Subject Name: Power System-II Lab
Subject Code: KEE651

List of Experiments:

(A) Hardware Based Experiments:

1. To determine fault current for L-G, L-L, L-L-G and L-L-L faults at the terminals of an alternator at very low excitation.
2. To Study the over-current relay and the effect of PSM and TSM.
3. To study percentage differential relay.
4. To study Impedance, MHO and Reactance type distance relays and zones of protection.
5. To study Ferranti effect of a transmission line/cable.
6. To measure the dielectric Strength of transformer oil.
7. To study the Synchronization of alternator with infinite bus bar.
8. To determine positive sequence, negative sequence and zero sequence reactance of an alternator.
9. To Study the effect of different shape of electrodes on dielectric (air) breakdown.
10. To Study the gas actuated Buchholz relay for oil filled transformer.
11. To determine the sub-transient (xd″), transient (xd′) and steady state reactance (xd) of a synchronous machine.

(B) Simulation Based Experiments (using Scilab/MATLAB or any other equivalent open-source software platform)

1. To obtain formation of Y-bus.
2. Perform load flow analysis on a 3- Bus System using G-S Method.
3. Perform load flow analysis on a 3- Bus System using N-R Method.
4. To perform symmetrical fault analysis in a power system.
5. To perform unsymmetrical fault analysis in a power system.
6. Swing Curve by Step-by-Step Method.
7. Determination of the stability of a SMIB system in occurrence of a fault by solving the Swing equation by Euler's Method.

List of Major Equipment in Power System Lab

- Impedance, MHO relay, Reactance type distance relay
- Transmission Line setup for study of Ferranti Effect
- Setup for measuring Xd and Xq of synchronous machine (Synchronous Machine Setup)
- Cable Fault Locator
- Differential Relay
- Differential Over Current Relay
- IDMT Current Relay
- Instantaneous Overcurrent Relay
- Rectifier Equipment
- Under/Over Voltage Relay
- Three Phase Over Current Relay