Discipline	Semester	Name of the teaching faculty
Electrical Engg	6th	M. Pradhan.
Subject Switch Gear and Protective Devices	No. of days per week class all 04 +1	Semester from date:- 10.03.2022 To date - 10.06.2022 No. of Weeks - 15

Months	Weeks	Class Day	Theory Topics
March	2nd	1st	Essential features of Switchgear and Switchgear equipment
		2nd	Busbar Arrangement
		3rd	Switchgear Accomodation
		1st	faults in a power System
		2nd	Symmetrical faults on 3 phase System
		3rd	Limitation of fault current Percentage Reactance
		4th	Base KVA, short circuit-kVA
		5th	Numericals on Base kVA
		1st	Reactor control of short ckt Currents, Location of Reactors
		2nd	Steps for Symmetrical fault calculations and numerical problems on Symmetrical fault

Months	Weeks	Class Day	Theory Topics
		3rd	Characteristics of fuse element & fuse element material
		4th	Types of fuse and Important terms used for fuse
		5th	Difference between fuse and switch
	5th	1st	Low and High voltage fuse
		2nd	Current carrying Capacity of fuse element
		3rd	Difference Between a fuse and circuit Breaker
		4th	Advantages of fuse
April	1st	1st	Definition and Principle of circuit Breaker
	2nd	1st	Principle of Arc Extinction and Methods of Arc Extinction
		2nd	Definition of Arc voltage, Restriking Voltage and Recovery voltage
		3rd	Classification of circuit Breaker Air circuit Breaker and its
		4th	Classification Plain Break oil circuit Breaker, Arc Control oil circuit Breaker
		5th	Low oil CB, Maintenance of OCB, Air Blast CB and its classification

Months	Weeks	Class Day	Theory Topics
		1st	Sulphur Hexaflaoride (SF6) CB, Vacuum Circuit Breaker(VCB)
		2nd	Component of Switchgear Problems of circuit interruption Resistance Switching circuit Breaker Rating
		3rd / 4th	Definition of protective Relay fundamental Requirement of Protective Relay
		5th	Basic Relay operation. → Electromagnetic Attraction type → Induction Type
		6th	→ Difference between CB & fuse
		1st	Definition of Pick-up current Circuit Setting, PSM (Plug Setting Multiplier), TSM (Time Setting Multiplier)
	4th		
		2nd	~~Induction~~ Classification of functional Relay Induction type over current Relay (Non-directional)
		3rd	Induction type directional power relay Induction Type directional over current relay
		5th	Differential Relay
		6th	→ Current differential Relay → Voltage Balance differential Relay

Months	Weeks	Class Day	Theory Topics
		1st	Types of Protection
		2nd	Protection of Electrical Power equipment and Lines
		3rd	Protection of alternators
		4th	Differential Protection of alternators
		5th	Balanced earth fault Protection
		6th	Protection of Transmission line
		1st	Protection of systems for transformer
May	1st		
		2nd	function of Buchholz Relay
		3rd	Protection of Busbar
		4th	Protection of Transmission line
		5th	Different Pilot wire Protection
		6th	(Merz price voltage Balance System)
	2nd	1st	Explain protection of feeder by over current Relay
		2nd	Explain Protection of feeder by earth fault Relay
		3rd	Protection against over voltage
		4th	Protection against lightning
		5th	What is voltage Surge
		6th	Causes of over voltage
	3rd	1st	Internal cause of over voltage
		2nd	External Cause of over voltage
		3rd	Mechanism of lightning discharge
		4th	Types of Lightning stroken
		5th	Harmful effect of Lightning
		6th	Lightning Arresters
		1st	Lightning Arrester and Type of Lightning Arresters
		2nd	Rod-gap Lightning Arresters
	4th	3rd	Horn-gap arrester
		4th	Valve type arrester
		5th	Surge Absorber

Months	Weeks	Class Days	Theory Topics
		6th	What is static Relay
	5th	2nd	Advantage of static Relay
June	1st	1st	Instantaneous over current Relay
		2nd	Principle of IDMT Relay
		3rd	Concept of over current Relay
		4th	Features of earth fault Relay