

Lesson Plan

Name of Faculty :- **DHARAM PAL**
Discipline :- **ELECTRICAL ENGINEERING**
Semester :- **6th**
Subject :- **ELECTRICAL POWER-II**

Lesson Plan Duration:- 15 Week

Work load (Lecture/Practical) per week (55 minutes) : Lectures-04 , Practicals-06

Week	Theory		Practical	
	Lecture Day	Topic	Practical Day	Topic
1 st	1 st	Introduction about the syllabus of the subject & scope of the subject.	1 st	Practical No.-1 Testing of the dielectric strength of transformer oil and air. (Group-1)
	2 nd	Unit-I Faults Common type of faults in both overhead and underground systems, symmetrical/ unsymmetrical faults.		
	3 rd	Single line to ground fault, double line to ground fault, 3-phase to ground fault open circuit.	2 nd	Practical No.-1 Testing of the dielectric strength of transformer oil and air.(Group-II)
	4 th	Simple problems relating to fault finding.		
2 nd	1 st	Unit-II Switch Gears Purpose of protective gear, Difference between switch, isolator and circuit breakers.	1 st	Practical No.-2 Study of different types of circuit breakers and isolators. (Group-1)
	2 nd	Function of isolator and circuit breaker, Making capacity of the circuit breaker(only definition)		
	3 rd	Breaking capacity of the circuit breaker (only definition), Introduction about the circuit breaker.	2 nd	Practical No.-2 Study of different types of circuit breakers and isolators. (Group-II)
	4 th	Revision of the above covered topic's of the current week.		

3 rd	1 st	Classification of circuit breakers, bulk and minimum oil circuit breakers.	1 st	Practical No.-2 Study of different types of circuit breakers and isolators. (Group-1)
	2 nd	Bulk oil circuit breaker.		
	3 rd	Different types of bulk oil circuit breakers.	2 nd	Practical No.-2 Study of different types of circuit breakers and isolators. (Group-II)
	4 th	Revision of the above covered topic's of the current week.		
4 th	1 st	Minimum oil circuit breakers.	1 st	Practical No.-3 Plot the time current characteristics of over current relay. (Group-1)
	2 nd	Principles of Arc extinction in Oil Circuit Breaker.		
	3 rd	Principles of Arc extinction in Air Circuit Breaker.	2 nd	Practical No.-3 Plot the time current characteristics of over current relay. (Group-II)
	4 th	Revision of the above covered topic's of the current week.		
5 th	1 st	Constructional features of OCB & their working	1 st	Practical No.-4 Power measurement by using CTs and PTs. (Group-1)
	2 nd	Constructional features of SF6 circuit breakers & their working.		
	3 rd	Method of arc extinction in OCB & ACB.	2 nd	Practical No.-4 Power measurement by using CTs and PTs. (Group-II)
	4 th	Miniature circuit breakers MCB, MCCB, ELCB, for distribution and transmission system (Descriptive)		
6 th	1 st	Unit-III Protection Devices Fuses; function of fuse. Types of fuses, HV and LV fuses, rewirable, cartridge, HRC.	1 st	Practical No.-4 Power measurement by using CTs and PTs. (Group-1)
	2 nd	Earthing, purpose of earthing, method of earthing.		
	3 rd	Equipment earthing, Substation earthing, system earthing as per indian Electricity rules.	2 nd	Practical No.-4 Power measurement by using CTs and PTs. (Group-II)
	4 th	Revision of the above covered topic's of the current week.		
7 th	1 st	Methods of reducing earth resistance. Introduction about the relays.	1 st	Practical No.-5 Earthing of different equipment/Main Distribution Board and Energy Meter Box. (Group-1)
	2 nd	Classification of relays, Electromagnetic relays, their construction and working		

	3 rd	Thermal relays, their construction and working	2 nd	Practical No.-5 Earthing of different equipment/Main Distribution Board and Energy Meter Box. (Group-II)
	4 th	Revision of the above covered topic's of the current week.		
8 th	1 st	Induction type over-current relay.	1 st	Practical No.-5 Earthing of different equipment/Main Distribution Board and Energy Meter Box. (Group-1)
	2 nd	Earth fault relays		
	3 rd	Instantaneous over current relay	2 nd	Practical No.-5 Earthing of different equipment/Main Distribution Board and Energy Meter Box. (Group-II)
	4 th	Revision of the above covered topic's of the current week.		
9 th	1 st	Directional over-current relay.	1 st	Practical No.-6 Perform the overload and short circuit test of MCB as per IS specifications. (Group-I)
	2 nd	Differential relays, their functions.		
	3 rd	Distance relays, their functions.	2 nd	Practical No.-6 Perform the overload and short circuit test of MCB as per IS specifications. (Group-II)
	4 th	Idea of static relays and their applications		
10 th	1 st	Unit-III Protection Scheme Relays for generator protection.	1 st	Practical No.-7 Plot the time-current characteristics of Kit-Kat fuse wire. (Group-I)
	2 nd	Protection scheme for transformer.		
	3 rd	Construction & working of Buchholtz relay.	2 nd	Practical No.-7 Plot the time-current characteristics of Kit-Kat fuse wire. (Group-II)
	4 th	Revision of the above covered topic's of the current week.		
11 th	1 st	Protection of feeders and bus bars.	1 st	Practical No.-7 Plot the time-current characteristics of Kit-Kat fuse wire. (Group-I)
	2 nd	Over current and earth fault protection for feeders & bus bars.		
	3 rd	Distance protection for transmission system.	2 nd	Practical No.-7 Plot the time-current characteristics of Kit-Kat fuse wire. (Group-II)
	4 th	Revision of the above covered topic's of the current week.		

12 th	1 st	Relays for motor protection.	1 st	Practical No.-8 Taking reading of current on any LT line with clip on meter. (Group-I)
	2 nd	Unit-V Over voltage Protection Protection of system against over voltages.		
	3 rd	Causes of over voltages, utility of ground wire.	2 nd	Practical No.-8 Taking reading of current on any LT line with clip on meter. (Group-II)
	4 th	Revision of the above covered topic's of the current week.		
13 th	1 st	Lightning arrestors, requirements of lightning arrestors.	1 st	Practical No.-1 Testing of the dielectric strength of transformer oil and air. (Group-1)
	2 nd	Rod gap LA, Horn gap LA.		
	3 rd	Metal oxide type & other types of lightning Arrestors.	2 nd	Practical No.-1 Testing of the dielectric strength of transformer oil and air.(Group-II)
	4 th	Revision of the above covered topic's of the current week.		
14 th	1 st	Transmission Line protection against over-voltages and lightning	1 st	Practical No.-6 Perform the overload and short circuit test of MCB as per IS specifications. (Group-I)
	2 nd	Substation protection against over-voltages and lightning		
	3 rd	Unit-6 Various Types of Tariffs Concept of Tariffs, objectives etc.	2 nd	Practical No.-6 Perform the overload and short circuit test of MCB as per IS specifications. (Group-II)
	4 th	Revision of the above covered topic's of the current week.		
15 th	1 st	Block rate, flat rate, maximum demand and two part tariffs.	1 st	Practical No.-4 Power measurement by using CTs and PTs. (Group-1)
	2 nd	Simple problems on tariffs.		
	3 rd	Revision of the above covered topic's of the current week.	2 nd	Practical No.-4 Power measurement by using CTs and PTs. (Group-II)
	4 th	Clarification of doubt about any topic of the subject raised by the students.		