

Dicipline: ELECTRICAL	Semester: 6	Name of the Teaching Faculty: En. Subhasish Mohanty.	
Subject: SWITCH GEAR AND PROTECTIVE DEVICES	No of Days/Week Class Allotted: 4	Semester From date: 10.3.2022 To date: 18.6.2022	No. of Weeks:

WEEK	Class Day	Theory Topics
1 st	1st	INTRODUCTION TO SWITCHGEAR: Essential Features of Switchgear.
	2nd	Switchgear Equipments
	3rd	Bus-Bar Arrangement
	4th	Switchgear Accomodation
	5th	
2 nd	1st	Short circuit
	2nd	Faults in a Power System
	3rd	FAULT CALCULATION :- Symmetrical faults on 3-Phase system
	4th	Limitation of fault current
	5th	
3 rd	1st	Percentage Reactance
	2nd	Percentage Reactance & Base KVA
	3rd	Short-circuit KVA
	4th	Reactor control of short circuit currents.

WEEK	Class Day	
4th	1st	Location of reactors
	2nd	Steps for Symmetrical Fault Calculation
	3rd	Solve numerical problems on symmetrical fault
	4th	FUSES: Desirable characteristics of fuse element
	5th	
5th	1st	Fuse element materials
	2nd	Types of fuses & important terms used for fuses.
	3rd	Low and High Voltage fuses
	4th	Current carrying capacity of fuse element
	5th	
6th	1st	Difference between fuse and Circuit Breaker
	2nd	CIRCUIT BREAKERS: Definition and principle of circuit Breaker
	3rd	Arc phenomenon and principle of Arc Extinction.
	4th	Methods of Arc Extinction
	5th	

ARYAN SCHOOL OF ENGINEERING & TECHNOLOGY

Name:	ELECTRICAL	Semester: 6	Name of the Teaching Faculty: En. Subhasish Mohanty	
Subject:	SWITCHGEAR & PROTECTIVE DEVICES	No of Days/Week Class Allotted: 4	Semester From date: 10.8.2022 To date: 18.6.2022	No. of Weeks:

WEEK	Class Day	Theory Topics
7th	1st	Definition of Arc Voltage, Restriking voltage and Recovery Voltage.
	2nd	Classification of circuit Breaker, Oil circuit Breaker and its classification, plain break oil circuit breaker.
	3rd	Arc control oil circuit breaker, Low oil circuit breaker
	4th	Maintenance of oil circuit breaker.
	5th	
8th	1st	Air-Blast circuit breaker and its classification.
	2nd	Sulphur Hexa-fluoride (SF6) circuit breaker
	3rd	Vacuum circuit breakers.
	4th	Switchgear component & Problems of circuit interruption.
	5th	
9th	1st	Resistance switching, Circuit Breaker Rating
	2nd	PROTECTIVE RELAYS: Protective Relay fundamental requirement of Protective Relay, Basic Relay operation.
	3rd	Electromagnetic Attraction type, Induction type
	4th	Definition of important terms - Pick up current, Current setting.
	5th	Plug setting multiplier , Plug setting multiplier .

WEEK	Class Day	Theory Topics
10th	1st	Plug setting multiplier, Time setting multiplier
	2nd	Definition and classification of functional relay. Induction type over current relay (Non-directional)
	3rd	Induction type directional power relay & Induction type directional over current relay.
	4th	Differential relay, current differential relay.
	5th	
11th	1st	Voltage balance differential relay.
	2nd	Types of protection.
	3rd	ELECTRICAL POWER EQUIPMENT & LINES Protection of alternators. Differential protection of alternators
	4th	Balanced earth fault protection.
	5th	
12th	1st	Protection systems for transformer, Buchholz relay
	2nd	Protection of Bus bar Protection of Transmission line
	3rd	Differential pilot wire protection (MEXE - Price Voltage Balance system)
	4th	Explain protection of feeder by over current & earth fault relay.
	5th	

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Subject: ELECTRICAL	Semester: 6	Name of the Teaching Faculty: Dr. Subhanshu Mishra	
Subject: SWITCHGEAR PROTECTIVE DEVICES	No of Days/Week Class Allotted: 41	Semester From date: 10.3.2022 To date: 18.5.2022	No. of Weeks:

WEEK	Class Day	Theory Topics
13th	1st	PROTECTION AGAINST OVER VOLTAGE & LIGHTNING - Voltage surge & Cause of over voltage.
	2nd	Internal cause of over voltage.
	3rd	External cause of over voltage (Lightning)
	4th	Mechanism of lightning discharge
	5th	
14th	1st	Types of lightning strokes
	2nd	Harmful effect of lightning
	3rd	Lightning arresters and type of lightning arresters.
	4th	Rod-gap lightning arrester, Horn-gap arresters.
	5th	
15th	1st	Valve type arrester Surge Absorber
	2nd	STATIC RELAY:- Advantage of static relays
	3rd	Instantaneous over current relay
	4th	Principle of IDMT relay.
	5th	