

GOVT. POLYTECHNIC MAYURBHANJ LESSON PLAN- 2023/24 (SUMMER)

Discipline : ELECTRICAL		Semester: 6th Sem		Name of the Teaching Faculty :Debasis Patra	
Subject : SGPD		No. of Days / per week class allotted : 05		Semester From date : 16.01.2024	To Date : 26.04.2024
MONTH	Week	Day	Unit	Topics	
JANUARY	3rd		UNIT-1	1.INTRODUCTION TO SWITCHGEAR	
		2ND		Essential Features of switchgear	
		4TH		Switchgear Equipment	
		5TH		Bus-Bar Arrangement & Switchgear Accommodation	
	4th	6TH		Short Circuit & Faults in a power system.	
			UNIT-2	2.FAULT CALCULATION	
		1ST		Symmetrical faults on 3-phase system & Limitation of fault current.	
		4TH		Percentage Reactance & Percentage Reactance and Base KVA.	
		6TH		Short – circuit KVA & Reactor control of short circuit currents.	
	5th	1ST		Location of reactors.	
		2ND		Steps for symmetrical Fault calculations.	
FEBRUARY	1ST	4TH		Solve numerical problems on symmetrical fault.	
		5TH			
				3. FUSES	
	2nd	6TH	UNIT-3	Introduction, Desirable characteristics of fuse element.	
		1ST		Fuse Element materials.	
		2ND		Low and High voltage fuses.	
		4TH		Current carrying capacity of fuse element & Difference Between a Fuse and Circuit Breaker.	
			UNIT-4	4. CIRCUIT BREAKERS	
	3rd	5TH		Definition and principle of Circuit Breaker & Arc phenomenon and principle of Arc Extinction.	
		6TH		Methods of Arc Extinction.	
		1ST		Definitions of Arc voltage, Re-striking voltage and Recovery voltage.	
		2ND		Classification of circuit Breakers & Oil circuit Breaker.	
		4TH		Plain brake oil circuit breaker.	
		5TH		Arc control oil circuit breaker.	
		6TH		Low oil circuit breaker & Maintenance of oil circuit breaker.	
		1ST		Air-Blast circuit breaker and its classification.	
		3RD		CLASS TEST-1	

MARCH	4th	4TH		Sulphur Hexa-fluoride (SF6) circuit breaker & Vacuum circuit breakers.
		5TH		Switchgear component.
		6TH		Problems of circuit interruption & Resistance switching. Circuit Breaker Rating.
	5TH	1ST	UNIT-5	5. PROTECTIVE RELAYS
		2ND		Definition of Protective Relay & Fundamental requirement of protective relay.
		4TH		Basic Relay operation & Electromagnetic Attraction type
	1ST	5TH		Induction type relay.
		6TH		Definition of following important terms- Pick-up current, Current setting, Plug setting Multiplier, Time setting Multiplier.
	2ND	1ST		Classification of functional relays- Induction type over current relay (Non-directional) & Induction type directional power relay.
		4TH		Induction type directional over current relay.
		6TH		Differential relay- Current differential relay-Voltage balance differential relay & Types of protection
	3rd	1ST		Question Discussion
			UNIT-6	6. PROTECTION OF ELECTRICAL POWER EQUIPMENT AND LINES
		2ND		Protection of alternator.
		4TH		Differential protection of alternators.
	4TH	5TH		Balanced earth fault protection
		6TH		Protection systems for transformer- Buchholz relay.
		1ST		Protection of Bus bar.
		3RD		Protection of Transmission line.
	5TH	4TH		Different pilot wire protection (Merz-price voltage Balance system).
		5TH		Explain protection of feeder by over current and earth fault relay.
		6TH		Question Discussion
	5TH		UNIT-7	7. PROTECTION AGAINST OVER VOLTAGE AND LIGHTING
		4TH		Voltage surge and causes of over voltage.
		6TH		Internal cause of over voltage & External cause of over voltage (lighting)
IL	1ST	2ND		Mechanism of lightning discharge.
		4TH		INTERNAL ASSESSMENT
		5TH		Types of lightning strokes & Harmful effect of lightning.
		6TH		Lightning arresters and Type of lightning Arresters- Rod-gap lightning arrester.
	2ND	1ST		Horn-gap arrester.
		2ND		Valve type arrester.
		5TH		Surge Absorber
		6TH		Question Discussion
				8. STATIC RELAY

APR	3rd	1ST	UNIT-8	Advantage of static relay.
		2ND		Instantaneous over current relay & Principle of IDMT relay.
		4TH		Question Discussion
		5TH		Question Discussion
		6TH		Question Discussion
	4TH	1ST		RIVISION
		2ND		RIVISION
		4TH		CLASS TEST-2
		5TH		RIVISION
		6TH		RIVISION
	Total Class Allotted-63			

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