Université Polytechnique HAUTS-DE-FRANCE

Optimization fundamentals

ECTS
4 crédits

Composante
INSA Hauts-de-France, UPHF

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 incentivation 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.

Informations non contractuelles.
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