PEI7D001   ADVANCED PROCESS CONTROL

(Honors)

University Level: 80%

MODULE – I   (10 Hours)

Basics of process control scheme:
Introduction to Feedback control:Concept of feedback control,Types of feedback controllers, measuring sensors,Transmission lines. Ch-13 of text book-1
Adaptive and Interferential control systems: Adaptive control, Interferential control. (Ch-22 of text book-1)

MODULE – II   (12 Hours)

Advance control in process: Cascade control, selective control, Split-Range control. (Ch-20 of text book-1)
Synthesis of Alternative control configurations for Multiple-Input, Multiple-Output processes: Design questions for MIMO control systems, Degree of freedom and the number of controller and manipulated variables, Generation of alternative loop configurations, Extension to systems with interacting units.(Ch-23 of text book-1)

MODULE – III   (13 Hours)

Computer based control:
SCADA system: SCADA systems , Definition of SCADA, Basic elements of SCADA systems-Field data interface devices, Communications network , Central host computer, operator workstations and software components, SCADA architecture: Monolithic SCADA systems, distributed SCADA systems, Networked SCADA systems.).CH-10 of text book-2.
Data Acquisition systems: Data Acquisition systems with basic Architecture, Basic data Acquisition systems, data logger. Various elements /subsystems of DAS: Sensors and transmitter, cables and wiring, signal conditioning, hardware elements of DAS, software elements of DAS, multi channel DAS. CH-8 of text book-2.
Computer-Based controller: H/W configuration, multiple loop controllers, Data logging, Supervisory control, Direct control. ch-11 of text book-3

Text Book:

1. *George Stephanopoulos, Chemical process control, PHI Learning Private Limited, New Delhi, 2009.*
2. *K. Padma Raju and Y.J Ready., Instrumentation and control system, Tata McGraw Hill Education Private Limited, New Delhi.*
3. *Cotis D. Jonson.,Process control Instrumentation, 8thEdn., PHI.*

Reference Book:

1. SurekhaBhanot.Process control principles and application,Oxforg University Press.