



KURSPLAN

Tillämpad konstruktionsteknik, 7,5 högskolepoäng

Applied Engineering Design, 7.5 credits

Kurskod:	TTKR22	Utbildningsnivå:	Avancerad nivå
Fastställd av:	VD 2022-03-01	Utbildningsområde:	Tekniska området
Reviderad av:	Utbildningschef 2023-10-25	Ämnesgrupp:	MT1
Gäller fr.o.m.:	2024-08-01	Fördjupning:	A1N
Version:	2	Huvudområde:	Produktutveckling

Lärandemål

After successful course, the student shall;

Kunskap och förståelse

- display knowledge of requirements management in product development
- display knowledge of the dependencies and conflicting objectives between requirements in different aspects of product development
- display knowledge of suitable physical prototyping methods for different manufacturing methods and purposes

Färdighet och förmåga

- demonstrate the ability to apply methods to evaluate the fulfillment of different requirements for a product concept
- demonstrate skills of using computer aided engineering tools for evaluation of requirements
- demonstrate skills in developing and evaluating virtual and physical prototypes with respect to different aspects, such as, manufacturability, assembly, functionality, and structural strength
- demonstrate skills of implementing new solutions in product concept based on analysis from evaluation results
- demonstrate the ability to clearly communicate design rationale supported by evaluation and analysis

Värderingsförmåga och förhållningssätt

- demonstrate an understanding of how to manage conflicting objectives from various stakeholders in engineering design

Innehåll

This course provides an opportunity to conduct project-based, hands-on, product development in collaboration with an industrial partner company, from an initial conceptual idea to a functioning prototype. A big part of the course is exposure to complex issues that arise from conflicting objectives, e.g., product performance vs cost.

The course includes the following elements:

- Re-design of an existing product, or a new design of a new product family member
- Building physical prototypes, hands-on, workshop
- Evaluating requirements using both virtual and physical testing
- Evaluating conflicting objectives (trade-off curves)
- Handling requirements for e.g., industrial design, production, sustainability, cost, tolerances, assembly, test standards, regulatory standards

Undervisningsformer

The education is done through project work in groups. The project case is given by an industrial partner company. Lectures are conducted at campus together with guest lectures. Some guest lecturing is conducted as mandatory study visits at the partner company.

Undervisningen bedrivs på engelska.

Förkunskapskrav

The applicant must hold the minimum of a bachelor's degree (i.e the equivalent of 180 ECTS credits at an accredited university) with at least 90 credits in Mechanical Engineering, Civil Engineering (with relevant courses in construction), or equivalent. The bachelor's degree should comprise a minimum of 15 credits in mathematics and 7.5 credits in CAD, or equivalent. Proof of English proficiency is required.

Examination och betyg

Kursen bedöms med betygen 5, 4, 3 eller Underkänd.

The course examination is continuous, through project deliverables, project gate presentations and mandatory study visits.

Poängregistrering av examinationen för kursen sker enligt följande system:

Examinationsmoment	Omfattning	Betyg
Projektrapport	7,5 hp	5/4/3/U

Kurslitteratur

The literature list for the course will be provided 8 weeks before the course starts.