MF234X Degree Project in Mechanical Engineering, Second Cycle 15.0 credits

Examensarbete inom maskinteknik, avancerad nivå

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for MF234X valid from Autumn 2016

Grading scale

P, F

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

A Bachelor degree or equivalent, worth at least 180 ECTS in a technical subject or the natural sciences. At least 30 ECTS at the advanced level, including at least 15 ECTS specialising in mechanical engineering.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

On the basis of the KTH established goals for the Master`s Degree, on completion of this course all students will be able to demonstrate:

1. scientific understanding of the chosen topic, insight into current research and development, as well as in-depth knowledge of related methodology

2. the ability to systematically search for, collect and integrate knowledge and identify where additional information is required.

3. the ability to identify, analyze, assess and deal with complex phenomena, issues and situations, even when presented with limited information.

4. the ability to plan and carry out advanced tasks within specified time frames, and to evaluate this process.

5. the ability to communicate with different groups, both orally and in writing, and to clearly present and discuss their conclusions and the knowledge and arguments used to reach them.

6. the ability to make judgements with regard to relevant scientific, social and ethical aspects.

7. the skills required to participate in research and development, or other skills enabling the student to work independently in other advanced contexts.

Course contents

The main content should be adapted to the situation in which the thesis is expected to be carried out – for example, revealing new or deepened knowledge in a given subject area, application domain, academic or industrial environment, nationally or internationally.

Students are expected to demonstrate their ability to formulate and solve an engineering problem using a wide range of skills, and showing a high degree of initiative and independence,. The topic of the thesis may vary, but it must contain significant technical content and have a clear application in mechanical engineering.

Course literature

Students are expected to conduct independent literature studies in the given problem area. Additional reading material can also be proposed by the examiner and/or supervisor.

Examination

- XUPP - Thesis project, 15.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

The KTH established criteria for passing the Master's Degree include:

That literature is well implemented, and current research and development relating to the thesis topic is presented. The chosen methods are well justified, based on science and evaluated against other methods. Relevant knowledge from courses is used adequately.

The thesis task is handled independently and systematically, based on critical analysis and synthesis of relevant literature. Well-chosen databases and search tools are used. The need for additional knowledge is discussed.

Relevant complex phenomena, issues and situations are identified in the thesis. The work clearly shows that these are well managed and analyzed even when available information is limited. The results of the thesis work can be implemented and the conclusions reached are well connected to the thesis work.

The work plan developed during the early part of the thesis has been followed. Skilled work is carried out within the agreed time frame and using the agreed methodology. Any change in the planning or the work has been pre-agreed between the student and supervisor. The successes and limitations of the work are clearly reported.

The report is well-organized, well-phrased and coherent. The argument for the conclusions are well implemented. All references and other sources are relevant, independently formulated and well integrated. Communication skills are demonstrated by both oral presentation of the work, and opposition to another student's thesis, indicating the ability to present and sensitively discuss the work and the conclusions of various parties (e.g. employer, supervisor, teacher, researcher and other students).

The thesis work should reflect the student's capability to explain, justify, criticize and recommend. Assessment of the scientific background of the topic has been made in the thesis or new experience proven. The work includes reflections on social and ethical issues, unless this is justified as irrelevant.

The student applies themselves well to the thesis work, and demonstrates the ability to participate in the work environment / culture where the work is performed. The student demonstrates the ability to test, evaluate, and also to reject ideas and solutions during the discussions of the task. The student shows initiative and is open to coaching and criticism. The student works independently.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.

- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.