

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Advanced Process Dynamics

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Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Introduction and motivation
- Lecture 2 - Dynamics of linear first order autonomous systems
- Lecture 3 - Dynamics of linear first order autonomous systems (Continued...)
- Lecture 4 - Lumped parameter analysis of cooling of a body
- Lecture 5 - Lumped parameter analysis of cooling of a body (Continued...)
- Lecture 6 - Introduction to higher order systems
- Lecture 7 - Phase plane analysis of linear autonomous second order systems
- Lecture 8 - Phase plane analysis of linear autonomous second order systems (Continued...)
- Lecture 9 - Analysis of a free spring-mass system
- Lecture 10 - Analysis of a free spring-mass system (Continued...)
- Lecture 11 - Dynamics of non-autonomous systems
- Lecture 12 - Similarity solution for non-autonomous higher order dynamics
- Lecture 13 - Similarity solution for non-autonomous higher order dynamics (Continued...)
- Lecture 14 - Analysis of a forced spring-mass system
- Lecture 15 - Analysis of a forced spring-mass system (Continued...)
- Lecture 16 - Phase portraits of linear autonomous systems of order three and higher
- Lecture 17 - Phase portraits of linear autonomous systems of order three and higher (Continued...)
- Lecture 18 - Analysis of complex reaction systems
- Lecture 19 - Analysis of complex reaction systems (Continued...)
- Lecture 20 - Analysis of complex reaction systems (Continued...)
- Lecture 21 - Introduction to non-linear systems
- Lecture 22 - Logistic population growth model
- Lecture 23 - Logistic population growth model (Continued...)
- Lecture 24 - Logistic population growth with harvesting
- Lecture 25 - Logistic population growth with harvesting (Continued...)
- Lecture 26 - Logistic population growth with threshold population
- Lecture 27 - Logistic population growth with threshold population (Continued...)
- Lecture 28 - Analysis of population dynamics in discrete domain
- Lecture 29 - Analysis of fixed points and bifurcation in discrete domain

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- Lecture 30 - Analysis of fixed points and bifurcation in discrete domain (Continued...)
- Lecture 31 - More on bifurcations in non-linear systems
- Lecture 32 - Non-linear systems in higher dimensions
- Lecture 33 - Reactor stability analysis
- Lecture 34 - Reactor stability analysis (Continued...)
- Lecture 35 - Reactor stability analysis (Continued...)
- Lecture 36 - Analysis of infectious disease dynamics
- Lecture 37 - Analysis of infectious disease dynamics (Continued...)
- Lecture 38 - Analysis of infectious disease dynamics (Continued...)
- Lecture 39 - Analysis of atmosphere dynamics using Lorenz equations
- Lecture 40 - Analysis of atmosphere dynamics using Lorenz equations (Continued...)
- Lecture 41 - Analysis of system dynamics in transform domain
- Lecture 42 - Analysis of first order system subjected to ideal forcing functions
- Lecture 43 - Analysis of first order system subjected to ideal forcing functions (Continued...)
- Lecture 44 - Analysis of response of second order systems
- Lecture 45 - Analysis of response of second order systems (Continued...)
- Lecture 46 - Analysis of (p,q) order systems
- Lecture 47 - Analysis of (p,q) order systems (Continued...)
- Lecture 48 - Analysis of multiple input - multiple output systems
- Lecture 49 - Block diagrams and inter-conversion of state-space and transform domain models
- Lecture 50 - Analysis of inverse response systems
- Lecture 51 - Analysis of dynamics of discrete-time systems
- Lecture 52 - Sampling and reconstruction of continuous signals
- Lecture 53 - Conversion of continuous models to discrete-time models
- Lecture 54 - Introduction to z-transforms
- Lecture 55 - z-transforms Continued
- Lecture 56 - Response of discrete-time systems
- Lecture 57 - Response of discrete-time systems (Continued...)
- Lecture 58 - Response of discrete-time systems (Continued...)
- Lecture 59 - Stability analysis in transform domain
- Lecture 60 - Review of the course