

## Department of Electrical Engineering

Branch: Electrical Engineering	Semester: 4th	Name of the Lecturer: <b>Chacha Amitav Tripathy</b>
Subject: EPTD	No of classes alloted in a week: 5	Duration of Semester: 22.12.2025 - 18.04.2026
Week	Class Day	Theory Topic
1st	1	<b>Basics of Transmission and Distribution:</b> Single line diagrams with components of the electric supply transmission and distribution systems
	2	Classification of transmission lines, Primary and secondary transmission, Standard voltage level used in India
	3	Classification of transmission lines: based on type of voltage, voltage level, length and others
	4	Characteristics of high voltage for power transmission
	5	Method of construction of electric supply transmission system- 110 kV, 220 kV, 400 kV
2nd	1	Method of construction of electric supply distribution systems- 220 V, 400V, 11 kV, 33 kV
	2	<b>Transmission Line Parameters and Performance:</b> Line Parameters: Concepts of R, L and C of line parameters and types of lines
	3	Performance of short line: Efficiency, regulation and its derivation, effect of power factor, vector diagram for different power factor
	4	Performance of medium line: representation of nominal 'T' method
	5	Solved numericals
3rd	1	Performance of medium line: representation of nominal 'π' method
	2	Solved numericals
	3	Performance of medium line: representation of end condenser methods
	4	Solved numericals
	5	Transposition of conductors and its necessity
4th	1	Skin effect and proximity effect
	2	<b>Extra High Voltage Transmission:</b> Extra High Voltage AC (EHVAC) transmission line: Necessity
	3	High voltage substation components such as transformers and other switchgears
	4	Advantages, limitations and applications of EHVAC, EHVAC lines in India
	5	Ferranti and Corona effect
5th	1	High Voltage DC (HVDC) Transmission Line: Necessity & components
	2	advantages, limitations and applications of HVDC, HVDC Lines in India
	3	Layout of monopolar, bi-Polar and homo-polar transmission lines of HVDC
	4	Features of EHVAC and HVDC transmission line
	5	Flexible AC Transmission line: Features, types of FACTS controller
6th	1	New trends in wireless transmission of electrical power
	2	<b>A.C Distribution System:</b> AC distribution: Components classification, requirements of an ideal distribution system, primary and secondary distribution system
	3	Feeder and distributor, factors to be considered in design of feeder and distributor
	4	Types of different distribution schemes: radial, ring, and grid, layout, advantages, disadvantages and applications
	5	Voltage drop, sending end and receiving end voltage
7th	1	Solved numericals
	2	Solved numericals
	3	Distribution Sub-Station: Classification, site selection, advantages, disadvantages and applications
	4	Single Line diagram (layout) of 33/11KV Sub-Station, Symbols and functions of their component
	5	Single Line diagram (layout) of 11KV/400V sub-station, Symbols and functions of their component

8th	1	<b>Components of Transmission and Distribution Line:</b> Overhead Conductors: Properties of material, types of conductor with trade names
	2	Significance of sag
	3	Solved numericals
	4	Solved numericals
	5	Line supports: Requirements, types of line structures and their specifications, methods of erection
9th	1	Types of insulators and their applications, Causes of insulator failure
	2	Derivation of equation of string efficiency for string of three suspension insulator
	3	Solved numericals
	4	Underground Cables: Requirements, classification, construction, comparison with overhead lines,
	5	Cable laying and cable jointing

**Signature of the  
Lecturer**

**Signature of the  
H.O.D.**

**Signature of the  
Principal**