

## Signal II and Optimization





## Introducing

### Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

#### 1) Wavelet transform

2) Filter Banks with exact reconstruction

3) Properties of wavelets (localisation in space and frequency) and applications to the approximation of functions.

4) Notion of sub-gradient and proximal operator in convex analysis

5) Basic properties of proximal and Forward-Backward algorithms

The student will be able to:

1) Provide examples of wavelets

2) Carry out numerical approximation of images with wavelets.

3) Identify which convex problems can be solve using the previous algorithms and be able to implement these algorithms on simple cases

### Necessary prerequisites

Signal 1 Optimization 1 & 2

# Location(s)

Practical info

**Q** Toulouse