

EE-490(f)

Lab in signal and image processing

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Cursus	Sem.	Type
Electrical and Electronical Engineering	MA1, MA3	Obl.

Language of teaching	English
Credits	4
Withdrawal Session	Unauthorized Winter
Semester	Fall
Exam	During the semester
Workload	120h
Weeks	14
Hours	4 weekly
TP	4 weekly
Number of positions	
It is not allowed to withdraw from this subject after the registration deadline.	

Summary

These lab sessions will allow student to get familiar with time-frequency and time-scale tools to analyse complex signals. Algorithms to solve linear inverse problems will also be implemented and tested to restore degraded signals and images.

Content

- Introduction to main Matlab routines
- Gabor transform and frames
- Wavelet transform, frames and basis
- Implement a simple image coder
- Restore degraded audio signal
- Restore degraded images

Learning Prerequisites**Required courses**

Digital signal processing or Signals and Systems

Recommended courses

Advanced Signal Processing

Learning Outcomes

By the end of the course, the student must be able to:

- Analyze a complex signal with a short-time Fourier transform
- Analyze a complex signal with a wavelet transform
- Design a software to compress a time series
- Design a software to restore a degraded signal
- Design a software to restore a degraded image
- Design a software to compress an image

Transversal skills

- Assess progress against the plan, and adapt the plan as appropriate.
- Write a scientific or technical report.

Assessment methods

During the semester