

**POWER SYSTEM OPERATION AND CONTROL**

<b>Subject Code</b>	:	<b>06EE82</b>	<b>IA Marks</b>	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

**PART - A****UNIT - 1**

**CONTROL CENTER OPERATION OF POWER SYSTEMS:** Introduction to SCADA, control center, digital computer configuration, automatic generation control, area control error, operation without central computers, expression for tie-line flow and frequency deviation, parallel operation of generators, area lumped dynamic model.

**8 Hours****UNIT - 2 & 3**

**AUTOMATIC GENERATION CONTROL:** Automatic voltage regulator, automatic load frequency control, AVR control loops of generators, performance of AVR, ALFC of single area systems, concept of control area, multi-area systems, POOL operation-two area systems, tie-line bias control.

**10 Hours****UNIT - 4**

**CONTROL OF VOLTAGE AND REACTIVE POWER:** Introduction, generation and absorption of reactive power, relation between voltage, power and reactive power at a node, single machine infinite bus systems, methods of voltage control, sub synchronous resonance, voltage stability, voltage collapse.

**8 Hours****PART - B****UNIT - 5**

**POWER SYSTEM OPTIMIZATION:** Optimal system operation with thermal plants, incremental production cost for steam power plants, analytical form of generating cost of thermal plants, constraints in economic operation, flow chart, transmission loss as a function of plant generation, the B-coefficients, examples.

**8 Hours****UNIT - 6**

**UNIT COMMITMENT:** Statement of the problem, need and importance of unit commitment, methods-priority lists method, dynamic programming method, constraints, spinning reserve, and examples.

**8 Hours**

