Probabilities

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

Semester
Automne

In brief

- **Ametys Code:** N5EE01C
- **Open to exchange students:** Yes

Presentation

Objectives

The aim of this course is to enable the future engineer to build a mathematical model based on the observation of a random phenomenon and a collection of experimental or sampling data. This construction goes from the choice of model to its precise adjustment and its validation. This model must then allow a better understanding or analysis of the phenomenon and lead, if necessary, to decision-making or forecasts.

Description

1st course: Probability in infinite and uncountable spaces.
2nd course: Real random variables; basic concepts ; discrete distributions.

3rd course: Real random variables; probability density functions.
4th course: End of random variables; change of variable. Random vectors.
5th course: Correlation; marginal distributions; Independence. Change of variables. 6th course: Characteristic function. Convergences. Law of large numbers. 7th course: Complements; revisions. Tutorials

TD 1: Probability derivation.

TD 2: The discrete distributions.

TD 3: The continuous distributions.

TD 4: Bivariate change of variables.

TD 5: Characteristic function; Convergences. Practical work

TP 1 and 2: Initiation to Matlab for probabilities and statistics.

TP 3 and 4: Simulation of random variables.