

20PE022 - FLEXIBLE OF AC TRANSMISSION SYSTEMS

UNIT – I

L- 12

Introduction: Power Flow in AC Systems, Loading capability Limits, Dynamic stability considerations, controllable parameters, basic types of FACTS controllers.

UNIT – II

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Voltage Source Converters: Single phase and 3-phase full wave bridge converters, transformer connections for 12, 24, 48 pulse operation, 3 level voltage source converters, PWM converters.

UNIT – III

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Static Shunt Compensation: Objectives of shunt compensation, Voltage in stability and its prevention, power oscillations and damping, controllable VAR generation, variable impedance type VAR generators.

UNIT – IV

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SVC and STATCOM: Dynamic performance, transient stability enhancement with SVC and STATCOM- operating principle – V-I characteristics.

UNIT – V

L- 12

Series Compensation & UPFC: Series capacitive compensation, transient stability improvement, Thyristor controlled series capacitor (TCSC), thyristor control power angle regulator (TCPAR), Unified power flow controller.

TEXT BOOKS:

1. N.G. Hingorani and L.Guygi, “Understanding FACTS Devices”, IEEE Press Publications, Standard Publishers, Delhi 2001.
2. Mohan Mathur, R., Rajiv. K. Varma, “Thyristor – Based Facts Controllers for Electrical Transmission Systems”, IEEE press and John Wiley & Sons, Inc.

REFERENCES:

1. E. Achaet. Al. John Wiley, “FACTS: Modelling and Simulation in power Networks”, London, UK, 2004
2. P. Kundur, “Power System Stability and Control”, McGrawHill, 1994.