2010-11 academic year

Programming Fundamentals (21297)

Degree/study: Bachelor's degree in Computer Sciences, Bachelor's degree in Telematics Engineering and Bachelor's degree in Audiovisual Systems Engineering
Year: 1st
Term: 2nd and 3rd
Number of ECTS credits: 8 credits
Time commitment: 200 hours
Teaching language or languages: catalan and spanish
Teaching Staff: Jesús Ibañez

1. Presentation of the subject

Programming Fundamentals is part of a set of subjects about algorithmics and programming carried out in the first and second year of the bachelor's degrees in Computer Sciences, Telematics Engineering and Audiovisual Systems Engineering. For this first subject of the set, it is assumed that students have no prior knowledge about algorithmics and programming. In this course the foundations of algorithmics, of the data structures and of the programming in C language are also established. During the subjects called Object-Oriented Programming and Structure of Data and Algorithms (first term of the second year) the skills acquired here will be studied deeply, so at the end of the first term of the second year students will have to be able to develop programs with a considerable size using appropriate data structures, in an imperative way and in an object-oriented way. It is also important to note that the fundamentals acquired in Programming Fundamentals are essential to implement the practical part of many subjects of the degree.

The learning activities are mainly divided into different categories depending on their type:
- Lectures: teachers explain a series of concepts and techniques, and also examples of its use. Students must revise teacher's explanations and their own notes out of the classroom to assimilate the contents.
- Seminar sessions: students must solve a series of small activities, putting into practice the concepts and techniques explained in the lectures. These activities will begin in computer classrooms and will have to be finished out of the classroom.
- Practical sessions: students have to solve some larger problems than the exercises mentioned above, so they must decide which concepts and techniques they have to use in each case. These activities will begin in computer classrooms and they have to be finished out of the classroom. Moreover, in practical sessions students learn how to use programming tools.
- Self-assessment exercises: exercises to help students to check if they have assimilated the concepts and techniques presented at the end of each unit. This activity is carried out by students out of the classroom.

2. Previous requirements to follow the formative itinerary

This course doesn't require previous knowledge on programming or algorithmics. To carry out some exercises it is required some knowledge on mathematics learnt in high school.

3. Competences to be obtained in the subject

The main objective of this subject is that students acquire the fundamentals of algorithmics and data structures, as well as they learn to create fluently medium size programs using C language.
This chapter details what students are expected to have learned once the subject is finished.