26904 - Computer Science

Información del Plan Docente

Academic Year	2017/18
Faculty / School	100 - Facultad de Ciencias
Degree	447 - Degree in Physics
ECTS	6.0
Year	1
Semester	First semester
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 intended in this course is based upon the following principles:

Knowledge will be conveyed by means of theoretical classes.

The acquisition of the skills and competences intended will be realised by means of practice sessions with a computer,

and the resolution of a series of proposed tasks.

5.2.Learning tasks

The programme offered to help the student achieve the defined goals comprises the following activities:

1. Theoretical classes, oriented to the conveying of knowledge regarding software design and implementacion.
2. Analysis and implementation of solutions to proposed exercises and problems. Such activities will be carried out both on the blackboard (analysis, design and discussion of alternative solutions) and on the computer (in guided practices).
3. Resolution of problems in teams. Students will apply the acquired knowledge to the resolution of mathematical and physical problems, some of which requiring data treatment and graphical representation of the results.

5.3.Syllabus

The course syllabus includes:
a. Basic concepts
b. Elementary sentences
c. Structured sentences: block, conditional and loop.
d. Subalgorithms.
e. Data structures: arrays, structs, pointers and files.
f. Basic notions on Algorithmics.
g. Basic notions on data analysis and graphical reprsentations. Use of specialised packages.

5.4.Course planning and calendar

Schedule for presential sessions and deliverable deadlines

The course has 6 ECTS (150 student working hours), which can be broken down in the following way:

Activity AF1 : Knowledge Conveying (1.5 ECTS).

Activity AF2 : Implementation and resolution of exercises and probles (3 ECTS):

· Discussion of examples and problems on the blackboard (1.5 ECTS)
· Practice sessions on computer (1.5 ECTS)

Activity AF3 : Problem solving (1.5 ECTS)

Scheduled sessions :

● Theoretical clases: in dates established by the Faculty.

● Practice sessions on computer: 7 practices will be held. The dates will be communicated in advance.

● Deliverable deadlines: in dates determined and communicated by the teacher.

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5.5.Bibliography and recommended resources

- BB [Algoritmia (1)] - Balcázar, José Luis. Programación metódica / José Luis Balcázar Madrid [etc] : McGraw-Hill, D. L. 1994
- BB [Algoritmia (2)] - Brassard, Gilles. Fundamentos de algoritmia / G. Brassard, T. Bratley ; traducción, Rafael García-Bermejo ; revisión técnica, Ricardo Peña, Narciso Martí . - [1a. ed. en español] Madrid [etc.] : Prentice Hall, D.L. 2002
- BB [Algoritmia (3)] - Peña Marí, Ricardo. Diseño de programas : formalismo y abstracción / Ricardo Peña Marí México [etc.] : Prentice Hall, D. L. 1993
- BB [Programación en C/C++ (1)] - Schildt, Herbert. C manual de referencia / Herbert Schildt ; traducción Luis Hernandez Yañez ; revisión técnica Antonio Vaquero Sanchez . - 4ª ed. Madrid [etc.] : Osborne McGraw-Hill, D.L. 2000
- BB [Programación en C/C++ (2)] - Problemas resueltos de programación en lenguaje C / Félix García Carballeira...[et al.] . - 1ª ed., 2ª reimp. Madrid : Thomson, 2004
- BB [Programación en C/C++ (3)] - Deitel, Harvey M.. Cómo programar en C++ / Harvey M. Deitel, Paul J. Deitel ; traducción, Alfonso Vidal Romero Elizondo, Jorge Octavio García Pérez ; revisión técnica, Gabriela Azucena Campos García . - 4a ed. México [etc.] : Pearson Educación, 2003
- BB [Programación en C/C++ (4)] - Stroustrup, Bjarne. El lenguaje de programación C++ : edición especial / Bjarne Stroustrup ; coordinación general y revisión técnica, Luis Joyanes . Edición especial Madrid : Addison-Wesley Iberoamericana España, D.L. 200