

SARDAR PATEL UNIVERSITY
Programme & Subject: B.sc (Instrumentation)
Semester: VI
Syllabus with Effect from: November/December - 2013

Paper Code: US06CINS05	Total Credit: 3
Title Of Paper: Industrial Electronics - II	

Unit	Description in detail	Weighting (%)
I	Synchronous Motors synchronous motor, introduction, principle of operation, method of starting, motor on load with constant excitation, power flow within synchronous motor, equivalent circuit of a synchronous motor, comparison between synchronous and induction motors, synchronous motor applications	25%
II	Special Machines Stepper motor: step angle, applications, Types of stepper motors, variable reluctance stepper motor, multi-stack VR stepper motor, permanent magnet stepping motor, hybrid stepper motors, permanent magnet DC motor	25%
III	Thyristors Thyristors, SCR, Constructional details of SCR, principle of operation of SCR, Transistor analogy, methods of turning ON, Turn OFF mechanism, SCR gate characteristics, circuits for gate triggering, Series operation of SCRs, Parallel operations of SCRs, Unijunction transistor(UJT), Relaxation oscillator using a UJT, TRIAC, triggering mode, phase control using TRIAC	25%
IV	Phase controlled rectifier and inverters Introduction ,thyristor circuits and their control: basic thyristor circuits, thyristor gate triggering, single phase converter : idealized circuit with $L_s = 0$ and $i_d(t) = I_d$, dc-side voltage, line current is, three-phase converter : idealized circuit with $L_s = 0$ and $i_d(t) = I_d$.	25%

Basic Text & Reference Books:-

- A text book of Electrical Technology by B.L. Theraja & A. K. Theraja S. Chand & Company Ltd., New Delhi
- An introduction to Thyristor and their application by M Ramamoorthy
- Power Electronics by Ned Mohan, T. M. Undeland and W. P. Robbins, John Wiley & Sons, second edition.
- Electrical Engineering Fundamentals by Vincent Del Toro, PHI Pvt. Ltd., New Delhi.
- Power Electronics by P. C. Sen

