Calculus I

Academic Year: (2019 / 2020) **Review date: 01-08-2019**

Department assigned to the subject: Mathematics Department

Coordinating teacher: PIJEIRA CABRERA, HECTOR ESTEBAN

Type: Basic Core ECTS Credits : 6.0

Year : 1 Semester : 1

Branch of knowledge: Engineering and Architecture

OBJECTIVES

The student will be able to formulate, solve and understand mathematically the problems arising in engineering. To do so it is necessary, in this first course of Calculus, to be acquainted with the real functions of one variable, their properties of continuity, derivability, integrability and their graphic representation. The student will understand the concepts of derivative and integral and their practical applications. Also, he/she will manage sequences and series of real numbers and of functions that will apply to numeric approximation of functions and the resolution of equations.

DESCRIPTION OF CONTENTS: PROGRAMME

Properties of real numbers. Real functions of one real variable. Continuity and derivability. Graphic representation. Polynomic approximation. Sequences and series of real numbers and of functions.
Integration. Properties of the integral and calculus of primitives. Calculation of plane areas, lengths and revolution volumes.

LEARNING ACTIVITIES AND METHODOLOGY

The docent methodology will include:

- Master classes, where the knowledge that the students must acquire will be presented. To make easier the development of the class, the students will have written notes and also will have the basic texts of reference that will facilitate their subsequent work.
- Resolution of exercises by the student that will serve as self-evaluation and to acquire the necessary skills.
- Small groups classes, in which problems proposed to the students are discussed and developed.
- Tutorials.

ASSESSMENT SYSTEM

The evaluation will be based in the following criteria:

- Partial evaluation controls (40%).
- Final examination (60%).

% end-of-term-examination:	60
% of continuous assessment (assigments, laboratory, practicals…):	40

BASIC ELECTRONIC RESOURCES

- CESGA . YAMWI (Yet Another Maxima Web Interface), a web interface to the CAS Maxima.: http://maxima.cesga.es/
- The OEIS Foundation . The On-Line Encyclopedia of Integer Sequences: https://oeis.org/
- WolframAlpha . Online Integral Calculator: https://www.wolframalpha.com/calculators/integral-calculator/