Hilbertian analysis

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

In brief

- **Ametys Code:** N8EE06C
- **Open to exchange students:** Yes

Presentation

Objectives

Introduction to the fundamentals of Hilbert space theory, in order to be able to solve certain PDE problems.

Description

This course will introduce the definitions and properties of Hilbert spaces, the concepts of scalar product and orthogonality, the theorems of orthogonal projection onto a closed convex set or onto a closed subspace, as well as the basic concepts of Hilbert spaces. In application, we will use the spectral decomposition of operators to approximate solutions to typical partial differential equation problems.

Pre-requisites

Lebesgue integral, L^p spaces, Fourier analysis, linear algebra, optimisation