

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

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Classical Physics

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Introduction
- Lecture 2 - Newtonian mechanics
- Lecture 3 - Dynamics in phase space
- Lecture 4 - Linear dynamical systems
- Lecture 5 - Autonomous dynamical systems (Part 1)
- Lecture 6 - Autonomous dynamical systems (Part 2)
- Lecture 7 - Lagrangian formalism
- Lecture 8 - Summary of classical electromagnetism
- Lecture 9 - Charged particle in an electromagnetic field
- Lecture 10 - Hamiltonian dynamics (Part 1)
- Lecture 11 - Hamiltonian dynamics (Part 2)
- Lecture 12 - Hamiltonian dynamics (Part 3)
- Lecture 13 - Dynamical symmetry (Part 1)
- Lecture 14 - Dynamical symmetry (Part 2)
- Lecture 15 - Randomness in phase space; chaos
- Lecture 16 - Discrete-time dynamics
- Lecture 17 - Discrete-time dynamics
- Lecture 18 - Problems and solutions (Part 1)
- Lecture 19 - Problems and solutions (Part 2)
- Lecture 20 - Classical statistical mechanics
- Lecture 21 - Some probability distributions; isolated system
- Lecture 22 - The microcanonical ensemble
- Lecture 23 - Thermodynamics
- Lecture 24 - The canonical ensemble
- Lecture 25 - Connection between statistical mechanics and thermodynamics
- Lecture 26 - Probability distributions
- Lecture 27 - Probability distributions (concl'd.). Phase transitions (Part 1)
- Lecture 28 - Phase transitions (Part 2)
- Lecture 29 - Phase transitions (Part 3)

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- Lecture 30 - Phase transitions (Part 4); misc. topics
- Lecture 31 - Problems and solutions (Part 3)
- Lecture 32 - Continuous groups in physics (Part 1)
- Lecture 33 - Continuous groups in physics (Part 2)
- Lecture 34 - Continuous groups in physics (Part 3)
- Lecture 35 - Noether's Theorem. Special Relativity (Part 1)
- Lecture 36 - Special Relativity (Part 2)
- Lecture 37 - Special Relativity (Part 3)
- Lecture 38 - Special Relativity (Part 4)