

For Syllabus, Question Papers, Notes & many More

## **EE6356 ELECTRICAL MACHINES AND POWER SYSTEMS**

### **DETAILED SYLLABUS**

#### **UNIT I D.C. MACHINES**

Constructional details – EMF equation – methods of excitation – self and separately excited generators – characteristics of series, and shunt generators – principle of operation of D.C. Motor – back emf and torque equation – characteristics of series and shunt motors - starting of D.C. Motors – types of starters - speed control and braking of DC. motors.

#### **UNIT II TRANSFORMERS**

Constructional Details – Principle of Operation – EMF Equation – Transformation Ratio – Transformer on No Load – Parameters Referred to HV/LV Windings – Equivalent Circuit – Transformer on Load – Regulation - Testing – Load Test - 3- PHASE Transformers connections.

#### **UNIT III INDUCTION MOTORS**

Construction – types – principle of operation of three-phase induction motors – equivalent circuit – starting and speed control – single-phase induction motors (only qualitative analysis).

#### **UNIT IV SYNCHRONOUS AND SPECIAL MACHINES**

Construction of Synchronous machines-types – induced emf – brushless alternators – reluctance motor – stepper motor servo motor.

#### **UNIT V INTRODUCTION TO POWER SYSTEM**

Structure of electric power systems – generation, transmission, sub-transmission and distribution systems - EHVAC and EHVDC transmission systems – substation layout. (Concepts only).

#### **TEXT BOOKS**

1. Murugesh Kumar K. , 'Electric Machines Vo I', Vikas Publishing House Pvt Ltd, 2010.

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2. Murugesh Kumar K. , 'Electric Machines Vol II', Vikas Publishing House Pvt Ltd, 2010.

3. Mehta V.K. and Rohit Mehta, 'Principles of Power System', S.Chand and Company Ltd, 2003.

**REFERENCES**

1. Fitzgerald A.E., Charles Kingsley, Stephen.D.Umans, 'Electric Machinery', Tata McGraw Hill publishing Company Ltd, 2003.

2. Gupta J.B., 'Theory and Performance of Electrical Machines', S.K.Kataria and Sons, 2002.

3. Kothari D.P. and Nagrath I.J., 'Electric Machines', Tata McGraw Hill Publishing Company Ltd, 2002.

4. Bhimbhra P.S. , 'Electrical Machinery', Khanna Publishers, 2003.

**OBJECTIVES**

To know about basic electrical prime movers, electrical transmission and distribution systems.