JÖNKÖPING UNIVERSITY
School of Engineering

COURSE SYLLABUS

Digitalization and Automation in Engineering Processes, 7.5 credits

Digitalisering och automation i produktframtagning, 7,5 högskolepoäng

Course Code:	TDAR22	Education Cycle:	Second-cycle level
Confirmed:	Aug 07, 2026	Disciplinary domain:	Technology
Valid From:	Aug 31, 2026	Subject group:	Mechanical Engineering
		Specialised in:	A1N Second cycle, has only first-cycle course/s as entry requirements
		Main field of study:	Product Development

Intended Learning Outcomes (ILO)

On completion of the course the student shall:

Knowledge and Understanding

- 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)

Skills and Abilities

- 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

Judgement and Approach

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

Content

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

Type of Instruction

Language of instruction is English.

Entry Requirements

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 and Grades

The course is graded 5, 4, 3 or U.

Registration of examination:

Name of the Test	Value	Grading
Written examination [1]	4 credits	5/4/3/U
Tutorial	2 credits	G/U
Seminars	1.5 credits	G/U

[1]Determines the final grade of the course, which is issued only when all course units have been passed.

Course Literature

Please note that the course literature may be revised up to eight weeks before the start of the course.

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