I	Course Code	**MA 227003**
II	Course Title	**Measure Theory**
III	Credit Structure	L T P C 3 1 0 4
IV	Prerequisite (If any)	Basic Real Analysis and Functional Analysis
V	Course Content	σ- algebra of sets, Measurability of sets and functions, simple functions, measure and its properties, integration of positive functions, integration of complex functions, complete measure, Riesz representation theorem for $C_c(X)$, regularity properties of Borel measures, Lebesgue measure, continuity properties of measurable functions, complex measure, total variation of a complex measure, Radon – Nikodym theorem, Jordan decomposition, Hahn decomposition, duals of L^p- spaces, derivatives of measure, the fundamental theorem of calculus, Jacobian of a differentiable transformation, change of variable formula, product measures, Fubini`s theorem, completion of product measures.
VI	Text/References	• K. Chandrasekharan, A Course on Topological Groups, Hindustan Book Agency, 1996 • L. Nachbin, The Haar Integral, van Nostrand, 1965 • I. K. Rana, An Introduction to Measure and Integration, 2nd Ed., American Mathematical Society, 2002 • H. L. Royden, Real Analysis, 3rd Ed., Prentice Hall of India, 1988 • W. Rudin, Real and Complex Analysis, McGraw-Hill, 1987.