Egalisation de Canal

Component
École Nationale Supérieure d'Électrotechnique d'Électronique d'Informatique d'Hydraulique et des Télécommunications

In brief

> **plugin.odf-inp:PLUGINS_ODF_COURSE_NBHOURS_TXT:** 7 courses, 2 Practice Lab courses

> **Code:** N7EN02B

Presentation

Objectives

The objective of this course is to present detection and estimation methods in the context of frequency selective channels. A particular attention will be given to linear and nonlinear equalization methods with both time-domain or frequency-domain implementation for single-carrier communication systems.

Description

This course presents the methods for detection and estimation over frequency selective channels. The following points will be addressed:

-Modeling frequency selective channels: equivalent discrete baseband channel models, Forney vs Ungerböeck observation model;

-Time domain linear equalization: ZF and MMSE criteria for non-constrained RII filter and RIF;

- Nonlinear equalization: maximum likelihood detection (trellis, Viterbi Algorithm); non-linear filter-based or block-based detection(DFE) ;

- Frequency domain linear equalization : block circular single-carrier waveform; frequency domain equalization (ZF, MMSE); spectral shaping (OFDM precoded SC-OFDM / DFT, EW-SC-OFDM);

The practical lab. sessions are dedicated to the implementation of the algorithms and models seen in this course.

Useful info

Place

> Toulouse