SAMSKRUTI COLLEGE OF ENGINEERING & TECHNOLOGY

Lesson Plan(2017-18)

Subject : POWER SYSTEM OPERATION AND CONTROL NAME OF THE FACULTY: K.SRIDHAR

Sl. No	Name of the Topic	No. of Classes required	Cumulative number of periods	
	Unit – I			
1	Optimal operation of generators in Thermal Power Stations	1	1	
2	Heat rate – cost curve	1	2	
3	Incremental fuel and production costs	1	3	
4	Input – out put characteristics	1	4	
5	Optimum allocation with the losses neglected	2	6	
6	Problems solving	1	7	
7	Optimum generation allocation including effect of Transmission losses	2	9	
8	Loss coefficients	1	10	
9	General Transmission loss formula	2	12	
10	Problems solving	2	14	
	Unit – II			
11	Optimal scheduling of Hydrothermal system	2	16	
12	Hydroelectric power plant models	2	18	
13	Scheduling problems	1	19	
14	Short term hydrothermal scheduling problem	2	21	
	Unit – III			
15	First order turbine model	1	22	
16	Block diagram representation of steam turbines and approximate linear models	1	23	
17	Mathematical model of speed governing system –	2	25	

	derivation of small signal transfer function			
18	Description of simplified network model of a synchronous machine (classical model)	1	26	
19	Description of swing equation (No derivation)	1	27	
20	State space – II order mathematical model of Synchronous machine	1	28	
21	Fundamental characteristics on excitation system	1	29	
22	Transfer function, Block diagram representation of IEEE type – I model and Problems solving	1	30	
23	Necessity of keeping frequency constant	1	31	
24	Definition of control area – single area control	1	32	
25	Block diagram representation of an isolated power system	1	33	
26	Steady state analysis	1	34	
27	Dynamic response	2	36	
28	Uncontrolled case & Problems solving	2	38	
29	Load frequency control of 2 area system - un controlled case	3	41	
30	Controlled case	3	44	
31	Tie – line bias control & problems solving	2	46	
32	Proportional plus integral control of single area and its block diagram representation	2	48	
33	Steady state response	1	49	
34	Load frequency control & economic dispatch control	2	51	
35	Problems solving	2	53	
Unit – V				
36	Overview of reactive power control – reactive compensation in Transmission systems	1	54	
37	Advantages and disadvantages of different types of compensating equipment for transmission systems	1	55	
38	Load compensation	1	56	

39	Specific of load compensator	1	57	
40	Uncompensated and compensated Transmission lines	1	58	
41	Shunt and series compensation	2	60	