**MA6702 Measure Theory**

Introduction, outer measure, measurable sets, Lebesgue measure, a nonmeasurable set. Measurable functions, Egorov's theorem, Lusin's theorem, Simple functions, Lebesgue integration of a bounded function over a set of finite measure. The integral of nonnegative functions, Fatou's lemma, Monotone Convergence Theorem, Lebesgue's Dominated Convergence Theorem. Change of variables formula. Differentiation of monotone functions, Functions of bounded variation, Differentiation of an integral, Absolute continuity. Minkowski's inequality and Holder's inequality, Completeness of Lp, Denseness results in Lp.

**References:**

1. H. L. Royden, Real analysis. Third edition. Macmillan Publishing Company, New York, 1988.

2. W. Rudin, Real and complex analysis. Third edition. McGraw-Hill Book Co., New York, 1987.

3. G. De Barra, Measure Theory and Integration, New Age International, 1981.

4. P.R. Halmos, Measure Theory, GraduateText in Mathematics, Springer-Verlag, 1979.

5. Inder K. Rana, An Introduction to Measure and Integration (2nd ed.), Narosa Publishing House, New Delhi,

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