

ELECTRICAL ENGINEERING DEPARTMENT

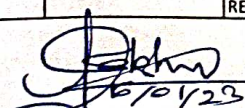
SUBJECT-SWITCH GEAR AND PROTECTIVE DEVICES

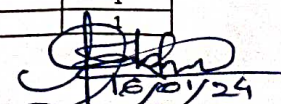
SEMESTER-6TH

NAME OF THE TEACHING FACULTY-SACHINDRA GOUKHRA

DATE- 16.01.2024 TO 26.04.2024

WEEK No	NO OF PERIODS AVAILABLE PER WEEK	CHAPTER	TOPIC NAME	PERIODS ASSIGNED AS PER SYLLABUS
Week - 1	5	Introduction To Switchgear CHAP-01	1.1 Essential Features of switchgear	1
			1.2 Switchgear Equipment.	1
			1.3 Bus-Bar Arrangement.	1
			1.4 Switchgear Accommodation.	1
			1.5 Short Circuit.	1
			1.7 Faults in a power system	1
Week - 2	5	Fault Calculation CHAP-02	2.1 Symmetrical faults on 3-phase system	1
			2.2 Limitation of fault current	1
			2.3 Percentage Reactance.	1
Week - 3	5		2.4 Percentage Reactance and Base KVA	1
			2.5 Short – circuit KVA	1
			2.6 Reactor control of short circuit currents.	1
			2.7 Location of reactors.	1
			2.8 Steps for symmetrical Fault calculations	1
			2.9 Solve numerical problems on symmetrical fault	1
Week - 4	3	FUSES CHAP-03	3.1 Desirable characteristics of fuse element.	1
			3.2 Fuse Element materials.	1
			3.3 Types of Fuses and important terms used for fuses.	1
			3.4 Low and High voltage fuses	1
			3.6 Difference Between a Fuse and Circuit Breaker.	1
Week-5	5	CIRCUIT BREAKERS CHAP-04	4.1 Definition and principle of Circuit Breaker. 4.2 Arc phenomenon and principle of Arc Extinction.	1
			4.3 Methods of Arc Extinction. 4.4 Definitions of Arc voltage, Re-striking voltage and Recovery voltage.	1
			4.5 Classification of circuit Breakers. 4.6 Oil circuit Breaker and its classification.	1
Week - 6	5		4.7 Plain break oil circuit breaker. 4.8 Arc control oil circuit breaker.	1
			4.9 Low oil circuit breaker. 4.10 Maintenance of oil circuit breaker	1
Week-8	4		4.11 Air-Blast circuit breaker and its classification. 4.12 Sulphur Hexa-fluoride (SF6) circuit breaker.	1
			4.13 Vacuum circuit breakers. 4.14 Switchgear component.	1
			4.15 Problems of circuit interruption. 4.16 Resistance switching.	1
			4.17 Circuit Breaker Rating.	1
			PROTECTIVE RELAYS CHAP-05	5.1 Definition of Protective Relay. 5.2 Fundamental requirement of protective relay.
		5.3 Basic Relay operation 5.3.1. Electromagnetic Attraction type 5.3.2. Induction type		1
		5.4 Definition of following important terms 5.5.1. Pick-up current.		1
PROTECTION OF ELECTRICAL POWER EQUIPMENT AND LINES CHAP-06	4	5.5.2. Current setting.	1	
		5.5.3. Plug setting Multiplier. 5.5.4. Time setting Multiplier	1	
		5.6 Classification of functional relays 5.7 Induction type over current relay (Non-directional)	1	
		5.8 Induction type directional power relay. 5.9 Induction type directional over current relay	1	
		6.1 Protection of alternator. 6.2 Differential protection of alternators.	1	
PROTECTION AGAINST OVER VOLTAGE AND LIGHTING CHAP-07	5	6.3 Balanced earth fault protection. 6.4 Protection systems for transformer.	1	
		6.5 Buchholz relay. 6.6 Protection of Bus bar.	1	
		6.7 Protection of Transmission line. 6.8 Different plot wire protection (Merz-price voltage Balance system)	1	
Week-10	4	6.9 Explain protection of feeder by over current and earth fault relay.	1	
		7.1. Voltage surge and causes of over voltage.	1	
Week-11	5	7.2. Internal cause of over voltage.	1	
		7.3. External cause of over voltage (lightning)	1	
		7.4. Mechanism of lightning discharge.	1	
		7.5. Types of lightning strokes.	1	
		7.6. Harmful effect of lightning.	1	
		7.7. Lightning arresters and Type of lightning Arresters.	1	
		7.7.1. Rod-gap lightning arrester.	1	
7.7.2. Horn-gap arrester.	1			
Week-12	5	STATIC RELAY CHAP-08	8.1 Advantage of static relay.	1
			8.2 Instantaneous over current relay.	1
			8.3 Principle of IDMT relay.	1
		REVISION	1	
REVISION	1			


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Academic Coordinator