Domain: Mathematics and computer science
Section: Mathematics
Semester: S2
Module: Optimization with constraints

General Introduction

- Introduction to constrained optimization

- The general formulation of problem

Optimization with equality constraints

- Lagrange multipliers method

- Formulation of constrained optimization problems

- Interpretation of Lagrange multipliers

Optimization with inequality constraints

- Karush-Kuhn-Tucker (KKT) conditions

- Derivation and explanation of KKT conditions

- Conditions for optimality in constrained optimization

- Applications of Lagrange multipliers and KKT conditions in solving nonlinear programming problems

Uzawa Method and Variational Inequalities

- Introduction to the Uzawa method

- Derivation and explanation of the Uzawa method for constrained optimization

Evaluation: Course 60%   (TD+TP): 40%