Semester - III

Advanced Functional Analysis-- I

Course No. MM-CP-304 ***Maximum Marks: 100***
Duration of Examination: 3 hrs ***(a) External Exam: 80***
(b) Internal Exam: 20

Unit I

Complemented spaces Co not complemented in L_1 . University of C[0,1] for separable Banach spaces, Banach-Alagolu theorem reflexive Banach spaces and their characterization terms of week- compactness.

Unit II

Goldstine's theorem completeness and Dual of Lp [a,b],p. Extremme points, Krein-Milman theorem and aits simple consequences,. Muntz theorem on C[a,b] and L2 [a,b].

Unit III

Topological vector spaces (TVC)" Definition and Examples. Basic properties –subspaces quotients and products of TVS. Bounded sets & totally bounded sets. Characterizing a linear topology in terms of local' base. Continuous and bounded linear maps between TVS.

Unit IV

Least upper bound and projective limits of linear topologies. Weak topology of a TVS Metrization and finite comensionality in TVS. Completeness,, Sequential completeness and Quasi completeness in TVS and their relationship. E-Spaces and open mapping theorem/closed-graph theorem in F-spaces.

References

1. Ballobas, B;Lineart Analusis(Camb. Univ.Pres)
2. Goffman, C and Pedrick ,G; A first course in functional Analysis (Prentice Hall.)
3. Beauzamy, B;Indroduction to Banach Spaces and their geometry (North Holland).
4. Wilansky, A: Modern Methods in toplogical Vector Spaces (McGraw Hill).
5. Swatz C: Topological vector Spaces (Marcel Dekker)
6. Rudin, W; Functional analysis (Tata McGrawHill).
7. Jarchow ,H,.Locally Convex Spaces (Teubner Texts).
8. Sachaefer, H,H. topological Vector Spaces (Springer Verlag).
9. Bachman, G & Narici, L., topological Vector spaces (Marcel Dekker)