Universidad Zaragoza

Academic Year/course: 2022/23

29801 - Mathematics II

Syllabus Information

Academic Year: 2022/23

Subject: 29801 - Mathematics II

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
326 - Escuela Universitaria Politécnica de Teruel

Degree: 440 - Bachelor's Degree in Electronic and Automatic Engineering
444 - Bachelor's Degree in Electronic and Automatic Engineering

ECTS: 6.0

Year: 1

Semester: 440-First semester o Second semester
107-First semester
444-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 methodology followed in this course is oriented towards the achievement of the learning objectives. It is based on the participation and the active role of the student that favor the development of communication and decision-making skills. A wide range of teaching and learning tasks are implemented, such as lectures, theory sessions, guided assignments, laboratory sessions, autonomous work, and tutorials.

Students are expected to participate actively in the class throughout the term.

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, as well as other course-specific learning materials.

Further information regarding the course will be provided on the first day of class.

4.2. Learning tasks

The course includes 6 ECTS organized according to:

- Lectures and theory sessions: 35 hours.

- Computer lab sessions: 12 hours.

- Guided assignments: 13 hours.

- Autonomous work, study and tutorials: 84 hours.

- Assessment: 6 hours.

Lectures: the professor will explain the theoretical contents of the course and solve illustrative applied examples, encouraging the participation of students. These learning tasks run according to the academic schedule established by the center with 2-3 weekly hours on average. Although it is not a mandatory activity, regular attendance is highly recommended.

Computer lab sessions: In the practices of the course, mathematical algorithms are analyzed and programmed by means of symbolic and numerical programming software installed in the computer laboratories of EINA. Sessions will take place every 2 weeks (6 sessions in total) and last 2 hours each. They are designed to force the student to engage in critical, analytic, and interpretive thinking.

Guided assignments: Students will work individually and in teams in groups and they will complete assignments, problems, and exercises related to concepts seen in laboratory sessions and theory sessions.

Autonomous work: students are expected to spend about 84 hours to study theory, solve problems and prepare lab sessions.

Tutorials: the professor's office hours will be posted on Moodle and the degree website to assist students with questions and doubts. It is beneficial for the student to come with clear and specific questions.

The activities described here may be modified to adapt to the necessary health security measures throughout the course.

4.3. Syllabus

The course will address the following topics:

- Matrix Algebra: Matrices, determinants and linear systems of equations
- Vector spaces
- Euclidean spaces
- Linear transformations
- Diagonalization of matrices
- Iterative methods for linear systems
- Differential Geometry: an introduction of curves

4.4. Course planning and calendar

The schedule of classes is stablished by EINA and EUP de Teruel, and it will be published before the academic year starts.

Each Professor will provide a schedule for tutorials.

Other activities will be scheduled according to the number of students and will be announced in advance (https://moodle.unizar.es/add/).