


 Faculty of Applied Sciences

**FSAB1106 Applied mathematics : Signals and systems**

[30h+30h exercises] 5 credits

This course is not taught in 2005-2006

This course is taught in the 1st semester

Language: French

Level: First cycle

### Aims

To introduce the students to the theory and to the methods of analysis of linear signals and systems as well as to their use in engineering science.

### Main themes

Theory and applications of the theory of signals and systems in continuous-time and in discrete-time.

### Content and teaching methods

1. Signals - Systems - Convolutions - Distributions
2. Signals and systems in continuous-time
  - Fourier transform (uni- and multi-dimensional) - Fourier series - Application to spectral analysis
  - Laplace transform - Application to differential equations - Application to linear systems in continuous-time (transfer functions, causality, stability, ...)
3. Signals and systems in discrete-time :
  - Sampling
  - Z transform - Application to difference equations - Application to linear systems (transfer functions, causality, stability, ...)
  - Discrete Fourier transform - Fast Fourier transform - Application to spectral analysis

### Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

no special information