UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Modelling

2122-1-H4102D004-H4102D011M

Aims

The objective of the module is to enable students to acquire and deepen their knowledge about human modelling techniques starting from diagnostic images and 3D scanning systems up to 3D printing of body parts and organs.

Contents

The module contents concern: i) techniques and tools to create and use 3D geometric model of human body and anatomical districts at different level of details; ii) simulation techniques; ii) technologies for the 3D printing of anatomical districts and organs.

Detailed program

LECTURES SESSIONS
The course includes the following topics:

- Systems for the human body acquisition (3D scanners);
- Devices for motion capture;
- Generation of the geometric models of the human body, anatomical districts and organs from medical

images (e.g. from TC or MRN) and 3D scanners;
- Numerical simulation and devices for Virtual amd Augmented Reality;
- Technologies and materials for 3D printing for medicine;
- Applicative examples in the medical fields and use of SW tools for 3D acquisition and modelling of the human body.

LABORATORY SESSIONS

Laboratory sessions are programmed in order to guide the student in the direct experimentation and use of SW packages for 3D anatomical districts acquisition and 3D modeling of human body and/or its parts starting from medical images and 3D scanning.

Prerequisites

None.

Teaching form

- Lessons in class using slides and movies.
- Use of dedicated SW tools at the laboratory.

During the COVID-19 restrictions the lessons will be recorded and available online, with some live events that will be planned and communicated on e-learning.

Textbook and teaching resource

Lectures Slides

Semester

I semester

Assessment method

Exam at the end of the course.
The exam shall include:

- Written test with open questions on the topics taught during the lectures to verify the level of the preparation on the course program;
- Colloquium to discuss the written test.

During the COVID-19 emergency, the exam will be exclusively oral through a dedicated platform. Students will be sent the link to access the virtual classroom. Any changes to the exam procedures will be communicated immediately to the students via email.

Office hours

Thursday, h. 14.30