

MA-432: ADVANCED TOPOLOGY

Compactness in metric spaces, limit point compactness, Sequential compactness and their various characterizations, equivalence of different notions of compactness.

Connectedness, various characterizations of connectedness, connectedness and T_2 -spaces, local connectedness, path-connectedness, components.

Homotopic maps, homotopic paths, loop spaces, fundamental groups, covering spaces, the lifting theorem, fundamental groups of the circle, torus etc.

Chain complexes, notion of homology.

RECOMMENDED BOOKS:

1. Greenberg, M.J., Algebraic topology, A first course, The Benjamin/Comings Publishing Company, 1967.
2. Wallace, A.H., Algebraic topology, Homology and cohomology, W.A. Benjamin, Inc., New York, 1968.
3. Gemignani, M.C., Elementary Topology, Addison-Wesley Publishing Company, 1972.