SUBJECT NO-CH61016, SUBJECT NAME- PROCESS DYNAMICS

LTP- 3-1-0,CRD- 4

SYLLABUS :-

Prerequisite - CH30011 or its equivalentReview of dynamic behavior of linear systems and their control system design. Linear processes with difficult dynamics. Nonlinear process dynamics; phase-plane analysis; multiple steady-state and bifurcation behavior; Process Identification; Controller design via frequency response analysis; Direct synthesis and Internal model control design; Cascade, feed forward and ratio control; Introduction to multivariable systems. Interaction analysis and multiple single loop controller design. Design of multivariable controllers; Controller design for nonlinear systems; Introduction to sampled-data systems; Tools of discrete-time systems analysis; Dynamic analysis of discrete-time systems; Design of digital controllers; Introduction to model predictive control; Convolution models; Model predictive control of MIMO systemsText/Reference Books:1.Process dynamics, modeling and control by B. A. Ogunnaike and W. H. Ray.2.Process control: theory and applications by J.-P. Corriou.3.Process dynamics: modeling, analysis, and simulation by B. W. Bequette.4.Process dynamics and control by D. E. Seborg, T. F. Edgar and D. A. Mellichamp.