

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

NPTEL Video Course - Mathematics - NOC:Calculus of Several Real Variables

Subject Co-ordinator - Dr. Joydeep Dutta

Co-ordinating Institute - IIT - Kanpur

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

Lecture 1 - Vectors in plane and space
Lecture 2 - Inner product and distance
Lecture 3 - Application to real world problems
Lecture 4 - Matrices and determinants
Lecture 5 - Cross product of two vectors
Lecture 6 - Higher dimensional Euclidean space
Lecture 7 - Functions of more than one real-variable
Lecture 8 - Partial derivatives and Continuity
Lecture 9 - Vector-valued maps and Jacobian matrix
Lecture 10 - Chain rule for partial derivatives
Lecture 11 - The Gradient Vector and Directional Derivative
Lecture 12 - The Implicit Function Theorem
Lecture 13 - Higher Order Partial Derivatives
Lecture 14 - Taylor's Theorem in Higher Dimension
Lecture 15 - Maxima and Minima for Several Variables
Lecture 16 - Second Derivative Test for Maximum and Minimum
Lecture 17 - Constrained Optimization and The Lagrange Multiplier Rule
Lecture 18 - Vector Valued Function and Classical Mechanics
Lecture 19 - Arc Length
Lecture 20 - Vector Fields
Lecture 21 - Multiple Integral - I
Lecture 22 - Multiple Integral - II
Lecture 23 - Multiple Integral - III
Lecture 24 - Multiple Integral - IV
Lecture 25 - Cylindrical and Spherical Coordinates
Lecture 26 - Multiple Integrals and Mechanics
Lecture 27 - Line Integral - I
Lecture 28 - Line Integral - II
Lecture 29 - Parametrized Surfaces

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- Lecture 30 - Area of a surface Integral
- Lecture 31 - Area of parametrized surface
- Lecture 32 - Surface Integrals
- Lecture 33 - Green's Theorem
- Lecture 34 - Stoke's Theorem
- Lecture 35 - Examples of Stoke's Theorem
- Lecture 36 - Gauss Divergence Theorem
- Lecture 37 - Facts about vector fields