

Power Systems Operation and Control - Video course

- 1) Introduction (Characteristics of Modern Power Systems) (3-4 lectures)
 - Physical Structure
 - Operation and Control Functions and Hierarchies
 - Design and Operating Criteria
- 2) Equipment and Stability Constraints (12-15 lectures)
 - Capabilities and Constraints of Generators/Exciters/Turbines/Network Elements (Lines, Transformers etc.)
 - Constraints of Energy Supply Systems
 - Load Characteristics
 - Introduction to Angle/Voltage Instability phenomena
 - Stability Constraints
- 3) Frequency and Voltage Control (15 lectures)
 - Primary Control of Frequency : Governors
 - Secondary Control of Frequency : AGC
 - Voltage control : Automatic Voltage Regulators (generators), Shunt Compensation, SVC
 - Introduction to Power Flow Control : HVDC, FACTS
 - Load Curves
 - Unit Commitment Introduction to the use of Optimization Methods
- 5) Load Dispatch Centre Functions (3-4 lectures)
 - Contingency Analysis
 - Preventive, Emergency and Restorative Control
- 6) Additional Topics relating to new developments (3-4 lectures)



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