24MA801 **Foundations of Modern Mathematics** **4 0 0 4**

This course aims to provide a sound foundation of Modern Mathematics emphasizing the various branches of Mathematics providing a strong foundation for the researcher.

1. Algebra

Galois theory

References: Contemporary Abstract Algebra, Joseph A. Gallian, Fourth edition, Narosa Publishing House, 2011. Topics in Algebra, I. N. Herstein, Second edition, John Wiley and Sons.

2. Topology

Review of basic topology, Homotopy

References: Topology, James R Munkres, Prentice Hall (2000).

Lecture notes on elementary topology and geometry, I M Singer, J A Thorpe, New York Springer 1967.

Elements of Algebraic Topology, James R. Munkres, Addison-Wesley Publishing Company (1984)

3.Modern Analysis

Theory of distributions and Fourier Transform

Reference: Functional Analysis, Walter Rudin, McGraw-Hill Education (1973) .

4. Measure theory

Review of basic measure theory, Radon-Nikodym theorem.

Reference: Real Analysis, Royden, Pearson, 3rd edition (1988).

Evaluation Pattern:

Category	Marks
Continuous Assessment	20
Mid-Term	30
End Semester	50
Total	**100**