



## Syllabus for **P03** **Produktion2030 – Overview and State-of-the Art**

<b>Credits</b>	4 higher education credits
<b>Examiner</b>	Dr. Göran Gustafsson, Chalmers University of Technology
<b>Contact</b>	Göran Gustafsson <a href="mailto:gorang@chalmers.se">gorang@chalmers.se</a> +46 73 034 63 57
<b>Target group</b>	Ph.D. students in the Produktion2030 Graduate School and others with similar research interests.
<b>Prerequisites</b>	No prerequisites. It is advantageous for the Ph.D. students to take this course early in their studies since it gives an overview of the research area of Produktion2030.
<b>Aim</b>	To give the students an overview of and common knowledge base in the areas of research of Produktion2030, with an emphasis on industrial product development and production.
<b>Teachers</b>	Teachers are recruited from participating academic institutions and collaborating industrial partners for each run of the course.
<b>Learning outcomes</b>	Upon successful completion of the course, participants should understand the conditions for industrial product development and production and how the taught methods are used in that environment. They should also understand why collaboration between academia and industry is emphasized in Produktion2030 and be able to assist in planning and execution of collaboration projects. Furthermore, the participants should in the areas of

strength

*Sustainable and resource-efficient production*

know of methodology for

- efficient use of materials and energy (including e.g. lightweight materials, energy optimization and reuse)
- remanufacturing

*Flexible manufacturing processes*

know of methodology for

- large production variation in parallel with high customization
- rapid introduction of radically new products

*Virtual product development and simulation*

know of

- digital models for and simulation in development of complex products and production systems
- data management, information and communication systems in product and process development

*Human-centred production systems*

know of the principles for

- cooperation between humans and machines to increase productivity and flexibility
- qualified knowledge work which is characterized by cooperation, solid competence, communication, innovation and efficient problem solving

*Product- and production based services*

know of

- basic principles for design of service-based products
- new work methods, processes, methods and tools for design of service-based products

*Integrated product- and production development*

know of

- basic principles for integrated product and production development
- new work methods, processes, methods and tools for integrated product and production development

## Contents

The course covers tools and methodology for academic-industrial cooperation and in the areas of strength of Produktion2030:

- Sustainable and resource-efficient production
- Flexible manufacturing processes
- Virtual production development and simulation
- Human-centred production systems
- Product- and production based services
- Integrated product- and production development

## Organisation

Three face to face meetings of 3 days each (lunch to lunch over four days) with integrated study visits. There will also be some social arrangements.

## Literature

Distributed on paper or via email and/or available from the course home page.

## Examination

Successfully completed assignments and participation in literature seminars.

Active partaking in lectures and during study visits is expected, and presence during at least 75 % of the scheduled arrangements is required.

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