



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

Credits	4 higher education credits
Examiner	Dr. Göran Gustafsson, Chalmers University of Technology
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Target group	Ph.D. students in the Produktion2030 Graduate School and others with similar research interests.
Prerequisites	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.
Aim	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.
Teachers	Teachers are recruited from participating academic institutions and collaborating industrial partners for each run of the course.
Learning outcomes	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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