



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Interazione Tra Medicina e Ingegneria Biomedica in Diagnosi e Terapia

2425-3-H4101D319

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#### Aims

The goal of this course is to focalize the attention of future doctors to the recent scientific and technological innovations in light of the fundamental need that the development of knowledge and the improvement of medical practice is deeply linked to the training process of young doctors in STEM disciplines

#### Contents

Presentation of selected topics to illustrate the importance of the contribution of biomedical engineering in the clinical context. Through the interdisciplinary collaboration between medical engineers and biologists (physiology), the methodologies and technologies of Biomedical Engineering it is possible to describe, understand and, to a large extent, solve the problems of medical-biological interest. Providing usable tools of the STEM disciplines in diagnostics and therapy.

#### Detailed program

- 1) SIGNAL PROCESSING (ECG)
- 2) MEDICINE IMAGING
- 3) 3D RECONSTRUCTION (scanner - bioprinters)
- 4) BIOSENSORS

5) NEW FRONTIERS.

## **Prerequisites**

The course is intended for students from the third year of the Master course

## **Teaching form**

All the 7 hours of lesson are held in person in delivery mode (direct instruction): the teacher begins with a first part in which concepts are exposed (direct mode) and then an interaction opens with the students which defines the next part of the lesson (interactive mode).

The teaching methods will include lectures, videos, and class discussions:

Signal analysis - machine learning (2,5 hours)

Artificial Intelligence (2,5 hours)

Da Vinci System (2 hours):

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## **Textbook and teaching resource**

Introduzione all'ingegneria biomedica (E. Biondi, 1997)

## **Semester**

Second semester, march/aprile

## **Assessment method**

Self assessment test assessing the achievement of the objectives and the level of knowledge of the experimental techniques and procedures covered by the course

## **Office hours**

By appointment, arranged by e-mail [giulio.sancini@unimib.it](mailto:giulio.sancini@unimib.it)

## **Sustainable Development Goals**

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | GENDER EQUALITY

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