UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

# COURSE SYLLABUS

# Prosthesis and Rehabilitation in Practice

**1920-3-H4102D018-H4102D058M**

## Aims

To understand the basic architecture of a data acquisition system. To provide knowledge about different tools and methods to collect motion signals and to extract patient's motor features in a rehabilitation context. To present possible clinical applications by discussing some use cases.

## Contents

The course aims at providing the students with the basic knowledge about standard sensors used to measure motor parameters. The program explores a typical data acquisition and processing system, focusing on wearables-based systems for rehabilitation purposes. By describing and discussing some use cases, the course offers some basic tools to extract relevant information about patient's motor skills.

## Detailed program

Examples of sensor-based rehabilitation practices. Typical signal acquisition and processing chains. Basic knowledge of electronics. General information and operating principles of common sensors. Architecture of a data acquisition system suitable for a rehabilitation context. Basic knowledge of data processing. Rehabilitation application: 6MWT. Sensor-based motion tracking. Rehabilitation application: TUG test.

## Prerequisites

Basic knowledge of physics and mathematics

## Teaching form

Frontal lectures.

## Textbook and teaching resource

Course Handout (slides)

## Semester

## Assessment method

Written exam with open questions. The questions proposed will be constructed in such a way as to be able to evaluate the skills and competences acquired according to the objectives of the course. In particular, the exam is intended to test student's knowledge in sensors' working principles, basic data processing and applications of wearable devices for rehabilitation purposes.

## Office hours