

EE 511: POWER SYSTEM DYNAMICS (3-0-0: 3)

Dynamic models of synchronous machines, excitation system, types of excitation, modeling of excitation systems, hydraulic turbines, steam turbines, governors, loads, Modeling of single-machine-infinite bus system, Mathematical modeling of multi-machine system, Dynamic and transient stability analysis of single machine and multi-machine systems, Power system stabilizer design for multi-machine systems, Dynamic equivalency, Voltage stability, techniques for the improvement of stability, Direct method of transient stability analysis: transient energy function approach.

Text Books & References

1. P Kundur, "Power System Stability and Control", Tata McGraw-Hill.
2. K R Padiyar, "Power System Dynamics Stability and Control", B S publications.
3. Elgerd O I, "Electric Energy Systems Theory An Introduction", Tata McGraw-Hill.
4. Jan Machowski , Janusz W Bialek, "Power System Dynamics: Stability and Control", John Wiley.