EEE 555 Power System Engineering I

Three-phase systems and modeling of power elements. Transmission lines: representation of short, medium and long transmission lines, equivalent circuit, power flow through a transmission lines, reactive compensation. Transmission line transients. Transient analysis: travelling waves and reflections. DC systems: justification and disadvantages of high voltage direct current (HVDC) operational features. Stability of power system. Faults in power system and power system protection. Coordination of protective devices. Network calculations. Load flow studies: Gauss Siedel Method and Newton Raphson load flow iterative methods. Economics operation of power systems: load dispatch and unit commitment. Control of voltage level, frequency, reactive and active power flow.