

GOPAL KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY JEYPORE

Discipline: ELECTRICAL ENGINEERING

Semester: 5TH

Name of the Teaching Faculty: DEBASHIS SAHU

Subject: POWER SYSTEM – I (EEPC3002)

No. of Classes per Week: 04

Semester From: July To: December

No. of Weeks: 15

Week	Class Day	Theory / Practical Topics
1st	1st	Introduction to Power System and Evolution of Power Systems
	2nd	Structure of Power System and Present-Day Scenario
	3rd	Conventional Sources of Electrical Energy
	4th	Non-conventional Sources of Electrical Energy
2nd	1st	Types of Conductors and Resistance of Conductors
	2nd	Inductance due to Internal Flux
	3rd	Flux Linkages between Two Points External to a Conductor
	4th	Inductance of Single Phase Two Wire Line
3rd	1st	Flux Linkages in Group Conductors
	2nd	Inductance of Composite Conductors
	3rd	Concept of GMD and Transposition of Lines
	4th	Inductance of Three Phase Lines with Symmetrical Spacing
4th	1st	Inductance of Three Phase Lines with Unsymmetrical Spacing
	2nd	Bundled Conductors
	3rd	Skin Effect and Proximity Effect
	4th	Capacitance of Two Wire Line
5th	1st	Capacitance of Three Phase Lines
	2nd	Effect of Earth on Capacitance
	3rd	Capacitance of Bundled Conductors
	4th	Parallel Circuit Three Phase Lines
6th	1st	Representation of Short Transmission Lines
	2nd	Representation of Medium Transmission Lines
	3rd	Representation of Long Transmission Lines

	4th	Equivalent Circuit of Transmission Lines
7th	1st	Performance Analysis of Transmission Lines
	2nd	Voltage Profile and Ferranti Effect
	3rd	Power Flow Through Transmission Lines
	4th	Surge Impedance Loading
8th	1st	Power Flow Capability of Transmission Lines
	2nd	Series Compensation
	3rd	Shunt Compensation
	4th	Theory of Corona Formation
9th	1st	Electric Stress and Critical Disruptive Voltage
	2nd	Visual Critical Voltage
	3rd	Corona Power Loss
	4th	Factors Affecting Corona and Reduction Methods
10th	1st	Advantages and Disadvantages of Corona
	2nd	Line Supports and Catenary Curve
	3rd	Sag and Tension Calculations
	4th	Supports at Different Levels
11th	1st	Stringing Chart and Sag Template
	2nd	Conductor Spacing and Ground Clearance
	3rd	Vibrations in Transmission Lines and Dampers
	4th	Insulator Materials and Types of Insulators
12th	1st	Voltage Distribution over Suspension Insulators
	2nd	String Efficiency
	3rd	Methods of Improving String Efficiency
	4th	Testing of Insulators
13th	1st	Classification of Distribution Systems
	2nd	Primary and Secondary Distribution Networks
	3rd	Voltage Drop in DC Distributors
	4th	Voltage Drop in AC Distributors
14th	1st	Kelvin's Law and its Limitations
	2nd	Application of Capacitors in Distribution Systems

	3rd	Underground Cables: Types and Construction
	4th	Classification and Parameters of Single Core Cables
15th	1st	Grading of Cables and Capacitance of Three Core Cables
	2nd	Comparison of Overhead and Underground Cables
	3rd	Power System Earthing and Soil Resistivity
	4th	Earth Resistance, Step & Touch Voltage and Earthing Grid Design