Course unit: Optimization

- Title in French: Optimisation
- Course code: tba
- ECTS credits: 1
- Teaching hours: 25h
- Type: elective course
- Language of instruction: French
- Coordinator: Magali Tournus
- Instructor(s): Olivier Lafitte, Magali Tournus
- Remark(s): shared course with 3r year track DIGITAL.e

Brief description

This course is an elective course aimed at anyone interested in optimization.

Learning outcomes

- Know how to solve a problem of functional minimization using Lagrange multipliers
- Understand the application to classical problems of calculus of variations
- Know how to build some minization algorithms

Course content

1. Gâteaux and Fréchet derivatives, Euler inequations, Taylor formula, Farkas lemma, Local inversion and Lagrange multiplier.
2. Convex programs (up to Kuhn & Tucker), application to the quadratic case and to the equivalence with the symmetric variational formulation.
3. Algorithms: relaxation and the four gradients; convergence rate
4. Introduction to optimal control