



OUTILS MATHÉMATIQUES AVANCÉS POUR L'ANALYSE DES ÉQUATIONS AUX DÉRIVÉES NUMERICAL APPROXIMATION FOR ODES AND PDES

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| Lecturers : 18 | TC : 18 | PW : 0 | Autonomy : 12 | Study : 0.0 | Project : 0.0 | Language : FR

Objectives

The training action aims to give students wishing to continue their engineering studies towards courses requiring an advanced level in mathematics the possibility of deepening the basic notions seen in S5 in the UE MTH with powerful theoretical tools. and to learn the theoretical bases which will be applied in the elective course (S8 - S9 - Mathematics and Risk Engineering option).

Keywords : Measure and integration theory, probability theory, topology, functional analysis, partial differential equations.

Programme

- 1) Measure theory, integration, probability theory.
- 2) Topology, functional analysis.

Learning outcomes

- Understand and demonstrate the theoretical elements of analysis and probability.
- Give examples and counterexamples.
- Mathematical modelling, notion of well-posed problems.

Independent study

Objectifs : Writing and demonstration work.

Méthodes :

Core texts

N. Limnios, V. Girardin, *PROBABILITÉS EN VUE DES APPLICATIONS*, Vuibert, 2008
H. Brezis *ANALYSE FONCTIONNELLE - THÉORIE ET APPLICATIONS*, Dunod, 2005
G. Allaire *ANALYSE NUMÉRIQUE ET OPTIMISATION*, Editions de l'Ecole polytechnique, 2005

Assessment

Final mark = 75% Knowledge + 25% Know-how
Knowledge mark = 100% final exam + 0% continuous assessment
Know-how mark = 0% final exam + 100% continuous assessment