

## **17PS1104 - POWER QUALITY**

Instruction/week: 4 hrs.

Max. Sessional marks: 40

Univ. Exam: 3 hrs.

Univ. Exam marks: 60

### **UNIT - I**

**LONG INTERRUPTIONS AND RELIABILITY EVALUATION :** Over view of power quality , power qualities and power quality standards , observation of system performance standards and regulation , overview of reliability evaluation , basic reliability evaluation techniques , cost of interruptions , comparison of observations and reliability evaluation , example calculations.

### **UNIT - II**

**SHORT INTERRUPTIONS :**Introduction , Technology , origin of short interruptions , monitoring of short interruption. Influence on equipment , single –phase tripping and stochastic predication of short interruptions.

### **UNIT – III**

**VOLTAGE SAGS –CHARACTERIZATION :** Introduction , voltage sag magnitude , voltage sag duration , three phase unbalance ,phase –angle sumps magnitudes and phase –angle jumps for three – phase unbalanced sags, other characteristics of voltage sags , load influence on voltage sags ,sags due to starting of induction motors.

### **UNIT – IV**

**VOLTAGE SAGS-EQUIPMENT BEHAVIOUR :**Introduction, computers and consumer electronics, adjustable – speed AC –drives adjustable speed DC – drive other sensitive load.

### **UNIT – V**

**VOLTAGE SAGS – STOCHASTIC ASSESSMENT:** Compatibility between equipment and supply, presentation of results: Voltage sag coordination chart, power quality monitoring, the method of fault , positions, the method of critical distances.

### **TEXTS BOOKS:**

1. “Understanding power quality problems” by Math H.J. Bollen , standard publishers distributors , 2001
2. “Electric power systems quality” by R.C. dughan , M.F. MC Gran aghan and H.W. Beaty, MC Graw Hill New york 1996
3. “Electric power quality control Techniques” by W.E. Kazibew and M.H. Sendavla , Van Nostrad Reinhold , New York.

### **REFERENCES:**

1. “Analysis of Faulted Power Systems” by P.M. Anderson , New York : IEEE Press, 1995.

2. "Power Electronics and Motor control" by W. Sheperd L.N. Hulley and D.T.W. Liang, 2<sup>nd</sup> Cambridge University Press, Cambridge, U.K., 1995.