SYLLABUS DEL CORSO

Informatica Generale - 3

1920-2-E3301M194-E3301M198M-T3

Learning objectives

The course aim is to introduce the basic concepts of computer science, the structure and evolution of the automation systems and their main application areas.

Contents

Introduction to Computer Science, digital data representation, machine architecture, introduction to Algorithms, data base and SQL, operating System, computer networks

Detailed program

1. Introduction to Computer Science

2. Machine architecture

- Von Neumann architecture
  - Central Processing Unit (CPU)

  - Computer data storage

  - Input and output devices

- Modern computer architectures

3. Digital data representation
    - Integer number encoding
    - Real number encoding

    - Character encoding

4. Introduction to Algorithms

    - Variables and data types

    - Flow control: sequence, selection, iteration

5. C programming language

    - Program structure

    - Primitive data type: int and double.

    - Variables and assignment.

    - Arithmetic, relational and logic expressions.

    - Conditional instructions: if-else

    - Iterative instructions: while, do-while, for;

    - Array.

    - Function: declaration, definition and parameters.
    - Program execution

6. Data Base and SQL language.

    - Relational model

    - SQL DDL and DML instructions

7. Operating System
8. Computer networks

Prerequisites

Mathematical-logical knowledge as acquired during high-school. Statistica

Teaching methods

Frontal lessons. Lessons take place in computer science lab to allow students to immediately apply the concepts explained.

Assessment methods

Learning assessment includes a written exam and possibly an oral exam. The written exam will take place in the

teaching laboratories to evaluate the student's skills in using software development kit and their competence in solving simple problems.

Textbooks and Reading Materials

Ugo Moscato. Informatica generale, Ed. McGraw-Hill, 2014. All the additional material can be found in the course web page

Semester

Second semester.

Teaching language

Italian