor. 8.2.6 Plant capacity factor.
	4 th	8.3 Peak load and Base load on power station.

Week	Class Day	Theory / Practical Topics
16th	1 st	TYPES OF TARIFF 9.1. Desirable characteristic of a tariff.
	2 nd	9.1. Desirable characteristic of a tariff.
	3 rd	9.2. Explain flat rate, block rate, two part and maximum demand tariff. (Solve
	4 th	9.2. Explain flat rate, block rate, two part and maximum demand tariff. (Solve
17th	1 st	9.2. Explain flat rate, block rate, two part and maximum demand tariff. (Solve
	2 nd	9.2. Explain flat rate, block rate, two part and maximum demand tariff. (Solve
	3 rd	SUBSTATION 10.1 Layout of LT, HT and EHT substation
	4 th	SUBSTATION 10.1 Layout of LT, HT and EHT substation
18th	1 st	10.2 Earthing of Substation, transmission and distribution lines
	2 nd	10.2 Earthing of Substation, transmission and distribution lines
	3 rd	10.2 Earthing of Substation, transmission and distribution lines
	4 th	10.2 Earthing of Substation, transmission and distribution lines


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