

UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA
Academic Lesson Plan for summer semester- 2024

Name of the Teaching Faculty: Sri. Arabinda Pradhan
Semester: 6th
No. of periods per week: 5
End semester exam: 80
Total Marks: 100

Department: Electrical Engineering
Subject: SGPD
Total Periods: 75
Class test: 20

Sl. No.	Week	Period	Unit	Topic Covered
1.	1 st	1 st	INTRODUCTION TO SWITCHGEAR	Essential features of a switchgear
2.		2 nd		Switchgear equipment
3.		3 rd		Bus-bar arrangement
4.		4 th		Switchgear accommodation
5.		5 TH	TUTORIAL CUM DOUBT CLEAR CLASS	Discussion of doubts related switchgear
6	2 nd	1 st		Short circuit
7.		2 nd		Faults in a power system
8.		3 rd	FAULT CALCULATION	Symmetrical fault on three phase system
9.		4 th		Limitation of fault current
10.		5 TH	TUTORIAL CUM DOUBT CLEAR CLASS	
11.	3 rd	1 st		Percentage reactance
12.		2 nd		Percentage reactance & Base KVA
13.		3 rd		Short-Circuit KVA
14.		4 th		Reactor control of short circuit currents
15.		5 TH	TUTORIAL CUM DOUBT CLEAR CLASS	Solving problems of fault calculation
16	4 th	1 st		Location of Reactors
17.		2 nd		Steps for symmetrical fault calculation
18.		3 rd		Numerical problems related symmetrical fault
19.		4 TH		-Do-
20.		5 TH	TUTORIAL CUM DOUBT CLEAR CLASS	Objectives of fault calculation
21.	5 th	1 st	FUSES	Desirable characteristics of fuse element
22.		2 nd		Fuse element materials
23.		3 rd		Types of fuses , important terms used for fuses
24.		4 th		Low & high voltage fuses
25.		5 th	TUTORIAL CUM DOUBT CLEAR CLASS	Objectives of fuses
26.	6 th	1 st		Current carrying capacity of fuse element
27.		2 nd		Difference between fuse & circuit breaker
28.		3 rd	CIRCUIT BREAKERS	Definition & principle of circuit breaker
29.		4 th		Arc phenomenon & principle of arc extinction & methods of arc extinction

31.	7 th	1 st		Definitions of all terms used in circuit breaker & classification of circuit breaker	
32.		2 nd		Oil circuit breaker & its classification & Plain brake oil circuit breaker	
33.		3 rd		Arc control oil circuit breaker & low oil circuit breaker	
34.		4 th		Maintenance of oil circuit breaker	
35.		5 th	TUTORIAL CUM DOUBT CLEAR CLASS		Objectives of Circuit breaker in protection of electrical device
36.	8 th	1 st		Air blast circuit breaker & its classification	
37.		2 nd		SF6 circuit breaker & vacuum circuit breakers	
38.		3 rd		Switchgear component & problems of circuit interruption	
39.		4 th		Resistance switching & circuit breaker rating	
40.		5 th	TUTORIAL CUM DOUBT CLEAR CLASS		Difference between C.B. & Relay
41.	9 th	1 st	PROTECTIVE RELAY	Definition of protective relay & fundamental requirement of protective relay	
42.		2 nd		Basic relay operation	
43.		3 rd		Definition of important terms related to relay	
44.		4 th		Classification of functional relay	
45.		5 th	TUTORIAL CUM DOUBT CLEAR CLASS		Objectives of relay
46.	10 th	1 st		Induction type over current relay (Non-directional)	
47.		2 nd		Induction type directional power relay	
48.		3 rd		Induction type directional over current relay & Differential Relay	
49.		4 th		Types of protection	
50.		5 th	TUTORIAL CUM DOUBT CLEAR CLASS		Problems of fault calculation
51.	11 th	1 st	PROTECTION OF ELECTRICAL POWER EQUIPMENT & LINES	Protection of alternator & Differential protection of alternator	
52.		2 nd		Balanced earth fault protection	
53.		3 rd		Protection systems for transformer & Buchholz relay	
54.		4 th		Protection of Bus bar & transmission line	
55.		5 th	TUTORIAL CUM DOUBT CLEAR CLASS		Discussion of protection
56.	12 th	1 st		Different pilot wire protection	
57.		2 nd		Protection of feeder by over current & earth fault relay	
58.		3 rd	PROTECTION AGAINST OVERVOLTAGE & LIGHTENING		Voltage surge & causes of over voltage
59.		4 th			Internal cause of over voltage
60.		5 th	TUTORIAL CUM DOUBT CLEAR CLASS		Discussion of switchgear
61.	13 th	1 st		External cause of over voltage	
62.		2 nd		Mechanism of lightning discharge	
63.		3 rd			Types of lightning strokes

64.		4 th		Harmful effect of lighting
65.		5 th	TUTORIAL CUM DOUBT CLEAR CLASS	Lighting arrestor & types of lighting arrestors
66.	14 th	1 st		Surge absorber
67.		2 nd	STATIC RELAY	Introduction of static relay
68.		3 rd		Advantages of static relay
69.		4 th		Instantaneous over current relay
70.		5 th	TUTORIAL CUM DOUBT CLEAR CLASS	Discussion of relay
71.	15 th	1 st		Principles of IDMT relay
72.		2 nd		Objective questions related to relay
73.		3 rd		Important question discussion
74.		4 th		Doubt discussion of all chapters
75.		5 th	TUTORIAL CUM DOUBT CLEAR CLASS	_ -Do-

The lesson plan prepared by the concerned faculty

Sri. Arabinda Pradhan

HOD OF ELECTRICAL DEPARTMENT