



## COURSE SYLLABUS

# Research and Inquiry Methodology, 6 credits

*Forsknings- och utredningsmetodik, 6 högskolepoäng*

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<b>Course Code:</b> TFUS26	<b>Education Cycle:</b> Second-cycle level
<b>Confirmed by:</b> Dean Feb 1, 2017	<b>Disciplinary domain:</b> Technology (95%) and social sciences (5%)
<b>Revised by:</b> Director of Education Jun 8, 2020	<b>Subject group:</b> IE1
<b>Valid From:</b> Aug 1, 2020	<b>Specialised in:</b> A1F
<b>Version:</b> 2	<b>Main field of study:</b> Production Systems

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### Intended Learning Outcomes (ILO)

On completion of the course, the student should

Knowledge and understanding

- demonstrate in depth knowledge and understanding regarding research methods in their main field of study
- demonstrate knowledge of key concepts in the philosophy of science
- demonstrate knowledge of key concepts in general research methodology

Skills and abilities

- show good skill to independently formulate relevant research designs in the main field of study
- demonstrate the skills required to participate in research and development work

Judgement and approach

- demonstrate judgment skills in the main field of study with respect to relevant scientific aspects, and demonstrate an awareness of ethical aspects of research and development
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility for its use
- demonstrate ability to identify the own need of further knowledge and to take responsibility for their further knowledge development

### Contents

The course covers basic concepts of research, science, and epistemology. Moreover, the course includes a specialization in research within the main field of study regarding methodological approaches, use of theory, data collection techniques and literature search. The course includes elements, such as quantitative and qualitative data analysis, critical review of scientific work, research validity and reliability assessment, ethical considerations, and completion of an anti-plagiarism guide. The course allows the students to apply beforementioned knowledge in assignments and seminars.

### Type of instruction

Lectures, seminars, tutorials, assignments

The teaching is conducted in English.

### **Prerequisites**

Passed courses 180 credits in first cycle, at least 90 credits within the major subject Mechanical Engineering, Industrial Engineering and Management or Civil Engineering, and 21 credits Mathematics. In addition, completed course Industrial Product Realization, Process - Methods - Leadership, 9 credits and English Language requirements corresponding to English 6 or English B in the Swedish upper secondary school (or the equivalent).

### **Examination and grades**

The course is graded 5,4,3 or Fail .

The final grade will only be issued after satisfactory completion of all assessments.

Registration of examination:

<b>Name of the Test</b>	<b>Value</b>	<b>Grading</b>
Individual Examination <sup>I</sup>	3 credits	5/4/3/U
Assignments and Seminars	3 credits	U/G

<sup>I</sup> Determines the final grade of the course, which is issued only when all course units have been passed.

### **Other information**

Exemption from entry requirement allowed according to the selection groups of the program, where the course is included.

### **Course literature**

Literature

The literature list for the course will be provided one month before the course starts.