KURSPLAN

Digitalisering och automation i produktframtagning, 7,5 högskolepoäng

Digitalization and Automation in Engineering Processes, 7.5 credits

Kurskod:	TDAR22	**Utbildningsnivå:**	Avancerad nivå
Fastställd av:	VD 2021-03-01	**Utbildningsområde:**	Tekniska området
Reviderad av:	2023-10-25	**Ämnesgrupp:**	MT1
Gäller fr.o.m.:	2025-01-01	**Fördjupning:**	A1N
Version:	2	**Huvudområde:**	Produktutveckling

Lärandemål

After a successful course, the student shall:

Kunskap och förståelse

• demonstrate comprehension of Product Lifecycle Management (PLM) tools and their integration
• display knowledge of tools and methods for structuring design tasks and design knowledge
• demonstrate comprehension of Product Data Management (PDM)

Färdighet och förmåga

• demonstrate skills in prescribing and using PLM and PDM tools
• demonstrate the ability to structure design tasks and design knowledge
• demonstrate skills in facilitating engineering processes in the industrial context
• demonstrate skills in identifying different types of design processes

Värderingsförmåga och förhållningssätt

• demonstrate the ability to analyse design processes for the planning of computer support and automation

Innehåll

This course provides knowledge on how to facilitate and improve the quality of design and engineering work using computer support, PLM and PDM tools. The students will learn how to understand different types of design and engineering processes.
The course includes the following elements:
- Classification of design tasks and design knowledge
- Mapping of design processes and design knowledge
- Representation of knowledge and reasoning such as Dependency Structure Matrix, Constraint-programming, Knowledge based engineering, Case Based Reasoning, Configuration and Parametric design
- PLM and PDM
- Design Automation

- Actual industrial cases in design automation

Undervisningsformer

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.

Poängregistrering av examinationen för kursen sker enligt följande system:

Examinationsmoment	Omfattning	Betyg
Skriftlig examination[I]	4 hp	5/4/3/U
Handledning	2 hp	U/G
Seminarier	1,5 hp	U/G

[I] Bestämmer kursens slutbetyg vilket utfärdas först när samtliga moment godkänts.

Kurslitteratur

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

Reference literature:
Hopgood, A.A, Intelligent Systems for Engineers and Scientists
CRC Press LLC, 2001
L.Hvam, N.H.Mortensen, J.Riis, Product Customization, Spinger eBooks, 2008