

## **SYLLABUS**

# **Computer Aided Industrial Design 7.5 credits D0005A**

**Datorstödd industriell design**

**Course syllabus admitted: Autumn 2024 Sp 1 - Present**

**DECISION DATE  
2024-02-14**

# Computer Aided Industrial Design 7.5 credits D0005A

## Datorstödd industriell design

### First cycle, D0005A

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Industriell design	Other Subjects within Technology

## Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language and completed courses of at least 30 credits in the subject area Industrial design, with at least the grade Pass, for example: Design: process and method (D0030A) 15 credits and Design: theory and practice (D0037A) 15 credits, or equivalent knowledge. Good knowledge in English, equivalent to English 6.

## Selection

The selection is based on 1-165 credits.

## Course Aim

The student should after the course demonstrate skills in three-dimensional surface modeling as a tool during the design process. This means that the student should be able to independently choose the appropriate modeling approach to develop different product or environmental concepts with the help of computer-aided industrial design and be able to communicate the final design using visualizations.

Knowledge and understanding The student shall after finished course:

- understand and explain basic concepts within computer aided industrial design
- understand and explain pros and cons with computer based design tools

Skills and abilities

The student shall after finished course:

- show abilities in applying basic concepts within three-dimensional surface modeling
- apply basic tools within three-dimensional surface modeling
- independently be able to, depending on the task, choose a suitable modeling strategy, model and visualize a product or an environment

Values and reflection

The student shall after finished course:

- show abilities to reflect on both conditions and expressions within three-dimensional surface modeling
- be able to take and give constructive criticism verbally
- show abilities to critically review, evaluate and analyze compute models, materials, lighting and renderings depending on the purpose
- show understanding in the learning process and identifying the personal need of further knowledge to continuously develop his/her competence

## Contents

The course covers basic areas as user interface, tools and functions in the surface modeling software Alias Automotive from Autodesk. The course is based on six individual assignments. The first three are step by step assignments (tutorials) where basic modeling is trained. The three next assignments allows more design freedom for the student and additional understanding to surface modeling, lighting and rendering.

## Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

The course consists of lectures, demonstrations and support classes. The assignments are carried out in the software Alias Automotive which is provided in the computer labs at LTU. Much of the teaching is to teach a craftsmanship. This means that much time is provided for working on your own. In class, different modeling strategies and visualization possibilities are demonstrated. During the lectures, small exercises are carried out to directly implement what just was been explained by the teacher. The assignments for the course are also explained during class. To keep the course up to date and in sync with demands and expectations from the industry, the assignments are chosen to reflect real life design tasks with current themes. Besides the lectures there are support classes where the students can work on their assignments with a teacher present to assist when needed. Two of the assignments are briefly presented in class where the students also receive feedback on their work from the teacher. After the presentations there is time to reflect on the feedback and continue working on the assignments.

## Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. To pass the course the student needs to be present at the two presentations/feedback classes and six approved assignments carried out according to instructions and handed in on time. Assignments 1-3 are mandatory but do not influence the final grade. Assignments 4-6 are the grading basis. Assignment 4 and 5 stand for 25% each of the final grade and the 6th assignment stand for 50% of the final grade. Criteria for the assignments are given in a separate document for each course. For two of the three final assignments the student shall make a short presentation of his/her design, explain the choice of modeling strategy, design process, difficulties during modeling and how these have been handled. Great emphasis is placed on individual feedback to the student to reconnect the results to the course aims. In the course the grading method SGP (Systematic Grading Procedure) is used, [1], [2], [3], where each assignment is broken down into assessment areas which are graded separately and later weighed together for a final grade.

## Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

## Remarks

Students must register for the courses themselves, or contact ETKS educational administration [eduetks@ltu.se](mailto:eduetks@ltu.se), not later than three days after the quarter commences. Failure to do so can result in the place being lost. This rule also applies to students with a guaranteed place.

## Overlap

The course D0005A is equal to ARD104

## Course offered by

Department of Social Sciences, Technology and Arts

## Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0002	Assignment 1-3	U G#	1.5	Mandatory	A15	
0003	Assignment 4 (including oral presentation)	G U 3 4 5	1.5	Mandatory	A15	
0004	Assignment 5	G U 3 4 5	1.5	Mandatory	A15	
0005	Assignment 6 (including oral presentation)	G U 3 4 5	3	Mandatory	A15	

## Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

## Last revised

by Director of Undergraduate Studies Daniel Örtqvist, Department of Social Sciences, Technology and Arts 2024-02-14

## Syllabus established

by Department of Human Work Sciences 2007-02-28