

Optimization fundamentals



Présentation

Description

Goal : To provide the fundamental concepts and tools related to operational research and game theory which will be applied to different transport domains. Important issues such as incentivization and rewarding play a key role in biasing user behaviour aiming at optimizing system operation.

List of subjects to be presented to the students :

- # Optimization models: Objective function, variables and constraints.
- # The linear programming model: Convex sets and linear programming algorithms.
- # The simplex algorithm
 - Duality / Sensitivity Analysis
- # Convex functions.
- # Optimality criteria: Kuhn-Tucker conditions.
- # Quadratic programming.
- # Geometric programming.
- # Integer programming and algorithms.
- # Dynamic programming.
- # The transport problem (model).
- # Heuristic optimization techniques.