

Course Syllabi

CODE 201

NAME Analysis and Design of Algorithms

Credits 6 ECTS

Period Fall Semester

Course Specifications

Flipped-classroom model. In-classroom activities: discussion sessions, problem solving sessions, laboratory work; Individual work: online lectures, problem assignments.

Objectives and contents

The objectives of the course are (1) knowing the main techniques for algorithm design (i.e., being able to apply these for solving specific problems and being able to reason about their applicability and suitability) and (2) attaining adequate knowledge about algorithmic complexity (i.e., analyze the algorithms built, reason about their efficiency and perform comparisons among algorithms).

The course is organized in two thematic parts, a short one dealing with algorithm analysis (introductory topics, computational complexity) and another one –which will comprise most of the course– tackling algorithm design (including techniques such as divide-and-conquer, dynamic programming, greedy algorithms, backtracking and branch-and-bound).

The overall focus of the course is on applied matters and practical problem solving with algorithms. Programming knowledgeability in Java is assumed.

Assessment

A continuous assessment methodology is used: partial tests and several lab projects will be conducted during the semester. The final mark will be based on their outcome plus a bonus obtained by actively participating in class (e.g., delivering proposed assignments, solving problems in class, etc.).

Lecturer

Dr. Carlos Cotta Porras

ccottap@lcc.uma.es

Room 3.2.49