

Signaux aléatoires



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

In brief

> **Code:** N7EE10A

Presentation

Objectives

The objective of this course is to review some concepts investigated in the first year of EEEA for the analysis of deterministic signals and to study how they can be generalized to random signals (also called random processes or stochastic processes). These generalizations include 1) the definition of autocorrelation functions and power spectral densities, 2) Linear filtering, 3) Sampling, 4) Nonlinear filtering. A specific attention will be devoted to define specific filters widely used in signal and image processing, namely the matched filter (for telecommunications) and the Wiener filter (for image processing). Part of the course will also address some properties of Poisson processes.

Description

- Spectral analysis (autocorrelation and spectral density), filtering and sampling of random signals with a particular attention to the matched filter and the Wiener filter.
- Non-linear transformations of random signals.
- Poisson processes