FSAB1106 Applied mathematics : Signals and systems

[30h+30h exercises] 5 credits

This course is taught in the 1st semester

Teacher(s): Luc Vandendorpe, Vincent Wertz (coord.)
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

Other credits in programs

ELEC22	Deuxième année du programme conduisant au grade d'ingénieur civil électricien	(5 credits)	
ELEC23	Troisième année du programme conduisant au grade d'ingénieur civil électricien	(5 credits)	
FSA12BA	Deuxième année de bachelier en sciences de l'ingénieur, orientation ingénieur civil	(5 credits)	
FSA13BA	Troisième année de bachelier en sciences de l'ingénieur, orientation ingénieur civil	(5 credits)	Mandatory
INCH22	Deuxième année du programme conduisant au grade d'ingénieur civil chimiste	(5 credits)	
INFO22	Deuxième année du programme conduisant au grade d'ingénieur civil informaticien	(5 credits)	
INFO23	Troisième année du programme conduisant au grade d'ingénieur civil informaticien	(5 credits)	