PROCESS CONTROL –II Code : El 702 **Credits : 4**

Digital Control Loop with computer as controller. Loop structure with continuous process and digital controller.

Signal discretization- Sampling of continuous signal, signal reconstruction. Principles of discretization–trapezoidal techniques, pole-zero matching, Z-transform method, Wplane transforms, stability studies

Analysis of a single input-single output system by Z-transform techniques.

Module II

Digital control Algorithms: Controller design using: (a) Dead beat control (b) Dahlin's algorithm

Controller design by: (a) Digital modelling of loop (b) Discrete approximation (c) Transformation to W-domain and use of Bode diagram. Comparative study.

Module III

PLC- Architecture, Programming and Application. DCS- Architecture and elements, networks, gateways, connectivity, redundancy, software protocol, interfacing units, operating stations

Module IV

OCS- Architecture, Control domain, Information domain, relational database management, spreadsheet packages, simulation & design, Protocol security.

Introduction to Fuzzy logic control.

Module V

Control of Specific process: (Any two)

(a) Control of thickness in rolling of sheet metal.

(b) Control of concentration through pH control

(c) Control of heat exchangers.