ML1018 Fundamental Industrial Statistics 6.0 credits

Grundläggande industriell statistik

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for ML1018 valid from Spring 2013

Grading scale

A, B, C, D, E, FX, F

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

To be eligible to the study course the participant must have fundamental mathematics study course from university level and some experience/courses in appropriate areas like environment engineering, production, energy production or economy.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After finishing the study course the participant is expected to be able to:

- From data catch calculate or estimate expected values, variance and interpret the meaning, including presenting the results in graphs and diagrams

- Make decisions from insufficient data and estimate errors depending of the insufficiency

- Describe and evaluate the concept of the most common statistical distributions and what they tell about the population studied

- Do correlation calculations and interpret the result

- Perform linear regression

- To use probability estimates to determine causality and relevance

- Perform estimates useful for decision making

- Give an account of the statistical concept

- Perform design of experiments using 2-level multifactor analysis with orthogonal matrices

Course contents

The study course aims at giving the participants a practical view on how probability and variation affect the technology which is used in design and production or other engineering applications. The practical part embraces understanding of data legend of the population studied. Also it aims to use a practical approach to arrange data to reveal new information. All available aids in the form of computer/programs are to be used. An important part of the study course is to utilize supporting tools like Excel or others to perform the analysis.

Course literature

- Matematisk Statistik med tillämpningar, Claes Jogréus, Studentlitteratur.

- Mathematics Handbook for Science and Engineering, Lennart Råde, Bertil Westergren, Studentlitteratur.

- Kompletterande material läggs upp på Canvas.

Examination

- TEN1 - Written Exam, 4.0 credits, grading scale: A, B, C, D, E, FX, F

- ÖVN1 - Exercises, 2.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Other requirements for final grade

To pass the study course the participant needs approved laboratory work (2 hp) and a written examination (4 hp)

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.