

SYLLABUS :-

Introduction to Power systems    Generation, Transmission and distribution system. Single line diagram and per unit system. Restructuring of power utility and its implications. Power system components: Circuit model of synchronous generators and Transformers. Transmission lines    lumped and distributed parameter models. Steady state operation    Short, medium and long line models of transmission lines. ABCD parameters. Real and reactive power flow on a transmission line and line loadability. Power Flow Analysis    Power flow equations, and solution methods    Gauss-Seidel, Newton-Raphson and Fast decoupled load flow algorithms. Faults in Power System    Short circuits and open circuits. Symmetrical and Unsymmetrical faults. Symmetrical components and sequence networks. Analysis of symmetrical and unsymmetrical faults. Power System Protection    Protective relays and their characteristics. Over-current, distance and differential protection schemes. Circuit breakers. Power System Controls    Generator voltage control. Turbine-governor control. Load Frequency control. Economic dispatch and optimal power flow. Power System Stability    Swing equation. Equal area criterion and numerical integration of swing equation.