DEAC-OPT-421 Introduction to Biomedical Signals Processing

PROVISIONAL

SEMESTER: Spring
CREDITS: **3** ECTS (30 hours)
LANGUAGE: English
DEGREES: **GITI/GITT (spring)**

Course overview

This course focuses on Biomedical signal. Provides a comprehensive introduction to the principles and techniques of biomedical signal processing. It covers a wide range of topics, from the fundamental nature of biomedical signals to advanced analysis methods

Prerequisites

Knowledge of signal processing, basic programming (python or Matlab).

Course contents

Theory:

1. Fundamental biomedical signals and their nature
2. Propagation of biomedical signals in living tissues
3. Detection of events in biomedical signals: Correlation and filtering methods
4. Techniques for filtering artifacts in the time and frequency domains
5. Time-Frequency analysis of biomedical signals: Spectrograms, Wavelets, and other techniques
6. Supervised and unsupervised classification of biomedical signal patters
7. Introduction to image processing

Laboratory

In general, each unit described previously can have one associated lab practice.

Grading

To be decided, but something along this line:

- Exams during the course: 40% to 70%
- Exercises, Lab projects, Quizzes: 20% to 60%

- Lab reports: 10% to 50%

Extraordinary (re-sit) exams:

- TBD