

Course examiners

Ola Isaksson, Chalmers

Anna Öhrwall Rönnbäck, LTU

Johan Ölvander, LiU

Version 1.2

1 (3)

Course PM 2016-2017

First part of

EPD

20 ECTS credits

## Engineering Product Development 20 hp

We are now launching a product development PhD Course suite of 20 ECTS credits in total, organized as independent modules of each 5 ECTS credits:

**(1) A Critical Review of the PDP**

**(2) Sustainability in Engineering Product Development**

**(3) Modeling, Simulation and Optimization**

**(4) Engineering Innovation and Management**

This suite is recommended for PhD candidates in Engineering Product Development. The modules are planned to be given for the first time during 2016-2017. First in line is the basic course on research on product development processes.

Welcome to the PhD Course suite!

*Co-hosting universities and contact persons:*

Blekinge Institute of Technology (BTH): Tobias Larsson

Chalmers: Ola Isaksson

Jönköping University/Mälardalen University (JU/MdH): Glenn Johansson

Technical University of Denmark (DTU): Tim McAloone

Linköping University (LiU): Johan Ölvander

Luleå University of Technology (LTU): Anna Öhrwall Rönnbäck

Norwegian University of Science and Technology (NTNU): Martin Steinert

Royal Institute of Technology (KTH): Sofia Ritzén

*(Other senior researchers in the EPD field will also join the course modules)*

### Module 1: A Critical Review of the PDP

Established literature will be revisited and compared with more recent advances in academic research. The objective is primarily to provide a theoretical reference base for conducting research in product development.

### Registration

Please register by email to one of the three examiners:

Ola Isaksson, [ola.isaksson@chalmers.se](mailto:ola.isaksson@chalmers.se), Anna Öhrwall Rönnbäck,

[anna.ohrwall.ronnback@ltu.se](mailto:anna.ohrwall.ronnback@ltu.se), or Johan Ölvander, [johan.olvander@liu.se](mailto:johan.olvander@liu.se).

### Time and place

The course module duration is from May to October 2016. It is given as a distributed course, with sessions arranged on site at Chalmers, Linköping and LTU, connected via video link that can be joined remotely. The final session will be a physical meeting for all participants. Dates for the 2<sup>nd</sup>-5<sup>th</sup> session will be determined at the first session.

### Organization

Each session will be structured as follows:

1. Introduction by course examiners
2. Reports from reading and discuss implications (academic and in practice)
3. Introduce literature assignment for the next session

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At the end of the course participants are expected to write their own review paper over the product development process, summarizing the reading assignments, which is presented to the group. This final assignment also includes reviewing others' work. After review, each contribution can become a chapter of an EDP published report.

### **Learning objectives and Examination**

After the course module the participant should have:

- Gained increased awareness of research on the product development process.
- Improved their ability to critically review and make use of established and recent research literature.
- Independently written a critical review of research literature on the engineering product development process.
- Trained evaluation of other course participants' written literature reviews
- Improved their ability to communicate orally and in written about the EPD process in a research context.

The course is examined through active participation at the seminars and the written review of literature as presented and discussed in the course during the time schedule.

### **Content**

**1<sup>st</sup> session May 25, 2016:** Content: Introduction.

Presentation of course literature, information (not compulsory, but advised).

**2<sup>nd</sup> session June (prel June 17):** Content: Process Modeling the Product Development Process. (Large corporations, SME.)

*Reading before the session:*

3 articles: Cooper (1990 and 2014), Gericke, Eckert (2015)

1 book: Ulrich & Eppinger

Content: Discussion about different types of literature and written sources (books, scientific papers, white papers, reports, web sites etc). Select your own paper to read for the next session.

**3<sup>rd</sup> session August:** Content: Degree of formalism of the PDP and its implication. Basic terms Design Decision rules.

**4<sup>th</sup> session August:** Content: A Systems and Life Cycle Engineering view on the PDP process for Complex Products.

**5<sup>th</sup> session (September/October):** Content: Presentation of Participants' review papers. Review of each paper. Compilation of an EDP report.

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## LITERATURE LIST (to be completed during the course)

### Literature for Session 2:

Cooper R. G. (1990), Stage-Gate Systems: A New Tool for Managing New Products, *Business Horizons*, May-June.

Cooper R. G. (2014), What's Next? After Stage-Gate, *Research-Technology Management*, January—February.

Gericke, K, Eckert, C. (2015), The Long Road to Improvement in Modelling and Managing Engineering Design Processes, International Conference on Engineering Design, ICED15, 27-30 July, Politecnico Di Milano, Italy.

Ulrich K. & Eppinger S., (2012), *Product Design and Development*. Fifth edition. New York, McGraw-Hill. ISBN: 978-007-108695.

Also see: <http://www.ulrich-eppinger.net>

### General literature, suggested:

Wikberg-Nilsson Å., Törlind P., Ericson Å. (2015), *Design – Process och metod*. Lund. Studentlitteratur. ISBN: 9789144108858. [In Swedish.]