

GOVERNMENT CO.ED POLYTECHNIC RAIPUR (C.G)

DEPARTMENT OF ELECTRICAL ENGINEERING

LESSON PLAN

Session: NOV-DEC 2024

Session start as per university calendar:

Course Name: Power System Operation and Protection

Name of Subject Teacher:

Lecturer plan T+P = 6

Course code: 2024572(024)

Principles ET S.No. Chapter No.	Semester: 5th	Topics	Sub Topic to be covered under this unit	Total hours	No. of periods planned	Actual No of periods taken	Class room Instruction Start Date:		Use of AV resources if any	Remarks if any
							Date of Class Conduction			
1	1	Representation of Power System	Single line representation of a simple power system	10	2	1	28/08/24	NA		
			Single Phase representation of balanced three phase networks		2	2	29/08/24 30/08/24			
			Per unit (PU system) : Introduction, representation,		2	2	31/08/24 3/09/24			
			Complex power flow, Concept of torque or Load angle (δ)		2	1	4/09/24			
			Simplified representation of Synchronous Machines		2	1	9/09/24			
2	2	Power System faults and Stability	Symmetrical Faults: Definition of transients in a transmission lines, Subtransient, transient and steady state period;	12	2	1	12/09/24	NA		
			Definition: Short Circuit Capacity (SCC) of a bus, Simple Numerical		2	1	13/09/24			
			Unsymmetrical faults : LG, LL, LLG faults and their effects		3	2	14/09/24 18/09/24			
			Stability: Introduction, Steady state & transients stability, Stability limit		3	2	19/09/24 20/09/24			
			Methods of improving stability		2	2	21/09/24 23/09/24			
3	3	Active and Reactive power control	Introduction to active and reactive power in power system	16	5	3	25/09/24 26/09/24 27/09/24	NA		
			Effect of DC excitation on lagging and leading operation of a synchronous machine,		6	3	30/09/24 1/10/24 3/10/24			
			Voltage control in power system: shunt reactor, synchronous phase modifier,		5	3	8/10/24 8/10/24 14/10/24			
4	4	Elements of Protection and Circuit Interrupting Devices	Basic elements of a protective system.	16	2	1	16/10/24	NA		
			Types, causes and effects of various Faults.		2	1	17/10/24			
			Protection zones : Backup protection zones		2	1	18/10/24			
			CT and PT: Specifications and Connection diagram		2	1	21/10/24			
			Interrupting devices: Sequence of operation and interlocking		3	2	22/10/24 23/10/24			
			Isolators and Fuses: types, features, testing and applications		3	2	24/10/24 25/10/24			
			Current limiting reactors.		2	1	5/11/24			

5	5	Protective Relays and Circuit Breaker	Protective relay: Principle of working, construction and operation of electromagnetic Induction	16	4	2	6/11/24 8/11/24	NA
			Relay Types: Thermal relay, Directional relay, Distance relay		4	2	11/11/24 19/11/24	
			Maintenance and testing of relays		4	2	18/11/24 21/11/24	
			Various faults and abnormal operating conditions in Alternator		4	2	22/11/24 25/11/24	
				70 Hours				

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