

MA-611 TOPOLOGICAL VECTOR SPACES

Vector spaces: Balanced sets, absorbent sets, convex sets, linear functionals, linear manifolds, sublinear functionals and extension of linear functionals.

Topological vector spaces: Definitions and general properties, product spaces and quotient spaces, bounded and totally bounded sets, convex sets and compact sets in topological vector spaces, closed hyperplanes and separation of convex sets, complete topological vector spaces, metrizable topological vector spaces, normed vector spaces, normable topological vector spaces and finite dimensional spaces.

Locally convex spaces: General properties, subspaces, product spaces, quotient spaces, convex and compact sets in locally convex spaces, bornological spaces, barreled spaces, spaces of continuous functions, spaces of indefinitely differentiable function, the notion of distribution, nuclear spaces, montal spaces, Schwartz spaces, (DF)-spaces and Silva spaces.

RECOMMENDED BOOKS:

1. Robertson, A.P. and Robertson, W., Topological Vector Spaces, Cambridge University Press, 1966.
2. Cristescu, R., Topological Vector Spaces, Noordhoff International Publishing, Netherlands, 1977.
3. Treves, F., Topological Vector Spaces, Distributions and Kernels Academic Press New York, 1967.
4. Horvath, J., Topological Vector Spaces, Addison-Wesley, 1966.
5. Schaefer, H., Topological Vector Spaces, Springer-Verlag, 1966.