

## MTH433A

### **Syllabus:**

Real numbers, sequences, series, tests for convergence, absolute convergence, rearrangement of terms. Open and closed sets.

Continuous functions of one real variable. Differentiation.

Riemann integration. Fundamental theorem of calculus. Computation of definite integrals. Improper integrals.

Sequences of functions and point-wise convergence. Uniform convergence; and its relation with continuity, differentiation and integration.

Functions of several variables. Continuity. Partial derivatives. Differentiability. Taylor's theorem. Maxima and minima. Double integral, Fubini's theorem, Triple integration (evaluation).

### ***Recommended Books:***

1. R. G. Bartle and D. R. Sherbert, Introduction to Real Analysis, Wiley, 2011.
2. J. E. Marsden, A. Tromba and A. Weinstein, Basic Multivariable Calculus, Springer, 1993.
3. T. M. Apostol, Calculus, Vols. 1 and 2, Wiley, 1991 and 1969

***Useful Website:*** <http://home.iitk.ac.in/~psraj/mth101/>

### **Evaluation plan**

There will be two quizzes. Each one will be of 20 minutes duration and 15 marks. There will be one mid-semester examination which will be of 2 hours duration and 70 marks. End Semester Examination will be of 3 hours duration and 100 marks. There will be no make-up for mid semester exam or Quizzes.