



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Informatica Generale e Laboratorio Informatico - 1

2021-2-E1803M102-T1

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#### 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, machine architecture, introduction to Algorithms, data base and SQL.

#### 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. Introduction to Algorithms
  - Variables and data types

- Flow control: sequence, selection, iteration

#### 4. Python programming language

- Program structure
- Primitive data type.
- Variables and assignment.
- Arithmetic, relational and logic expressions.
- Conditional instructions
- Iterative instructions
- string, list, and text file.
- Function: declaration, definition and parameters.
- Program execution

#### 5. Data Base and SQL language.

- Relational model
- SQL DDL and DML instructions

#### 6. Operating System

#### 7. Computer networks

### **Prerequisites**

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

### **Teaching methods**

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

During the Covid-19 emergency period, lessons will take place in synchronous videoconference.

### **Assessment methods**

Learning assessment includes a written exam and, if the student gets a passing grade, 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.

In the Covid-19 emergency period, exams will only be online. They will be carried out using the WebEx platform and esamionline platform.

## **Textbooks and Reading Materials**

- Think Python First Edition, by Allen B. Downey ([online](#))
- A. Lorenzi, E. Cavalli, V. Moriggia. Linguaggio Python. Atlas
- Ugo Moscato. Informatica Generale. McGrawHill (Architettura di un calcolatore, Sistema Operativo, Reti di Calcolatori e Archivi e Basi di dati)

## **Semester**

First semester.

## **Teaching language**

Italian

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