

Discipline: ELECTRICAL	Semester: 6 TH	Name of the Teaching Faculty: MONALISA PANI Lecturer in Electrical
Subject: SGPD	No. of Days/per week class allotted:05	Semester From Date: 04-02-2025 To Date: 17-05-2025 No. of Weeks:15
Week	Class Day	Theory/Practical Topics
1 st	01	Essential Features of switchgear. Switchgear Equipment
	02	Switchgear Equipment.
	03	Bus-Bar Arrangement.
	04	Switchgear Accommodation.
	05	Revision tutorial
2 nd	01	Short Circuit.
	02	Faults in a power system.
	03	Symmetrical faults on 3-phase system.
	04	Limitation of fault current.
	05	Revision tutorial
3 rd	01	Percentage Reactance.
	02	Percentage Reactance and Base KVA.
	03	Short – circuit KVA.
	04	Reactor control of short circuit currents
	05	Revision tutorial
4 th	01	Location of reactors.
	02	Steps for symmetrical Fault calculations
	03	Solve numerical problems on symmetrical fault..
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	05	Internal Assessment
5 th	01	Desirable characteristics of fuse element.
	02	Fuse Element materials.
	03	Types of Fuses and important terms used for fuses.
	04	Low and High voltage fuses
	05	Revision tutorial
6 th	01	Current carrying capacity of fuse element
	02	Difference Between a Fuse and Circuit Breaker.
	03	Definition and principle of Circuit Breaker. Arc phenomenon and principle of Arc Extinction.
	04	Methods of Arc Extinction. Definitions of Arc voltage, Restriking voltage and Recovery voltage.
	05	Revision tutorial
7 th	01	Classification of circuit Breakers. Oil circuit Breaker and its classification.
	02	Plain brake oil circuit breaker. Arc control oil circuit breaker.
	03	Low oil circuit breaker. Maintenance of oil circuit breaker.
	04	Air-Blast circuit breaker and its classification.
	05	Class-Test-I
8 th	01	Sulphur Hexa-fluoride (SF ₆) circuit breaker.
	02	Vacuum circuit breakers.

	03	Switchgear component. Problems of circuit interruption.
	04	Resistance switching. Circuit Breaker Rating.
	05	Internal Assessment
9 th	01	Definition of Protective Relay. Fundamental requirement of protective relay.
	02	Basic Relay operation Electromagnetic Attraction type Induction type.
	03	Definition of following important terms. Pick-up current. Current setting. Plug setting Multiplier. Time setting Multiplier
	04	Classification of functional relays Induction type over current relay (Non-directional)
	05	Revision tutorial
10 th	01	Induction type directional power relay
	02	Induction type directional over current relay
	03	Differential relay Current differential relay Voltage balance differential relay.
	04	Types of protection
	05	Revision tutorial
11 th	01	Protection of alternator. Differential protection of alternators.
	02	Balanced earth fault protection.
	03	Protection systems for transformer, Buchholz relay
	04	Protection of Bus bar. Protection of Transmission line
	05	Revision tutorial
12 th	01	Different pilot wire protection (Merz-price voltage Balance system)
	02	Explain protection of feeder by over current and earth fault relay.
	03	Voltage surge and causes of over voltage.
	04	Internal cause of over voltage.
	05	Class-Test-II
13 th	01	External cause of over voltage (lightning)
	02	Mechanism of lightning discharge.
	03	Types of lightning strokes.
	04	Harmful effect of lightning
	05	Revision tutorial
14 th	01	Lightning arresters and Type of lightning Arresters. Rod-gap lightning arrester. Horn-gap arrester. Valve type arrester.
	02	Surge Absorber
	03	Static relays.
	04	Advantage of static relay.
	05	Revision tutorial
15 th	01	Instantaneous over current relay.
	02	Instantaneous over current relay.
	03	Principle of IDMT relay.
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	05	Revision tutorial

Monalisa Pani
01-02-2025
Signature of Teaching Faculty