10 EE 311 ELECTRICAL ENGINEERING (SI UNITS)

III B.Tech I Semester

(with effect from the academic year 2012-2013)

Credits: 4

Lectures/Week: 4 Hrs *Sessional Marks: 40*

University Exam:3 Hrs *End Examination Marks: 60*

UNIT-I

Basic Electrical Circuits: Parameters- Resistance, Inductance and Capacitance, Kirchoff's law-Alternating Currents-Definitions of Peak value, RMS value, Average value and Form factor, Single phase circuits-Behavior of resistance, Inductance and Capacitance to Sinusoidal excitation voltage. Series, Parallel and series parallel circuits. Three phase circuits-Line & Phase relations of star(Y) Delta (A) circuits. Power and Power factor.

UNIT-II

DC Generators: Constructional details-Principle of Operation-Types of Excitation, Generated EMF, Characteristics of various types of generators and applications.

UNIT-III

DC Motors: Torque developed in a motor, Characteristics of different types of motor and applications, Motor starters and losses and efficiency calculations.

UNIT-IV

Transformers: Single phase transformers-Principle of operations-Construction, EMF equation, regulation, losses and efficiency, equivalent circuit, OC and SC test.

UNIT-V

Induction Motors: Three phase Induction motor-Principle of operation, types, slip torque characteristics, principle of operation of single phase induction motors-Types of starting and applications.

TEXT BOOKS:

1. Electrical Technology :Theraja B.L.,Vol I & vol II
2. Principles of Electrical Engineering & Electronics: Mehta V.K.

REFERENCES:

1. Electrical Technology : Cotton H.
2. Electrical Technology : Edward Hughes..