Sx-S 433

ANDHRA UNIVERSITY : COLLEGE OF SCIENCE & TECHNOLOGY
DEPARTMENT OF MATHEMATICS

M.A./M.Sc. MATHEMATICS

BANACH ALGEBRAS
(An optional Course in IV Semester)
(With effect from the admitted batch of 2004-2005 in their IV Semester during the academic year 2005-2006)

SYLLABUS

UNIT-I

General preliminaries on Banach Algebras - The definition and examples - Regular and singular elements - Topological divisors of zero - The spectrum - The formula for the spectral radius - The radical and the semi-simplicity.

UNIT-II

The structure of commutative Banach Algebras - The Gelfand mapping - Applications of the formula $r(x) = \lim \|x^n\|^{1/n}$ - Involutions in Banach algebras - The Gelfand - Neumark theorem.

UNIT-III

Some special commutative Banach algebras - Ideals in $C(x)$ and the Banach - Stone theorem - The stone - cech compactification - commutative C^* - algebras.

UNIT-IV

Fixed point theorems and some applications to analysis - Brouwer's and Schauder's fixed point theorems (without proofs) Picard's theorem - continuous curves - The Hahn - Mazurkiewicz theorem (without proof) Boolean algebras - Boolean rings - The stone representation theorem.

CONTENT AND EXTENT AS IN THE BOOK :

Introduction to Topology and Modern Analysis - by G.F. Simmons International student edition - McGraw-Hill Kogakusha Ltd.

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