

ACADEMIC LESSON PLAN OF SUMMER-2024

Discipline: EE	Semester: 4 rd Sem (SEC-A)	Name of the Teaching Faculty: Sandeep Mohapatra
Subject: Generation, Transmission, Distribution	No. of days/per week class allotted: 4p/week	Semester From: 16 th January2024 to 26 th April 2024 No. of weeks:15 weeks
1 st	1 st	Unit 1: GENERATION OF ELECTRICITY 1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear, Power station.
	2 nd	1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear, Power station.
	3 rd	1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear, Power station.
	4 th	1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear, Power station.
2 nd	1 st	1.1 Elementary idea on generation of electricity from Thermal, Hydel, Nuclear, Power station.
	2 nd	1.2 Introduction to Solar Power Plant (Photovoltaic cells)
	3 rd	1.3 Layout diagram of generating stations
	4 th	Unit2: TRANSMISSION OF ELECTRIC POWER 2.1 Layout of transmission and distribution scheme.
3 rd	1 st	2.2 Voltage Regulation & efficiency of transmission.
	2 nd	2.3 State and explain Kelvin's law for economical size of conductor.
	3 rd	2.4 Corona and corona loss on transmission lines.
	4 th	2.4 Corona and corona loss on transmission lines.
4 th	1 st	Unit 3: OVER HEAD LINES 3.1 Types of supports, size and spacing of conductor.
	2 nd	3.2 Types of conductor materials
	3 rd	3.3 State types of insulator and cross arms.
	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)
5 th	1 st	3.4 Sag in overhead line with support at same level and different level. (approximate formula effect of wind, ice and temperature on sag)
	2 nd	3.4 Sag in overhead line with support at same level and different level. (approximate formula effect of wind, ice and temperature on sag)
	3 rd	3.5 Simple problem on sag.
	4 th	Unit 4: PERFORMANCE OF SHORT & MEDIUM LINES 4.1. Calculation of regulation and efficiency.
6 th	1 st	4.1. Calculation of regulation and efficiency.
	2 nd	4.1. Calculation of regulation and efficiency.
	3 rd	4.1. Calculation of regulation and efficiency.
	4 th	4.1. Calculation of regulation and efficiency.
7 th	1 st	4.1. Calculation of regulation and efficiency.
	2 nd	4.1. Calculation of regulation and efficiency.
	3 rd	Unit 5: EHV TRANSMISSION 5.1 EHV AC transmission.
	4 th	5.1..1. Reasons for adoption of EHV AC transmission
8 th	1 st	5.1..2. Problems involved in EHV transmission.
	2 nd	5.1..2. Problems involved in EHV transmission.
	3 rd	5.2 HV DC transmission.
	4 th	5.2 HV DC transmission.
9 th	1 st	5.2..1. Advantages and Limitations of HVDC transmission system.
	2 nd	Unit 6: DISTRIBUTION SYSTEMS 6.1 Introduction to Distribution System. .
	3 rd	6.2 Connection Schemes of Distribution System: (Radial, Ring Main and Inter connected system)
	4 th	6.3 DC distributions. 6.3.1 Distributor fed at one End.
10 th	1 st	6.3.2 Distributor fed at both the ends. 6.3.3 Ring distributors.
	2 nd	6.4 AC distribution system

	3 rd	6.4.1. Method of solving AC distribution problem.
	4 th	6.4.2. Three phase four wire star connected system arrangement.
11 th	1 st	Unit 7: UNDERGROUND CABLES 7.1 Cable insulation and classification of cables.
	2 nd	7.2 Types of L. T. & H.T. cables with constructional features.
	3 rd	7.2 Types of L. T. & H.T. cables with constructional features.
	4 th	7.3 Methods of cable lying.
12 th	1 st	7.3 Methods of cable lying.
	2 nd	7.4 Localization of cable faults: Murray and Varley loop test for short circuit fault / Earth fault.
	3 rd	Unit 8: ECONOMIC ASPECTS 8.1 Causes of low power factor and methods of improvement of power factor in power system.
	4 th	8.2 Factors affecting the economics of generation: (Define and explain) 8.2.1 Load curves.
13 th	1 st	8.2.2 Demand factor. 8.2.3 Maximum demand.
	2 nd	8.2.4 Load factor. 8.2.5 Diversity factor.
	3 rd	8.2.6 Plant capacity factor.
	4 th	8.3 Peak load and Base load on power station.
14 th	1 st	Unit 9: TYPES OF TARIFF 9.1. Desirable characteristic of a tariff.
	2 nd	9.2. Explain flat rate, block rate, two part and maximum demand tariff. (Solve Problems)
	3 rd	9.2. Explain flat rate, block rate, two part and maximum demand tariff. (Solve Problems)
	4 th	Unit 10. SUBSTATION 10.1 Layout of LT, HT and EHT substation.
15 th	1 st	10.1 Layout of LT, HT and EHT substation.
	2 nd	10.1 Layout of LT, HT and EHT substation.
	3 rd	10.2 Earthing of Substation, transmission and distribution lines.
	4 th	10.2 Earthing of Substation, transmission and distribution lines

Signature of Teaching Faculty