RESTRUCTURED POWER SYSTEM

Course Code: 13EE2114 **L P C**
4 0 3

Pre requisites: Basics of Power Systems and its operation.

Course Outcomes:

At the end of the course, the student will be able to

CO 1: Recognize the need for Restructuring of Power Systems, discuss models and different participants, market power, transmission pricing and explain congestion management.

CO 2: Demonstrate the features of OASIS, explain transfer capability issues and calculated available transfer capability.

CO 3: Generalize the functioning and planning activities of ISO in different markets.

CO 4: Summarize the activities of a GENCO, ancillary service management.

CO 5: Summarize restructuring of the Indian Power System and its features.

UNIT-I

Overview of key issues in electric utilities- introduction – restructuring models – Independent System Operator (ISO) – power exchange - market operations – market power – standard cost – transmission pricing – congestion pricing.

Management of inter zonal/intra zonal congestion- OASIS: open access same-time information system- structure of OASIS - pooling of information.

UNIT-II

Transfer Capability on OASIS – definitions transfer capability issues – ATC – TTC – TRM – CBM calculations – methodologies to calculate ATC.

UNIT-III

Power system operation in competitive environment- introduction – operational is planning activities of ISO- the ISO in pool markets – the ISO in bilateral markets.

UNIT-IV

Operational planning activities of a GENCO- ancillary services management- introduction – reactive power as an ancillary service – a review – synchronous generators as ancillary service providers.

Introduction, Framework of Indian power sector, Historical Developments, The Institutional Framework, Operational Demarcation of the Power System, National and Transnational Grids, Reform initiatives during 1990-1995.

UNIT-V

The Availability Based Tariff (ABT)

Necessity of ABT?, the mechanism, working of the mechanism, effects of ABT, intra-state ABT, the electricity act 2003, provisions in the generation sector, provisions in the transmission sector, provisions in the distribution sector, power trading, other important changes.

TEXT BOOKS:

1. Kankar Bhattacharya, Math H.J. Boller, JaapE.Daalder, '*Operation of Restructured Power System*' Klumer Academic Publisher – 2001.

2. Mohammad Shahidehpour, and Muwaffaqalomoush, - "*Restructured electrical Power systems*" Marcel Dekker, Inc. 2001.

REFERENCES:

1. Loi Lei Lai; "*Power system Restructuring and Deregulation*", Jhon Wiley & Sons Ltd., England.

2. http://nptel.iitm.ac.in.