



Faculty of Social Sciences

LSMB61, Applied Systems Modelling, 15 credits

Tillämpad systemmodellering, 15 högskolepoäng

First Cycle / Grundnivå

Details of approval

The syllabus was approved by The Programme Committee for the Bachelor Programme in Logistics Service Management on 2018-11-05 to be valid from 2019-01-01, spring semester 2019.

General Information

The course is a compulsory component of the Bachelor of Science programme in Logistics Service Management and is included in semester 6.

Language of instruction: English

Main field of studies

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Depth of study relative to the degree requirements

G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

Learning outcomes

To pass this course, students will

Knowledge and understanding

- demonstrate knowledge and understanding of the complexity of different types of logistic systems
- demonstrate knowledge and understanding of the principles behind discrete event simulation
- demonstrate knowledge and understanding of definitions and descriptions of the different stages of simulation methodology
- demonstrate knowledge and understanding of the properties of statistic distribution functions

Competence and skills

- demonstrate skills and ability to use discrete event simulation methodology to analyse complex logistic systems
- demonstrate the ability to identify and formulate simulation problems
- demonstrate the ability to define and collect information required to model logistic systems
- demonstrate the ability to choose and use the appropriate distribution function to reproduce information as well as validate chosen distributions
- demonstrate skills and ability to simplify and reproduce the logic of the real system in order to transfer the most important functions to a virtual model
- demonstrate skills to design suitable experiments to state how they should be structured to analyse the correct factors to validate the results obtained, and to propose an implementation strategy

Judgement and approach

- demonstrate the ability to assess functionality in different models
- demonstrate an understanding of the possibilities and limitations of simulation and how it can be used in industry

Course content

The aim of the course is to enable students to develop their ability to use methods and models based on simulation technology in order to understand the dynamics of logistic systems. The course consists of two integrated parts. The first part is theoretical and deals with simulation methodology, presenting the different components and elements of a simulation process and how to use the relevant software. The second part consists of a practical application and includes a project comprising a simulation study of an authentic logistics issue from problem and goal formulation to final analysis and assessment of simulation results.

Course design

The teaching consists of lectures, method exercises, guest lectures, and case studies and study visits in connection with the project.

Unless there are valid reasons to the contrary, compulsory participation is required at guest lectures. An alternative form or date for compulsory components is offered to students who are not able to complete a compulsory component owing to circumstances beyond control e.g accident, sudden illness or similar. This also applies to students who have been absent because of duties as an elected student representative.

Assessment

The assessment is based on written assignments in groups, an individual written exam and a group project.

In connection with the course, three examination sessions are offered: one regular examination and two re-examination. Two further re-examinations on the same course content are offered within a year of the end of the course. After that, the student is offered further examination sessions but in accordance with then current course syllabus.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.

For the grade Pass, it is required that the student satisfies the intended learning outcomes that have been stated for the course. For the grade of Pass with Distinction, the student must also show particular theoretical awareness and analytical ability.

For a grade of Pass with Distinction on the whole course, the student must have been awarded this grade for both component 1801 and component 1802. Component 1803 is exempted from the grading scale above. The grades awarded for this component are Pass and Fail.

At the start of the course, students are informed of about the learning outcomes stated in the syllabus and about the grading scale and it is applicatied in the course.

Entry requirements

To be admitted to the course, students must have passed at least 90 credits of the programme, of which 45 credits must be from the main field of Service Management.

Further information

The course replaces Advanced Logistic Systems (LSMA61), 15 credits, and may not be included in a degree together with that course.

Subcourses in LSMB61, Applied Systems Modelling

Applies from V19

- 1801 Project Work, 5,0 hp
Grading scale: Fail, Pass, Pass with distinction
- 1802 Individual Written Exam, 5,0 hp
Grading scale: Fail, Pass, Pass with distinction
- 1803 Assignments, 5,0 hp
Grading scale: Fail, Pass