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

NIST POLYTECHNIC

LESSON PLAN

SUBJECT : Th-4 (GENERATION TRANSMISSION & DISTRIBUTION)

Name Of The Faculty :- ER BIJAYA KUMAR BEHERA
Branch :- ELECTRICAL ENGINEERING **Semester :- 4TH**
Session :- 2024-25 **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 electricpower	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

Sign of Faculty

Sign of H.O.D.

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	1st	1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear,
	2nd	1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear,
	3rd	1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear,
	4th	1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear,
2nd	1st	1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear,
	2nd	1.2 Introduction to Solar Power Plant (Photovoltaic cells)
	3rd	1.2 Introduction to Solar Power Plant (Photovoltaic cells)
	4th	1.3 Layout diagram of generating stations
3rd	1st	TRANSMISSION OF ELECTRIC POWER 2.1 Layout of transmission and distribution scheme.
	2nd	2.1 Layout of transmission and distribution scheme.
	3rd	2.2 Voltage Regulation & efficiency of transmission.
	4th	2.3 State and explain Kelvin's law for economical size of conductor
4th	1st	2.4 Corona and corona loss on transmission lines.
	2nd	2.4 Corona and corona loss on transmission lines.
	3rd	OVER HEAD LINES 3.1 Types of supports, size and spacing of conductor.
	4th	3.2 Types of conductor materials.
5th	1st	3.2 Types of conductor materials.
	2nd	3.3 State types of insulator and cross arms
	3rd	3.4 Sag in overhead line with support at same level and different level. (approximate formula effect of wind, ice and temperature on sag)
	4th	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	1st	3.5 Simple problem on sag.
	2nd	3.5 Simple problem on sag.
	3rd	PERFORMANCE OF SHORT & MEDIUM LINES 4.1. Calculation of regulation and efficiency.
	4th	PERFORMANCE OF SHORT & MEDIUM LINES 4.1. Calculation of regulation and efficiency.
7th	1st	PERFORMANCE OF SHORT & MEDIUM LINES 4.1. Calculation of regulation and efficiency.
	2nd	PERFORMANCE OF SHORT & MEDIUM LINES 4.1. Calculation of regulation and efficiency.
	3rd	PERFORMANCE OF SHORT & MEDIUM LINES 4.1. Calculation of regulation and efficiency.
	4th	EHV TRANSMISSION 5.1 EHV AC transmission.
8th	1st	5.1..1. Reasons for adoption of EHV AC transmission.
	2nd	5.1..1. Reasons for adoption of EHV AC transmission.
	3rd	5.1..2. Problems involved in EHV transmission.
	4th	5.1..2. Problems involved in EHV transmission.
9th	1st	5.2 HV DC transmission.
	2nd	5.2 HV DC transmission.
	3rd	5.2..1. Advantages and Limitations of HVDC transmission system.
	4th	DISTRIBUTION SYSTEMS 6.1 Introduction to Distribution System.
10th	1st	6.2 Connection Schemes of Distribution System: (Radial, Ring Main and Inter
	2nd	6.2 Connection Schemes of Distribution System: (Radial, Ring Main and Inter
	3rd	6.2 Connection Schemes of Distribution System: (Radial, Ring Main and Inter
	4th	6.3 DC distributions. 6.3.1 Distributor fed at one End.

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

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

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