

## COURSE SYLLABUS

### Research Methodology on Advanced Level, 7.5 credits

*Forskningsmetodik på avancerad nivå, 7.5 högskolepoäng*

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Course Code:	T2FPAN	Education Cycle:	Second-cycle level
Confirmed:	Feb 01, 2025	Disciplinary domain:	Technology
Valid From:	Sep 01, 2025	Subject group:	Industrial Engineering and Management
		Specialised in:	A1N Second cycle, has only first-cycle course/s as entry requirements
		Main field of study:	Product Development, Production Systems

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### Intended Learning Outcomes (ILO)

On completion of the course the student shall:

#### Knowledge and understanding

- display knowledge of central concepts in research philosophy and science
- display knowledge of central concepts in research methodology
- demonstrate comprehension of research-methodology knowledge within the main field of study

#### Skills and abilities

- demonstrate skills needed to participate in research and engineering-development projects
- demonstrate the ability to independently design research in the main field of study
- demonstrate the ability to present research projects in written and oral form

#### Judgement and approach

- demonstrate the ability to select and justify appropriate research methods within the main field of study, with consideration for scientific validity and ethical standards relevant to research and engineering contexts
- demonstrate the ability to identify needs for further knowledge and take responsibility for his/her own knowledge development
- demonstrate an understanding of the opportunities and limitations of science and the role of science in society.

### Content

The main goal is to develop knowledge and understanding of research methodology to prepare the student to design and accomplish a research project within the main field of study, performing analyses using qualitative and/or quantitative research methods, and to communicate the results. The course aims to make the student familiar with the philosophical and methodological underpinnings of the main field of study.

The course includes all stages of a research project, from definition of the purpose to the presentations of the results. This scope includes activities such as literature review, considerations of relevance, preparation, planning and execution of a study, presenting implications and conclusions, and considering the study from a philosophical standpoint.

The course consists of seminars, a project, and content covering the following topics:

- Research ethics
- Report writing and reference management
- Philosophy of science
- Research methodology

- Research methods
- Data types
- Data collection
- Data interpretation
- Analysis
- Research design

## Type of instruction

Seminars, lectures, and exercises.

Language of instruction is in English.

## Entry requirements

Passed courses of at least 90 credits within engineering or technology, and 15 credits in mathematics or the equivalent. 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
Seminar <sup>1</sup>	3.5 credits	G/U
Assignment	4 credits	G/U

<sup>1</sup> Different examination tasks depending on program

## Course literature

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

Säfsten, K. and Gustavsson, M. (2024). Research methodology 2.0: for engineers and other problem-solvers. Lund, Sverige: Studentlitteratur.

Additional readings will be provided during the course.