NPTEL Video Course - Chemical Engineering - Advanced Process Control

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Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Motivation
Lecture 2 - Linearization of Mechanistic Models
Lecture 3 - Linearization of Mechanistic Models (Continued...)
Lecture 4 - Introduction to z-transforms and Development of Grey-box models
Lecture 5 - Introduction to Stability Analysis and Development of Output Error Models
Lecture 6 - Introduction to Stochastic Processes
Lecture 7 - Introduction to Stochastic Processes (Continued...)
Lecture 8 - Development of ARX models
Lecture 9 - Statistical Properties of ARX models and Development of ARMAX models
Lecture 10 - Development of ARMAX models (Continued...) and Issues in Model Development
Lecture 11 - Model Structure Selection and Issues in Model Development (Continued...)
Lecture 12 - Issues in Model Development (Continued...) and State Realizations of Transfer Function Models
Lecture 13 - Stability Analysis of Discrete Time Systems
Lecture 14 - Lyapunov Functions and Interaction Analysis and Multi-loop Control
Lecture 15 - Interaction Analysis and Multi-loop Control (Continued...)
Lecture 16 - Multivariable Decoupling Control and Soft Sensing and State Estimation
Lecture 17 - Development of Luenberger Observer
Lecture 18 - Development of Luenberger Observer (Continued...) and Introduction to Kalman Filtering
Lecture 19 - Kalman Filtering
Lecture 20 - Kalman Filtering (Continued...)
Lecture 21 - Kalman Filtering (Continued...)
Lecture 22 - Pole Placement State Feedback Control Design and Introduction to Linear Quadratic Gaussian (LQG)
Lecture 23 - Linear Quadratic Gaussian (LQG) Regulator Design
Lecture 24 - Linear Quadratic Gaussian (LQG) Controller Design
Lecture 25 - Model Predictive Control (MPC)
Lecture 26 - Model Predictive Control (Continued...)

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