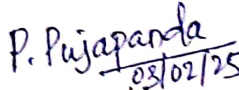


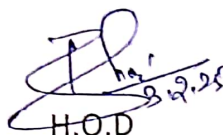
LESSON PLAN FOR ACADEMIC SESSION: 2024-25(Summer-25)


Discipline: Electrical Engineering		Semester : 6th	Name of the Teaching Faculty : PRABHUDATTA PUJAPANDA
Subject : SGPD	No. of days / week class allotted		Semester From : 04.02.25 to 17.05.2025 Nos. of Weeks per semester : 15
Week	Class Day	Chapter	Theory Topics
1 ST	1 st	Chapter-1 INTRODUCTION TO SWITCHGEAR	1.1 Essential Features of switchgear.
	2 nd		1.2 Switchgear Equipment.
	3 rd		1.3 Bus-Bar Arrangement.
	4 th		1.4 Switchgear Accommodation.
2 ND	1 st		1.5 Short Circuit.
	2 nd		1.6 Short circuit.
			1.7 Faults in a power system.
	3 rd	Chapter-2 FAULT CALCULATION	2.1 Symmetrical faults on 3-phase system
	4 th		2.2 Limitation of fault current.
3 RD	1 st		2.3 Percentage Reactance
	2 nd		2.4 Percentage Reactance and Base KVA.
	3 rd		2.5 Short – circuit KVA
	4 th		2.6 Reactor control of short circuit current.
4 TH	1 st		2.7 Location of reactors.
	2 nd		2.8 Steps for symmetrical Fault calculations
	3 rd		2.9 Solve numerical problems on symmetrical fault.
	4 th		Continue.....
5 TH	1 st	Chapter-3 FUSES	3.1 Desirable characteristics of fuse element.
	2 nd		3.2 Fuse Element materials.
	3 rd		3.3 Types of Fuses and important terms used for fuses.
	4 th		3.4 Low and High voltage fuses.
6 TH	1 st		3.5 Current carrying capacity of fuse element.
	2 nd		3.6 Difference Between a Fuse and Circuit Breaker.
	3 rd	Chapter-4 CIRCUIT BREAKERS	4.1 Definition and principle of Circuit Breaker
	4 th		4.2 Arc phenomenon and principle of Arc Extinction.
7 TH	1 st		4.3 Methods of Arc Extinction.
	2 nd		4.4 Definitions of Arc voltage, Re-striking voltage and Recovery voltage.
	3 rd		4.5 Classification of circuit Breakers. 4.6 Oil circuit Breaker and its classification
	4 th		4.7 Plain brake oil circuit breaker. 4.8 Arc control oil circuit breaker.
8 TH			4.9 Low oil circuit breaker.
	1 st		4.10 Maintenance of oil circuit breaker.
	2 nd		4.11 Air-Blast circuit breaker and its classification
	3 rd		4.12 Sulphur Hexa-fluoride (SF6) circuit breaker.
			4.13 Vacuum circuit breakers.

	4 th		4.14 Switchgear component. 4.15 Problems of circuit interruption.
9 TH	1 st		4.16 Resistance switching. 4.17 Circuit Breaker Rating.
	2 nd	Chapter-5 PROTECTIVE RELAYS	5.1 Definition of Protective Relay. 5.2 Fundamental requirement of protective relay.
	3 rd		5.3 Basic Relay operation 5.3.1. Electromagnetic Attraction type 5.3.2. Induction type
	4 th		5.4 Definition of following important terms 5.5 Definition of following important terms. 5.5.1. Pick-up current. 5.5.2. Current setting. 5.5.3. Plug setting Multiplier. 5.5.4. Time setting Multiplier
10 TH	1 st		5.6 Classification of functional relays
	2 nd		5.7 Induction type over current relay (Non-directional)
	3 rd		5.8 Induction type directional power relay.
	4 th		5.9 Induction type directional over current relay.
11 TH	1 st		5.10 Differential relay 5.10.1. Current differential relay 5.10.2. Voltage balance differential relay.
	2 nd		5.11 Types of protection
	3 rd		6.1 Protection of alternator. 6.2 Differential protection of alternators
	4 th		6.3 Balanced earth fault protection. 6.4 Protection systems for transformer
12 th	1 st	Chapter-6 PROTECTION OF ELECTRICAL POWER EQUIPMENT AND LINES	6.5 Buchholz relay.
	2 nd		6.6 Protection of Bus bar. 6.7 Protection of Transmission line
	3 rd		6.8 Different pilot wire protection (Merz-price voltage Balance system)
	4 th		6.9 Explain protection of feeder by over current and earth fault relay.
13 th	1 st	Chapter-7 PROTECTION AGAINST OVER VOLTAGE AND LIGHTING	7.1. Voltage surge and causes of over voltage.
	2 nd		7.2. Internal cause of over voltage
	3 rd		7.3. External cause of over voltage (lighting)
	4 th		7.4. Mechanism of lightning discharge.
14 th	1 st		7.5. Types of lightning strokes
	2 nd		7.6. Harmful effect of lightning
	3 rd		7.7. Lightning arresters and Type of lightning Arresters.
	4 th		7.7.1. Rod-gap lightning arrester. 7.7.2. Horn-gap arrester.
15 th	1 st	Chapter-8 STATIC RELAY	7.7.3. Valve type arrester.
	2 nd		7.8. Surge Absorber
	3 rd		8. 1 Advantage of static relay.
	4 th		Continue.....
	1 st		8. 2 Instantaneous over current relay.

	2 nd		Continue.....
	3 rd		8. 3 Principle of IDMT relay.
	4 th		Continue.....


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