2005 – 2006 AB

SX-S 435

M 401 – Integration Theory

UNIT I : Measure and Integration - Measure spaces- Measurable functions-Integration-General convergence theorems-signed measures- The Radon -Nikodym theorem.

Sections 1 to 6 of Chapter 11 of the textbook.

UNIT II : The L^p spaces - Outer measure and measurability - the extension theorem -The Lebesgue stieltjes integral - Product measures.

Section 7 of Chapter 11 and Sections 1 to 4 of Chapter 12 of the textbook

UNIT III : Inner measure, Extension by sets of measure zero-Caratheodary outer measure-Hausdorff measure.

Sections 6 to 9 of Chapter 12 of the textbook.

UNIT IV : Measure and topology: Baire sets and Borel sets- the regularity of Baire and Borel measures- the construction of Borel measures-Positive linear functionals and Borel measures- bounded linear functionals on C (X)

Section 1 to 5 of Chapter 13 of the textbook.

Textbook :

Real analysis, H.L. Royden, Macmillan Publishing Co. Inc. 3rd edition, New York, 1988.