

POWER SYSTEMS SIMULATION LAB

Course Code	23SA8752	Year	IV	Semester(s)	I
Course Category	Skill Enhancement Course	Branch	EEE	Course Type	Lab
Credits	2	L-T-P	0-0-4	Prerequisites	Power System Analysis, Operation and Control
Continuous Internal Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes	
Upon successful completion of the course, the student will be able to	
CO1	Develop Y-Bus and Z-Bus matrices of power system networks using suitable algorithms (L3)
CO2	Perform load flow analysis of power systems using Gauss Seidel, Newton Raphson, Decoupled and Fast Decoupled methods. (L3)
CO3	Examine the effect of symmetrical and unsymmetrical faults in power systems using Z-Bus method.(L4)
CO4	Study the economic operation and dynamic performance of power systems through economic load dispatch, transient stability and load frequency control simulations. (L4)
CO5	Perform the simulation experiments individually or in a team and submit a clear laboratory report based on the results.

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:High, 2: Medium, 1:Low)													
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	2			2							3	
CO2	3	2			3							3	
CO3	3	3		2	2							3	1
CO4	3	3		2	2							3	2
CO5	2				2			2	2			2	1

SYLLABUS		
Unit No.	Contents	Mapped CO
1	Formation of Y- Bus by Direct-Inspection Method.	CO1 CO5

2	Load Flow Solution Using Gauss Siedel Method	CO2 CO5
3	Load Flow Solution Using Newton Raphson Method	CO2 CO5
4	Load Flow Solution Using Decoupled Method	CO2 CO5
5	Load Flow Solution Using Fast Decoupled Method	CO2 CO5
6	Formation of Z-Bus by Z-bus building algorithm	CO1 CO5
7	Symmetrical Fault analysis using Z-bus	CO3 CO5
8	Unsymmetrical Fault analysis using Z-bus	CO3 CO5
9	Economic Load Dispatch with & without transmission losses	CO4 CO5
10	Transient Stability Analysis Using Point By Point Method	CO4 CO5
11	Load Frequency Control of Single Area Control & Two Area Control system with and without controllers.	CO4 CO5