UNIVERSITY OF SKÖVDE

TRANSLATION FROM SWEDISH

COURSE SYLLABUS

Production- and Logistics Simulation II G2F

6 credits

Course code: PR503G
Version number: 9
Valid from: 1 July 2023
Ratified by: Curriculum Committee for Engineering Science
Date of ratification: 8 December 2022

1. General information about the course

The course is provided by the University of Skövde and is named Production- and Logistics Simulation II G2F (Produktions- och logistiksimulering II G2F). It comprises 6 credits and is a first-cycle course. The level of progression is G2F.

The course is a part of the main field of study in Industrial Engineering. The disciplinary domain of the course is Technology.

2. Entry requirements

The course has the following entry requirements: passed PR311G Production and Logistics Simulation I G1F and (passed PR316G Efficient Workflows G1F or passed PR028G Productionsystem G1N) and (passed IT154G Procedural Programming for Engineers G1N or passed IT120G Programming Fundamentals with C++ G1N) and passed ST309G Statistics for Engineers II - basic course G1F (or the equivalent).

3. Course content

The course deals with fundamental theories regarding production systems, such as push and pull systems, batch and buffer sizes, work in process, lead time, etc. In addition, the course also deals with practical application of these theories in the form of flow simulation for production systems. The course is based largely on the life cycle of simulation projects and includes simulation model construction, practical data collection and analysis as well as basic design of experiment for simulation.

The course is given in the form of a simulation project based on a case study. Exercises and laboratory exercises in flow simulation use, programming, statistical tools for analysis of input and output are given in parallel during the course of the project.

4. Objectives

After completed course the student should be able to:

- demonstrate the ability to identify need of further knowledge and to continuously improve skills in production simulation,
- demonstrate the ability to critically and systematically use knowledge and to model, simulate, predict and evaluate events based on relevant information,
- demonstrate knowledge of science, proven knowledge, and development work within the area of production engineering,
- demonstrate applied skills in simulation modeling and programming through project work,
- demonstrate applied knowledge in implementing a production simulation project,
- reflect on and effectively communicate information, solutions and results in written and oral presentation.

5. Examination

The course is graded A (Excellent), B (Very good), C (Good), D (Satisfactory), E (Sufficient) or F (Fail).

The examination is based on project work, project presentation and laboratory exercises.

The examinations of the course consist of the following modes of assessment:

- **Project work**
  4 credits, grades: A/B/C/D/E/F (determines the final grade)
- **Laboratory assignments**
  2 credits, grades: G/U

Students with a permanent disability who have been approved for directed educational support may be offered adapted modes of assessment.

6. Types of instruction and language of instruction

The teaching is comprised of supervision, laboratory sessions, lectures, project work and presentations.

Depending on the study period, the language of instruction may be Swedish or English. Even if the teaching is conducted in Swedish, some English may still occur.

7. Course literature and other educational materials

Bangsow, S. (2010). *Manufacturing Simulation with Plant Simulation and SimTalk: Usage and Programming with Examples and Solutions.* Springer. ISBN 9783642050732.

Law, A.M. (2007). *Simulation modeling and analysis; with expertfit software* (5th ed). McGraw-Hill. ISBN 0071100512.

8. Student influence

Student influence in the course is ensured by means of course evaluation. The students are informed about the results of the evaluation and potential measures that have been taken or are planned, based on the course evaluation.

9. Additional information

Further information about the course, as well as national and local governing documents for higher education, is available on the website of the University of Skövde.