Bhoj Reddy Engineering College for Women: Hyderabad

Department of Electrical and Electronics Engineering

Lesson plan of faculty member for the academic year 2017–18

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

Subject: Power System Operation and Control Lectures per week: 4+1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
UNIT – I: Economic Operation of Power Systems		
1	Introduction	13 July 2017
2	Economic operation of Power Systems-Thermal, Hydro	15 July 2017
3	Tutorial (G3, G2): Problems on IFC and production costs	12,13 July 2017
4	Heat rate and Cost curves with problems	18 July 2017
5	Incremental fuel rate and production costs	20 July 2017
6	Input-Output Characteristics	22 July 2017
7	Tutorial: Problems on Incremental fuel rate and production costs	18,19,20 July 2017
8	Optimum generation allocation with Line-losses neglected	24 July 2017
9	Problems on Optimum generation allocation with Line-losses neglected	25 July 2017
10	Problems on Incremental fuel rate and production costs	27 July 2017
11	Optimal generation allocation including the transmission losses	29 July 2017
12	Tutorial (G1, G3, G2): Problems on Optimality without losses	25,26,27 July 2017
13	Loss Coefficients	31 July 2017
14	Loss Coefficients	01 August 2017
15	General transmission Line-loss formula	03 August 2017
16	Problems on Loss Coefficients	05 August 2017
17	Tutorial (G1, G3, G2): Problems on Optimality with losses	01,02,03 August 2017
18	Short answer questions	07 August 2017
19	Revision	08 August 2017
UNIT-II: **Hydrothermal Scheduling**		
20	Optimal Scheduling of Hydrothermal system	10 August 2017
21	Hydroelectric power plant models	12 August 2017
22	Tutorial (G1, G3, G2): Problems on loss coefficients	08,09,10 August 2017
23	Scheduling Problems	17 August 2017
24	Scheduling Problems	19 August 2017
25	Tutorial (G3, G2): Seminars on HPP and TPP	16,17 August 2017
26	Short-term Hydro-thermal Scheduling problems	21 August 2017
27	Short-term Hydro-thermal Scheduling problems	22 August 2017
28	Short answer questions	24 August 2017
29	Revision	26 August 2017
30	Tutorial (G1, G3, G2): Problems on short term scheduling	22,23,24 August 2017
UNIT-III: **Modelling, Modelling of Governor, Modelling of Excitation Systems**		
31	Modelling of Turbine: First order Model	28 August 2017
32	Block diagram representation of Steam Turbine and Approximate linear models	29 August 2017
33	Mathematical Modelling of speed governing Systems	31 August 2017
34	Derivation of single transfer function	02 September 2017
35	Tutorial (G1, G3, G2): block diagrams of steam turbine	29,30,31 August 2017
36	Derivation of single transfer function	04 September 2017
37	Fundamental characteristics of an Excitation systems	05 September 2017
38	Transfer function of the system	09 September 2017
39	Tutorial (G1): Problems on single transfer functions	05 September 2017
40	Block diagram representation of IEEE Type-1 model	11 September 2017
41	Block diagram representation of IEEE Type-1 model	12 September 2017

42	Short answer questions and Revision	14 September 2017
UNIT IV : Single Area & Two Load Frequency Control		
43	Necessity of keeping frequency constant	16 September 2017
44	Tutorial (G1, G3, G2): IEEE-1 Block diagrams	12,13,14 September 2017
45	Definitions of Control Area-Single Area control	18 September 2017
46	Block diagram representation of an isolated power system	19 September 2017
47	Steady state analysis and Dynamic response controlled case	21 September 2017
48	Steady state analysis and Dynamic Response Uncontrolled case	23 September 2017
49	Tutorial (G1, G2): Problems on steady state system	19,21 September 2017
50	Uncontrolled case and controlled case, tie-line bias control	03 October 2017
51	Uncontrolled case and controlled case, tie-line bias control	05 October 2017
52	Proportional Plus Integral control of Single area control	07 October 2017
53	Tutorial (G1, G3, G2): Problems on dynamic state system	03,04,05 October 2017
54	Block diagram representation, Steady state response	09 October 2017
55	Load frequency Control	10 October 2017
56	Economic dispatch	12 October 2017
57	Parent Teacher Meeting	14 October 2017
58	Tutorial (G1, G3, G2): Problems on load frequency control	10,11,12 October 2017
59	Short answer questions and Revision	16 October 2017
UNIT V: Reactive Power Control		
60	Overview of Reactive power control	17 October 2017
61	Reactive power compensation in transmission system	19 October 2017
62	Advantages and disadvantages of Compensating Equipment's	21 October 2017
63	Tutorial (G1, G2): Seminars on reactive power control	17,19 October 2017
64	Load compensation	23 October 2017
65	Specifications of load compensator	24 October 2017
66	Uncompensated and compensated transmission lines	26 October 2017
67	Shunt Compensation	28 October 2017
68	Tutorial (G1, G3, G2): Problems on Compensation	24,25,26 October 2017
69	Series Compensation	30 October 2017
70	Short answer questions	31 October 2017
71	Revision	02 November 2017
72	Tutorial (G1, G3, G2): problems on compensation	31 October and 01,02 November 2017
73	Previous Question Papers Discussion	06 November 2017
74	Previous Question Papers Discussion	07 November 2017
75	Tutorial(G1): Previous Question Papers Discussion	07 November 2017

Text books:

1. Power System operation and control, Dr.K.Uma Rao, Wiley India Pvt. Ltd.
2. Power system analysis, operation and control, Abhijit Chakrabarti, Sunitha Halder, PHI.
3. Operation and control in power systems, PSR Murthy, BS Publications.
4. Power system analysis, C.L.Wadhwa, Newage International.
5. Power system stability and control, Prabha Kundur, The McGraw Hill companies.
6. Power Sysytem Analysis, Grainger and Stevenson, Tata McGraw Hill.

Name and signature of the faculty: Ms V Sri Lakshmi Vani ----

Name and signature of Head of the Department: Ms S Deepti ----