Module Code: MATH-305
Module Title: **Topology**
Module Rating: 3 Cr. Hours

Topology
- Definition and examples
- Open and closed sets
- Subspaces
- Neighborhoods
- Limit points, closure of a set
- Interior, exterior and boundary of a set

Bases and Sub-bases
- Base and sub bases
- Neighborhood bases
- First and second axioms of countablility
- Separable spaces, Lindelöf spaces
- Continuous functions and homeomorphism
- Weak topologies, finite product spaces

Separation Axioms
- Separation axioms
- Regular spaces
- Completely regular spaces
- Normal spaces

Compact Spaces
- Compact topological spaces
- Countably compact spaces
- Sequentially compact spaces

Connectedness
- Connected spaces, disconnected spaces
- Totally disconnected spaces
- Components of topological spaces

Recommended Books

1. J. Dugundji, *Topology*, (Allyn and Bacon Inc., Boston 1966)
2. G. F. Simmon, *Introduction to Topology and Modern Analysis*, (McGraw Hill Book Company, New York, 1963)
3. Stephen Willard, *General Topology*, (Addison-Wesley Publishing Co., London, 1970)
4. Seymour Lipschutz, *General Topology*, (Schaum's Outline Series, McGraw Hill Book Company 2004)
5. James R. Munkres, *Topology*, 2nd edition, (Prentice Hall Inc., 2003)

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