**MA3702- Analysis-I**

**Real number system:** Completeness property, Archimedean property, Denseness of rational and irrationals, Countable and uncountable, Cardinality, Zorn’s lemma, Axiom of choice etc, Sequences and series of real numbers.

**Continuity and Differentiability on R^n:** Continuous real valued functions of one real variable, Mean value

Theorems, Derivatives of functions Rolle’s Theorem, Taylor's theorem etc.

**Metric spaces:** Open sets, closed sets, Continuous functions, Uniform continuous functions, Completeness, Cantor intersection theorem, Baire category theorem, Compactness, Totally boundedness, Finite intersection property. Connectedness. (With emphasis on R^n ).

**Functions of several variables:** Continuity, Differentiation, inverse and implicit function theorems with applications.

**References:**

1. T.M. Apostol: Mathematical Analysis, Addison-Wesley, 1974
2. S.K. Berberian: A first course in Real Analysis, UTM Springer, 1994
3. M. Searcoid: Metric Spaces, UTM Springer, 2006.
4. W. Rudin: Principles of Mathematical Analysis, Tata McGraw Hill, 1976.