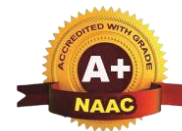


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Lesson Plan & Work-done Diary for AY: 2024-25, ODD Semester

Course with Code: High Voltage & Power system Protection_21EE71				Faculty: Swapna H			Semester & Section: 7th	
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
MODULE-1								
1		Module-1: Introduction, Dielectric materials and Its types, Gases as Insulating Media	ICT					
2		Collision Process, Ionization Processes – Primary & Secondary	ICT					
3		Ionization Processes – Primary & Secondary	ICT					
4		Townsend's Current Growth Equation, Current Growth in the Presence of Secondary Processes	Chalk & Talk					
5		Townsend's Criterion for Breakdown, Experimental Determination of Coefficients α and γ and Numerical	ICT+ Chalk & Talk					
6		Breakdown in Electronegative Gases, Time Lags for Breakdown, Streamer Theory of Breakdown in Gases	ICT+ Chalk & Talk					
7		Paschen's Law, Breakdown in Non-Uniform Fields and Corona Discharges Conduction and Breakdown in Liquid Dielectrics: Liquids as Insulators, Pure Liquids and Commercial Liquids	ICT+ Chalk & Talk					



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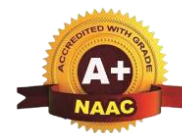
8		Breakdown in Solid Dielectrics: Introduction, Intrinsic Breakdown, Electromechanical Breakdown, Thermal Breakdown	Chalk & Talk					
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MODULE-2								
9		Module-2 Generation of High Voltages and Currents: Generation of High Direct Current Voltages	ICT					
10		Generation of High Alternating Voltages	ICT					
11		Generation of Impulse Voltages & Impulse Currents	ICT					
12		Tripping and Control of Impulse Generators	ICT					
13		Measurement of High Voltages and Currents: Measurement of High Direct Current Voltages	ICT					
14		High AC and Impulse Voltages, High Currents of Direct Alternating and Impulse	ICT					
15		Non-Destructive Testing of Materials Introduction, Measurement of Dielectric Constant and Loss Factor	ICT					
16		Partial Discharge Measurements	ICT					

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MODULE-3								
17		Need for protective schemes, Nature and Cause of Faults, Types of Fault, Effects of Faults, Fault Statistics	ICT					
18		Zones of Protection, Primary and Backup Protection, Essential Qualities of Protection	ICT					
19		Relay Construction and Operating Principles: Introduction, Electromechanical Relays, Static Relays – Merits and Demerits of Static Relays	ICT					
20		Numerical Relays, Comparison between Electromechanical Relays and Numerical Relays.	ICT+ Chalk & Talk					
21		Overcurrent Protection: Introduction, Time – current Characteristics, Current Setting, Time Setting,	ICT+ Chalk & Talk					
22		Directional Relay, Protection of Parallel Feeders and Ring Mains, Earth Fault	ICT+ Chalk & Talk					



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23		Phase Fault Protection and Combined Earth and Phase Fault Protective Scheme, Static Overcurrent Relays	ICT+ Chalk & Talk					
24		Numerical on Current Setting, Time Setting	Chalk & Talk					



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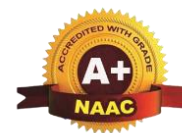
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MODULE-5								
25		Circuit Breakers: Introduction, Fault Clearing Time of a Circuit Breaker, Arc Voltage, Arc Interruption	ICT					
26		Restriking Voltage and Recovery Voltage, Current Chopping, Interruption of Capacitive Current	ICT					
27		Air Blast Circuit Breakers, SF6 Circuit Breakers	Chalk & Talk					
28		Vacuum Circuit Breakers	Chalk & Talk					
29		Rating of Circuit Breakers and Testing of Circuit Breakers	Chalk & Talk					
30		Causes of Overvoltages, Lightning phenomena	Chalk & Talk					
31		Klydonograph and Magnetic Link	Chalk & Talk					
32		Protection of power stations and Substations, Insulation Coordination	Chalk & Talk					



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MODULE-4								
33		Distance Protection: Introduction, Impedance Relay, Reactance Relay	ICT					
34		Mho Relay, Angle Impedance Relay	ICT					
35		Effect of Arc Resistance on the Performance of Distance Relays, Reach of Distance Relays	Chalk & Talk					
36		Effect of Power Surges on Performance of Distance Relays, Effect of Line Length and Source Impedance on Performance of Distance Relays	Chalk & Talk					
37		Pilot Relaying Schemes: Introduction, Wire Pilot Protection, Carrier Current Protection	Chalk & Talk					
38		Simple Differential Protection, Percentage or Biased Differential Relay, Balanced (Opposed) Voltage Differential Protection	Chalk & Talk					
39		Protection of Generators, Transformer	Chalk & Talk					
40		Buszone Protection Frame Leakage Protection with Numerical	ICT					



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	Activity	Planned	Actual	Remarks
1	Theory Classes	40		
2	Assignments/ Quizzes/ Self-study	3		
3	Tutorials/ Extra classes	-		
4	Internal Assessments	3		
5	ICT based Teaching (% of usage in Curriculum)	65		
Planning			Execution	
Faculty Signature:			Faculty Signature:	
HoD Signature:			HoD Signature:	