Applied Optimization II

Programme course

6 credits

Tillämpad optimering II

TNK105

Valid from: 2017 Spring semester

Determined by
Board of Studies for Industrial
Engineering and Logistics

Date determined
2017-01-25

Main field of study

Applied Mathematics, Transportation Systems Engineering

Course level

Second cycle

Advancement level

A1X

Course offered for

- Intelligent Transport Systems and Logistics, Master's programme
- Communication and Transportation Engineering, M Sc in Engineering

Entry requirements

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites

Applied optimization I, programming principles, and data structures, or equivalent

Intended learning outcomes

The aim of the course is to provide the participants with insights in applying optimization to solving problems originating from real life applications. The participants will gain knowledge of the process of using optimization theories and methodologies for defining, modeling, solving, and analyzing optimizing problems. After the course, the participants shall be able to

- connect the course subjects to their study program
- study and analyze problems in the area of transport and communications from an optimization perspective
- use a modeling system for large scale optimization
- use efficient data structures in implementation of optimization algorithms
- develop, implement, and evaluate problem-specific methods that find solutions by effectively exploiting problem structure
- verbal and written presentation of results

Course content

- Problem definition, literature study, and information search
- Study of to what extent the problem can be solved by mathematical modeling and general optimization software
- Design of problem-specific methods, in particular heuristics
- Design of data structures for method implementation
- Implementation, experimentation, analysis and evaluation of optimization methods

Teaching and working methods

The course consists of seminars and project work with supervision

Examination

UPG1	Project work	6 credits	U, 3, 4, 5

Grades

Four-grade scale, LiU, U, 3, 4, 5

Department

Institutionen för teknik och naturvetenskap

Director of Studies or equivalent

Erik Bergfeldt

Examiner

Nikolaos Pappas

Education components

Preliminary scheduled hours: 20 h
Recommended self-study hours: 140 h

Course literature

Hänvisning till olika litteratur beroende på tilldelat projekt.

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.