PAU7J004 SIMULATION, MODELLINGANDCONTROL 3-0-0

Module I 14 hours

Basic simulation modeling, Discrete event simulation, Simulation of queuing and Monte Carlo simulations. Inventory systems, Continuous, Discrete-continuous and Mon

Statistical models in simulation, Discrete and continuous distributions, Poisson process, Empirical distribution, Generation of pseudo random numbers, Analysis of simulation data, Parameter estimation, Goodness-of-fit tests, Multivariable time series models.

Module II 12 hours

Overview of feedback control systems, Dynamics of mechanical systems, Differential equations and state variable form, Models of electromechanical, Heat-and fluid flow models, Linearization and scaling, Models from experimental data, Dynamic response using pole-zero locations, Time domain specifications, Classical 3-term controllers and its digital implementation, Stability analysis by Routh Criterion.

Modules III 10 hours

Simulation of manufacturing and material handling systems, Goals and performance measures, Modelling downtime and failures, Trace driven models, Case studies.

Text Books :

1. Discrete-Event system simulation by Jerry Banks, J.S. Carson, B.L. Nelson and D.M. Nicol (PearsonPublications).
2. Feedback control of dynamic systems by G.F. Franklin, J.D. Powell, A-Naeini, Pearson Publications.
3. Simulation modeling and analysis by A.M. Law, W.D. Kelton, Tata McGrawHill Publications.