

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

Paper Code: PS04EELE02	Total Credit: 4
Title Of Paper: Computer Based Industrial Control	

Unit	Description in detail	Weightage (%)
I	Expectations from Automation, Current trends in Computer Control of Process Plants, Process Definition, Feedback Control, Basic Principles of Single controller loop, Two- position Control, Multi-position control, PID Control, Multi-variable Control, Feed Forward Control. Introduction of Building Blocks of Automation System, Processing System, Multimicroprocessor Systems.	25%
II	Local Area Networks, Analog and digital I/O Modules, Supervisory control and Data Acquisition Systems, Remote Terminal Unit, Direct Digital Control-Structure and Software. Distributed Digital Control, History, Functional Requirements of (Distributed) Process Control System, System Architecture, DCS, Final Control Element- Pneumatic, Hydraulic; Electric Actuation.	25%
III	Introduction to Intelligent Controllers, Model Based Controllers, Predictive control, Artificial Intelligent Based Systems, Expert Controller, Fuzzy Logic System. Fuzzy Controller. Fuzzy Logic Tools, Conventional Control Systems, Fuzzy Logic Control Systems, Fuzzy Logic Control vs. PID Control.	25%
IV	Examples of Industrial Applications of FLC, Stability, Neural Controllers, VLSI Implementation of Neural Network. Fuzzy Neural Networks-Fuzzy Multilayer Perception, Fuzzy competitive Learning, Fuzzy Art, Fuzzy Min-Max Networks, Fuzzy Neurons, Fuzzy Neural Control Systems.	25%

Basic Text & Reference Books:-

- Computer based Industrial Control
Krishna Kant, Prentice Hall of India, New Delhi (INDIA)
- Introduction to Applied Fuzzy Electronics
Ahmad M. Ibrahim, Prentice Hall of India, New Delhi (INDIA)

