SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Instrumentation)
Semester: II
Syllabus with Effect from: June - 2010

Paper Code: PS02CINS03	Total Credit: 4
Title Of Paper: Computer Aided Process Control	

Unit	Description in detail	Weightage (%)
I	Process Control: Definition, Block Diagram, Process Dynamics, Process Variables, Degrees of Freedom, Electromechanical Systems, Techniques & Application based Classification, Actions, Actuator based Control & Examples.	25%
II	Process Control: Objectives, Advantages, Process Model, Physical Model, Control Model, Process Modelling: Uses & Types, Differential & Difference Equations, Frequency & Time Domain Modelling, Modelling Procedure & Examples.	25%
III	Computer Aided Process Control: Role of Computers, Elements, Classification, Architecture, Man Machine Interface & Software Types, Real Time Operating System & Software, PC based Data Acquisition System, Specifications of Control Systems, Control System Design using Heuristics & Models, Controller Design, Delay in Digital Controllers, Controller Tuning.	25%
IV	Design of Software for Process Control Systems, Software for Modelling & Simulating Control Systems, Cascade Control, Predictive Control, Adaptive Control, Inferential Control, Intelligent Control, Stastical Process Control, Optimal Control, Examples, Computer Aided Process Control: Electric Oven Temperature Control, Thickness and Flatness Control Introduction to Computer Aided Design (CAD) & Three Dimensional Capabilities.	25%

Basic Text & Reference Books:-

- Computer-Aided Process Control, S. K. Singh, Prentice Hall of India Private Limited.
- Computer-Based Industrial Control, Krishna Kant, Prentice Hall of India Private Limited.
- Process Control Instrumentation Technology, Curtis D. Johnson, Pearson Education.
- Principles of Computer-Integrated Manufacturing, S. Kant Vajpayee, Prentice Hall of India Private Limited