Simulation of Logistics Systems

Programme course

6 credits

Simulering av logistiksystem

TNSL07

Valid from: 2017 Spring semester

Determined by
Board of Studies for Industrial
Engineering and Logistics

Date determined
2017-01-25

Main field of study

Logistics

Course level

First cycle

Advancement level

G2X

Course offered for

- Air Transportation and Logistics
- Civic Logistics

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

A course in Statistics and Probability

Intended learning outcomes

The main goal of this course is to provide students with basic knowledge in discrete-event simulation and its use for the analysis of logistics systems. The course also aims at providing practical experience in simulation modeling. After completion of the course the student will be able to:

- Describe fundamental concepts in discrete-event simulation.
- List and explain advantages and disadvantages of simulation as analysis tool.
- Model stochastic input data with probability distributions and assess quality of input models.
- Build simulation models of logistics systems.
- Perform analysis with simulation models and draw conclusions from stochastic simulations.

Course content

- Fundamental concepts in dynamic discrete-event simulation.
- Setting up a simulation study. Steps in a simulation study.
- Input modelling.
- Verification and validation of simulation models.
- Experimentation and output analysis.
- Simulation software. Modeling in ARENA.
- Applications of simulation. Simulation of logistics systems.

Teaching and working methods

The course consists of lectures and computer labs.

Examination

LAB1	Laboratory work	3 credits	U, G
TEN1	Written examination	3 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

Krisjanis Steins

Course website and other links

http://www2.itn.liu.se/utbildning/kurs/index.html?coursecode=TNSL07

Education components

Preliminary scheduled hours: 58 h
Recommended self-study hours: 102 h

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.