1 Name, Scope and Level of the Course
The course is provided by the University of Skövde and is named Master Degree Project in Virtual Product Realization A2E. It comprises 30 credits and is on advanced level. The level of progression of the course is A2E.

2 Objectives
After completed course the student should be able to:

- demonstrate the use and integration of acquired knowledge to formulate, analyze and solve problems within the subject area in a scientific way,
- show a deepened knowledge within the subject core through the implementation of a research project with due consideration of ethical, gender and societal aspects,
- demonstrate the ability to study, understand, summarize and reflect upon research papers related to the subject area,
- relate their work to other scientific work in the field,
- demonstrate the ability of oral and written presentation in a scientific environment,
- demonstrate an understanding of various aspects of sustainable development in relation to their work.

3 Course Content
The course consists of research work in the subject area of virtual product realization. The research work is related, but not limited to, production systems, product design, industrial automation, industrial ergonomics, ergonomics simulation, discrete event simulation, system dynamics, simulation-based optimization, industrial information systems, data collection, data processing, data storage and data mining, computational intelligence, product lifecycle and sustainable development.

4 Forms of Teaching
The teaching comprises lectures and supervision.

The teaching is conducted in English.

5 Examination
The course is graded A (Excellent), B (Very good), C (Good), D (Satisfactory), E (Sufficient) or F (Fail).

After course is completed access to additional time for supervision for completion of degree project is limited. Time for supervision is decided by the school and admitted at most until one year after end of course.

Registration of examination results:

<table>
<thead>
<tr>
<th>Name of examination</th>
<th>Credits</th>
<th>Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-term report and presentation</td>
<td>7 credits</td>
<td>A/B/C/D/E/F</td>
</tr>
<tr>
<td>Final report$^1$</td>
<td>20 credits</td>
<td>A/B/C/D/E/F</td>
</tr>
<tr>
<td>Final presentation</td>
<td>3 credits</td>
<td>G/U</td>
</tr>
</tbody>
</table>

$^1$ Determines the final grade of the course.

Students with a permanent disability who have been
approved for special educational support may be offered adapted or alternative examinations.

6 Admission Requirements
Prerequisite courses for this course are: Passed courses: VP700A-Product Lifecycle Management A1N and VP701A-Systems Thinking A1N and VP703A-Industrial Systems Philosophies A1N and VP704A-Modeling and Optimization A1N and VP707A-Scientific Theory in Informatics A1N. The prerequisites for this course are a Bachelor degree of at least 180 higher education credits (equivalent to 180 ECTS) within the fields of integrated product development or production engineering or automation engineering or mechanical engineering or information technology or similar.

A further requirement is proof of skills in English equivalent of studies at upper secondary level in Sweden, known as English course 6 / English course B. This is normally demonstrated by means of an internationally recognized test, e.g., IELTS or TOEFL or the equivalent.

7 Subject, Main Field of Study and Disciplinary Domain
The course forms a part of the academic subject area of Virtual Product Realization. The course is a part of the main field of study in Virtual Product Realization at the University of Skövde. The disciplinary domain of the course is Technology.

Every course at the University of Skövde belongs to a subject. The division of subjects is used for follow-up and quality assurance. A main field of study is an area in which a degree can be awarded. Disciplinary domain is a division which is used by the government for the allocation of resources for studies at basic level and advanced level.

8 Approval of Course and Course Syllabus
The course was approved by the Curriculum Committee for Engineering Science on 5 March 2018. This course syllabus was approved by the Curriculum Committee for Engineering Science on 11 March 2019. It is valid from 1 July 2019.

9 Overlapping with Another Course
This course cannot constitute a part of a degree also containing a course the content of which is totally or partly equivalent to the content of this course.

10 Additional Information
Further information will be available on the university’s website before a course is given.

National and local regulations for higher education are available on the university’s website.

Upon completion of the course there will be a follow-up. The main purpose of this follow-up is to contribute to improvements of the course. The students’ experiences and views constitute one of the criteria for the follow-up and are gathered by means of course evaluations. The students will be informed of the results of the follow-up and any decisions regarding actions that are to be taken.

11 Course Literature and Other Educational Materials
Reading material and research papers as provided by the instructor.