

Información del Plan Docente

Academic Year	2017/18
Faculty / School	110 - Escuela de Ingeniería y Arquitectura
Degree	435 - Bachelor's Degree in Chemical Engineering
ECTS	6.0
Year	1
Semester	Half-yearly
Subject Type	Basic Education
Module	---

1.General information**1.1.Introduction****1.2.Recommendations to take this course****1.3.Context and importance of this course in the degree****1.4.Activities and key dates****2.Learning goals****2.1.Learning goals****2.2.Importance of learning goals****3.Aims of the course and competences****3.1.Aims of the course****3.2.Competences****4.Assessment (1st and 2nd call)****4.1.Assessment tasks (description of tasks, marking system and assessment criteria)****5.Methodology, learning tasks, syllabus and resources****5.1.Methodological overview**

The learning process designed for this course is based on:

- The attitude of the teacher that, even using conventional lessons in order to communicate most of the contents, will apply them in the classes to the practical resolution of the exercises and consolidate the concepts introduced, fostering the participation of the students. The scholars must feel that the teacher is accessible and receptive to the resolution of doubts and problems.

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-The attitude of the student, that we believe it should be active and participative. The scholars dispose of, on the one hand, computer classes aiming at their participation, on the other, teamworks which seek to inspire commitment with teacher and fellows. The student must remember that he should work/study from the beginning of the course.

5.2.Learning tasks

The program offered to the student in order to achieve the expected results includes the following activities.

Face-to-face

Classroom lessons . In this type of learning, the teacher exposes most of the contents of the course including, possibly, some proofs. No distinction is made between theory and problems hours. They are structured in an introduction to the topic, some theoretical contents and practical exercises to consolidate what has been learn t.

In this type of activity, the student spends 42 hours divided into sessions of three hours per week. It is strongly recommended the student not to miss any hour. Daily study and participative attitude are strongly helpful.

Computer lessons . The teacher provides an abstract of the topic and the computer tools needed to solve the exercises of the subject proposed.

In this activity, the student spends 12 hours divided into sessions of two hours every two weeks.

Group meetings (with the teacher), to perform supervised works whenever the scholars require support and guidance. They use the class stuff and the references of the course. In those meetings, the teacher may ask some questions related to the topic in order to evaluate the knowledge of the matters included.

Tutorials . The teacher deals with the specific needs of each student on a more personal basis.

Individual work . The student should review the information given in order to understand the following lessons, to do outlines, summaries and exercises of the subjects involved. The teacher provides collections of problems to the student in order to achieve the objectives of the course. Their resolution is not compulsory, and it does not take part of the evaluation process, but it is strongly recommended.

Teamwork . The student must collaborate with the rest of the group to perform the tasks proposed by the teacher.

5.3.Syllabus

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1. Sets of numbers. Ordered sets.
2. Single variable calculus.
3. One variable integrals.
4. Numerical sequences. Limits.
5. Series of numbers. Convergence and sums.
6. Taylor series.
7. Continuity and differentiability of functions with several variables.
8. Multiple integrals.
9. Numerical methods.

5.4. Course planning and calendar

Schedule of on-site classes and presentation of teamworks

The course comprises 6 ECTS credits corresponding to 150 hours of student work. The targeted planning of these activities is:

Face-to-face activities: 60 hours divided in 42 hours for classroom lessons, 12 for computer lessons, 4 for evaluation tests and 2 tutorial hours.

1. Private activities: 90 hours divided in some time for individual study and teamworks.

5.5. Bibliography and recommended resources

BB	Sánchez Ruiz, Luis Manuel. Cálculo matemático con aplicaciones / Luis Manuel Sánchez Ruiz, Matilde Pilar Legua Fernández Valencia : Editorial de la UPV, D. L. 2008
BB	Sebastián Guerrero, María Victoria. Cálculo de una y varias variables (con prácticas en wxMaxima) / M ^a . Victoria Sebastián Guerrero, M ^a . Antonia Navascués Sanagustín . - 1 ^a ed., 1 ^a reimp.

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Zaragoza : Prensas Universitarias de Zaragoza, 2012

- BC** Burgos Román, Juan de. Cálculo infinitesimal de una variable / Juan de Burgos Román . - 2ª ed. en español Madrid [etc.] : McGraw-Hill, D.L. 2006
- BC** Burgos Román, Juan de. Cálculo infinitesimal de varias variables / Juan de Burgos Román . - 2ª ed. Madrid [etc.] : McGraw-Hill/Interamericana, cop. 2008
- BC** 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
- BC** Galindo Soto, Félix. Guía práctica de cálculo infinitesimal en varias variables / Félix Galindo Soto, Javier Sanz Gil, Luis A. Tristán Vega . - 1ª ed. Madrid [etc.] : Thomson, D.L. 2005
- BC** Larson, Ron. Cálculo 2 de varias variables / Ron Larson, Bruce H. Edwards ; revisión técnica, Marlene Aguilar Abalo ... [et al.] ; [traducción: Joel Ibarra Escutia ... (et al.)] . 9ª ed. México [etc.] : McGraw Hill, cop. 2010
- BC** Larson, Ron. Cálculo I / Ron Larson, Robert P. Hostetler, Bruce H. Edwards ; traductores, Sergio Antonio Durán Reyes ... [et al.] ; revisores técnicos, María del Carmen Hano Roa, José Job Flores Godoy, Lorenzo Abellanas Rapún. - 8ª ed. México [etc.] : McGraw-Hill, cop. 2006
- BC** Salas, Saturnino L.. Calculus : una y varias variables / Salas, Hille, Etgen . - 4ª ed. española, reimp. / actualización de la 4ª ed. española correspondiente a la 8ª ed. en inglés y revisión de la obra, Carles Casacuberta Vergés Barcelona : Reverté, D.L. 2005-2007