

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN Session-2022-2023

Discipline: Electrical Engg. Semester: 6th

Name of the Teaching Faculty: Subesh Chandra Nayak

Subject: Switch Gear and Protective Devices (SGPD)

Subject: Switchgear and Protective Devices No. of Days/per week class allotted 5

Semester From Date : 14.2.2023 To Date : 23.5.2023 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
1	1	Essential features of Switchgear
	2	Switchgear Equipment
	3	Busbar Arrangement
	4	Switchgear Accommodation
	5	Tutorial
2	6	Short Circuit
	7	Faults in a power system
	8	Symmetrical faults on 3phase system
	9	Limitation of fault current
	10	Tutorial
3	11	Percentage reactance
	12.	Percentage reactance and Base KVA


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Week	Class Day	Theory /Practical Topics
	13	Short circuit kVA
	14	Reactor Control of short circuit currents
	15	Tutorial
4	16	Location of reactors
	17	Steps for Symmetrical fault calculations
	18	Solve numerical problems on Symmetrical fault
	19	Solve numerical problems on Symmetrical fault
	20	Tutorial
5	21	Desirable characteristics of fuse element
	22	Fuse Element materials
	23	Types of fuse and important terms used for fuses
	24	Low and high voltage fuses


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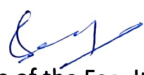
Week	Class Day	Theory /Practical Topics
	25	Tutorial
6	26	Current carrying Capacity of fuse element
	27	Difference between a fuse & Circuit Breaker
	28	Definition & principle of Circuit Breaker Arc phenomenon & principle of Arc Extinction
	29	Method of Arc Extinction. Definition of Arc Voltage Restriking voltage and Recovery voltage.
	30	Tutorial
7	31	Classification of Circuit Breaker. Oil circuit breaker and its operation.
	32	Plane breakoil Circuit Breaker Arc control oil circuit Breaker
	33	Low oil circuit Breaker
	34	Maintenance of Oil Circuit Breaker
	35	Tutorial
8	36	Air blast Circuit Breaker and its application


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	37	Sulphur Hexafluoride (SF ₆) Circuit breaker. Vacuum Circuit breaker
	38	Switch gear Component Problems of Circuit interruption
	39	Resistance Switching Circuit Breaker Rating.
	40	Tutorial
9	41	Definition of protective Relay Fundamental requirement of protective relay
	42	Basic Relay operation Electromagnetic Attractive type, Induction type
	43	Definition of pick-up Current, Current Setting, Plug setting Multiplier & Time setting Multiplier
	44	Classification of functional relays, Induction type over-current relay (Non-directional)
	45	Tutorial
10	46	Induction type directional power relay
	47	Induction type directional over current relay
	48	Differential relay, (i) Current differential relay (ii) voltage balance differential relay


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	49	Types of protection
	50	Tutorial
11	51	Protection of Alternator Differential protection of alternator
	52	Balance earth fault protection protection systems for Transformer
	53	Buchholz relay, Protection of Bus bar
	54	Protection of Transmission line
	55	Tutorial
12	56	Different pilot wire protection (Menz-price voltage balance system)
	57	Explain protection of feeder by over current and earth fault relay
	58	Voltage Surge and Causes of over voltage
	59	Internal causes of over voltage
	60	Tutorial.


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13	61	External causes of over voltage (lightning)
	62	Mechanism of lightning discharge
	63	Types of lightning strokes
	64	Harmful effect of lightning
	65	Tutorial
14	66	Lightning arrester and type of lightning arrester
	67	Rod gap lightning arrester
	68	Horn gap arrester, voltage type arrester
	69	Surge Absorber
	70	Tutorial
15	71	Static relay, Instantaneous relay
	72	Advantages of Static relay


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Week	Class Day	Theory /Practical Topics
	73	Instantaneous over current relay
	74	Principle of IDMT relay
	75	Tutorial


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