

Department of Mathematics
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Course	Course Name : Analysis I
	Course Code : KM184501
	Credit : 4
	Semester : 5

Description of Course	
In this course, students will study the real number system, i.e. a system that has complete ordered field properties, definition of convergent sequences, a monoton and bounded sequence, Cauchy sequence, limits of function, continuous and uniformly continuous function and derivative of functions.	
Learning Outcome	
PLO 1	[C2] Students are able to identify and explain foundations of mathematics that include pure, applied, and the basic of computing
PLO 2	[C3] Students are able to solve simple and practical problems by applying basic mathematical statements, methods and computations
Course Learning Outcome	
<ol style="list-style-type: none"> 1. Students able to explain basic principles from the theory, especially those that are related to the real number systems. 2. Students able to explain basic principles related with convergence of sequences and its proving concepts. 3. Students able to relate the concept of convergence in limit and continuity of functions. 4. Students able to explain basic concepts related to derivative of functions and its properties, also its applications to some theorems. 	
Main Subject	

Real number systems, absolute values from their geometric and neighborhood definition, supremum and infimum and its applications, convergent, monotonic and bounded sequences, subsequences, divergence criteria, Cauchy sequences, contractive sequences, limit of functions, the existence of limits and the squeeze principle, continuous functions, discontinuous and uniformly continuous functions and Lipschitz conditions, their derivative functions and its properties also their applications to the Rolle theorem and mean value theorem.

Prerequisites

Mathematical Logic
Discrete Mathematics

Reference

1. Bartle R G and Sherbert D R, "Introduction to Real Analysis", 4th Edition, John Wiley & Sons, Inc. 2011
2. Sunarsini dan Sadjidon, "Modul Ajar: *Analisis Riil I*", Jurusan Mathematics FMIPA-ITS, 2014.

Supporting Reference