Bhoj Reddy Engineering College for Women: Hyderabad

Department of Electrical and Electronics Engineering

Lesson plan of faculty member for the academic year 2016–17

Class: IV B Tech Branch Section: EEE Semester: I

Subject: Switchgear and Protection Lectures per week: 4+1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
UNIT I Circuit Breakers		
1	Introduction	13 June 2016
2	Elementary Principles of Arc quenching	14 June 2016
3	Recovery and Restriking voltages	16 June 2016
4	Average and Maximum RRRV	17 June 2016
5	Tutorial (G1,G2,G3) Numerical on RRRV	14,16,18 June 2016
6	Current chopping	20 June 2016
7	Resistance switching	21 June 2016
8	Circuit Breaker ratings and specifications	23 June 2016
9	Auto Reclosures	24 June 2016
10	Tutorial (G1,G2,G3) Numerical	20,23,25 June 2016
11	Description and operation of Circuit breaker	27 June 2016
12	Minimum oil circuit breakers	28 June 2016
13	Type of oil circuit breakers	30 June 2016
14	Advantages and disadvantages	01 July 2016
15	Tutorial (G1,G2,G3) Numerical	28,30 June 2016 02 July 2016
16	Air Blast circuit breakers construction	04 July 2016
17	Working, advantages disadvantages.	05 July 2016
18	Vacuum Circuit Breakers construction	08 July 2016
19	Tutorial(G1,G3) Numerical	05, 09 July 2016
20	Working, advantages disadvantages.	10 July 2016
21	SF_6 Circuit Breaker	12 July 2016
22	Working, advantages disadvantages.	14 July 2016
UNIT II Electromagnetic and Static Relays		
23	Principle of operation and construction: Attracted armature relays	15 July 2016
24	Tutorial (G1,G2,G3) Types of relays	12,14,16 July 2016
25	Balanced beam relay, Induction disc relays & Induction cup relays	18 July 2016
26	Instantaneous type relays, DMT & IDMT	19 July 2016
27	Tutorial: Review on electromechanical relays	21 July 2016
28	Over current relays, Under voltage relays, Directional relays	22 July 2016
29	Tutorial (G1,G2,G3) Review on electromechanical relays	19,21,23 July 2016
30	Differential relays and Percentage differential relays	25 July 2016
31	Universal torque relation: Distance relays	26 July 2016
32	Impedance, Reactance & Mho relays	28 July 2016
33	Static relays versus electromagnetic relays	29 July 2016
34	Tutorial (G1,G2,G3) Review on electromechanical relays	26,28,30 July 2016
UNIT III Generator and Transformer protection		
35	Protection of generators against stator, rotor faults	01 August 2016
36	Differential protection for stator faults	02 August 2016
37	Restricted earth fault protection	04 August 2016
38	Inter turn fault protection	05 August 2016
39	Tutorial (G1,G2,G3) Problems on CT ratio	02,04,06 August 2016
40	Design of CT ratio	16 August 2016
41	Percentage differential protection of transformers	18 August 2016
42	Buchholtz relay protection	19 August 2016

43	Tutorial (G1,G2,G3) Problems on CT ratio	16,18,20 August 2016
UNIT IV Feeder and Bus Bar protection& Grounding		
44	Protection of lines using over current relays	22 August 2016
45	Carrier current relay protection	23 August 2016
46	Three zone distance relay protection using impedance reactance relay	26 August 2016
47	Tutorial (G1,G3) Review of over current relays	23,27 August 2016
48	Three zone distance relay protection using mho relays	29 August 2016
49	Translay relay	30 August 2016
50	Protection of bus bars using differential protection	01 September 2016
51	Grounded and ungrounded neutral systems	02 September 2016
52	Tutorial (G1,G2,G3) Review of feeder protection schemes	30 August 2016 01,03 September 2016
53	Effect of ungrounded neutral on system performance	06 September 2016
54	Methods of grounding: Solid grounding	08 September 2016
55	Resistance grounding	09 September 2016
56	Tutorial (G1,G2,G3) Review of Grounding	06,08,10 September 2016
57	Reactance grounding	13 September 2016
58	Arcing grounds	15 September 2016
59	Grounding practices	16 September 2016
60	Tutorial (G1,G2,G3) Type of grounding	13,15,17 September 2016
61	Neutral grounding	19 September 2016
62	Advantages of grounding system	20 September 2016
63	Revision	22 September 2016
UNIT V Protection against Over voltages		
64	Generation of over voltages in power systems	23 September 2016
65	Tutorial (G1,G2,G3) Generation of over voltages	20,22,24 September 2016
66	Valve type lightning arrestors	26 September 2016
67	Zinc oxide lightning arrestors	27 September 2016
68	BIL	28 September 2016
69	Insulation coordination	29 September 2016
70	Tutorial (G1,G2,G3) Lightening arrestors	27,29 September 2016 01 October 2016
71	Impulse ratio	03 October 2016
72	Standard impulse test wave	04 October 2016
73	Tutorial (G1,G2,G3) Revision	03,05 October 2016
74	Volt Time characteristics	27 October 2016
75	Revision	28 October 2016
76	Tutorial (G1,G2,G3) Revision	27,29 October 2016
77	Revision	31 October 2016
78	Revision	01 November 2016
79	Tutorial (G1,G2,G3) Revision	31 October 2016 03 November 2016

Text Books:

1. Switchgear and protection by Sunil S Rao.
2. Power system protection and switchgear by B Bhalaja, RP Maheshwari, N G Chothani
3. Principles of power system by V.K. Mehta and Rohit Mehta.
4. Switchgear and protection by J.B. Gupta.

Name and signature of the faculty: Mr Pramod Singh -

Name and signature of Head of the Department: Ms Y Mastanamma -