

LESSON PLAN

SUB: ELECTRIC POWER TRANSMISSION & DISTRIBUTION

BRANCH:- ELECTRICAL ENGG.

SEMESTER: 4th

NAME OF FACULTY: ASHWINI KUMAR SAHU



**GOVERNMENT POLYTECHNIC,
BHADRAK**

SESSION:2025-26

Hod Electrical
19-12-25

HOD (ELECT.)
G.P.BHADRAK

Academic Co-ordinator
19.12.25

Academic Co-ordinator

Principal
19.12.25

Govt. Polytechnic, Bhadrak

Principal
Govt. Polytechnic
Bhadrak

Discipline:	Semester:	Name of the Teaching Faculty :
ELECTRICAL ENGG.	4th	ASHWINI KUMAR SAHU(Sr.Lect. Electrical Engg.)
Subject: ELECTRIC POWER TRANSMISSION & DISTRIBUTION	No. of Days/per week class allotted:45/3	Semester from date: 22.12.2025 – 18.04.2026
		No. of Weeks:15
Week	Class Day	Theory
1st	1st	Single line diagrams with components of the electric supply transmission and distribution systems.
	2nd	Classification of transmission lines
	3rd	Primary and secondary transmission , Standard voltage level used in India
2nd	1st	Classification of transmission lines: based on type of voltage, voltage level, length and others
	2nd	Characteristics of high voltage for power transmission
	3rd	Method of construction of electric supply transmission system- 110 kV, 220 kV, 400 kV
3rd	1st	Method of construction of electric supply transmission system- 110 kV, 220 kV, 400 kV
	2nd	Method of construction of electric supply transmission system- 110 kV, 220 kV, 400 kV
	3rd	Method of construction of electric supply distribution systems- 220 V, 400V, 11 kV, 33 kV
4th	1st	Method of construction of electric supply distribution systems- 220 V, 400V, 11 kV, 33 kV
	2nd	Line Parameters: Concepts of R, L and C of line parameters and types of lines .
	3rd	Line Parameters: Concepts of R, L and C of line parameters and types of lines
5th	1st	Performance of short line: Efficiency, regulation and its derivation, effect of power factor, vector diagram for different power factor
	2nd	Performance of short line: Efficiency, regulation and its derivation, effect of power factor, vector diagram for different power factor
	3rd	Performance of medium line: representation , nominal 'T', nominal ' π ' and end condenser methods
6th	1st	Performance of medium line: representation, nominal 'T', nominal ' π ' and end condenser methods

	2 nd	Performance of medium line: representative nominal 'T', nominal 'π' and end condenser methods
	3 rd	Transposition of conductors and its necessity
	1 st	skin effect and proximity effect
7 th	2 nd	Extra High Voltage AC (EHVAC) transmission line: Necessity, high voltage substation components such as transformers and other switchgears, Advantages, limitations and applications of EHVAC
	3 rd	EHVAC lines in India, Ferranti and Corona effect
	1 st	High Voltage DC (HVDC) Transmission Line: Necessity components, advantages, limitations and applications
8 th	2 nd	Layout of monopolar, bi-Polar and homopolar transmission lines of HVDC
	3 rd	Layout of monopolar, bi-Polar and homopolar transmission lines of HVDC
	1 st	HVDC Lines in India, Features of EHVAC and HVDC transmission line
9 th	2 nd	Flexible AC Transmission line: Features, types of FACTS controller
	3 rd	Flexible AC Transmission line: Features, types of FACTS controller
	1 st	New trends in wireless transmission of electrical power
10 th	2 nd	AC distribution: Components classification, requirements of an ideal distribution system, primary and secondary distribution system
	3 rd	Feeder and distributor, factors to be considered in design of feeder and distributor
	1 st	Feeder and distributor, factors to be considered in design of feeder and distributor
11 th	2 nd	Types of different distribution schemes: radial, ring, and grid, layout, advantages, disadvantages and applications
	3 rd	Types of different distribution schemes: radial, ring, and grid, layout, advantages, disadvantages and applications
	1 st	Voltage drop, sending end and receiving end

		selection, advantages, disadvantages and applications
	2 nd	Distribution Sub-Station: Classification, site selection, advantages, disadvantages and applications
	3 rd	Single Line diagram (layout) of 33/11KV Sub-Station, 11KV/400V sub-station , Symbols and functions of their components
13 th	1 st	Single Line diagram (layout) of 33/11KV Sub-Station, 11KV/400V sub-station , Symbols and functions of their components
	2 nd	Overhead Conductors: Properties of material, types of conductor with trade names, significance of sag
	3 rd	Line supports: Requirements, types of line structures and their specifications, methods of erection
14 th	1 st	Line Insulators , Properties of insulating material
	2 nd	Selection of material Types of insulators and their applications
	3 rd	Causes of insulator failure Derivation of equation of string efficiency for string of three suspension insulator
15 th	1 st	Derivation of equation of string efficiency for string of three suspension insulator
	2 nd	Methods of improving string efficiency
	3 rd	Underground Cables: Requirements, classification, construction, comparison with overhead lines, cable laying and cable jointing.

SIGNATURE OF FACULTY

19-12-23
 ASHWINI KU.SAHU
 Sr.Lect.(Elect.)
 Govt.Poly.Bhadrak