Unit 1: Introduction to Process Control


Unit 2: Transmitters and Signal Conditioning

Need of transmitters, Standardization of signals, Current, Voltage and Pneumatic signal standards, Two wire transmitters, Electronic Differential Pressure Transmitter, Analog and Digital signal conditioning for RTD, Thermocouple, DPT etc, Smart and Intelligent transmitters.

Unit 3: Controller Principles and Applications

PID Controller Principles, Tuning, Analog Implementation, Design considerations, Digital implementation, Modification of PID algorithms, Integral wind up, Operational aspects of PID controllers.

Unit 4: Actuators and Final Control Elements

Final control operation, Signal conversions, Electrical actuators, Mechanical switches, Solid state switches, AC and DC motors, Stepper Motors, Pneumatic and hydraulic actuators, Fluid control valves.

Unit 5: Programmable Logic Controllers, Applications and Interfacing

PLC Programming, Interfacing Input and Output devices with PLC, Analog Input / Output, Ladder programming, Selection of PLC, PLC based automated systems, Networking of PLCs

Unit 6: Advanced Process Automation Techniques

Fuzzy logic systems and Fuzzy controllers, Artificial Neural Network (ANN) based controllers, Introduction to Statistical Process Control.
Text Books


Reference Books