EE 501: POWER SYSTEM INTERCONNECTION & CONTROL (3-0-0: 3)

Introduction to power system interconnection, basic concepts of stability, control of voltage, frequency and tie-line power flows, Q-v and P-f control loops, mechanism of real and reactive power control, net interchange tie-line bias control, Turbine and governing system, Modeling of steam turbine, AGC implementation, features, Dynamic equivalents, controller specifications, optimal, sub-optimal and decentralized controllers, Discrete-mode AGC, Deregulated power system, Kalman filter in decentralized AGC, Time-error and inadvertent interchange correction techniques, On-line computer control, distributed digital control, data acquisition systems, Emergency control, preventive control, system wide optimization, SCADA.

Text Books & References

1. P Kundur, “Power System Stability and Control”, Tata McGraw-Hill.
2. Elgerd O I, “Electric Energy Systems Theory An Introduction”, Tata McGraw-Hill.
3. Stuart A Boyer, “SCADA: Supervisory Control and Data Acquisition”, ISA.
4. Hadi Saadat, “Power System Analysis”, PSA Publishing.
5. A J Wood, B F Wollenberg, “Power Generation, Operation and Control”, John Wiley.
6. P S R Murty, “Operation and Control in Power Systems”, B S publications