

COURSE INFORMATION SHEET

Power System-II (A50221) A.Y-2017-18

MODEL LESSON PLAN
POWERSYSTEM – II (A50221)
(III Year B.Tech. I SEM)

Sl. No.	Name of the Topic	No. of Classes required	Cumulative No. of periods	Teaching Aid
UNIT – I : TRANSMISSION LINE PARAMETERS				
1.	Introduction to Tr.lines and types of conductors	01	01	Chalk & Talk
2.	Calculation of resistance for solid conductors & concept of inductance	01	02	Chalk & Talk
3.	Calculation of inductance for single and 3phase circuits	01	03	Chalk & Talk
4.	Calculation of inductance for single and double line circuits & concept of GMD and GMR	02	05	Chalk & Talk
5.	Concept of transposition, Calculation of inductance for symmetrical and unsymmetrical conductor configuration with and without transposition	03	08	Chalk & Talk
6.	Calculation of capacitance for single & three phase systems and effect of ground on capacitance	03	11	Chalk & Talk
7.	Calculation of capacitance for symmetrical single and double line circuits	02	13	Chalk & Talk
8.	Calculation of capacitance for asymmetrical single and double line circuits	02	15	Chalk & Talk
9.	Tutorial problems on resistance and inductance	01	16	Chalk & Talk
10.	Tutorial problems on capacitance calculation	01	17	Chalk & Talk
11.	Surge Impedance loading(Remedial)	01	18	Chalk & Talk
Unit-II Performance Of Short, Medium And Long Length transmission lines				
12.	Classification of transmission lines and their representation-nominal T & π models	01	19	Chalk & Talk
13.	Calculation of ABCD constants for symmetrical and unsymmetrical circuits	02	21	Chalk & Talk
14.	Mathematical solution to estimate regulation and efficiency of all types of lines	01	22	Chalk & Talk
15.	Evaluation of ABCD constants for long Tr.lines using rigorous solution	02	24	Chalk & Talk
16.	Interpretation of long lines equations-incident, reflected and refracted waves	02	26	Chalk & Talk
17.	Surge impedance and surge impedance loading of long transmission lines	01	27	Chalk & Talk
18.	Expression for wavelength and velocity of propagation of waves	02	29	Chalk & Talk
19.	Long lines representation- equivalent T& π Network model	01	30	Chalk & Talk
20.	Numerical problems	01	31	Chalk & Talk
21.	RIGOROUS SOLUTION (REMEDIAL)	01	32	Chalk & Talk
22.	Tutorial problems on calculation of abcd constants for symmetrical and unsymmetrical	01	33	Chalk & Talk

	networks, problems on regulation and efficiency calculation			
23.	Tutorial problems on surge impedance SIL of long lines, problems on equivalent T & π Network model of long lines	01	34	Chalk & Talk
24.	Special descriptive Test - I	01	35	Test
UNIT-III Power system transients & factors governing the performance of Tr.lines				
25.	Power system transients-types of transients	01	36	Chalk & Talk
26.	Travelling or propagation of surges-attenuation, distortion, reflection and refraction coefficients	02	38	Chalk & Talk
27.	Termination of lines with different types of conditions	01	39	Chalk & Talk
28.	Bewley's lattice diagram	02	41	Chalk & Talk
29.	Skin and proximity effects and effect on resistance of solid conductors	01	42	Chalk & Talk
30.	Ferranti effect-effect on regulation of transmission line	01	43	Chalk & Talk
31.	Corona phenomenon and factors effecting corona	02	45	Chalk & Talk
32.	Critical voltages and problems	02	47	Chalk & Talk
33.	Power loss and radio interference	01	48	Chalk & Talk
34.	Tutorial problems on bewley's lattice diagram	01	49	Chalk & Talk
35.	Tutorial problems on reflection and refracted coefficients, problems on critical voltages	01	50	Chalk & Talk
Unit – IV : Overhead line insulators & sag, tension calculation				
36.	Introduction and types of insulators	01	51	Chalk & Talk
37.	String efficiency and methods for improvement of string efficiency	01	52	Chalk & Talk
38.	Calculation of string efficiency using capacitance grading and static shielding	02	54	Chalk & Talk
39.	Sag and tension of transmission lines	01	55	Chalk & Talk
40.	Sag and tension calculation with equal heights of towers	01	56	Chalk & Talk
41.	Sag and tension calculation with unequal heights of towers	01	57	Chalk & Talk
42.	Effect of wind and ice on weight of conductor	02	59	Chalk & Talk
43.	Stringing chart and sag template and its applications	01	60	Chalk & Talk
44.	Tutorial problems on string efficiency	01	61	Chalk & Talk
45.	Tutorial problems on sag and tension calculations, problems on effect of wind and ice on weight of conductor	01	62	Chalk & Talk
46.	Design and application insulators in transmission and distribution systems (TOPIC BEYOND SYLLABUS)	01	63	Chalk & Talk
47.	SPECIAL DESCRIPTIVE TEST-II	01	64	Test
UNIT-V UNDERGROUND CABLES				
48.	Introduction and types of underground cables and their construction	02	66	Chalk & Talk
49.	Types of insulating materials-calculation of insulation resistance and stress	01	67	Chalk & Talk
50.	Problems on resistance and stress calculation	01	68	Chalk & Talk
51.	Capacitance of single core cable	01	69	Chalk & Talk

52.	Capacitance 3 core belted cables	01	70	Chalk & Talk
53.	Grading of cables-capacitance grading	01	71	Chalk & Talk
54.	Intersheath grading of cables	01	72	Chalk & Talk
55.	HV Cables	01	73	Chalk & Talk
56.	Tutorial problems on resistance and stress, problems on grading of cables	01	74	Chalk & Talk
57.	Merits and demerits of underground cable system versus overhead system (TOPIC BEYOND SYLLABUS)	01	75	Chalk & Talk
Total Number of Classes			75	