

EE-406

Fundamentals of electrical circuits and systems I

Thiran Jean-Philippe

Cursus	Sem.	Type
Energy Science and Technology	MA1, MA3	Opt.

Language of teaching	English
Credits	2
Session	Winter
Semester	Fall
Exam	Written
Workload	60h
Weeks	14
Hours	2 weekly
Courses	1 weekly
Exercises	1 weekly
Number of positions	

Summary

This course gives you an introduction to signal processing, focusing on the Fourier transform, on signal sampling and reconstruction and the Discrete Fourier transform.

Content

- Signal Processing
- What is a signal: typology
 - Analysis and synthesis of deterministic signals
 - Projection theorem
 - Fourier series
 - Fourier Transform
 - Sampling, quantization and reconstruction
 - Discrete Fourier Transform (DFT) and Fast Fourier Transform (FFT)

Keywords

Signal processing, Fourier series, Fourier Transform, sampling, Shannon, DFT

Learning Prerequisites**Important concepts to start the course**

Linear Time Invariant Systems, impulse response, convolution.

Teaching methods

Ex cathedra lectures, exercise and lab sessions

Assessment methods

Written exam

Resources**Bibliography**

John G. Proakis and Dimitris G. Manolakis, «Digital Signal Processing», Prentice Hall, 2007

Ressources en bibliothèque

- John G. Proakis and Dimitris G. Manolakis, «Digital Signal Processing», Prentice All, 2007

Moodle Link

- <https://go.epfl.ch/EE-406>