Subject Code : P8MA7

CC VII - MEASURE THEORY AND INTEGRATION

UNIT I

Measure on Real line - Lebesgue outer measure – Measurable sets - Regularity - Measurable function - Borel and Lebesgue measurability.

UNIT II

Integration of non-negative functions - The General integral - Integration of series - Riemann and Lebesgue integrals.

UNIT III

Abstract Measure spaces - Measures and outer measures - Completion of a measure - Measure spaces - Integration with respect to a measure.

UNIT IV

Convergence in Measure- Almost uniform convergence- Signed Measures and Halin Decompostion –The Jordan Decomposition

UNIT V

Measurability in a Product space – The product Measure and Fubini's Theorem.

TEXT BOOK(S)

[1] G.De Barra, Measure Theory and Integration, New age international (p) Limited.

UNIT – I - Chapter II: Sections 2.1 to 2.5
UNIT – II - Chapter III : Sections 3.1 to 3.4
UNIT – III - Chapter V: Sections 5.1 to 5.6
UNIT – IV - Chapter VII: Sections 7.1 and 7.2, Chapter VIII: Sections 8.1 and 8.2
UNIT – V - Chapter X: Sections 10.1 and 10.2

REFERENCE(S)

[1] Measure and Integration, by M.E. Munroe, Addison - Wesley Publishing Company, Second Edition, 1971.
[2] P.K. Jain, V.P. Gupta, Lebesgue Measure and Integration, New Age International Pvt Limited Publishers, New Delhi, 1986. (Reprint 2000)
[3] Richard L. Wheeden and Antoni Zygmund, Measure and Integral: An Introduction to Real Analysis, Marcel Dekker Inc. 1977.
[4] Inder, K. Rana, An Introduction to Measure and Integration, Narosa Publishing House, New Delhi, 1997.