COURSE SYLLABUS

Masterarbete i maskinteknik med inriktning mot strukturmekanik

Master´s Thesis in Mechanical Engineering with emphasis on Structural Engineering

30 credits (30 högskolepoäng)

Course code: MT2565
Main field of study: Mechanical Engineering
Disciplinary domain: Technology
Education level: Second cycle
Specialization: A2E - Second cycle, contains degree project for Master of Arts/Master of Science (120 credits)

Subject area: Mechanical Engineering
Language of instruction: English
Applies from: 2019-01-21
Approved: 2018-10-01

1. Decision

This course is established by Dean 2018-02-08. The course syllabus is approved by Head of Department of Mechanical Engineering 2018-10-01 and applies from 2019-01-21.

2. Entry requirements

Admission to the course requires 60 credits passed from a master program in mechanical engineering.

3. Objective and content

3.1 Objective

3.2 Content

The course consists of the parts:
• Development of aresearch proposal and a project plan
• Carrying out a project, and producing a master thesis report
• Presentation and defence of own work, and appointed opposition on another thesis work.

Prestudie and planning I spart of producing a project plan. It is the students responsibility to initiate contact with necessary parties to be involved in the work. The carrying out of the study is based on stated research questions, is followed up on regular basis, and is documented in a scientific report. The work is orally presented and defended by the student. Acting as opponent is part of the course.

4. Learning outcomes

The following learning outcomes are examined in the course:

4.1 Knowledge and understanding

On completion of the course, the student will be able to:
• be able to demonstrate knowledge of scientific basis and proven experience as well as insight into current research and development work within the main subject of the program,
• be able to demonstrate both broad knowledge of the major subject of the program, including knowledge in mathematics and science, as well as deeper knowledge of certain parts of the subject specialization.

4.2 Competence and skills

On completion of the course, the student will be able to:
• be able to critically and systematically identify problems of scientific character and be able to transform them into feasible research tasks;
• be able to demonstrate, critically, autonomously and creatively, identify, formulate and plan, and with adequate methods, carry out qualified independent work within given time frames, thereby contributing to the development of knowledge in technical science,
• demonstrate ability to methodological skill, critical thinking and rigorous analysis in an independent scientific work that is characterized by good presentation,
• be able to demonstrate the ability to critically and systematically integrate theory and empiry, be able to analyze and

handle complex phenomena, questions and findings, and present them in an educational and readable manner,
• be able to demonstrate the ability, in both national and international contexts, in a clear oral and written manner, to explain and discuss drawn conclusions and the knowledge and arguments that underlie them in dialogue with different groups,
• be able to demonstrate skills required to participate in research and development work or to independently work in other qualified activities in the field,
• demonstrate the ability to critically and constructively comment on and oppose another independent master's thesis and be able to make significant contributions in a seminar discussion.

4.3 Judgement and approach

On completion of the course, the student will be able to:
• be able to demonstrate the ability to make judgments with regard to relevant scientific, social and ethical aspects as well as raise awareness of ethical aspects of research and development work,
• be able to demonstrate insight into the possibilities and limitations of technology, its role in society and people's responsibility for how it is used, including social and economic aspects, environmental and work environment aspects,
• be able to demonstrate the ability to identify personal needs for further knowledge and continuous development of skills.

5. Learning activities

The Master's work is an independent work, usually performed individually or in groups of two persons. The student is responsible for independently plan and carry out the different course parts supported by appointed supervision resource. In order to commence the master's project, an approved proposal is required. The student is responsible for completing the master's thesis within given time frame and with given supervision resources while maintaining sufficiently high quality. The student is guided by an academic supervisor at the university. In addition to the academic supervisor, it is also possible for a student to have external supervision.
The course begins with an introductory lecture. The remaining time consists of independent work in the form of planning, execution, follow-up and completion of a master's thesis and an opposition to another master's thesis. During the course the student will maintain a logbook on the course's learning management system, where the student regularly describes the status and progress of the master's thesis. The student is also responsible for conducting a mid-term review in consultation with the appointed supervisor. The final, revised academic report is graded by the examiner after oral presentation and defense.
The presentation and defense of the degree project can only be completed when there is (i) an approved project plan and (ii) the academic report is evaluated sufficient in its present form to be presented and defended. The assessment does not mean that the academic report will be assessed as approved. Assessment of the final, revised academic report will be done by the examiner after oral presentation and defense.
It is the student's responsibility to cope with the tutorial resource. The student is not entitled to supervision time outside the semester. Students who do not finalize a commenced master's thesis within the timeframe of the course, may receive further supervision only to a limited extent and for a maximum of six months after the end of the course. The examiner is entitled to discontinue supervision when the allotted supervision time is spent. However, the student is always entitled to have his / her independent work assessed at subsequent examinations. A student who enrolls in the course can not by default expect new tutoring time.

6. Assessment and grading

Modes of examinations of the course

Code	Module	Credits	Grade
1905	Project proposal and Project plan	2 credits	GU
1915	Oral presentation and defence	2 credits	GU
1925	Opposition	1 credits	GU
1935	Thesis	25 credits	AF

The course will be graded A Excellent, B Very good, C Good, D Satisfactory, E Sufficient, FX Fail, supplementation required, F Fail.

In the grade FX or UX, in consultation with the course coordinator / examiner, it is possible to complete the grade to E or G for the present course within 6 weeks. A student who did not submit a project plan at the end of the course is given the grade U at this course part, as the student could not demonstrate sufficient ability to perform tasks within the given framework. The oral presentation and the defense of the thesis and oral opposition will take place on campus. Exceptions to this may be decided by the examiner if reasons are found important for BTH. The number of occasions that a student may pass a test to obtain approved results on each course part is limited to three. Grades are decided by the examiner after taking into account recommendations from the supervisors for the work and assessment criteria. The final grade of the course will only be given after all the required parts are completed.

The course information for each course revision should include the assessment criteria and make explicit in which modes of examination that the learning outcomes are assessed.

7. Course evaluation
The course evaluation should be carried out in line with BTH:s course evaluation template and process.

8. Restrictions regarding degree
The course can form part of a degree but not together with another course the content of which completely or partly corresponds with the contents of this course.

9. Course literature and other materials of instruction
Instructions and templates for degree projects are provided by the university. Other course literature is chosen individually by the student in consultation with the supervisor and the examiner, taking into consideration the nature of the thesis assignment.
Reference literature:
• How to Write a Better Thesis Författare: D. Evans, P. Gruba, J. Zobel Förlag: Springer International Publishing Utgiven: 2014; 3:e upplaga ISBN: 9783319042855.
• Science Research Writing for Non-Native Speakers of English Författare: H. Glasman-Deal Förlag: Imperial College Press Utgiven: 2010, reprint 2016 ISBN: 978184816310

10. Additional information
This course replaces the course MT2525