PSPE202 POWER SYSTEM MANAGEMENT AND DEREGULATION

Module-I (15 Hours)

Load characteristics and load forecast

Basic definitions- load definitions, load factor definitions, diversity principle in distribution systems, Load Forecast- factors affecting load forecasting methods, small areas load forecasting, spatial load forecasting methods, simulation, trending and mixed load forecasting methods

Basics of Power System Economics & Short-term Operation Planning of Power System, Load curves and load duration curves, Economic load dispatch- concept of marginal cost and Kuhn-Tucker's condition of optimum in power dispatch, participation factors

Module-II (15 Hours)

Classical method to calculate loss coefficients, Loss coefficient calculation using Y-Bus, Loss coefficients using sensitivity factors, Transmission loss coefficients, Transmission loss formula

Power Pools & Electricity Markets

Inter-area transactions, multi-area power interchanges, Energy brokerage systems, Market design and auction mechanism, Pool versus bilateral markets and price formation, Role of independent generators and system operator

Module-III (15 Hours)

Power Sector Financing

Time value of money, utility economic evaluation, Capacity planning issues and methods- Levelizing and levelized bus-bar analysis, Screening curve analysis, Horizon-year generation additions analysis, Capacity planning in competitive environment

References

1. A. J. Wood and B. F. Wollenberg, *Power generation, operation and control,* Wiley-Interscience, 2nd Edition, 1996.
2. H. G. Stoll, *Least-cost electric utility planning*, Wiley-Interscience, 1989.
3. K. Bhattacharya, M. H. J. Bollen and J. E. Daalder, *Operation of restructured power systems,* Kluwer Academic Publishers, USA, 2001.