MA 401: REAL ANALYSIS (3-1-0:4)

Review of basic concepts of real numbers: Archimedean property, completeness.

Metric spaces, compactness, connectedness, (with emphasis on R^n).

Continuity and uniform continuity.

Functions of several variables: Differentiation, inverse and implicit function theorems.

Riemann-Stieltjes integral: definition and existence of the integral, properties of the integral.

Sequence and series of functions: uniform convergence, uniform convergence and continuity, Uniform convergence and integration, uniform convergence and differentiation,equicontinuity, Ascoli's theorem.

Fourier series, pointwise convergence, Fejer's theorem, Weierstrass approximation theorem.

Text Books and References

1. T. M. Apostal, "Mathematical Analysis",Addison – Wesley Publishing Co.
2. W. Rudin, "Principles of Mathematical Analysis", McGraw Hill.
3. R. G. Bartle, "Elements of Real Analysis", John Wiley.
4. L. M. Graves, "The Theory of Functions of AReal Variable", McGraw Hill.