SARDAR PATEL UNIVERSITY
Programme & Subject: B.sc (Instrumentation)
Semester: V
Syllabus with Effect from: June - 2013

Paper Code: US05CINS05	**Total Credit: 3**
Title Of Paper: Industrial Electronics - I	

Unit	Description in detail	Weighting (%)
I	**Transformers** Working principle, construction, core type transformer, shell type transformer, theory of ideal transformer, EMF equation of transformer, voltage transformation ratio, transformer with losses but no magnetic leakage : Transformer on No-load, transformer on load, transformer with winding resistance but no magnetic leakage, equivalent resistance, magnetic leakage, transformer with resistance and leakage reactance, equivalent circuit	25%
II	**DC Machines - I** DC Generator, generagor Principle, simple loop generator : construction, working, total losses in D.C. Generator. D.C. Motors: principles, comparison of Generator and Motor action, significance of back emf, voltage equation of a motor, condition for maximum power, torque, armature torque of a motor, shaft torque,	25%
III	**DC Machines - II** speed of a dc motor : for series and shunt motors, speed regulation, torque and speed of a motor, motor characteristics, characteristics of series motor, characteristics of shunt motor, compound motors : cumulative-compound motors, differential compound motors, performance curves of shunt and series motors, comparison of shunt and series motors, losses and efficiency.	25%
IV	**Induction Motors :** Classification of A.C. motors, general principle, construction, production of revolving magnetic field (two and three phase), why does the rotor rotate? Slip, frequency of rotor current, relation between torque and slip, torque/speed curve, shape of torque/speed curve.	25%

Basic Text & Reference Books:-

- A text book of Electrical Technology by B.L. Theraja & A. K. Theraja S. Chand & Company Ltd., New Delhi
- Electrical Engineering Fundamentals by Vincent Del Toro, PHI Pvt. Ltd., New Delhi