UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

3d Printing For Medical Applications

2021-3-H4102D046

Aims

To acquire the basic knowledge about Additive Manufacturing. To understand the digital workflow from medical images or reverse engineered devices to the physical prototype both theretically and operatively. To understand the potential of Additive Manufacturing in Medicine. To present relevant case study where AM can support physicians' tasks.

Contents

The course aims at providing the students with the basic knowledge about the process to obtain physical prototype of biomedical devices (knee prostheses) and anatomical district (cardiovascular) by 3D printing technologies. After a brief theoretical overview about AM, two case studies will be presented and discussed. Finally, the students will go through all the digital workflowa and the machine settings till the realization of a real prototype.

Detailed program

"Overview on Additive Manufacturing Technology; Medical application of 3D printing technology; Digital thread for additive manufacturing; Machine parameters and building cycle setup; from reverse engineering to 3D printing of knee prostheses: presentation, discussion, practical session; from rmedical images to 3D printing of cardiovascular system elements: presentation, discussion, practical session."

Prerequisites

Teaching form

Frontal lectures, case description and discussion. Examples of use of devices and software solutions for mesh editing and 3D printing software and hardware. During the COVID-19 restrictions the lessons will be recorded and available online, with some live events that will be planned and communicated via email or on e-learning.

Textbook and teaching resource

Course Handout (slides)

Semester

Assessment method

The exam consist in a oral presentation about a topic (approved by the professor) the student decide to deepen. During the Covid-19 restrictions, the exam will be exclusively oral through a dedicated platform. A public link will be communicated to the students for the access of virtual public. If necessary, modifications will be immediately communicated to the students via email.

Office hours