

Multiobjective Optimization

ECTS : 3

Volume horaire : 15

Description du contenu de l'enseignement :

This course introduces the main concepts, results and methods in multiobjective optimization in general, with an emphasis on multiobjective combinatorial optimization.

Compétence à acquérir :

- Motivation, main concepts (decision space, criterion space, efficient solutions, non-dominated points,...)
- Interest and limitations of the main scalarizing functions (Weighted sum, Tchebychev, reference point,...)
- Multiobjective combinatorial optimization - Specific difficulties (intractability...)
- Exact methods for enumerating the non-dominated set (generic methods, specific methods)
- Approximate methods with a priori guarantee
- General approaches for determining a best compromise solution

Bibliographie, lectures recommandées :

- M. Ehrgott, Multicriteria Optimization, Springer, 2005, 2nd edition.
- Steuer, R. 1985. Multiple Criteria Optimization: Theory, Computation and Application. New York: John Wiley and Sons.
- Vanderpooten, D. Multiobjective Programming: Basic Concepts and Approaches. In R. Slowinski and J. Teghem, editors, Stochastic versus Fuzzy Approaches to Multiobjective Mathematical Programming under Uncertainty, pages 7-22, 1990. Kluwer Academic, Dordrecht.

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