NPTEL Video Course - Mathematics - NOC:Measure Theory (Prof. Indrava Roy)

Subject Co-ordinator - Prof. Indrava Roy

Co-ordinating Institute - IIT - Madras

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

Lecture 30 - Lebesgue measurability under Linear transformation, Construction of Vitali Set - Part 1
Lecture 31 - Lebesgue measurability under Linear transformation, Construction of Vitali Set - Part 2
Lecture 32 - Abstract measure spaces
Lecture 33 - Abstract measure and Caratheodory Measurability - Part 1
Lecture 34 - Abstract measure and Caratheodory Measurability - Part 2
Lecture 35 - Abstrsct measure and Hahn-Kolmogorov Extension
Lecture 36 - Lebesgue measurable class vs Caratheodory extension of usual outer measure on R^d
Lecture 37 - Examples of Measures defined on R^d via Hahn Kolmogorov extension - Part 1
Lecture 38 - Examples of Measures defined on R^d via Hahn Kolmogorov extension - Part 2
Lecture 39 - Measurable functions
Lecture 40 - Measurable functions
Lecture 41 - Egorov's theorem
Lecture 42 - Lebesgue integral of unsigned simple measurable functions
Lecture 43 - Lebesgue integral of unsigned measurable functions
Lecture 44 - Fundamental convergence theorems in Lebesgue integration
Lecture 45 - Lebesgue integral for complex and real measurable functions
Lecture 46 - Basic properties of L^1-functions and Lebesgue's Dominated convergence theorem
Lecture 47 - L^1 functions on R^d
Lecture 48 - L^1 functions on R^d
Lecture 49 - L^1 functions on R^d
Lecture 50 - L^1 functions on R^d
Lecture 51 - Various modes of convergence of measurable functions
Lecture 52 - Easy implications from one mode of convergence to another
Lecture 53 - Implication map for modes of convergence with various examples
Lecture 54 - Uniqueness of limits across various modes of convergence
Lecture 55 - Some criteria for reverse implications for modes of convergence
Lecture 56 - Riesz Representation theorem- Motivation
Lecture 57 - Basics on Locally compact Hausdorff spaces
Lecture 58 - Borel and Radon measures on LCH spaces
Lecture 59 - Properties of Radon measures and Lusin's theorem on LCH spaces
Lecture 60 - Riesz Representation theorem - Complete statement and proof - Part 1
Lecture 61 - Riesz Representation theorem - Complete statement and proof - Part 2
Lecture 62 - Examples of measures constructed using RRT
Lecture 63 - Theorems of Tonelli and Fubini- interchanging the order of integration for repeated integrals
Lecture 64 - Product measures
Lecture 65 - Tonelli's theorem for sets - Part 1
Lecture 66 - Tonelli's theorem for sets - Part 2
Lecture 67 - Fubini-Tonelli theorem
Lecture 68 - Lebesgue's differentiation theorem

Lecture 69 - Lebesgue's differentiation theorem
Lecture 70 - Lebesgue's differentiation theorem
Lecture 71 - DIfferentiation theorems
Lecture 72 - DIfferentiation theorems
Lecture 73 - Riesz's Rising Sun Lemma
Lecture 74 - Differentiation theorem for monone continuous functions
Lecture 75 - Differentation theorem for general monotone functions and Second fundamental theorem of calculus