JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA–533003, Andhra Pradesh, India
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

III Year – II SEMESTER		L	T	P	C
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	POWER SYSTEMS AND SIMULATION LAB				

Course Objectives:
        To impart the practical knowledge of functioning of various power system components and determination of various parameters and simulation of load flows, transient stability, LFC and Economic dispatch.

Any of 5 experiments are to be conducted from each section:
Section I: Power Systems Lab:

1. Estimation of sequence impedances of 3-phase Transformer
2. Estimation of sequence impedances of 3-phase Alternator by Fault Analysis
3. Estimation of sequence impedances of 3-phase Alternator by Direct method
4. Estimation of ABCD parameters on transmission line model
5. Performance of long transmission line without compensation
6. Performance of long transmission line with shunt compensation
7. Analyze the Ferranti effect on long transmission line

Section II: Simulation Lab
8. Determination of Y_{bus} using direct inspection method
9. Load flow solution of a power system network using Gauss-Seidel method
10. Load flow solution of a power system network using Newton Raphson method.
11. Formation of Z_{bus} by building algorithm.
12. Economic load dispatch with & without losses
13. Load frequency control of a two area Power System without & with PI controller
14. Transient Stability analysis of single machine connected to an infinite bus (SMIB) using equal area criterion.

Course Outcomes:
After the completion of the course the student should be able to:
- Estimate the sequence impedances of 3-phase Transformer and Alternators
- Evaluate the performance of transmission lines
- Analyse and simulate power flow methods in power systems
- Analyse and simulate the performance of PI controller for load frequency control.
- Analyse and simulate stability studies of power systems