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

Paper Code: US06CINS03	**Total Credit: 3**
Title Of Paper: Advanced Control System	

Unit	Description in detail	Weighting (%)
I	**Advanced Process Control Strategies** Introduction, Cascade Control, Feedforward Control, Predictive control Systems: Model Based Control; Multivariable Control System, Adaptive Control	25%
II	**Supervisory Control And Data Acquisition Systems (SCADA)** Channel Scanning, Conversion to Engineering Units, Data Processing, Distributed SCADA System; Remote Terminal Unit: Input/Output Modules, Communication Modules, Special Software Facilities	25%
III	**Distributed Digital Control (DDC)** Distributed Vs Centralised, Advantages of Distributed Control Systems; Functional Requirements of (Distributed) Process Control System: Plant Operator's Requirements, Maintenance Engineer's Requirements, Design Engineer's Requirements, Manager's Requirements, Distributed Control Systems Evolution, System Architecture, Distributed Control Systems	25%
IV	**Modeling and Simulation for Plant Automation** Introduction, Definition of Terms, Why do we need the system Modeling?, Uses of Systems Simulation, How to Build the Mathematical Model of a Plant?, Model Evaluation and Improvement, Modern Tools for Modeling and Simulation of Systems, Application Examples, Future Perspectives	25%

Basic Text & Reference Books:-

- Computer - Based Industrial Control By Krishna Kant
- Process Control (Concepts, Dynamics and Applications) By S. K. Singh
- Process Control Instrumentation Technology By Curtis Johnson
- Handbook of Instrumentation By W. G. Andrew
- Industrial Electronics By Petruzella