UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Basic Computer Science

2122-1-H4102D004

Aims

The main objective of the course is to enable students to acquire and deepen their knowledge on:

1. Computer related methodologies and technologies employed in medical informatics and to apply those methods in solving problems arising in different areas of medicine and the health-care system.

2. Technologies of digital image processing for structure quantification and functional analysis of biological structures and medical devices, at macro and microscopic level. This will include image storage, object creation and visualization, computational technique for functional evaluation of 3D structures (vasculature and bones).

Basic knowledge about human modelling techniques starting from diagnostic images (e.g., MRI o CT) and from external 3D scanning systems (e.g., laser scanner, motion capture systems).

Contents

The course is composed by three modules dealing with:

1. **Medical informatics**: data, information, and communication; information systems and DBMS; Telemedicine and Internet for healthcare
2. **Medical Imaging**: generation of digital images and processing, surface models generation and visualization, data analysis and structural quantification.

3. **Human modelling**: Techniques and tools to create 3D geometric model of human body and anatomical districts at different level of details according to the domain of application

Detailed program

Prerequisites

Teaching form

Lessons in class and in laboratory

Textbook and teaching resource

Semester

First semester

Assessment method

Exercises and tests on a computer plus oral exam. Each module has an exam and the final grade will be the average of the gardes of the modules.

Office hours