BHUBANANANDA ORISSA SCHOOL OF ENGINEERING, CUTTACK

ELECTRICAL ENGG.DEPARTMENT

LESSON PLAN

SEMESTER : 6th (C)

SESSION – Summer(2021-22)

SUBJECT: SGPD

NAME OF FACULTY: Manisha Mohanty

Discipline: **Electrical Engg.**	Semester:**6th (C)**	Name of the teaching faculty: Manisha Mohanty
Subject-**SGPD**	No. of Days/per week class allotted:**05PERIODS /WEEK** **(MON,SAT-2 periods each** **THU- 1 period)**	Semester: From Date: **10/03/2022** To Date:**10/06/2022** No. of weeks: **15 WEEKS**
Week	Class Day	Theory/Practical Topics
1st (10/03/2022-12/03/2022)	10/03/2022	**1. INTRODUCTION TO SWITCHGEAR** 1.1 Essential Features of switchgear. 1.2 Switchgear Equipment. 1.3 Bus-Bar Arrangement. 1.4 Switchgear Accommodation. 1.5 Short Circuit.
2nd (14/03/2022-19/03/2022)	12/03/2022	1.6 Short circuit. 1.7 Faults in a power system. **2. FAULT CALCULATION** 2.1 Symmetrical faults on 3-phase system. 2.2 Limitation of fault current. 2.3 Percentage Reactance.
	12/03/2022	2.4 Percentage Reactance and Base KVA. 2.5 Short – circuit KVA. 2.6 Reactor control of short circuit currents. 2.7 Location of reactors. 2.8 Steps for symmetrical Fault calculations.
	14/03/2022	2.9 Solve numerical problems on symmetrical fault.
	17/03/2022	**3. FUSES**

		3.1 Desirable characteristics of fuse element. 3.2 Fuse Element materials.
3rd (21/03/2022-26/03/2022)	21/03/2022	3.3 Types of Fuses and important terms used for fuses 3.4 Low and High voltage fuses.
	24/03/2022	3.4 Low and High voltage fuses.
	21/03/2022	3.5 Current carrying capacity of fuse element.
	24/03/2022	3.6 Difference Between a Fuse and Circuit Breaker.
	26/03/2022	**4. CIRCUIT BREAKERS** 4.1 Definition and principle of Circuit Breaker.
4th (28/03/2022-23/04/2022)	28/03/2022	4.2 Arc phenomenon and principle of Arc Extinction. 4.3 Methods of Arc Extinction.
	31/03/2022	4.4 Definitions of Arc voltage, Re-striking voltage and Recovery voltage. 4.5 Classification of circuit Breakers
	02/04/2022	4.6 Oil circuit Breaker and its classification. 4.7 Plain brake oil circuit breaker.
	04/04/2022	4.8 Arc control oil circuit breaker. 4.9 Low oil circuit breaker. 4.10 Maintenance of oil circuit breaker.
5th (04/04/2022-09/04/2022)	02/04/2022	**Class Test 1**
	07/04/2022	4.11 Air-Blast circuit breaker and its classification. 4.12 Sulphur Hexa-fluoride (SF6) circuit breaker.
	09/04/2022	4.13 Vacuum circuit breakers.

		4.14 Switchgear component.
	11/04/2022	4.15 Problems of circuit interruption. 4.16 Resistance switching. 4.17 Circuit Breaker Rating.
	16/04/2022	**5. PROTECTIVE RELAYS** 5.1 Definition of Protective Relay. 5.2 Fundamental requirement of protective relay. 5.3 Basic Relay operation a) Electromagnetic Attraction type b) Induction type 5.4 Definition of following important terms. a) Pick-up current. b) Current setting. c) Play setting Multiplier. d) Time setting Multiplier.
6th (11/04/2022-16/04/2022)	19/04/2022	5.5 Classification of functional relays 5.6 Induction type over current relay (Non-directional) 5.7 Induction type directional power relay.
	21/05/2022	5.8 Induction type directional over current relay 5.9 Differential relay a) Current differential relay b) Voltage balance differential relay.
	22/05/2022	5.10 Types of protection **6. PROTECTION OF ELECTRICAL POWER EQUIPMENT AND LINES** 6.1 Protection of alternator. 6.2 Differential protection of alternators.
	26/05/2022	6.3 Balanced earth fault protection. 6.4 Protection systems for transformer. 6.5 Buchholz relay. 6.6 Protection of Bus bar

7th (18/04/2022-23/04/2022)	28/05/2022	6.7 Protection of Transmission line. 6.8 Different pilot wire protection (Merz-price voltage Balance system) 6.9 Explain protection of feeder by over current and earth fault relay.
	04/06/2022	**7. PROTECTION OF ELECTRICAL POWER EQUIPMENT AND LINES** 7.1 Voltage surge and causes of over voltage 7.2 Internal cause of over voltage 7.3 External cause of over voltage(lighting) 7.4 Mechanism of lightining discharge
	06/06/2022	7.5 Types of lightning strokes. 7.6 Harmful effect of lightning. 7.7 Lightning arresters. 7.8 Type of lightning Arrestors. a) Rod-gap lightning arrester. b) Horn-gap arrester. c) Volve type arrestor. 7.9 Surge Absorber
	09/06/2022	**8. STATIC RELAY** 8.1 Advantage of static relay. 8.2 Instantaneous over current relay. 8.3 Principle of IDMT relay.
	10/06/2022	Revision and Discussions