IC---- Advanced Control Systems

Unit I

Introduction to control structures, configurations of controllers, time and frequency domain performance measures

Unit II

Model based controller design: PID control of SISO systems and TITO systems, PID controller, its variants and limitations, PI-PD control, effects of noise and load disturbances.

Unit III

Frequency domain based identification: identification of dynamic models of plants.

Unit IV

Time domain based identification, state space based identification methods, accuracy of identification and sensitivity.

Unit V

Design of controllers: model based controller design, model-free controller design, automatic and online tuning of controllers, real time applications of the control algorithms, field programmable analog/digital array based design of controllers.

Reference Books:

1. S. Majhi, Advanced Control Theory-Relay Feedback Approach, Cengage Asia/India Pvt. Ltd, 2009.

2. A. Johnson and H. Moradi, New Identifications and Design Methods,Springer - Verlag, 2005.

3. Norman S. Nise, Control Systems Engineering, John Wiley & Sons, 2008.

4. NPTEL Advanced Control Systems – Video Course

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