NPTEL Video Course - Mathematics - Real Analysis

Subject Co-ordinator - Prof. S.H. Kulkarni

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction
Lecture 2 - Functions and Relations
Lecture 3 - Finite and Infinite Sets
Lecture 4 - Countable Sets
Lecture 5 - Uncountable Sets, Cardinal Number
Lecture 6 - Real Number System
Lecture 7 - LUB Axiom
Lecture 8 - Sequences of Real Numbers
Lecture 9 - Sequences of Real Numbers - (Continued.)
Lecture 10 - Sequences of Real Numbers - (Continued.)
Lecture 11 - Infinite Series of Real Numbers
Lecture 12 - Series of nonnegative Real Numbers
Lecture 13 - Conditional Convergence
Lecture 14 - Metric Spaces
Lecture 15 - Metric Spaces
Lecture 16 - Balls and Spheres
Lecture 17 - Open Sets
Lecture 18 - Closure Points, Limit Points and isolated Points
Lecture 19 - Closed sets
Lecture 20 - Sequences in Metric Spaces
Lecture 21 - Completeness
Lecture 22 - Baire Category Theorem
Lecture 23 - Limit and Continuity of a Function defined on a Metric space
Lecture 24 - Continuous Functions on a Metric Space
Lecture 25 - Uniform Continuity
Lecture 26 - Connectedness
Lecture 27 - Connected Sets
Lecture 28 - Compactness
Lecture 29 - Compactness (Continued.)

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Lecture 30 - Characterizations of Compact Sets
Lecture 31 - Continuous Functions on Compact Sets
Lecture 32 - Types of Discontinuity
Lecture 33 - Differentiation
Lecture 34 - Mean Value Theorems
Lecture 35 - Mean Value Theorems (Continued.)
Lecture 36 - Taylor's Theorem
Lecture 37 - Differentiation of Vector Valued Functions
Lecture 38 - Integration
Lecture 39 - Integrability
Lecture 40 - Integrable Functions
Lecture 41 - Integrable Functions (Continued.)
Lecture 42 - Integration as a Limit of Sum
Lecture 43 - Integration and Differentiation
Lecture 44 - Integration of Vector Valued Functions
Lecture 45 - More Theorems on Integrals
Lecture 46 - Sequences and Series of Functions
Lecture 47 - Uniform Convergence
Lecture 48 - Uniform Convergence and Integration
Lecture 49 - Uniform Convergence and Differentiation
Lecture 50 - Construction of Everywhere Continuous Nowhere Differentiable Function
Lecture 51 - Approximation of a Continuous Function by Polynomials
Lecture 52 - Equicontinuous family of Functions
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