

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Defence Science)
Semester: IV
Syllabus with Effect from: June - 2014

Paper Code: PT04EDSC02	Total Credit: 4
Title Of Paper: Automation & Control	

Unit	Description in Detail	Weightage (%)
I	Overview: Structure & components of Automation systems, Architectural level of controls Classification of Control Systems: Open Loop, Closed Loop System, Applications Control System Component: DC Servomotor, AC Servomotor, Hydraulic Actuator, Pneumatic Actuator, Types of Stepper motors	25%
II	Controllers: Proportional, Proportional-Integral (PI), Proportional-Derivative (PD), Proportional-Integral-Derivative (PID), Tuning of P, PI, PD, PID, Cascade Control, Statistical Process Control, Optimal Control, Digital Controller, Distributed Control Systems	25%
III	Interfaces & Communication: Analog, Digital, Standard interfaces, Serial transmission, Parallel transmission, Communication Management System, Local Area Networks	25%
IV	Computer aided process control software: System software, Application software, System support software, Real time operating	25%

Basic Text & Reference Books:-

- Principles of Control Systems, U. A. Bakshi, V. U. Bakshi, Technical Publication
- Computer aided process control, S. K. Singh, pHi
- Process Control Instrumentation, C. D. JOHNSON, pHi
- Automatic Control System, B. C. KUO, pHi
- Discrete Time Control System, K. OGATA, Pearson Education India
- Programmable controllers: Principle and Applications, Webb J.W, pHi, New Delhi
- Programmable Controllers: An Engineers' Guide, Parr A, Newnes, Butterworth Heinemann Ltd.
- Process Control Handbook, Liptak B.G (ED) vol-2, Chilton book Co.
- Handbook for Instrumentation Engineers, Noltinc.
- Computer control of machines and processes, Bollinger J.G and Duffie N.A, Addison-Wesley.
- Applied Instrumentation in Process Industries (Volume-IV), ANDREWS, Elsevier
- Principles of Process Control, D. PATRANABIS, TMH

