



Course: Calculus I
Course Code: 17815
Institution: Escuela Politécnica Superior
Degree: Computer Engineering
Level: Undergraduate
Type: Core course
ECTS: 6

1. COURSE

CALCULUS I

1.1. Course Title

CALCULUS I

1.2. Course Code

17815

1.3. Course type

Core course

1.4. Course level

Undergraduate

1.5. Year of study

First

1.6. Semester

First

1.7. Number of Credits ECTS

6

1.8. Prerequisites

None

1.9. Is class attendance mandatory?

Attendance is highly recommended.



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1.10. Faculty Data

Coordinator:

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1.11. OBJETIVOS DEL CURSO / COURSE OBJECTIVES

Understanding of the basic concepts of differential and integral calculus of one real variable.

Knowledge of basic concepts of Real numbers, sequences, numerical series and the concept of convergence.

Fluent manipulation of concepts of limit, continuity, differentiability and integration of a function of a real variable and their applications.

The basic skills acquired by students to study this course is B1: ability to solve mathematical problems that may arise in engineering. Aptitude for applying such skills to: differential and integral calculus of one variable.

1.12. Course Contents

1. Integer, Rational and Real numbers.
2. Sequences and series of Real numbers.
3. Continuous functions and their properties.
4. The derivative and the differential of a function and their basic properties.
5. Fundamental Theorems about derivatives.
6. Some applications of differential calculus.
7. The Riemann integral and some integration techniques.
8. Some applications of integral calculus.



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1.13. References.

1. F. J. Pérez González. Cálculo diferencial e integral de funciones de una variable. Disponible en:
http://www.ugr.es/~fjperez/textos/calculo_diferencial_integral_func_una_var.pdf
2. M. Spivak: "Calculus". Segunda edición. Editorial Reverté, 1994.
3. B. Demidovich: "Problemas y ejercicios de análisis matemático". Editorial Paraninfo, 1976.
4. M. Bilbao, F. Castañeda, J.C. Peral: "Problemas de Cálculo". Pirámide, 1998.
5. D. Pestana, J.M. Rodríguez, E. Romera, E. Tourís, V. Álvarez, A. Portilla: "Curso práctico de Cálculo y Precálculo". Ariel Ciencia, 2000.
6. R. Bartle, D. Sherbert: "Introducción al análisis matemático de una variable". Segunda edición. Limusa. Noriega editores, 1999.