



PRINCIPLES OF COMPUTER SCIENCE B

Enrollment year	2021/2022
Academic year	2021/2022
Regulations	DM270
Academic discipline	ING-INF/05 (DATA PROCESSING SYSTEMS)
Department	DEPARTMENT OF ELECTRICAL, COMPUTER AND BIOMEDICAL ENGINEERING
Course	ELECTRONIC AND COMPUTER ENGINEERING
Curriculum	PERCORSO COMUNE
Year of study	1°
Period	2nd semester (07/03/2022 - 17/06/2022)
ECTS	6
Lesson hours	55 lesson hours
Language	Italian
Activity type	WRITTEN AND ORAL TEST
Teacher	FACCHINETTI TULLIO - 6 ECTS
Prerequisites	Those required for enrollment.
Learning outcomes	The primary objectives of the course are to provide the students with the logical principles of the operation and organization of processing systems and the acquisition of methodologies to exploit their potential, with particular reference to the study and techniques for programming computers. The course includes the description of the functional structure of the main hardware and software modules that make up a processing system. Furthermore, the techniques and fundamental tools for the use of the computer and for its programming are presented, which is an essential training aspect and which form the basis of the necessary experimental activity. The student will acquire a set of cultural tools to facilitate the study of other topics in their school curriculum and, on the other hand, has

learned which topics they will have to autonomously study in order to acquire unforeseen skills. from your study plan. In particular, it is believed that the student will have acquired the necessary skills for the development of algorithmic solutions for problems of limited complexity and for the coding and development of programs in C language, as a basis for the study of more complex and advanced problems.

Course contents

The principles of computer programming are illustrated. In particular, the formal aspects of problems, and the design and coding of algorithms are addressed through the methodologies and techniques of structured programming and the criteria for the analysis, testing and validation of programs. The goal is to provide students with operational skills in software development and sensitivity to problems of good documentation and reliability of applications.

The lessons related to programming includes the presentation of the principles of programming and the detailed description of the syntax of the C language. The theoretical activity is supplemented by exercises in the computer laboratory during which solutions to numerical and numerical computation problems are presented. on data structures. In particular, sorting algorithms, search in the tables, management of data structures are implemented.

Teaching methods

Lessons (hours / year in the classroom): 45
Exercises (hours / year or online): 24
Practical activities (hours / year in the classroom): 0

Reccomended or required readings

Facchinetti, Larizza, Rubini, Programmare in C - Concetti base e tecniche avanzate, Apogeo Editore, 2015.

Assessment methods

The exam consists of a practical programming test and a programming theory test.

The practical test is carried out in the computer science classrooms C2-C3. The test involves the solution of a problem through the realization of a program in C language. The duration of the practical test is 3 hours. During the test it is possible to use the notes and the textbook, but not the exercise book and other documents containing solved exercises.

The programming theory test is carried out consists of questions and exercises on UNIX commands, flowcharts, and the C language.

The overall grade of the part of the course relating to programming is the average between the grade of the practical part and that of the programming theory (weights 2/3 and 1/3 respectively).

The overall grade of the Fundamentals of Computer Science exam is therefore composed of 3 parts: 1) the practical programming test 2) the programming theory test (Facchinetti) and 3) the Danish theoretical test. The three tests can be taken at any time, independently of each other. The result of a test that has already been passed remains valid for 1 year. If a test that has already been passed is taken again, e.g. to

improve the previous result, that previous result is canceled, even if the most recent grade is insufficient.

Further information

Sustainable development goals - Agenda 2030

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