30202 - Mathematics I

Syllabus Information

Academic Year: 2019/20
Subject: 30202 - Mathematics I
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
326 - Escuela Universitaria Politécnica de Teruel
Degree: 443 - Bachelor's Degree in Informatics Engineering
439 - Bachelor's Degree in Informatics Engineering
ECTS: 6.0
Year: 1
Semester: First semester
Subject Type: Basic Education
Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The teaching methodology will include:

- Lectures (theory and problems) (42 hours)
- Resolution of exercises.
- Computer sessions (6 sessions of 2 hours).
- Tutorial sessions.
- Partial exam (3 hours)
- Final exam (3 hours)

It is necessary a continuous working to get a right knowledge of this subject.

1. In lectures, the subject is explained in detail. It is very convenient that students ask their douts in the classroom and propose alternative solutions.
2. In practical classes, students solve problems by own.
3. In computer sessions, they use mathematical software to resolve some exercises and compare with solutions obtained by hand.

4. Tutorial sessions are given in the office's teacher about particular and personal work made by students.
5. Exercise sheets and additional material will be availble for students.

4.2.Learning tasks

The course includes the following learning tasks:
- Lectures in large groups where the knowledge that the students must acquire will be presented.
- Resolution of exercises by the student that will serve as self-evaluation and to acquire the necessary skills.
- Computer sessions oriented to practical knowledge related to the fields of the course.
- Tutorial sessions, individual and voluntary, in which students will have the possibility to consult their doubts and questions on the subject to the teacher. The time and place of these sessions will be set by the teacher at the beginning of the course.

4.3.Syllabus

The course will address the following topics:
- 1. Real numbers, complex numbers and elementary functions.
- 2. Numerical series.
- 3. Limits and continuity of functions in one variable.
- 4. Differential and integral calculus of functions in one variable.
- 5. The approach of functions, series of functions; numerical derivation and integration.

Each computer practices correspond with regard to each of the chapters aforementioned

4.4.Course planning and calendar

There are three hours per week in the first semester for master and exercises classes, following the official timetable given by the Escuela of Ingenieria y Arquitectura in the University of Zaragoza.

Computer lessons take place in the two hours per two weeks for every student.

Exams and other personal evaluation will communicate with enough time in advance.

4.5.Bibliography and recommended resources

ZARAGOZA

BB 1. Burden, Richard L.. Análisis numérico / Richard L. Burden, J. Douglas Faires . 6a ed.,rev. México [etc.] : International Thomson, cop. 1998

BB 2. Burgos Román, Juan de. Cálculo infinitesimal de una variable / Juan de Burgos Román . 2ª ed. en español Madrid [etc.] : McGraw-Hill, D.L. 2006

BB 3. Galindo Soto, Félix. Guía práctica de cálculo infinitesimal en una variable real / Félix Galindo Soto, Javier Sanz Gil, Luis A. Tristán Vega . - 1ª ed. Madrid [etc.] : Thomson, D. L. 2003

BB 4. Kincaid, David. Análisis numérico : las matemáticas del cálculo científico / David Kincaid y Ward Cheney ; versión en español de Rafael Martínez Enríquez y Carlos Torres Alcaraz . Wilmington, Delaware : Addison-Wesley Iberoamericana, cop. 1994

BB 5. Rogawski, Jon. Cálculo : una variable / Jon Rogawski ; versión española traducida por, Gloria García García ; revisado por, Martín Jimeno Jiménez . - 2ª ed. orig. Barcelona : Reverté, D.L. 2012

BB 6. Tomeo Perucha, Venancio. Problemas resueltos de cálculo en una variable / Venancio Tomeo Perucha, Isaías Uña Juárez, Jesús San Martín Moreno . Madrid : Thomson-Paraninfo, D. L. 2007