Introduction to biomedical signal processing

The study of biomedical signals and images is a particularly important area of signal processing. Diagnostic assistance using signal processing tools plays a key role in medical progress. This course will cover the fundamental aspects of extracting, processing and representing information contained in signals. The aim is to discover some of the basic techniques used for the modelling and analysis of biological signals and images based on concrete examples of how these techniques can be applied to the needs of the medical environment (ElectroEncephaloGram, ElectroCardioGram, Magnetic Resonance Imaging, Nuclear Imaging, etc.). Different techniques such as filtering, spectral analysis, time-frequency analysis, estimation, and pattern recognition will be adapted in order to use them as effectively as possible for the desired applications.