Course No.	Course Title	No. of Units			Pre-requisites
		Th.	Pr.	Credit	
MATH 311	Real Analysis I	3	-	3	MATH 102 MATH 151

Course Objectives:

The aim of this course is to introduce the students to the core of the subject in order to extend their understanding of basic analysis and set theory. By the end of the course, the students will be able to:

- Know the algebraic properties and order properties.
- Understand the completeness axiom.
- Define convergent sequences.
- Apply limit theorems for sequences.
- Define monotone sequences and subsequences.
- Recognize limit superior and inferior of a sequence.
- Understand open and closed sets in R.
- Recognize limit point of a set.
- Apply the Bolzano-Weierstrass theorem.
- Understand and apply the Heine-Borel theorem.
- Compare the concepts of continuity and uniform continuity.
- Evaluate the derivative.

Course Description:

The algebraic properties of R, The order properties, Completeness axiom and its consequences, Convergent sequences, Limit theorems, Monotone sequences, Subsequences, Limit superior and inferior of a sequence, Cauchy sequences, Open and closed sets, Limit points, Bolzano-Weierstrass theorem, Compact sets, Heine-Borel theorem, Limit of a function, Continuous functions, Uniform continuity, Derivatives, The mean value theorem, L'Hospital's rule.

Main Text Book:

- Introduction to Real Analysis, by R. G. Bartle and D. R. Sherbert, 3rd edition, John Wiley, New York 1999.

Subsidiary Books:

- Introduction to Real Analysis, M. Stoll, 2nd edition, Addison-Wesley Longman, Boston, 2001.
- Principles of Mathematical Analysis, by Walter Rudin, 3rd edition, 1986.