



COURSE SYLLABUS

Integrated Product and Production Development, 7.5 credits

Integrerad produkt och produktionsutveckling, 7,5 högskolepoäng

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| Course Code: TPUS22 | Education Cycle: Second-cycle level |
| Confirmed by: Dean Mar 1, 2022 | Disciplinary domain: Technology |
| Revised by: Director of Education Jun 1, 2024 | Subject group: MT1 |
| Valid From: Aug 1, 2024 | Specialised in: A1F |
| Version: 2 | Main field of study: Production Systems, Product Development |

Intended Learning Outcomes (ILO)

After a successful course, the student shall:

Knowledge and understanding

- display knowledge of a product development process and its structure and content
- display knowledge of ways of work, methods, tools used during development of products to analyze and improve a product's manufacturability and cost
- display knowledge of factors that affect integration between product development and production in relation to development of new products
- display knowledge of various ways to address sustainability during development of new products

Skills and abilities

- demonstrate the ability to apply methods and tools to strengthen the integration among different organisational functions such as product development and production
- demonstrate the ability to analyze and improve new products from a manufacturing and assembly point of view
- demonstrate how product architecture can affect production
- demonstrate the ability to plan and, with appropriate methods, tools, and work approaches, carry out complex tasks within given frameworks.

Contents

The course contains a holistic perspective on a product development with a special focus on the integration between product and production. The course considers methods and tools to support work at the interface between product and production development. The course contains methods to support creativity in product and production development, as well as takes into account analysis and improvement of a product from a cost, quality, manufacturability, assembly and sustainability point of view.

The course includes the following elements:

- Overview of product development process
- Methods and approaches for design for manufacturing and assembly
- Product architecture impact on production
- Methods and tools to support integration between product development and production during development of new products
- Factors that affect integration between product development and production during development of new products

Type of instruction

Lectures, seminars and 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, Computer Engineering or Civil Engineering, and 15 credits in Mathematics, and completed course Integrated Product Realization 7,5 credits or equivalent. 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 | 3 credits | 5/4/3/U |
| Assignment | 2.5 credits | U/G |
| Seminars | 2 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 eight weeks before the course starts.

Title: Product Design and Development, Seventh Edition

Authors:Karl T. Ulrich. Steven D. Eppinger. Maria C. Yang (2020)

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