1 Name, Scope and Level of the Course
The course is provided by the University of Skövde and is named Industrial Systems Philosophies A1N. It comprises 6 credits and is on advanced level. The level of progression of the course is A1N.

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

- summarize important milestones in the development of industrial production systems,
- describe today’s prominent production philosophies,
- distinguish and contrast similarities and differences between today’s prominent production philosophies,
- explain and elaborate how production philosophies can contribute to a more effective use of simulation and optimization tools,
- explain and elaborate how simulation and optimization tools can contribute to successful implementation of production philosophies in a production system,
- explain and elaborate the importance of integrating production aspects during early product design and development stages,
- explain and elaborate how lean thinking can be important in the design and development of products.

3 Course Content
The Industrial Systems Philosophies (ISP) course provides deeper understanding of the currently prominent production philosophies: Lean, 6Sigma, Theory of Constraints, and Scientific Management. It also discusses the importance of connecting these different components with an understanding of the tools for modeling, simulation, optimization, including an increased information structure in order to create the best conditions for process development.

Similarities and differences in how the different production philosophies support this process and the mechanisms they use to achieve efficient production systems, is one of the key learning objectives of the course.

This course also provides knowledge on the importance of lean thinking in the product design and development phase. The course also discusses the significance of integration of production and product design.

4 Forms of Teaching
The teaching comprises lectures, group assignments, presentations and seminars/group discussions.

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).

Registration of examination results:
<table>
<thead>
<tr>
<th>Name of examination</th>
<th>Credits</th>
<th>Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written assignment¹</td>
<td>2 credits</td>
<td>A/B/C/D/E/F</td>
</tr>
<tr>
<td>Group assignment</td>
<td>1 credits</td>
<td>G/U</td>
</tr>
<tr>
<td>Seminar assignment 1</td>
<td>1 credits</td>
<td>G/U</td>
</tr>
<tr>
<td>Seminar assignment 2</td>
<td>1 credits</td>
<td>G/U</td>
</tr>
<tr>
<td>Seminar assignment 3</td>
<td>1 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
The prerequisite 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 course can also be a part of the main field of study in Informatics. 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 February 2018. This course syllabus was approved by the Curriculum Committee for Engineering Science on 5 February 2018. It is valid from 1 July 2018.

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
Main literature


Reference literature


