

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

NPTEL Video Course - Mathematics - NOC:EXCELing with Mathematical Modeling

Subject Co-ordinator - Prof. Sandip Banerjee

Co-ordinating Institute - IIT - Roorkee

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

Lecture 1 - Introduction, Importance and Limitations

Lecture 2 - Units and Dimensions

Lecture 3 - Scaling

Lecture 4 - How to build mathematical models?

Lecture 5 - Basics of Excel - 1

Lecture 6 - Basics of Excel - 2

Lecture 7 - Basics of Excel - 3

Lecture 8 - Linear, Quadratic, Cubic Models

Lecture 9 - Linear Stability Analysis - I

Lecture 10 - Linear Stability Analysis - II

Lecture 11 - Lyapunov Stability

Lecture 12 - Phase Plane Analysis - 1

Lecture 13 - Phase Plane Analysis - 2

Lecture 14 - Phase Plane Analysis - 3

Lecture 15 - Growth Models (Continuous model)

Lecture 16 - Predator-Prey models

Lecture 17 - Two species competition model

Lecture 18 - Arms Race Model

Lecture 19 - Combat Model - I

Lecture 20 - Combat Model - II

Lecture 21 - Carbon Dating

Lecture 22 - Drug Distribution

Lecture 23 - Growth and decay in L-R circuit

Lecture 24 - Rectilinear motion under variable force

Lecture 25 - Dynamic of Rowing

Lecture 26 - Horizontal oscillations

Lecture 27 - Vertical oscillations

Lecture 28 - Epidemic model - 1

Lecture 29 - Epidemic model - 2

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

- Lecture 30 - Rumor model
- Lecture 31 - Varying Gravity model
- Lecture 32 - Tumor model - I
- Lecture 33 - Tumor model - II
- Lecture 34 - Vegetation in a desert model
- Lecture 35 - Mathematical model of love affairs
- Lecture 36 - Discrete models: Difference Equation - I
- Lecture 37 - Difference Equations - II
- Lecture 38 - Basics of Excel - 4
- Lecture 39 - Stability Analysis - I
- Lecture 40 - Stability Analysis - II
- Lecture 41 - Population Models
- Lecture 42 - Bank Account Models
- Lecture 43 - Economic Model (Harrod Model)
- Lecture 44 - Lake Pollutant Models
- Lecture 45 - Mathematical Model of the Dynamics of Alcohol
- Lecture 46 - Discrete Predator-Prey Model
- Lecture 47 - Forsenic Model
- Lecture 48 - Drug Delivery Models
- Lecture 49 - Lanchester's Combat Model
- Lecture 50 - Two-Species Competition Model (Discrete)
- Lecture 51 - Infection model
- Lecture 52 - Smoking Model
- Lecture 53 - Price and Demand Model
- Lecture 54 - Paper Towel model, Burning Calories Model
- Lecture 55 - Learning model, Kidney function model
- Lecture 56 - Empirical Modelling
- Lecture 57 - Estimation of Parameters - I
- Lecture 58 - Estimation of Parameters - II
- Lecture 59 - Estimation of Parameters - III
- Lecture 60 - Simulation Modeling