LESSON PLAN

Subject :- TH:2 Switch Gear And Protective Devices **(Code) TH-2** **Name of faculty:-** Er Sujata Samal

Semester :-6th **Class allotted 4p/w** **Branch :- Electrical Engineering**

Discipline	Semester:-6TH	From date:-23/12/25 To date:18/4/26	45P/45H
Subject:SGPD	No. of days/ per week 4p/w:	Theory –Topics/Lesson	
DATE	**PERIOD**	**TOPIC COVERED**	**REMARKS**
23/12/25 to 29/12/25		**Unit No. I :** 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. 1.6 Short circuit. 1.7 Faults in a power system.	
3/1/26 to 15/1/26		**Unit No. II:** FAULT CALCULATION 2.1 Symmetrical faults on 3-phase system. 2.2 Limitation of fault current. VI Sem Electrical 2.3 Percentage Reactance. 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. 2.9 Solve numerical problems on symmetrical fault.	
16/1/26 to 07/02/26		**Unit No. III:** FUSES 3.1 Desirable characteristics of fuse element. 3.2 Fuse Element materials. 3.3 Types of Fuses and important terms used for fuses.	

		3.4 Low and High voltage fuses. 3.5 Current carrying capacity of fuse element. 3.6 Difference Between a Fuse and Circuit Breaker.	
09/02/26 to25/02/26		**Unit No. IV:** CIRCUIT BREAKERS 4.1 Definition and principle of Circuit Breaker. 4.2 Arc phenomenon and principle of Arc Extinction. 4.3 Methods of Arc Extinction. 4.4 Definitions of Arc voltage, Re-striking voltage and Recovery voltage. 4.5 Classification of circuit Breakers. 4.6 Oil circuit Breaker and its classification. 4.7 Plain brake oil circuit breaker. 4.8 Arc control oil circuit breaker. 4.9 Low oil circuit breaker. 4.10 Maintenance of oil circuit breaker. 4.11 Air-Blast circuit breaker and its classification. 4.12 Sulphur Hexa-fluoride (SF6) circuit breaker. 4.13 Vacuum circuit breakers. 4.14 Switchgear component. 4.15 Problems of circuit interruption. 4.16 Resistance switching. 4.17 Circuit Breaker Rating.	
25/02/26 to 7/3/26		**Unit No. V:** PROTECTIVE RELAYS 5.1 Definition of Protective Relay. 5.2 Fundamental requirement of protective relay. 5.3 Basic Relay operation 5.3.1. Electromagnetic Attraction type 5.3.2. Induction type 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. Plug setting Multiplier. Time setting Multiplier. 5.6 Classification of functional relays 5.7 Induction type over current relay (Non-directional) 5.8 Induction type directional power relay. 5.9 Induction type directional over current relay. 5.10 Differential relay 5.10.1. Current differential relay 5.10.2. Voltage balance differential relay. 5.11 Types of protection	
7/03/26 to 20/03/26		**Unit No. VI:** PROTECTION OF ELECTRICAL POWER EQUIPMENT AND LINES 6.1 Protection of alternator. 6.2 Differential protection of alternators. 6.3 Balanced earth fault protection. 6.4 Protection systems for transformer. 6.5 Buchholz relay. 6.6 Protection of Bus bar. 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.	

20/03/26 to 9/04/26		**Unit No. VII:** PROTECTION AGAINST OVER VOLTAGE AND LIGHTING Voltage surge and causes of over voltage. Internal cause of over voltage. External cause of over voltage (lighting) Mechanism of lightning discharge. Types of lightning strokes. Harmful effect of lightning. Lightning arresters and Type of lightning Arresters. Rod-gap lightning arrester. Horn-gap arrester. Valve type arrester. Surge Absorber	
10/04/26 to 18/4/26		**Unit No. VIII**. STATIC RELAY: 8. 1 Advantage of static relay. 8. 2 Instantaneous over current relay. 8. 3 Principle of IDMT relay.	
Signature of HOD			**Signature of Faculty**