

Modern Manufacturing Research 7,5 hp

Modern Produktionsteknisk Forskning 7,5 hp

Course Code/Codes	50MT040
Subject Area	Mechanical Engineering
School/equivalent	School of Science and Technology
Valid from	2018-05-01
Approved	2018-04-10
Revised	First issue
Approved by	Peter Johansson, Head of School
Translation to English, date and signature	The course is only described in English 2018-04-05/LP

1 Course content

The course is given as a series of seminars.

The seminars held will deal with the following:

Different paradigms in production technology, a short introduction and background to the development of production technology up till now. Parameters and factors, such as driving forces in research and development with a focus on production technology.

The state of the art in production technology. Analysis of trends and preconditions for shifts in technology. Identification and study of the political agenda behind research in production technology.

Methods and analysis of forward-looking studies concerning production technology and future production. Identification and analysis of roadmaps within the subject as well as gap analysis with respect to present and future state of the art.

2 Outcomes

2.1 The course in relation to the doctoral programme

- The course is a compulsory course (As described in the March 14, 2014 ASP for Mechanical Engineering, dnr ORU 5.1-5034/2013) for PhD students in the area of Mechanical Engineering.
- The course is given in collaboration with University West

The course shall primarily refer to the following intended learning outcomes for third-cycle courses and study programmes as described in the Higher Education Ordinance, i.e. the doctoral student shall demonstrate:

Knowledge and understanding

- important paradigms in production technology, both in the subject as a whole as well as within specific aspects of the subject
- the state of the art within production technology
- roadmaps within relevant areas of production technology
- methods to predict or foresee changes and shifts in technology in production technology

Competence and skills

- to identify and analyse current research in production technology
- to analyse trends and preconditions for change in paradigms and technology
- to perform gap analysis
- to document and present state-of-the-art including analysis and reflection based on work in research

Judgement and approach

- the relevance of previous research to the students and research questions for their own research subject
- other researchers and research questions; work in relation to the students questions in connection to their own work.

The intended learning outcomes are listed in the same order as in the general syllabus for the programme.

2.2 Intended course learning outcomes

To obtain a passing grade, the doctoral student shall demonstrate:

Knowledge and understanding of:

- Different paradigms in production technology and background to the development of production technology up till now.
- Driving forces in research and development with a focus on production technology

Skill and ability in:

- Analysis of trends and preconditions for shifts in technology.
- Ability to identify and study of the political agenda behind research in production technology.
- Identification and analysis of roadmaps within the subject as well as gap analysis with respect to present and future state of the art

3 Reading list and other teaching material

The following course readings and teaching material will be used on the course:

Relevant materials (Research papers in production technology) will be addressed at each session.

Christensen, Clayton M. (2013). Innovator's dilemma : when new technologies cause great firms to fail. Boston: Harvard Business Review.

4 Teaching formats

Teaching on the course takes the following format:

Lectures/Seminars
Individual work.

5 Examination

The course is assessed through an examination in the format of

Written and oral reflection and argumentation in the research field of the candidate.
The students will be given a task in connection with each of the sessions and the examination is based on the performance of all the individual tasks. Each one of these have to be approved. Every PhD student shall participate at a minimum of 75% of the seminars and at a least at one of these have the responsibility for presentation and discussion of a subject related to their own work.
Two presentations, oral and in writing, shall be presented containing discussion, method, analysis and reflection within a subject of future production technology or production systems.

6 Grades

Examinations on third-cycle courses and study programmes are to be assessed according to a two-grade scale with either of the grades 'fail' or 'pass' (local regulations).

The grade shall be determined by a teacher specifically nominated by the higher education institution (the examiner) (Higher Education Ordinance).

To obtain a passing grade on examinations included in the course, the doctoral student is required to demonstrate that he/she attains the intended course learning outcomes as described in section 2.2. Alternatively, if the course consists of multiple examinations generating credit, the doctoral student is required to demonstrate that he/she attains the outcomes that the examination in question refers to in accordance with section 5.

A student who has failed an examination is entitled to a retake.

If an examination consists of several examination components, and a student fails an examination component, the examiner may, as an alternative to a retake, set a make-up assignment with regard to the examination component in question.

A doctoral student who has failed an examination twice for a specific course or course element is entitled, upon his/her request, to have another examiner appointed to determine the grade.

7 Admission to the course

7.1 Admission requirements

To gain access to the course and complete the examinations included in the course, the applicant must be admitted to a doctoral programme at Örebro University.

The applicant shall be admitted to a doctoral program in Mechanical Engineering

7.2 Selection

Selection between applicants who have been admitted to doctoral programmes at Örebro University and who otherwise meet the admission requirements as listed above is made according to the following order of precedence:

If no other selection criteria are specified in this section, priority shall be given to applicants with a lower number of course credits left before the award of their degree over applicants with a higher number of remaining course credits. Should two or more students have equal number of credits, selection will be done through the drawing of lots. This also applies within any selection groups listed unless otherwise stated.

7.3 Other applicants than doctoral students admitted at Örebro University

Other applicants than doctoral students admitted at Örebro University may be given access to the course on the grounds of provisions for and/or agreements regarding contracted courses, joint degrees, national graduate schools or cooperation in other respects with other universities.

Any decisions on what such other applicants may be given access to the course are made separately and on the basis of the provisions and/or agreements that occasion the student to apply for the course.

For participation in the course in other respects, the same provisions shall apply as for doctoral students admitted to Örebro University.

8 Transfer of credits for courses, study programmes and other experience

Provisions on the transfer of credits can be found in the Higher Education Ordinance and on the university's webpage.

9 Other information

Transitional provisions