

Introduction to optimization



Component
École Nationale
Supérieure
d'Électrotechnique
d'Électronique

In brief

> **Code ELP:** N6EM01C

Presentation

Objectives

Learn the basics of optimization methods: decision variables, objective function, minimization of nonlinear problems, least squares problems, minimization under stress

numerical optimization approach: iterative gradient methods; least squares problems; other numerical methods such as simulated annealing; network / graph problems

Description

1. Free and constrained minimization, Lagrange multipliers, convexity
2. Application 1: Nonlinear Regression, Model Registration,
3. Application 2: Newton's method for finding equilibrium points
4. Functional optimization
5. Application: minimal surfaces