

MA-612 NON-STANDARD ANALYSIS

Universe and Languages: Set relations, Filters, Individuals and super structures, Universes, Languages, Semantics, Los Theorem, Concurrence, Infinite Integers, Internal sets.

Ordered Fields, Non-standard Theory of Archimedean Fields, The hyperreal numbers, Real sequences and Functions. Prolongation Theorems. Non-standard Differential calculus, Additivity, The existence of Non-measurable sets.

Topological spaces, Mapping and products, Topological Groups, The existence of Haar Measure, Metric Spaces, Uniform continuity and Equicontinuity, Compact mapping.

RECOMMENDED BOOKS:

1. Machover, M and Hirschfeld, J., Lectures on Non-standard Analysis, Springer-Verlag.
2. Martin, D., Applied Non-standard Analysis, John Wiley and Sons.
3. Robinson, A., Non-standard Analysis, Studies in Logic and the Foundations of Mathematics, North Holland.