UTKAL MANI GOPABANDHU INSTITUTE OF ENGINEERING,ROURKELA
Academic Lesson Plan for summer semester- 2022

Name of the teaching faculty: Debasish Choudury **Department: Electrical Engineering**
Semester: 6th **Subject: SGPD**
No. of periods per week: 5 **Total Periods: 75**
End semester exam: 80 **Class test: 20**
Total Marks: 100

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

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

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

The lesson plan prepared by the concerned faculty