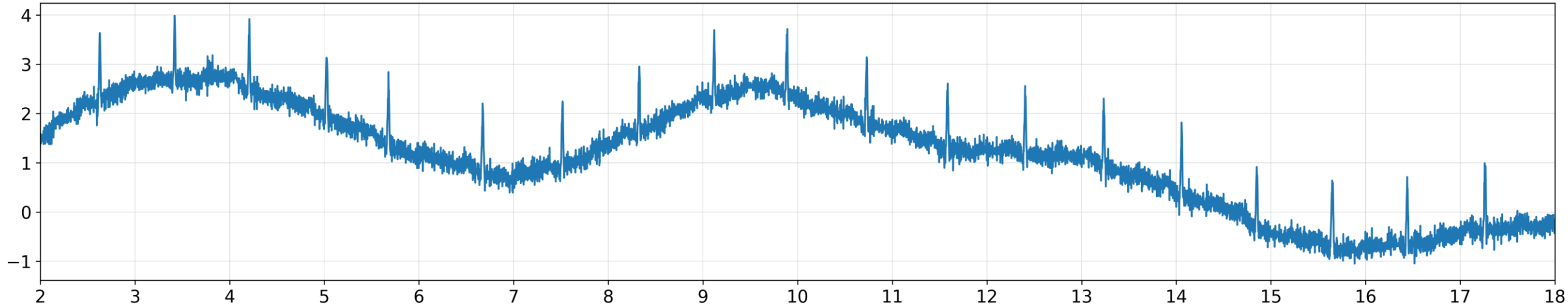# Introduction to Digital Signal Processing

Sivakumar Balasubramanian
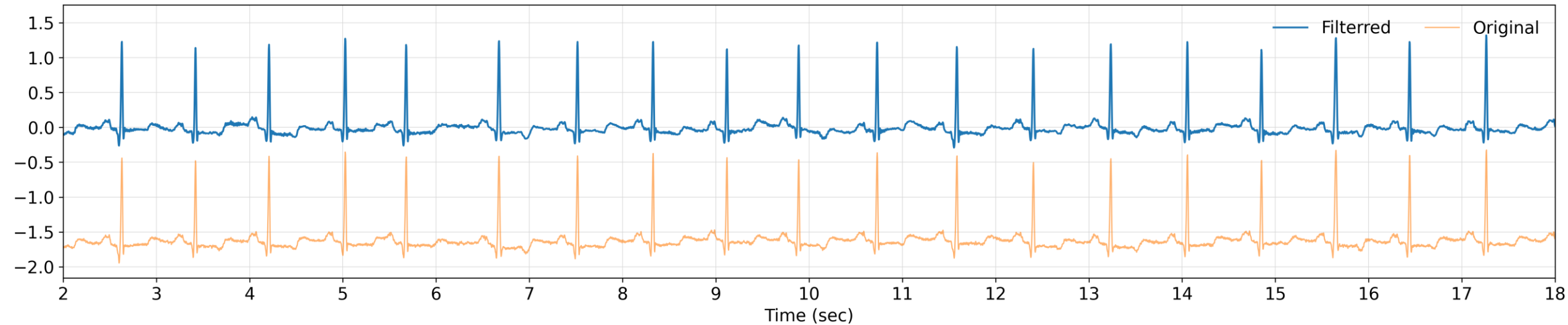
Dept. of Bioengineering

Christian Medical College Vellore

What is this course about?
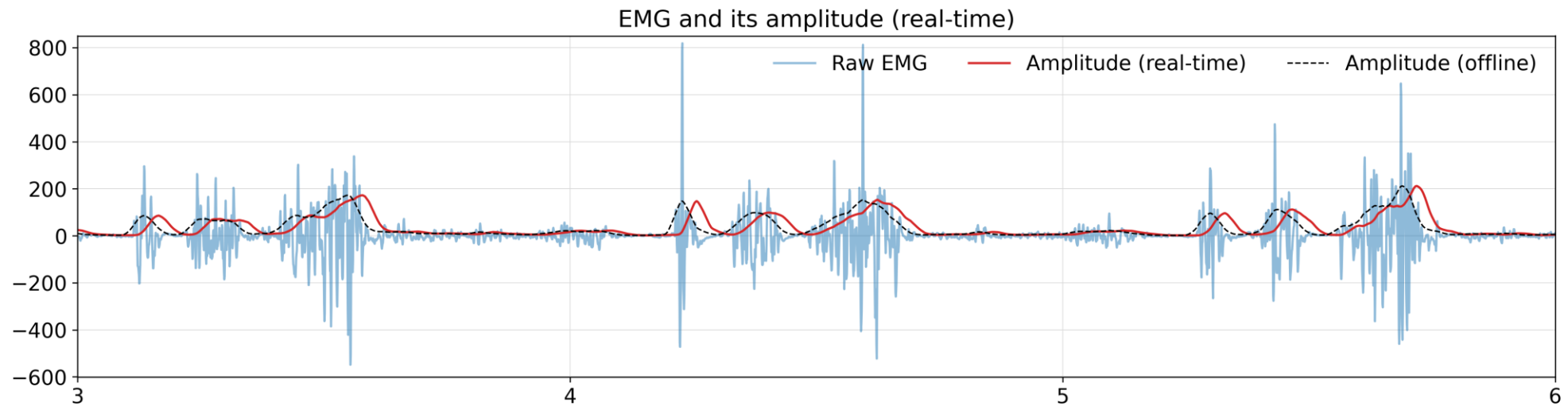

Raw ECG Recording

ECG Filtered
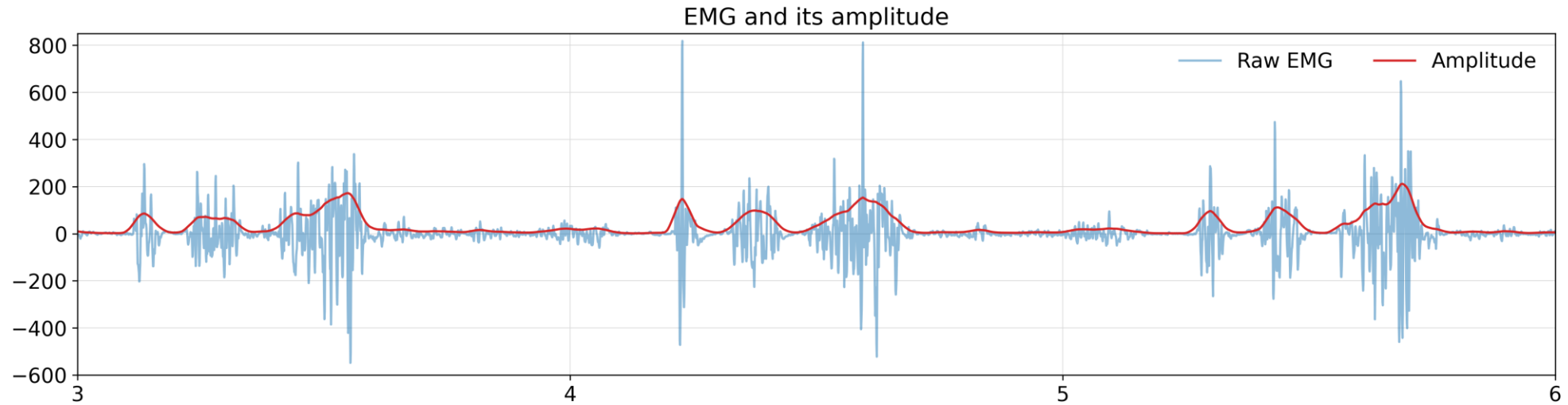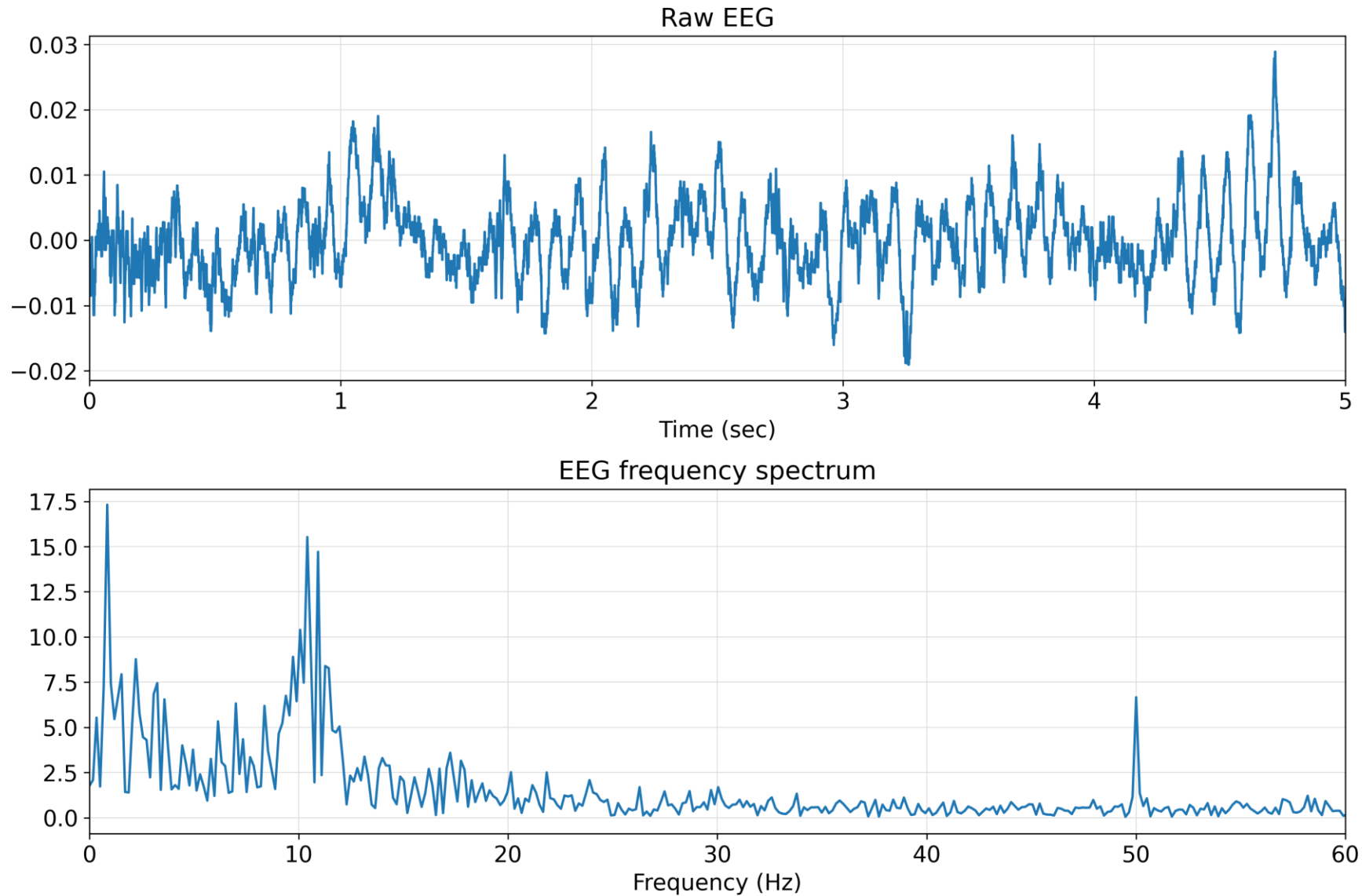
What is this course about?

EMG and its amplitude

EMG and its amplitude (real-time)

What is this course about?

Raw EEG

EEG frequency spectrum

Specific topics covered

- Mathematical preliminaries
- Python programming
- What are signals?
- Sampling theorem
- What are systems?
- Linear time-invariant systems
- Convolution
- Fourier representation of signals
- Z-transform

- Discrete Fourier Transform
- Frequency selective filters
- Introduction to spectral analysis
- Short-time Fourier transform
- Introduction to Wavelet transform*

Assignments, Quizzes, and Exams

- One assignment per week, due on Monday the following week.

- One quiz per week.

- Midterm on the 2nd week of October

- Final on the third week of December