



## 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>Valid From:</b> Aug 1, 2017	<b>Subject group:</b> IE1
<b>Version:</b> 1	<b>Specialised in:</b> A1F
<b>Reg number:</b> JTH 2017/455-313	<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, as well as various research perspectives / approaches. The course also includes a specialization in research within the main field of study comprising the different methodological approaches, how theory can be used, techniques for data collection, primary and secondary data characteristics and literature search. Also included are methods for analysis of quantitative and qualitative data, the concepts of validity and reliability, critical review of own and others' work, and ethical aspects of research including completion of the anti-plagiarism guide. The course also include to apply this knowledge in assignments.

### 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:

Name of the Test	Value	Grading
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.

Title: Research methods for students and professionals, 2nd ed.

Author: Williamson, K. (2002)

Publisher: Centre for Information Studies, Wagga wagga, NSW