

POWER SYSTEM CONTROL AND INSTRUMENTATION

Module-I

Control of voltage, frequency and tie-line power flows, Q-V and P-f control loops. Mechanism of real and reactive power control.

Module-II

Net interchange tie line bias control. Optimal, sub-optimal and decentralised controllers. AGC in isolated and interconnected power systems, AGC with economic dispatch. Discrete mode AGC.

Module-III

Time error and inadvertent interchange correction techniques. On line computer control. Distributed digital control. Data acquisition systems. Emergency control, Preventive control, system wide optimization.

Module-IV

SCADA. supervisory control, supervisory master stations, remote terminal units, communication links, SCADA systems applications in power networks. System measurements using SCADA and computer Control.

Reference Books:

1. Wood A. J. and Wollenberg B.F., "Power Generation, Operation and Control, John Wiley & Sons
2. Kundur P. and Balu N. J., "Power System Stability and Control", EPRI Series, McGraw-Hill International Book Company.
3. "Modern Power Station Practice, Volume F: Control and Instrumentation", British Electricity International, Peragmon Press.
4. Cegrell T., "Power System Control Technology", Prentice Hall International Edition.
5. Grainger J. J. and Stevenson W. D., "Power System Analysis", Tata McGraw-Hill Publishing Company Limited.
6. Anderson P. M. and Fouad A. A., "Power system control and stability", IEEE Press.
7. Ronald L. Krutz "Securing SCADA system" johnwilly publication.
8. Fabiosaccomanno "Electric Power System Analysis and Control" IEEE Press
9. Atif S. Debs, "Modern power systems control and operation", Kluwer academic publishers