



International Master's Program in Telecommunication Engineering

## **Course Name: OPTIMIZATION THEORY 最佳化理論**

### **Course Objects:**

The main goal of this course is to introduce the convex optimization concepts and methods, including convex set, convex function, various convex optimization problems, K.K.T. conditions, duality, etc., and their applications to wireless communications and signal processing. We expect a student who finishes the course is well equipped to handle optimization problems.

### **Course Syllabus:**

1. Introduction to Optimization
2. Matrix differentiation
3. Convex set and convex function
4. Convex optimization problems
5. Duality
6. Unconstrained minimization
7. Equality constrained minimization
8. Karash-Kuhn-Tucker (KKT) conditions
9. Interior point method
10. Factional optimization theory