

EEE405 Electrical Power Principles

Introduction to power systems. Structure of electric system, load characteristics, renewable and non-renewable energy types, line impedance, representation and per unit systems, relationship between currents and voltage; regulation of voltage, transmitted power and losses; Faults in power system: causes effects and location. Construction of overhead lines and underground: standard and safety. LOAD FORECAST: Review of modern techniques of load estimation. Load duration curve. Determination of load centers. Siting of power station and associated problems. Base, intermediate and peak loads. Load management. ECONOMIC AND OPERATION: Voltage and frequency control design. Economic principles: Cost equations, economic operation of generating plants, effects of transmission on economy of systems. Electrical load development: Tariffs. Effect of power factor on plant economy.