

## **17PS12E1 - POWER SYSTEM TRANSIENTS (PST)**

Instruction/week: 4 hrs.  
Univ. Exam: 3 hrs.

Max. Sessional marks: 40  
Univ. Exam marks: 60

### **UNIT-I**

**TRANSIENTS IN THREE PHASE CIRCUITS :** Introduction, importance of the type of neutral connection switching a 3 – phase reactor with an isolated neutral three phase capacitance switching , the symmetrical component method for solving three phase switching transients dealing with Y transformers, circuit reduction.

### **UNIT – II**

**TRAVELLING WAVES ON TRANSMISSION LINES:** Circuits with distributed constants, the wave equation, reflection and refraction of traveling waves, behavior of traveling waves at line terminators, lattice diagrams , attenuation and distortion of traveling waves, multi –conductor systems and multi- velocity waves.

### **UNIT – III**

**LIGHTING:** The scope of the lighting problem, the physical phenomenon of lighting , interaction between lighting and power systems, factors contributing to good line design.

### **UNIT – IV**

**TRANSIENT IN THE INTEGRATED POWER SYSTEM :**Introduction, the short line or kilometer fault, line dropping and load rejection voltage transients on closing and reclosing lines.

### **UNIT –V**

Over voltage induced by faults, switching surges on an integrated system, transients in the industrial power network.

### **TEXT BOOKS:**

1. “Electrical transients in Power Systems” by Allan Greenwood, Wiley Interscience,1991

### **REFERENCES:**

1. “Transients in Power Systems” by Harold A.Peterson, John Wiley & Sons.