Mathematical Methods I

Academic Year: (2021 / 2022) **Review date: 02-05-2019**

Department assigned to the subject: Mathematics Department

Coordinating teacher: VEIGA VEIGA, MARIA PILAR

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 appearing in Statistics. In particular to be acquinted with real functions of one variable, their properties of continuity, derivability, integrability and their graphic representation.

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
11.-Applications of the integral. Improper integrals: relationship with series

LEARNING ACTIVITIES AND METHODOLOGY

The docent methodology includes:
-Master classes, where the knowledge that the students should acquire will be presented. The students will have written notes and the basic reference texts in order to make easier their subsequent work.
-Problem classes where problems proposed to the students will be solved.
-Partial controls
-Final control

ASSESSMENT SYSTEM

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

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

BASIC BIBLIOGRAPHY

- Ron Larson y Bruce Edwards Cálculus, Mc Graw Hill, 2010 (9ª edición)