EE523: RESTRUCTURED POWER SYSTEM (3-0-0: 3)

Introduction

Basic concept and definitions, Privatization, Restructuring, Transmission open access, Wheeling, Deregulation, Components of deregulated system, Advantages of competitive system.

Power System Restructuring

An overview of the restructured power system, Difference between integrated power system and restructured power system, Explanation with suitable practical examples.

Deregulation of Power Sector

Separation of ownership and operation, Deregulated models-pool model, pool and bilateral trade's model, Multi-lateral trade model, Competitive electricity market: Independent System Operator activities in pool market, Wholesale electricity market characteristics, Central auction, Single auction power pool, Double auction power pool, Market clearing and pricing, Market Power and its mitigation techniques, Bilateral trading, Ancillary services, Transmission pricing.

Open Access Same Time Information System

Introduction, Structure, Functionality, Implementation, Posting of information, Uses.

Congestion Management

Congestion management in normal operation, Explanation with suitable example, Total transfer capability (TTC), Available transfer capability (ATC), Transmission reliability margin (TRM), Capacity benefit margin (CBM), Existing transmission commitments (ETC).

Case Studies in Deregulation in India as well as other countries.

Text Books and References

1. K. Bhattacharya, M. H. J. Bollen and J. E. Daalder, "Operation of Restructured Power Systems", Springer.
2. M. Ilic and F. Galiana, "Power System Restructuring Engineering & Economics", Academic.
3. L. L. Lai, "Power System Restructuring and Deregulation", John Wiley.
4. L. Philipson and H L. Willis, "Understanding Electric Utilities and Deregulation", CRC Press.
5. M. Shahidehpour, H. Yamin and Z. Li, "Market Operations in Electric Power Systems", John Wiley.
6. N. S. Rau, "Optimization Principles: Practical Applications to the Operation and Markets of the Electric Power Industry", John Wiley.
7. S. Hunt and G. Shuttleworth, "Competition and Choice in Electricity", John Wiley.
8. S. Stoft, "Power System Economics: Designing Markets for Electricity", John Wiley.