DEPARTMENT OF MATHEMATICS,

UNIVERSITY OF KARACHI,

Course Outline

MATH 612: FUNCTIONAL ANALYSIS - II

Course contents:

Hilbert spaces. Projection theorem. Orthonormal and complete orthonormal sets. Operators in Hilbert spaces Invariant subspaces and projections. Spectral mapping theorem in finite dimensional Hilbert spaces. Banach algebras, C- and B- algebras. Krein- Millman and Gelfand-Mazur theorems.

Books Recommended:

1. Kreyszig, E., Introductory functional analysis with applications John Wiley and Sons, 1978.
2. Nachbin, L., Introduction to Functional Analysis: Branch Space and Differential Calculus, Marcel Dekker. Inc.1981.
3. Davis, E. B., Spectral Theory and Differential Operators, Cambridge University Press, 1995.
4. Limaye, B. V., Functional Analysis, Wiley Eastern Limited, 1980.
5. Devito, C. L., Functional Analysis and Linear Operator Theory, Addison Wesley Publishing CO., 1990.
6. Siddiqui, A. H., Functional Analysis with applications, Tata McGraw Hill, 1986.
7. Vulik, B. Z, Introduction to Functional Analysis, Pergamon, 1963.
8. Simmons, G. F., Introduction to Topology and Modern Analysis, McGraw Hill, 1998.
9. Goffman, C. and Pedrick, G., First Course in Functional Analysis, Prentice Hall, 1997.
10. Taylor, A. E., Introduction to Functional Analysis, Prentice Hall, 1979.