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   Descrizione fisica 1 online resource (647 pages)

   Collana   University Texts in the Mathematical Sciences, , 2731-9326

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   Disciplina   515.42

   Soggetti   Measure theory
                      Associative rings
                      Associative algebras
                      Functions of real variables
                      Measure and Integration
                      Associative Rings and Algebras
                      Real Functions

   Lingua di pubblicazione Inglese

   Formato   Materiale a stampa

   Livello bibliografico Monografia

   Nota di contenuto Preliminaries -- Lebesgue Measure on Real Line -- Measurable
                      Functions -- More about Sets and Functions -- The Lebesgue Integral
                      -- Differentiation of Functions -- Lebesgue measure and integration in
                      RN -- General Measure and Outer Measure -- Function Spaces --
                      Signed Measure and Complex Measure.

   Sommario/riassunto Designed for senior undergraduate and graduate students in
                      mathematics, this textbook offers a comprehensive exploration of
                      measure theory and integration. It acts as a pivotal link bridging the
                      Riemann integral and the Lebesgue integral, with a primary focus on
                      tracing the evolution of measure and integration from their historical
                      roots. A distinctive feature of the book is meticulous guidance,
                      providing a step-by-step journey through the subject matter, thus
                      rendering complex concepts more accessible to beginners. A
                      fundamental grasp of differential and integral calculus, as well as
                      Riemann integration, is recommended to ensure a smoother
                      comprehension of the material. This textbook comprises 10 well-
                      structured chapters, each thoughtfully organized to lead students from

fundamental principles to advanced complexities. Beginning with the establishment of Lebesgue's measure on the real line and an introduction to measurable functions, the book then delves into exploring the cardinalities of various set classes. As readers progress, the subtleties of the Lebesgue integral emerge, showcasing its generalization of the Riemann integral and its unique characteristics in higher dimensions. One of the book's distinctive aspects is its indepth comparison of the Lebesgue integral, improper Riemann integral, and Newton integral, shedding light on their distinct qualities and relative independence. Subsequent chapters delve into the realm of general measures, Lebesgue-Stieltje's measure, Hausdorff 's measure, and the concept of measure and integration in product spaces. Furthermore, the book delves into function spaces, such as spaces, and navigates the intricacies of signed and complex measures, providing students with a comprehensive foundation in this vital area of mathematics.