MG2020 Modularisation of Products 6.0 credits

Modulindelning av produkter

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

Establishment

Course syllabus for MG2020 valid from Spring 2012

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Compulsory courses in year one and two of the Mechanical Engineering programme at KTH or equivalent.

Language of instruction

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

Intended learning outcomes

After having passed this course the students should have:

- knowledge of modularisation of products
- knowledge of design for assembly
- understanding of problems in product development
- knowledge of the link between product development and manufacturing
- understanding of the Modular Management concept, including the Modular Function Deployment method and its part in integrated product development

knowledge of how the Modular Function Deployment method is used.

Course contents

Many companies are focusing on rationalising their product handling throughout the company as well as they want to maintain or improve their ability to satisfy the changing customer demands. The companies have to make both the organisation and the product more effective. One way is by structuring the product so it incorporates the demands from the customers, the corporation and the long term strategy. Many researchers are involved in the area of understanding how this should be done. At KTH, Dept. of Production Engineering, and IVF the MFD-method (Modular Function Deployment) was developed some years ago.

The method is one of the first to accommodate the product structure to the manufacturing and the strategies of the company. The method consists of five steps to design a product so it is divided into a number of modules that could be combined/purchased/shared among product variants. This allows the manufacturing cost to be minimised and the complexity (the number of different parts) may be lowered, yet it still allows flexibility and variety. The method focus on the corporate strategy regarding core competence and preparation for technical change. Depending on which of these aspects that are important for the company and their products, the product may be designed and structured in different ways. The method has been used successfully in some 20 Swedish companies to create a company specific modularisation. Furthermore, the method has also been useful in creating a common understanding of the product and corporate strategies among marketers, designers, manufacturers and so on.

The course is based on the Modular Function Deployment method that consists of five steps:

- Clarify customer requirements
- Select technical solutions
- Generate module concepts
- Evaluate concepts
- Improve each module

Course literature

To be announced.

Examination

- PRO1 - Project, 6.0 credits, grading scale: A, B, C, D, E, FX, 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

Project work (PRO 1; 6 credits)

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.