MF2027 Integrated Product Development, Advanced Course 30.0 credits

Integrerad produktutveckling, högre kurs

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

Establishment

Course syllabus for MF2027 valid from Autumn 2009

Grading scale

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

Education cycle

Second cycle

Main field of study

Specific prerequisites

Language of instruction

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

Intended learning outcomes

- **Learning Objectives of the Theoretical Element**

The major objective of the theoretical element of the course is to enable the student to describe, compare, and explain various aspects of the work procedures in product development projects.

After this part the student will be able to:

- Describe and compare various product development processes.
- Describe, compare, and to apply various support methods in the product development and to be able to critically analyse the effect of these methods.
- Analyse the effect of various ways of organizing product development.
- Describe and facilitate factors that support a creative climate.
- Describe various perspectives on innovation and to be able to use these in context.
- Describe mechanisms of integration in product development and to critically assess the effect they have.
- Reflect on the ethical aspects of product development.
- Apply scientific research about work procedures in product development.

Learning Objectives of the Practical Element

The major objective of the practical element of the course is to enable the student to organize and efficiently carry out a product development project. The term efficiently incorporates the facilitation of a creative climate and a sustainable work environment.

After this part the student will be able to:

- Form a project organization and to manage changes in this organization to support the various phases of the product development process.
- Systematically and efficiently apply support methods in the product development.
- Motivate why various support methods are chosen and analyse the effect of their application.
- Access when the result of a phase in the product development is adequate for proceeding to the next phase.
- Manage uncertain technical aspects by making reasonable technical estimates.
- Apply technical knowledge.
- Acquire relevant information to be able to manage technical and organizational issues.
- Verbally and in writing communicate:Various aspects of product development, Reflections on personal and work group behaviour relating to work group dynamics, Reflections on the progress of the product development.

Course contents

- Product development processes

- Innovation
- Product Design
- Creativity and Creative Climate
- Group dynamics and reflection
- Organizing product development
- Project planning and project management
- Support methods for the product design phases: Idea and concept generation, Idea and concept selection, Idea and concept development such as FMEA (Failure Mode Effect Analysis), QFD (Quality Function Deployment), Design for X methods (X = environment, production, assembly, quality etc), and end user involvement.
- Verbal and written communication

Examination

- SEM1 - Seminars, 6.0 credits, grading scale: P, F
- PRO2 - Project Work, 10.5 credits, grading scale: P, F
- PRO1 - Project Work, 4.5 credits, grading scale: P, F
- SEM2 - Seminars, 4.5 credits, grading scale: P, F
- TEN1 - Examination, 4.5 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 examination is based on both the theoretical elements and the practical elements of the course. The final grade will be given on a scale ranging from A-F.

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.