

1.	Title of the Course	Real Analysis
2.	Course Number	MA5107
3.	Status of the Course	Core
4.	Structure of Credits	3-1-0-4
5.	Offered To	PG
6.	New Course/Modification to	Modification To MA5107
7.	To be Offered by	Department of Mathematics
8.	To take effect from	July 2019
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	Course Objective: To introduce the basics concepts in topology and calculus of real-valued functions. To show the polynomial approximation of differentiable functions.	
12.	Course Content: Metric spaces, compact sets, connected sets, convergent sequences, Cauchy sequences, series of nonnegative real numbers, absolute convergence, addition and multiplication of series, rearrangement of series; Limit of functions, continuous functions, monotonic functions, limits at infinity, derivative of functions, mean value theorems, L'Hospital's rule, derivatives of higher order, Taylor's theorem; Definition and existence of Riemann-Stieltjes integral, properties of the integral, the fundamental theorem of integral calculus, rectifiable curves; Sequences and series of functions, uniform convergence, applications of uniform convergence, equicontinuous families of functions, Arzela-Ascoli theorem, the Stone-Weierstrass theorem; Power series, exponential and logarithmic functions, trigonometric functions, Fourier series.	
13.	Text book(s): 1. Apostol T M, <i>Mathematical Analysis</i> , Narosa Publishing House (1996). 2. Rudin W, <i>Principles of Mathematical Analysis</i> , McGraw-Hill Education (2013).	
14.	Reference(s): 1. Bartle R G and Sherbert D R, <i>Introduction to Real Analysis</i> , Wiley India Pvt. Ltd (2015). 2. Carothers N L, <i>Real Analysis</i> , Cambridge University Press (2000).	