

UE Combinatorial optimization and graph theory



Niveau d'étude
Bac +5



ECTS
6 crédits



Crédits ECTS
Echange
6.0



Composante
UFR
Informatique,
mathématiques
et
mathématiques
appliquées
(IM2AG)



Période de
l'année
Automne (sept.
à dec./janv.)

Diplômes intégrant cet élément

- Master Informatique

- > **Langue(s) d'enseignement:** Anglais
- > **Ouvert aux étudiants en échange:** Oui
- > **Crédits ECTS Echange:** 6.0
- > **Code d'export Apogée:** GBX9CO02

Présentation

Description

The aim of this course is to provide a broad knowledge of fundamental problems in Combinatorial Optimization to show their algorithmic solutions and to derive min-max results on them. In order to achieve this goal a new object called a polyhedron is introduced. This polyhedral approach helps to shed new light on some classic results of Combinatorial Optimization.

Syllabus: Study of polyhedra associated to problems of Combinatorial Optimization ; Theory of blocking polyhedra ; Connectivity: shortest paths, spanning trees and spanning arborescences of minimum weight ; Flows: Edmonds-Karp Algorithm, Goldberg-Tarjan Algorithm, minimum cost flows ; Matchings: Hungarian method, Edmonds' Algorithm, Chinese postman problem; Matroids: greedy algorithm, intersection of two matroids ; Graph coloring ; Applications coming from various areas of Operations Research.



Heures d'enseignement

CM CM 36h

Période : Semestre 9

Infos pratiques

Contacts

Responsable d'UE

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Lieu(x) ville

➤ Grenoble

Campus

➤ Grenoble - Domaine universitaire