Calculus I

Academic Year: (2022 / 2023) **Review date: 12-05-2022**

Department assigned to the subject: Mathematics Department

Coordinating teacher: RAMIREZ URBAN, FERNANDO

Type: Basic Core ECTS Credits : 6.0

Year : 1 Semester : 1

Branch of knowledge: Engineering and Architecture

OBJECTIVES

In this first course of Calculus the students should acquire the mathematical background needed to understand and apply the concepts and techniques of one-variable infinitesimal Calculus. More specifically, at the end of the course students should be able to

1. Handle and operate conf¡dently with real numbers
2. Find the limits of converging sequences
3. Understand the concept of function, as well as to operate with elementary ones
4. Understand the concept of derivative, both form the analytical and the geometrical point of view
5. Graphically represent functions of one real variable
6. Compute the area of regions delimited by the graphs of elementary funcions

DESCRIPTION OF CONTENTS: PROGRAMME

1.- Numerical systems. Sequences
2.- Elementary Functions
3.- Limits and continuity
4.- Continuous functions on [a,b]
5.- Derivative of a function. Calculus of derivatives
6.- Rolle's theorem. Mean value theorem: consequences
7.- Local study of a function: Taylor's theorem
8.- Graphing functions. Optimization problems
9.- Indefinite integral
10.-Definite integral

ASSESSMENT SYSTEM

The evaluation will be based on the following criteria:
-partial evaluation controls (50%)
-Final control (50%)

% end-of-term-examination:	50
% of continuous assessment (assigments, laboratory, practicals…):	50

BASIC BIBLIOGRAPHY

- S. L. Salas, E. Hille y G. J. Etgen Calculus (Vol I), Reverté.