This course provides an introduction to the modeling of musical signals, digital audio effects and sound synthesis. During the course, students will learn the basic notions allowing them to create an original synthesizer or digital audio effect.
## Content

### eMusical signal modeling

**Description:**
- Temporal notions (ADSR envelope)
- Spectral modeling: Sinusoidal, harmonic and stochastic models.

**Learning time:** 4h
- Laboratory classes: 4h

### Digital audio effect

**Description:**
- Delay
- Amplitude and Ring modulation
- Time stretching
- Pitch correction

**Learning time:** 5h
- Laboratory classes: 5h

### Sound synthesis

**Description:**
- Subtractive synthesis
- FM synthesis
- Physical modeling
- Percussion synthesis and sequencers

**Learning time:** 6h
- Laboratory classes: 6h

### Project

**Description:**
Creation of an original synthesizer or digital audio effect

**Learning time:** 5h
- Theory classes: 5h

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## Qualification system

Creation and evaluation of an original instrument or digital audio effect. Work in group of two students.
Bibliography

Basic:
