PROGRAME NAME: :	B.A.(Programme)
COU.RSE NAME :	Analysis
SEMESTER DURATION: January- May	

Week	Topic(s)	Teaching Methodology Adopted/ Continuous Internal Evaluation
1	Algebraic and order properties of , Inequalities, Absolute values, ε-neighborhood.	Discussion
2	Bounded above, Bounded below, Supremum, Infimum, The completeness properties of R, R is a complete ordered field, Application of supremum property, Archimedean property, Density of rational numbers.	Lectures
3	Open set, closed sets and properties, Cluster point of a set.	Assignments
4	Sequence, Convergent sequence, tails of sequence, limit of a sequence, divergent and oscillatory sequences, bounded sequences.	Demonstration
5	Monotone sequence, monotone convergence theorem, Cauchy's theorems on limits.	Presentation
6	Sub sequence, Bolzano-Weierstrass Theorem, limit superior and limit inferior of a bounded sequence (Definition and examples only)	Case study
7	Cauchy's sequence, Cauchy convergence criterion.	Self instructions
8	Infinite series, Convergence of a series, nth term test, Cauchy's criterion for series, p-series p >1, Positive term series, Comparison test.	Presentation
9	Absolute convergence, Test for Absolute convergence, Root test	Lectures
10	Limit comparison test II, Cauchy's nth root test, D'Alembert's ratio test, Integral test, Raabe's test, Alternating series, Leibnitz's test; Absolute and conditional convergence.	Case study
11	Limit of functions, Sequential criterion for limits, Algebra of limits.	Presentation
12	Continuous functions, Sequential criterion for continuity, Discontinuities, Boundedness of continuous functions, Intermediate value theorem, Uniform continuity.	Demonstration
13	Riemann integral: Upper and lower integrals, Riemann integrable functions.	Tutorial
14	Riemann integrability of continuous and monotone functions.	Discussion

Course Objectives: The course aims at building an understanding of convergence of sequence and series of real numbers and various methods/tools to test their convergence. The course also aims at building understanding of the theory of Riemann integration.

Course Learning Outcomes: The course will enable the students to:
   i)   Understand basic properties of the field of real numbers.
   ii)   To test convergence of sequence and series of real numbers.
   iii)   Distinguish between the notion of integral as anti-derivative and Riemann integral.