

## 1. BASIC INFORMATION

<b>Course</b>	Computer Science in Engineering
<b>Degree program</b>	GIA: Grado en Ingeniería Aeroespacial
<b>School</b>	Escuela de Arquitectura, Ingeniería y Diseño
<b>Year</b>	1 <sup>st</sup> Course
<b>ECTS</b>	6
<b>Credit type</b>	Basic
<b>Language(s)</b>	English
<b>Delivery mode</b>	Presential (Face-to-Face)
<b>Semester</b>	1 <sup>st</sup>
<b>Academic year</b>	2021-2022
<b>Coordinating professor</b>	Nourdine Aliane

## 2. PRESENTATION

Fundamentals of computing is a course designed for first-year students to provide them with basic knowledges and skills in computer sciences. The course provides a basic knowledge related to hardware organization and theoretical foundation of data representation as well as algorithm development. Additionally, the course covers an introduction to programming using C/C++ as well as the use of tools scientific and engineering calculation. The course concludes with a basic introduction to databases and data organization.

## 3. COMPETENCIES AND LEARNING OUTCOMES

### Learning outcomes:

- LO11: Manage computer applications for engineering and make an assessment of their potential for engineering work
- LO12: Program scripts in computer applications for engineering

### Basic competencies:

- CB1: That students have demonstrated knowledge and understanding in a field of study that part of the basis of general secondary education, and is usually found at a level that, while supported by advanced textbooks, includes some aspects that will knowledge of the forefront of their field of study
- CB2: That students can apply their knowledge to their work or vocation in a professional manner and have competences typically demonstrated through devising and sustaining arguments and solving problems within their field of study.
- CB3: That students have the ability to gather and interpret relevant data (usually within their field of study) to make judgments that include reflection on relevant social, scientific or ethical
- CB4: To allow students to communicate information, ideas, problems and solutions both to a specialized and non-specialized audience

- CB5: That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy

**Transversal competencies:**

- CT13: Ability to use tools to search for library resources or information (information retrieval).
- CT17: Addressing the issues and challenges related to their area of expertise with flexibility, initiative, innovation, and dynamism (entrepreneurial profile).
- CT20: Take decisions, in advance, on what is need to be done, who should do it, and how it should be done.

**Specific competencies:**

- CE3: Basic knowledge of the use of computers, operating systems, databases and computer programs with application in engineering.

## 4. CONTENTS

- Introduction to the use and programming of computers
- Introduction to operating systems and databases
- Management of computer programs with application in engineering, in their field

## 5. TEACHING-LEARNING METHODOLOGIES

The following are the types of teaching-learning methodologies that will be applied

- Survey of objectives and interests
- Master class
- Investigation in groups or problem solving in groups
- Designs

## 6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours the student will spend on each one:

**Campus-based mode:**

Training activity	Número de horas
Tutorías individuales o grupales/ Individual or group tutorials	10
Resolution of exercises, problems, tests and practical work	40
Expositions and presentations by the teacher (Master classes)	20
Expositions and presentations asynchronous by the teacher (Master classes)	5
Laboratory and workshop practices	30
Search for information and / or preparation of written assignment and reports	15
Autonomous study	25
Assessment tests	5
Total	150

## 7. EVALUACION AND ASSESMENT

Listed below are the assessment systems used and the weight each one carries towards the final course grade:

Assessment system	Weight
Exams, quizzes and other tests of knowledge	30%-35%
Preparation of articles, reports or reports	15%-30%
Alternative evaluation techniques	15%-30%
Field experiences, conferences and visits	10%-10%
Transversal competences (rubrics)	10%-15%

### 7.1. First exam period

To pass the subject in the ordinary call, the student must:

- Deliver all work and tests
- Have a grade greater than or equal to 5.0 in the final exam.
- Obtain a grade greater than or equal to 5.0 in the weighted average.

When any of the above criteria is not met, the final grade will be:

- The obtained weighted average it is less than or equal to 4.
- Will be 4 if the weighted average value is greater than 4.

The final grade in the ordinary call will be considered as NP (Not Presented, or No Show) when the student has not delivered any evaluable activity, which they are part of the weighted average.

### 7.1. Second exam period

To pass the subject in the ordinary call, the final grade is determined according to the following criteria:

- Grades obtained in tests during the ordinary call will be kept.
- Obtain a grade greater than or equal to 5.0 in the extraordinary exam.
- Obtain a grade greater than or equal to 5.0 in the weighted average.

When any of the above criteria is not met, the final grade will be:

- The obtained weighted average if it is less than or equal to 4.
- Will be 4 if the weighted average value is greater than 4.

The final grade in the extraordinary call will be considered as NP (Not Presented, or No Show) when the student has not delivered any evaluable activity with compared to the delivered activities in the ordinary call.

## 8. SCHEDULE

This section indicates an approximate planning of the evaluable activities:

Evaluation activities	Date
Test-1	Weeks 3-4
Test-2	Weeks 8-9
Test-3	Weeks 11-12
Final Exam	Weeks 14-15

This schedule may be modified to adaptation to the incoming circumstances. However, any modification will be notified to the student with enough time.

## 9. BIBLIOGRAPHY

Recommended bibliography:

- Prieto, A. Lloris, J.C. Torres, Introducción a la Informática, McGraw-Hill
- Luis Joyanes Aguilar. Fundamentos de programación. McGraw-Hill
- Williams Stallings. Sistemas Operativos. Prentice-Hall
- H.M. Deitel. Cómo Programar en C/C++. Prentice-Hall.
- Matlab: Edición del estudiante. Prentice-Hall

## 10. DIVERSITY UNIT

For students with specific educational needs.

In order to guarantee equal opportunities to students with specific educational needs, any syllabus adaptations/readjustment is subject to a mandatory issuing of a report by the Diversity Unit (UAD). Thus, students with specific educational needs are urged to contact, using the email: [unit.diversidad@universidadeuropea.es](mailto:unit.diversidad@universidadeuropea.es) at the beginning of each semester.

## 11. ONLINE SURVEYS

Your opinion matters!

The Universidad Europea encourages you to participate in several surveys which help identify the strengths and areas we need to improve regarding professors, degree programs and the teaching-learning process.

The surveys will be made available in the “surveys” section in virtual campus or via e-mail.

Your assessment is necessary for us to improve.

Thank you very much for your participation.