

## LESSON PLAN

### VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

### **LESSON PLAN**

Semester: 6<sup>th</sup>

Section: EEE

Branch/Course: EEE

Subject: power system-II

Theory / Sessionals: Theory

Name of the Faculty Member: Dr. Banaja Mohanty

Class	Module No.	Lectures	Remark / sign of faculty member
1	1	Introduction, Description about generation, transmission and distribution, Components of transmission network	
2	1	Calculation of Inductance of single phase line, Concept of GMR and GMD	
3	1	Calculation of Inductance of three phase line in symmetrical and unsymmetrical spacing position	
4	1	Calculation of capacitance of single and three phase line in symmetrical spacing position	
5	1	Calculation of capacitance of three phase line in unsymmetrical spacing position, Effect of earth on capacitance of transmission line	
6	1	charging current, skin effect and proximity effect	
7	1	Tutorial class	
8	1	Classification between short, medium and long transmission line, Analysis of short transmission lines and find out its parameters	
9	1	Equivalent circuit representation of the medium and long lines and calculation of A, B, C, D transmission parameters	
10	1	Derivation of Power flow through transmission line	
11	1	Power circle diagram, Series and shunt compensation	
12	1	Tutorial class	
13	2	Corona: Power loss due to corona, practical importance of corona Factors affecting corona, Advantages and disadvantages of corona, methods of reducing corona	
14	2	Overhead line insulator, Types of insulator	
15	2	voltage distribution in suspension type insulator, string efficiency	
16	2	methods of improving string efficiency	
17	2	Tutorial class	

18	2	mechanical design of transmission line, Calculation of sag in a transmission line	
19	2	Effect of ice and wind pressure in the design of transmission line, stringing chart	
20	2	Underground cables: Types of Underground cables, Classification of cable	
21	2	Insulation resistance of UGC, Capacitance of single and three core cable	
22	2	Electrostatic stress in a single core cable, losses in cable	
23	2	Grading of cable	
24	2	Tutorial class	
25	3	What is load flow, Importance of load flow, Network model formulation	
26	3	Formation of Y bus matrix, Bus classification	
27	3	Load flow problem, Load flow sample study	
28	3	Newton Raphson method of load flow study	
29	3	Gauss Seidel method of Load flow study	
30	3	Fast Decoupled load flow algorithm	
31	3	On load tap changing transformer and block regulating transformer, effects of regulating transformers	
32	3	Comparison of all the load flow algorithms	
33	4	Economic Operation of Power System, Difference between economic dispatch and optimal power flow	
34	4	Economic Scheduling without considering transmission losses	
35	4	Economic Scheduling with considering transmission losses,	
36	4	Transmission losses as function of plant generation, Calculation of loss coefficients, Distribution of loads between plants with special reference to steam and hydel plants	
37	4	Tutorial class	
38	4	Automatic load dispatching	
39	4	Introduction to Flexible AC Transmission System (FACTS): SVC and STATCOM	
40	4	Introduction to FACTS Devices: TCSC, SSSC, UPFC	