Module Code: MATH-429
Module Title: **Functional Analysis - III**
Module Rating: 3 Cr. Hours
Pre-Requisite: Functional Analysis - I

Semi-norms

- Semi norms, locally convex Spaces
- Quasi normed linear spaces
- Bounded linear functionals
- Hahn Banach theorem

Conjugate spaces

- Second conjugate space of l_p
- The Riesz representation theorem for linear functionals on a Hilbert spaces
- Conjugate space of $C[a,b]$
- A representation theorem for bounded linear functionals on $C[a,b]$

Uniform Boundedness

- Weak convergence
- The Principle of uniform boundedness
- Consequences of the principle of uniform boundedness
- Graph of a mapping and closed graph theorem

Linear transformation and complete continuity

- The closure of linear transformation
- The class of linear transformations that admit a closure

Recommended Books

1. G. Bachman and L. Narici, *Functional Analysis*, (Academic Press, New York, 1966)
2. A. E. Taylor, *Functional Analysis*, (John Wiley and Sons, Toppan, 1958)
3. G. Helmberg , *Introduction to Spectral theory in Hilbert spaces*, (N. H. Publishing Company 1969)
4. E. Kreyszig, *Introduction to Functional Analysis with Applications*, (John Wiley and Sons, 2004)
5. F. Riesz and B. Sz. Nagay, *Functional Analysis*, (Dover Publications, New York, Ungar, 1965)
6. W. Rudin, *Functional Analysis*, 2nd edition, (McGraw Hill Book Company, New York, 1991)