

30368 - Calculus

Syllabus Information

Academic Year: 2021/22

Subject: 30368 - Calculus

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 581 - Bachelor's Degree in Telecommunications Technology and Services Engineering

ECTS: 6.0

Year: 1

Semester: First semester

Subject Type: Basic Education

Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The learning process designed for this course is based on the following:

- Continuous work of the student: study of the theory content, review of the documentation made available for the student and lookup of the bibliography, solution of problems, exercises and questions on the subject.
- Lectures where the theoretical contents will be developed. They will be illustrated with examples and counterexamples for helping to understand them.
- Laboratory sessions: students will solve problems and exercises with the help of a computer.
- Problems sessions where concepts and techniques presented in lectures will be further developed.

4.2. Learning tasks

The course is organized according to:

- Type I: Lectures (42 hours).
- Type II: Laboratory sessions (12 hours).
- Type III: Tutorial sessions of problems (6 hours).

Lectures: the teacher will explain the theoretical contents of the course and solve illustrative applied problems. These problems and exercises can be found in the problem set provided at the beginning of the semester. Lectures run for 3 weekly hours. Although it is not a mandatory activity, regular attendance is highly recommended.

Laboratory sessions: sessions will take place every 2 weeks (6 sessions in total) and last 2 hours each. Students will solve some problems by hand and/or using mathematical software.

Tutorial sessions of problems: Problems will be considered in order to help the understanding of the contents seen in lectures.

4.3. Syllabus

The course will address the following topics:

1. Real and complex numbers.
2. Limits and Continuity
3. Differentiation. Applications of Differentiation. Taylor polynomials
4. Approximate resolution of non linear equations.
5. Integration. Indefinite integration. Riemann sums and definite integrals. Improper integrals. Parametric integrals
6. Series. Power series

4.4. Course planning and calendar

For further details concerning the timetable, classroom and further information regarding this course, please refer to the Escuela de Ingeniería y Arquitectura de la Universidad de Zaragoza, website, <https://eina.unizar.es/>.

4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30368>