

LESSON PLAN-2023-2024
SWAMI VIVEKANANDA SCHOOL OF ENGG & TECH, BBSR

Discipline- ELECTRICAL	Semester- 6TH	Name of teaching faculty- SASANKA TRIPATHY
SUBJECT- SWITCH GEAR AND PROTECTIVE DEVICES	No of days/ per week class allotted-	SEM From date-16.01.2024 No of weeks-
Week	Class day	Theory Topics
3RD	1/16/2024	1.1 Essential Features of switchgear.1.2 Switchgear Equipment
	1/17/2024	1.2 Switchgear Equipment
	1/18/2024	1.3 Bus-Bar Arrangement
	1/19/2024	1.4 Switchgear Accommodation.
	1/20/2024	1.5 Short Circuit.
4TH	1/22/2024	1.6 Short circuit.1.7 Faults in a power system
	1/23/2024	2.1 Symmetrical faults on 3-phase system.
	1/24/2024	2.2 Limitation of fault current
	1/25/2024	2.3 Percentage Reactance.2.4 Percentage Reactance and Base KVA
	1/27/2024	Problems on percentage reactance
	1/29/2024	2.5 Short – circuit KVA
	1/30/2024	2.6 Reactor control of short circuit currents
	1/31/2024	2.7 Location of reactors
1ST	2/01/2024	2.8 Steps for symmetrical Fault calculations.
	2/02/2024	2.9 Solve numerical problems on symmetrical fault.
	2/03/2024	problems on symmetrical fault
2ND	2/05/2024	3.1 Desirable characteristics of fuse element.3.2 Fuse Element materials
	2/06/2024	3.3 Important terms used for fuses
	2/07/2024	Types of Fusesand important terms used for fuses
	2/08/2024	3.4 Low and High voltage fuses.
	2/09/2024	3.5 Current carrying capacity of fuse element.3.6 Difference Between a Fuse and Circuit Breaker
	2/10/2024	4.1 Definition and principle of Circuit Breaker.4.2 Arc phenomenon and principle of Arc Extinction
3RD	2/12/2024	4.3 Methods of Arc Extinction
	2/13/2024	4.4 Definitions of Arc voltage,Re-striking voltage and Recovery voltage,4.5 Classification of circuit Breakers.
	2/14/2024	4.6 Oil circuit Breaker and its classification,4.7 Plain brake oil circuit breaker
	2/15/2024	4.8 Arc control oil circuit breaker
	2/16/2024	4.9 Low oil circuit breaker,4.10 Maintenance of oil circuit breaker
	2/19/2024	4.11 Air-Blast circuit breaker and its classification

	2/20/2024	4.12 SulphurHexa-fluoride (SF6) circuit breaker
5TH	2/21/2024	4.13 Vacuum circuit breakers 4.14 Switchgear component
	2/22/2024	4.15 Problems of circuit interruption.
	2/25/2024	4.16 Resistance switching
	2/26/2024	4.17 Circuit Breaker Rating
1ST	2/27/2024	5.1 Definition of Protective Relay 5.2 Fundamental requirement of protective relay
	2/28/2024	5.3 Basic Relay operation, 5.3.1 Electromagnetic Attraction type
	2/29/2024	5.3.2. Induction type relay
	3/01/2024	5.5 Definition -5.5.1. Pick-up current.5.5.2. Current setting.5.5.3. PS M 5.5.4 Time setting Multiplier
	3/02/2024	5.6 Classification of functional relays,5.7 Induction type over current relay (Non-directional)
2ND	3/04/2024	5.8 Induction type directional power relay,5.9 Induction type directional over current relay
	3/05/2024	5.10 Differential relay,5.10.1. Current differential relay
	3/06/2024	5.10.2. Voltage balance differential relay 5.11 Types of protection
	3/07/2024	6.1 Protection of alternator.
	3/09/2024	6.2 Differential protection of alternators.
3RD	3/11/2024	6.3 Balanced earth fault protection.
		6.4 Protection systems for transformer
	3/12/2024	6.5 Buchholz relay.
	3/13/2024	6.6 Protection of Bus bar.
	3/14/2024	6.7 Protection of Transmission line.6.8 Different pilot wire protection (Merz-price voltage Balance system)
	3/15/2024	6.9 Explain protection of feeder by over current and earth fault relay.
	3/16/2024	7.1. Voltage surge and causes of over voltage,7.2. Internal cause of over voltage.
4TH	3/18/2024	7.3. External cause of over voltage (lighting), 7.4. Mechanism of lightning discharge
	3/19/2024	7.5. Types of lightning strokes.7.6. Harmful effect of lightning
	3/20/2024	7.7. Lightning arresters and Type of lightning Arresters.
	3/21/2024	7.7.1. Rod-gap lightning arrester.7.7.2. Horn-gap arrester.
	3/22/2024	7.7.3. Valve type arrester.7.8. Surge Absorber
	3/23/2024	8. 1 Advantage of static relay.
1ST	3/26/2024	-DO-
	3/27/2024	8. 2 Instantaneous over current relay.
	3/28/2024	-DO-
	3/29/2024	8. 3 Principle of IDMT relay
	3/30/2024	-DO-

K. Venkatesh
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Electrical Engineering
5th B.Tech