

SYLLABUS

FUNCTIONAL ANALYSIS

MSc. (MATHEMATICS)

UNIT - I

Banach Spaces with examples of $L^p([a, b])$ and $C([a, b])$, Hahn Banach theorem, open mapping theorem, closed graph theorem, Baire Category theorem, Banach Steinhauns theorem (uniform boundedness principle), Boundedness and continuity of linear transformation, Dual Spaces, embedding in second dual.

UNIT - II

Hilbert space, orthonormal basis, Bessel's inequality, Riesz Fischer theorem, Parseval's identity, bounded Linear functionals; projections, Riesz Representation theorem, adjoint operators, self adjoint, normal, unitary and isometric operators.