



## GIETPOLYTECHNIC,JAGATPUR,CUTTACK

### LESSONPLAN

Discipline:	Semester:-	Name of the Teaching Faculty:- Pradeepa prajnarajan swain		
Subject:- Electrical power Transmission And distribution [TH-2]	No of Days/per Week Class Allotted: 03	Semester-4 <sup>TH</sup>	From:22.12.2025	To:18.04.2026
Week	Class/Day	Theory Topics		
1st	1 <sup>st</sup>	<b>Basics of Transmission and Distribution</b> 1.1 Single line diagrams with components of the electric supply transmission and distribution systems 1.2 Classification of transmission lines		
	2 <sup>nd</sup>	1.3 Primary and secondary transmission 1.4 Standard voltage level used in India		
	3 <sup>rd</sup>	1.5 Classification of transmission lines: based on type of voltage, voltage level, length and others		
2nd	1 <sup>st</sup>	1.6 Characteristics of high voltage for power transmission		
	2 <sup>nd</sup>	<b>Transmission Line Parameters and Performance</b> 2.1 Line Parameters: Concepts of R, L and C of line parameters and types of lines		
	3 <sup>rd</sup>	2.2 Performance of short line: Efficiency, regulation and its derivation, effect of power factor, vector diagram for different power factor		
3rd	1 <sup>st</sup>	2.3 Performance of medium line: representation, nominal 'T', nominal 'π' and end condenser methods		
	2 <sup>nd</sup>	2.5 Skin effect and proximity effect		
	3 <sup>rd</sup>	<b>Extra High Voltage Transmission</b> 3.1 Extra High Voltage AC (EHVAC) transmission line: Necessity, high voltage substation components such as transformers and other switchgears 3.1.1 Advantages, limitations and applications of EHVAC		
4th	1 <sup>st</sup>	3.1.2 EHVAC lines in India 3.2 Ferranti and Corona effect		
	2 <sup>nd</sup>	3.3 High Voltage DC (HVDC) Transmission Line: Necessity components, advantages, limitations and applications		
	3 <sup>rd</sup>	3.3.2 HVDC Lines in India 3.4 Features of EHVAC and HVDC transmission line		
5th	1 <sup>st</sup>	3.5 Flexible AC Transmission line: Features, types of FACTS controller 3.6 New trends in wireless transmission of electrical power		
	2 <sup>nd</sup>	<b>A.C Distribution System</b> 4.1 AC distribution: Components classification, requirements of an ideal distribution system, primary and secondary distribution system		
	3 <sup>rd</sup>	4.2 Feeder and distributor, factors to be considered in design of feeder and distributor		
6th	1 <sup>st</sup>	4.3 Types of different distribution schemes: radial, ring, and grid, layout, advantages, disadvantages and applications		
	2 <sup>nd</sup>	4.3 Types of different distribution schemes: radial, ring, and grid, layout, advantages, disadvantages and applications 4.4 Voltage drop, sending end and receiving end voltage		
	3 <sup>rd</sup>	4.5 Distribution Sub-Station: Classification, site selection, advantages,		

		disadvantages and applications
7th	1 <sup>st</sup>	4.6 Single Line diagram (layout) of 33/11KV Sub-Station, 11KV/400V sub-station
	2 <sup>nd</sup>	4.7 Symbols and functions of their components
	3 <sup>rd</sup>	4.5 Distribution Sub-Station: Classification, site selection, advantages, disadvantages and applications 4.7 Symbols and functions of their components
8th	1 <sup>st</sup>	<b>Components of Transmission and Distribution Line</b> 5.1 Overhead Conductors: Properties of material, types of conductor with trade names, significance of sag
	2 <sup>nd</sup>	5.2 Line supports: Requirements, types of line structures and their specifications, methods of erection
	3 <sup>rd</sup>	5.3 Line Insulators 5.3.1 Properties of insulating material
9th	1 <sup>st</sup>	5.3.2 Selection of material 5.3.3 Types of insulators and their applications
	2 <sup>nd</sup>	5.3.4 Causes of insulator failure 5.3.5 Derivation of equation of string efficiency for string of three suspension insulator
	3 <sup>rd</sup>	5.3.5 Derivation of equation of string efficiency for string of three suspension insulator
10th	1 <sup>st</sup>	5.3.6 Methods of improving string efficiency
	2 <sup>nd</sup>	5.3.6 Methods of improving string efficiency
	3 <sup>rd</sup>	5.4 Underground Cables: Requirements, classification, construction, comparison with overhead lines, cable laying and cable jointing.
11th	1 <sup>st</sup>	5.4 Underground Cables: Requirements, classification, construction, comparison with overhead lines, cable laying and cable jointing.
	2 <sup>nd</sup>	<b>Basics of Transmission and Distribution</b> 1.7 Method of construction of electric supply transmission system- 110 kV, 220 kV, 400 kV 1.8 Method of construction of electric supply distribution systems- 220 V, 400V, 11 kV, 33 kV
	3 <sup>rd</sup>	<b>Transmission Line Parameters and Performance</b> 2.4 Transposition of conductors and its necessity
12th	1 <sup>st</sup>	<b>Extra High Voltage Transmission</b> 3.3.1 Layout of monopolar, bi-Polar and homo-polar transmission lines of HVDC
	2 <sup>nd</sup>	Class test
	3 <sup>rd</sup>	Doubt clearing class
13th	1 <sup>st</sup>	<b>Components of Transmission and Distribution Line</b> 5.3.5 Derivation of equation of string efficiency for string of three suspension insulation
	2 <sup>nd</sup>	5.3.6 Methods of improving string efficiency
	3 <sup>rd</sup>	Doubt clearing class
14th	1 <sup>st</sup>	<b>A.C Distribution System</b> 4.6 Single Line diagram (layout) of 33/11KV Sub-Station, 11KV/400V sub-station
	2 <sup>nd</sup>	Doubt clearing class
	3 <sup>rd</sup>	Doubt clearing class
15th	1 <sup>st</sup>	Doubt clearing class
	2 <sup>nd</sup>	Doubt clearing class
	3 <sup>rd</sup>	Doubt clearing class

Pradeepita Rajharnjan Sween,  
Sign. of faculty 23.12.25

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Sign. of principal

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Etc: ...  
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