COURSE SYLLABUS

Research Methodology in Product Realisation, 7.5 credits

Forskningsmetodik i produktframtagning, 7,5 högskolepoäng

Course Code:	TFPR22	**Education Cycle:**	Second-cycle level
Confirmed by:	Dean Mar 1, 2022	**Disciplinary domain:**	Technology (75%) and social sciences (25%)
Valid From:	Aug 1, 2022	**Subject group:**	MT1
Version:	1	**Specialised in:**	A1N
		Main field of study:	Production Systems, Product Development

Intended Learning Outcomes (ILO)

After a successful course, the student shall:

Knowledge and understanding
- demonstrate knowledge of research approaches and research methods in the field of product realisation
- demonstrate knowledge of different techniquies for data collection and data analysis

Skills and abilities
- demonstrate the ability to formulate research questions, plan with appropriate research methods and techniques, and conduct scientific studies
- demonstrate skills in techniques for data analysis and deriving valid conclusions
- demonstrate skills in evaluating sources of information
- demostrate the ability to carry out and present, in writing and orally, assigned tasks

Judgement and approach
- demonstrate the ability to judge the appropriateness of research methods and techniques for data collection in different situations
- demonstrate an awareness of ethical aspects during research
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility for its use

Contents

The course gives an insight in the foundations of science as well as covers various research approaches. Terms and concepts from scientific research are taught in the course. Students are trained to systematically collect, treat, analyse, and present different types of data required for research and inquiry projects, and to critically review the result of such work. The structure of academic reproting in theses, papers and dissertations is covered in the course. The course is preparatory for conducting the thesis work and for the authoring the thesis.

The course includes the following elements:

- Research ethics
- Philosophy of science
- Research methods
- Techniques for data collection and analysis
- Scientific quality criteria
- Academic writing and reference management
- Critical review of scientific work
- Understanding results in science

Type of instruction

Lectures, seminars, assignments.

The teaching is conducted in English.

Prerequisites

Passed courses 180 credits in first cycle, at least 90 credits within the major subject in Mechanical Engineering, Industrial Engineering and Management or Civil Engineering, and 15 credits in Mathematics or passed courses at least 180 credits from the programme Industrial Product Realisation. Proof of English proficiency is required.

Examination and grades

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

Registration of examination:

Name of the Test	Value	Grading
Examination[1]	4 credits	5/4/3/U
Assignments	3.5 credits	U/G

[1] Determines the final grade of the course, which is issued only when all course units have been passed.

Course literature

The literature list for the course will be provided 8 weeks before the course starts.

Title: Research methodology - for engineers and other problem-solvers (also available in Swedish)
Authors: Kristina Säfsten, Maria Gustavsson (2020)
Publisher: Studentlitteratur AB
ISBN: 9789144122304