

COURSE SYLLABUS

Design and Analysis of Experiments, 2.5 credits

Design och analys av experiment, 2.5 högskolepoäng

Course Code: T2DOAA	Education Cycle: Second-cycle level
Confirmed: Sep 01, 2025	Disciplinary domain: Technology
Valid From: Aug 31, 2026	Subject group: Materials Technology
	Specialised in: A1N Second cycle, has only first-cycle course/s as entry requirements
	Main field of study: Product Development

Intended Learning Outcomes (ILO)

On completion of the course the student shall:

Knowledge and understanding

- show familiarity with basic principles of Design of Experiments methodology
- display knowledge of numerical methods to analyse trends in manufacturing data

Skills and abilities

- demonstrate the skills to apply DOE methodology to a metal manufacturing application
- demonstrate the ability to evaluate the statistical validity of experimental findings

Judgement and approach

- demonstrate the ability to discuss different approaches to designing and analysing experiments in a metal manufacturing context.

Content

This course introduces statistical thinking and Design of Experiments (DoE) for data-driven optimisation of metal manufacturing processes. Participants learn to plan and analyse experiments, work with manufacturing data, and ensure statistically valid results for process improvement. The course is aimed at engineers in manufacturing, quality, process development, and R&D.

The course includes the following elements:

- Statistical thinking and methodology
- Basic Design of Experiments methodology (factorial designs, reduced factorial designs, etc.)
- Linear Regression
- Response Surface Modelling
- Basic statistical distributions and parameter estimations

Type of instruction

Lectures, assignments, and discussion forums.

Language of instruction is English.

Entry requirements

Academic degree of at least 180 ECTS credits within Engineering and/or Technology or passed courses of at least 40 credits in the main field of study within Engineering and/or Technology and at least 1 year of work experience in the manufacturing industry or at least 4 years of work experience in the manufacturing industry. Proof of English proficiency is required.

Examination and grades

The course is graded Pass (G) or Fail (U).

Registration of examination:

Name of the Test	Value	Grading
Assignment	2.5 credits	G/U

Course literature

Please note that changes may be made to the reading list up until eight weeks before the start of the course.