Measure and Integration
S. Kesavan

This book deals with topics usually studied in a master’s or graduate level course on the theory of measure and integration. It starts with the Riemann integral and points out some of its shortcomings which motivate the theory of measure and the Lebesgue integral.

Starting with abstract measures and outer-measures, the Lebesgue measure is constructed and its important properties are highlighted. Measurable functions, different notions of convergence, the Lebesgue integral, the fundamental theorem of calculus, product spaces, and signed measures are studied. There is a separate chapter on the change of variable formula and one on $L^p$-spaces.

Most of the material in this book can be covered in a one-semester course. The prerequisite for following this book is familiarity with basic real analysis and elementary topological notions, with special emphasis on the topology of the $N$-dimensional euclidean space.

Each chapter is provided with a variety of exercises.


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