

Course Type	Course Code	Name of Course	L	T	P	Credit
DC	NMCC521	Topology	3	1	0	4

Course Objective

- To explore the foundations of mathematics at a level and at depth for someone ambitious to study the higher mathematics.

Learning Outcomes

- After completion of the course, a student will be able to realise what it means to do mathematics, instead of only learning it or to do some computational exercises.

Unit No.	Topics to be Covered	Contact Hours	Learning Outcome
1	Basic Concepts of Topology, The Metric Topology, Basis, Sub-basis, Interior Points, Limit Points, Boundary Points, Closure of a Set, Subspace topology.	10 L+2T	To learn the foundations of topology.
2	First and Second Countable Topological Spaces, Continuous Maps, Open Maps, Closed Maps, Homeomorphisms, Product Topology.	9L+3T	To know the concepts of countable axioms along with continuity in topological spaces. One can realize the difference between geometry and topology.
3	Connected Spaces, Path Connectedness, Components and its properties, Quotient Topology.	7L+3T	To learn the concept of connected spaces along with quotient topology.
4	Compact spaces and its properties, Local compactness, One point compactification of a topological Space, Tychonoff theorem.	9L+3T	To learn the concept of compact topological spaces.
5	Separation Axioms: Hausdorff Spaces, Regular Spaces and Normal Spaces.	7L+3T	To learn the concept of separation axioms in topological spaces.
Total		42L+14T	

Text Books:

1. J. R. Munkres: Topology, Prentice-Hall, 2015.

Reference Books:

1. G. F. Simmons: Introduction to Topology and Modern Analysis, Tata McGraw-Hill, 2017.
2. M.A. Armstrong, Basic Topology, Springer, 1983.