



MF2031 Advanced Prototyping

6.0 credits

Avancerad prototypframtagning

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

Establishment

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

MF101X/MF102X/MF104X/MF111X/MF112X/MF114/MF116/MF106X/MF107X/MF109X
or Bachelor in Mechanical engineering

TIPUM, TIPUD, TAEEM

Language of instruction

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

Intended learning outcomes

After completion of this course you will be able to

- describe the role of product prototyping in the product development process
- describe the relation and the difference between virtual and physical prototypes
- describe different methods to manufacture physical prototypes and when to select one before another
- select a prototype method to manufacture a specific prototype and motivate this choice with respect to purpose, cost, time and quality
- create 3D CAD models suitable for advanced prototyping methods
- make a cost calculation and budget for a prototype development

Course contents

This course aims to give the students knowledge about what types of modern methods that can be used for advanced product prototyping. The role of prototyping in the product development process is discussed and also in which phases different methods are to be preferred compared to others. A central theme in the course is that all methods are using a 3D geometry model as main information carrier and that each prototype being built has a specific purpose for what properties to reveal of the final product. The strength and weaknesses of the different methods are also discussed as well what product properties they are suitable to represent.

Disposition

The last part of the course is mainly based on a project work where you together with a number of other students will design a prototype and manufacture it using the methods that you have trained at during the laborations.

Course literature

Rapid Prototyping and Engineering Applications, A Toolbox for Prototype Development, Liou, Frank W. ISBN 0-8493-3409-8

Examination

- PRO1 - Project Work, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 2.0 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.

Other requirements for final grade

The final grade is given by the weighted value of the project work and the written exam.

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.