

**EEE 333 : Power Systems Analysis**  
**Number of Credits: 3.0**  
**Pre-requisite(s): EEE 313**

Inductance of Transmission Lines: flux linkage, inductance due to internal flux, inductance of single-phase two-wire line. Flux linkage of one conductor in a group, inductance of composite conductor lines. G.M.D., 3-phase line with equilateral and unsymmetrical spacing. Parallel circuit 3-phase lines.

Electrical field; potential difference between points due to a charge, capacitance of a two wire line. Group of charged conductors. Capacitances of a 3-phase line with equilateral and with unsymmetrical spacing. Effect of earth; parallel circuit lines.

Power network representations, per unit system of calculations, reactance of asynchronous generators and its equivalent circuit, voltage characteristics of loads, power and reactive power flow in simple systems, load flow studies of large systems using the Gauss-Seidal methods, control of voltage, power and reactive power, use of network analyzers and digital computers, symmetrical fault calculation, limitations of short circuit current using regulators.

Symmetrical components- positive, negative and zero sequence networks of generators, transformers and lines, sequence network of systems, unsymmetrical fault calculations.

Power system stability involving two machine systems, swing equation. Equal area criterion of stability and its applications, solution of swing equation, factors affecting transient stability.