

LESSON PLAN	
JHARSUGUDA ENGINEERING SCHOOL, JHARSUGUDA	
Academic Year: 2019-20	Name of the Faculty: Lipsa Panigrahi
Course name: Switch Gear and Protective Devices	Course No.: EET 601
Branch: Electrical	Program: Diploma
Section:	Year/Sem: 3rd/6th

Sl. No.	Period	Time (min)	Teaching Method	Topic to be Covered	Unit
1.	1.	55 min	Black board	Introduction to switchgear	1
2.	2.	55min	Black board	Essential features of switchgear	1
3.	3.	55min	Black board	Switchgear equipment	1
4.	4.	55min	Black board	Bus – bar arrangement	1
5.	5.	55min	Black board	Switchgear accommodation	1
6.	6.	55min	Black board	Short circuit	1
7.	7.	55min	Black board	Faults in a power system	1
8.	8.	55min	Black board	Symmetrical faults on 3- phase system	2
9.	9.	55min	Black board	Limitation of fault current	2
10.	10.	55min	Black board	Percentage reactance	2
11.	11.	55 min	Black board	Percentage reactance and base KVA	2
12.	12.	55 min	Black board	Short-circuit KVA	2
13.	13.	55min	Black board	Reactor control of short circuit currents	2
14.	14.	55 min	Black board	Location of reactors	2
15.	15.	55 min	Black board	Steps for symmetrical fault calculations	2
16.	16.	55min	Black board	Numerical problems solving	2
17.	17.	55min	Black board	Numerical problems solving	2
18.	18.	55 min	Black board	Desirable characteristics of fuse element	3
19.	19.	55 min	Black board	Fuse element materials	3
20.	20.	55 min	Black board	Types of fuses and important terms used for fuses	3
21.	21.	55 min	Black board	Low and high voltage fuses	3
22.	22.	55min	Black board	Current carrying capacity of fuse element	3
23.	23.	55min	Black board	Difference between a fuse and circuit breaker	3
24.	24.	55 min	Black board	Definition and principle of circuit breaker	4
25.	25.	55 min	Black board	Arc phenomenon and principle of arc extinction	4
26.	26.	55 min	Black board	Methods of arc extinction	4
27.	27.	55 min	Black board	Arc voltage, Re-striking voltage and recovery voltage	4
28.	28.	55 min	Black board	Classification of circuit breakers	4
29.	29.	55 min	Projector	Oil circuit breaker and its classification	4

30.	30.	55 min	Projector	Plain brake oil circuit breaker	4
31.	31.	55 min	Projector	Arc control oil circuit breaker	4
32.	32.	55 min	Projector	Low oil circuit breaker	4
33.	33.	55 min	Projector	Maintenance of oil circuit breaker	4
34.	34.	55 min	Projector	Air blast circuit breaker	4
35.	35.	55 min	Projector	SF6 circuit breaker	4
36.	36.	55 min	Projector	Vacuum circuit breaker	4
37.	37.	55 min	Black board	Switchgear component	4
38.	38.	55 min	Black board	Resistance switching	4
39.	39.	55 min	Black board	Protective relay and it's requirement	5
40.	40.	55 min	Black board	Basic relay operation and it's types	5
41.	41.	55 min	Black board	Important terms of relay	5
42.	42.	55 min	Black board	Over current and directional relay	5
43.	43.	55 min	Black board	Differential relay	5
44.	44.	55 min	Black board	Types of protection	5
45.	45.	55 min	Black board	Protection of alternator	6
46.	46.	55 min	Black board	Protection of transformer	6
47.	47.	55 min	Black board	Protection of bus bar	6
48.	48.	55 min	Black board	Protection of transmission line	6
49.	49.	55 min	Black board	Differential pilot wire protection	6
50.	50.	55 min	Black board	Voltage surge and causes of over voltage	7
51.	51.	55 min	Black board	Internal and external cause of over voltage	7
52.	52.	55 min	Black board	Mechanism of lightning arrester	7
53.	53.	55 min	Black board	Types of lightning strokes	7
54.	54.	55 min	Black board	Surge absorber	7
55.	55.	55 min	Black board	Harmful effect of lightning	7
56.	56.	55 min	Black board	Advantage of static relay	8
57.	57.	55 min	Black board	Instantaneous over current relay	8
58.	58.	55 min	Black board	Principle of IDMT relay	8
59.	59.	55 min	Black board	Revision of all topics	
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