

**GOVERNMENT POLYTECHNIC JAIPUR**  
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**DEPARTMENT OF ELECTRICAL ENGINEERING**

<b>Discipline:Electrical</b>	<b>Semester: 4th</b>	<b>Name of the Teaching faculty: SANDEEP MOHAPATRA</b>
<b>Subject: Electric Power Transmission and Distribution</b>	<b>No of Days/Week class allotted: 3</b>	<b>Semester from Date: 22/12/25 To Date: 18/4/26</b> <b>No of weeks: 15</b>
<b>Week</b>	<b>Class Day</b>	<b>Topics</b>
1st	1 <sup>st</sup>	Basics of Transmission and Distribution: Description on Single line diagrams with components of the electric supply transmission and distribution systems
	2 <sup>nd</sup>	Classification of transmission lines
	3 <sup>rd</sup>	Primary transmission & secondary transmission
2nd	1 <sup>st</sup>	
	2 <sup>nd</sup>	Standard voltage level used in India
	3 <sup>rd</sup>	Classification of transmission lines: based on type of voltage
3rd	1 <sup>st</sup>	Classification of transmission lines: based on voltage level, length and others
	2 <sup>nd</sup>	Characteristics of high voltage for power transmission
	3 <sup>rd</sup>	Method of construction of electric supply transmission system- 110 kV
4th	1 <sup>st</sup>	Method of construction of electric supply transmission system 220 kV
	2 <sup>nd</sup>	Method of construction of electric supply transmission system 400 kV
	3 <sup>rd</sup>	Method of construction of electric supply distribution systems 220 V
5th	1 <sup>st</sup>	Method of construction of electric supply distribution systems 400V
	2 <sup>nd</sup>	Method of construction of electric supply distribution systems 11 kV&33 kV
	3 <sup>rd</sup>	Transmission Line Parameters and Performance: Extra High Voltage AC (EHVAC) transmission line: Necessity, high voltage substation components such as transformers and other switchgears
6th	1 <sup>st</sup>	Advantages, limitations and applications of EHVAC
	2 <sup>nd</sup>	EHVAC lines in India
	3 <sup>rd</sup>	Ferranti and Corona effect
7th	1 <sup>st</sup>	High Voltage DC (HVDC) Transmission Line: Necessity components, advantages, limitations and applications

	2 <sup>nd</sup>	Layout of monopolar, bi-Polar and homo-polar transmission lines of HVDC
	3 <sup>rd</sup>	HVDC Lines in India
8th	1 <sup>st</sup>	Features of EHVAC and HVDC transmission line
	2 <sup>nd</sup>	Flexible AC Transmission line: Features, types of FACTS controller
	3 <sup>rd</sup>	New trends in wireless transmission of electrical power
9th	1 <sup>st</sup>	A.C Distribution System:
	2 <sup>nd</sup>	AC distribution: Components classification, requirements of an ideal distribution system, primary and secondary distribution system
	3 <sup>rd</sup>	Feeder and distributor, factors to be considered in design of feeder and distributor
10th	1 <sup>st</sup>	Types of different distribution schemes: radial, ring, and grid, layout, advantages, disadvantages and applications
	2 <sup>nd</sup>	Voltage drop, sending end and receiving end voltage
	3 <sup>rd</sup>	Distribution Sub-Station: Classification, site selection, advantages, disadvantages and applications
11th	1 <sup>st</sup>	Single Line diagram (layout) of 33/11KV Sub-Station,
	2 <sup>nd</sup>	Single Line diagram (layout) of 11KV/400V sub-station
	3 <sup>rd</sup>	Symbols and functions of their components
12th	1 <sup>st</sup>	Components of Transmission and Distribution Line: Overhead Conductors: Properties of material, types of conductor with trade names, significance of sag
	2 <sup>nd</sup>	Line supports: Requirements, types of line structures and their specifications, methods of erection
	3 <sup>rd</sup>	Line Insulators
13th	1 <sup>st</sup>	Properties of insulating material
	2 <sup>nd</sup>	Selection of material
	3 <sup>rd</sup>	Types of insulators and their applications
14th	1 <sup>st</sup>	Causes of insulator failure
	2 <sup>nd</sup>	Derivation of equation of string efficiency for string of three suspension insulator
	3 <sup>rd</sup>	Methods of improving string efficiency
15th	1 <sup>st</sup>	Underground Cables: Requirements, classification, construction, comparison with overhead lines
	2 <sup>nd</sup>	Underground Cables: Requirements, classification, construction, comparison with cable laying and cable jointing.
	3 <sup>rd</sup>	Revision

Sandeep  
Mishra ..  
22/12/25