UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Elements of Computer Science

2122-1-F9201P201

Aims

The first aim is to provide students with the basic understandings regarding the representation, processing, transmission and communication of digital information using a computer or a network of computers. The second aim is to teach students, thanks to theoretical lessons and practical exercises, the rudiments of computer programming in the domain of web applications.

Contents

The teaching consists of two main parts. A first part, mainly theoretical, which deals with the fundamental concepts of: digital representation of information in computers, information systems and systems for knowledge management, computer architecture, operating systems, computer networks and internet of things.

A second part, practical-theoretical, which introduces web applications and programming languages for web. This part will be accompanied by an intense exercise activity.

Detailed program

Digital representation of information: definition of information, digital representation of numbers, audio, images, video and characters, knowledge representation in a computer.

Information processing systems: the computer machine, types of computers, operating systems.

Computer networks and internet: computer networks basics, main types of networks, transmission media and main network devices, distributed multimedia applications.

Computer programming: definition of algorithm, programming language paradigms, programs, data types, basic data structures and programming constructs.

Examples of programming using different programming languages.

Prerequisites

No one

Teaching form

Lectures and assisted exercises (at labs when students' personal PC are not available)

Lessons will be held in presence, unless further COVID-19 related restrictions are imposed.

Textbook and teaching resource

Informatica per le arti visive, la musica e lo spettacolo

(Massimo De Santo, Francesco Colace, Paolo Napoletano) Italy, McGraw-Hill Company, 2012.

Laboratori di Programmazione Web

(Marco Avvenuti e Mario G.C.A. Cimino) Italy, McGraw-Hill Company, 2012.

Handouts provided by the teachers

(alternative textbooks will be suggested to students not speaking Italian)

Semester

First semester

Assessment method

Written with open and closed questions and exercises to evaluate acquired competences

Office hours

Monday at 2 pm