

UE Numerical optimisation



Level
Baccalaureate
+4



ECTS
6 credits



Component
UFR IM2AG
(informatique,
mathématiques
et
mathématiques
appliquées)



Semester
Printemps

- > **Teaching language(s):** English
- > **Teaching type:** Lectures
- > **Open to exchange students:** Yes
- > **Code d'export Apogée:** GBX8AM02

Presentation

Description

This program combines case studies coming from real life problems or models and lectures providing the mathematical and numerical backgrounds.

Contents:

- Introduction, classification, examples.
- Theoretical results: convexity and compactity, optimality conditions, KT theorem
- Algorithmic for unconstrained optimisation (descent, line search, (quasi) Newton)
- Algorithms for non differentiable problems
- Algorithms for constrained optimisation: penalisation, SQP methods
- Applications

Course parts

CM/TD	Lectures (CM) & Teaching Unit (UE)	33h
TP	Practical work (TP)	16,5h

Recommended prerequisites

linear algebra, differential calculus

Period : Semester 8

Évaluation initiale / Session principale - Épreuves

Libellé	Nature de l'enseignement	Type d'évaluation	Nature de l'épreuve	Durée (en minutes)	Nombre d'épreuves	Coefficient de l'épreuve	Remarques
	Teaching Unit (UE)	CC				100/100	Ecrit et/ou TP
	Teaching Unit (UE)	CT	Written - supervised work	120		100/100	

Seconde chance / Session de rattrapage - Épreuves

Libellé	Nature de l'enseignement	Type d'évaluation	Nature de l'épreuve	Durée (en minutes)	Nombre d'épreuves	Coefficient de l'épreuve	Remarques
	Teaching Unit (UE)	CC	Calculation report			100/100	
	Teaching Unit (UE)	CT	Written or Oral	120		100/100	

Skills

Recognise and classify optimisation problems

Solve optimisation problems using adequate algorithms and methods

Practical implementation

Useful info

Contacts

Program director

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Place

› Grenoble

Campus

› Grenoble - University campus