Universidad Zaragoza

Academic Year/course: 2024/25

39605 - Mathematics II

Syllabus Information

Academic year: 2024/25
Subject: 39605 - Mathematics II
Faculty / School: 175 - Escuela Universitaria Politécnica de La Almunia
Degree: 608 -
ECTS: 6.0
Year: 1
Semester: Second semester
Subject type: Basic Education
Module:

1. General information

The basic mathematical methods which form part of the number of tools with which all engineers must count on to solve any problem that might appear on their work. This course provides students with the ability to solve mathematical problems that may arise in engineering on algebra, integralcalculus and geometry.

2. Learning results

1. Applying the basic concepts of differential and integral calculus, linear algebra, statistic and probability.

2. Knowledge of the specific mathematical sofware and its use on the problem solving.

3. Knowledge of mathematical terminology, notation and methods.

4. Critical analysis of the obtained results.

3. Syllabus

- Algebra:

1. Linear equations in linear algebra.

2. Matrix algebra.

3. Determinants.

4. Vector spaces.

5. Own values and vectors.

6. Orthogonality and least squares.

- Integral calculus:

1. Multiple integrals.

2. Curves.

3. Surfaces.

4. Vector analysis.

4. Academic activities

- **Theoretical lessons**, in which the fundamental concepts are explained complemented by detailed examples to illustrate them.
- **Practical lessons** in which problems that must be solved using the concepts and methods previously considered and the support of specific software are proposed.
- **Asessment**.
- **Autonomous work** (individual or group).

5. Assessment system

There will be **two written tests** along the term. They will test theoretical and practical aspects of the subject. They are related to learning results 1, 2, 3 and 4. Their weight in the final grade will be 50% each.

Final grade (100 %) will be calculated considering each evaluation assessment, without having to reach a minimum grade in each of the tests. To pass the subject, the student must obtain a grade equal or higher than 50 %.

If the student has not passed any of these activities during the semester, they will have the opportunity to pass the subject by means of a **global test** in the two official exams.

Assessment criteria: The assessment criteria are the same. The following will be valued:

- understanding of the mathematical concepts used to solve the problems;
- use of strategies and efficient proceedings for their resolution,
- clear and detailed explanations with justification for the answers,
- absence of mathematical errors in the development and the solutions,
- adequately interpret the results obtained,
- correct use of terminology and notation,
- organized and clear presentation.

6. Sustainable Development Goals

4 - Quality Education
5 - Gender Equality
9 - Industry, Innovation and Infrastructure