FMCC 202   ANALYSIS – I   (3-1-0)

Module-I :(14 Hours)

Bounded and unbounded sets, Infimum and supremum of a set and their properties, Order completeness property of R, Archimedian property of R, Density of rational and irrational numbers in R, Dedekind form of completeness property, Equivalence between order completeness property of R and Dedekind property. Order completeness in , Neighbourhood, Open set, Interior of a set, Limit point of a set, Closed set, Countable and uncountable sets, Derived set, closure of a set, Bolzano-Weierstrass theorem for sets.

Module-II :(14 Hours)

Sequence of real numbers, Bounded sequence, limit points of a sequence, limit interior and limit superior convergent and non-convergent sequences, Cauchy's sequence, Cauchy's general principle of convergence, Algebra of sequences, Theorems on limits of sequences, Subsequence's, Monotone sequences, Monotone convergence Theorem.

Infinite series and its convergence, Test for convergence of positive term series, Comparison test, Ratio test, Cauchy's root test, Raabe's test, Logarithmic test, Integral test, Alternating series, Leibnitz test, Absolute and conditional convergence.

Module-III :(12 Hours)

Continuous and discontinuous functions, Types of discontinuities, Theorems on continuity, Uniform continuity, Relation between continuity and uniform continuity,

TEXT BOOKS:

1. G. Das & S. Pattnaik : Fundamentals of Mathematical Analysis, TMH
2. S.C. Malik and Savita Arora: Mathematical Analysis, New Age International (P) Ltd. Publishers, 1996.

REFERENCE BOOKS:

1.. R. G. Bartle and D.R. Sherbert, Introduction to Real Analysis (4th Edition), Wiley.

2.. K. A. Ross, Elementary Analysis: The Theory of Calculus, Under graduate Texts in Mathematics, Springer (SIE), Indian reprint, 2004.

3. Sudhir R Ghorpade and Balmohan V. Limaye, A course in Calculus and Real Analysis, Undergraduate Text in Math., Springer (SIE). Indian reprint, 2004.