Basics Industrial Design (E610017)

Valid in the academic year 2018-2019

Course Specifications

Lecturers in academic year 2018-2019
- Christiaens, Yannick (TW18 staff member)
- Vandekerckhove, Ria (TW18 staff member)
- Emmanouil, Marina (TW18 lecturer-in-charge)

Course offerings and teaching methods in academic year 2018-2019
A (semester 2) Dutch
- Group work 24.0 h
- Guided self-study 24.0 h
- Demonstration 24.0 h

Offered in the following programmes in 2018-2019
Bachelor of Science in Industrial Design Engineering Technology crds offering
- 6 A

Teaching languages
- Dutch

Keywords
- 2-D visualisation; 3-D physical product rendering; design process; documentation; morphological chart; persona; testing; user-centred design

Position of the course
This is a course on the fundamentals of industrial design for first-year undergraduate students. It consists of three modules: Sketching, Prototyping and Morphology. These cover both practical and theoretical aspects of design:
- Sketching aims to train intermediate visualisation skills in 2-D format: shapes and volumes; scale, proportion, perspective, shadowing, etc.;
- Prototyping concerns the mastering of 3-D rendering of physical models of the design concept;
- User-Centered Design covers selected theories and practices on user-centred design, such as persona, storyboard, and morphological chart.

Contents
The course introduces the practices involved in user-centred-design in which designer and intended target group interact to determine the development and outcome of the design work. The course also lays the foundation for nurturing key qualities of a professional designer in: planning of work; empathising with users; exploration of different ideas; experimentation with materials/methods/techniques; testing; visualisation and communication of ideas in different media; (linear) documentation of the whole design process (through a sketchbook or notebook); meeting deadlines. There is one main course assignment and regular homework/exercises for each module. The course is taught in Dutch and English.

Initial competences
Introduction to Industrial Design (E610020)

Final competences

1. Competencies of ‘design attitude & participation’
Students learn to:
- Work from a designer-led to a user-centred approach
- Explore (produce many ideas) and experiment with materials and techniques
- Test their work with the intended user group
- Refine work through variations of one idea

(Approved)
• Work independently (self-initiated work)
• Work in a planned manner under pressure and meet deadlines
• Provide evidence of their design process through well-kept documentation (in a sketchbook/notebook)
• Deal with feedback in a critical way and with a positive attitude
• Engage positively with peers and instructors, and support class with constructive feedback
• Communicate efficiently their work in a structured and clear way to the intended audience.

2. Competencies of ‘professional skills’

Sketching skills
Students learn to:
• Analyze complex and organic volumes and visualize these volumes from different viewpoints in an accurate way
• Draw contemporary products built from known geometrical shapes, profiled surfaces and a series of cross sections
• Visualize surface transitions, fillets and multi-curved surfaces
• Apply the rules of perspective in a consequent manner on profiled volumes, structures and details
• Apply object’s own shadow and casted shadow of objects in a logical way in order to improve the visual and spatial appearance of the sketch
• Apply basic rendering techniques in order to improve the visual communication and composition of the sketch.

Prototyping skills
Students learn to:
• Work with different materials with hand and machine tools
• Make (physical) product designs out of different materials
• Communicate (product) ideas in 3-D physical form/format
• Decide on best material(s) for the intended use
• Make functional prototypes which can be tested by users.

User-Centered Design
Students learn to:
• Work using a user-centred and design thinking methodology
• Create a persona
• Create communication tools (e.g., slides, storyboards, posters)
• Construct a morphological chart
• Explain/communicate design work using correct terminology.

Conditions for credit contract
Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract
This course unit cannot be taken via an exam contract

Teaching methods
Guided self-study, demonstration, group work, lecture, project, lecture: plenary exercises

Extra information on the teaching methods
- Sketching techniques are taught through demonstration lessons. Students train themselves to master skills independently by means of weekly assignments.
- Design skills on how to build Prototypes are demonstrated in the design studio/workshop. Students learn to build prototypes independently. Consultation takes place within module hours.
- The module of User-Centred design deals with the basic methods for conducting research and design for and with the user. Lectures and consultation and peer critiques take place. Students receive a detailed module syllabus in the beginning of the semester.

Learning materials and price
Students receive an assignment brief with detailed information about requirements, specifications and submission deadlines.

Sketching: Slides on Minerva.
Prototyping: Module material is available on Minerva. A toolbox with basic tools is required that will enable students complete their design project successfully. Special tools are available in the design studio, and other required consumables are available for sale at a special student rate in the design studio area.
User-Centred Design: The module uses a number of learning materials (lecture slides, audiovisual, readings, etc.) and methods (including student-led, such as, peer critiques). Detailed information (specs and routine) is given in class.

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References

**Selected bibliography (extended list is given in class)**


Course content-related study coaching

Consultation is given during class hours.

Evaluation methods

- end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period

- Written examination, oral examination, portfolio, assignment

Examination methods in case of periodic evaluation during the second examination period

- Written examination

Examination methods in case of permanent evaluation

- Assignment, job performance assessment, report

Possibilities of retake in case of permanent evaluation

- examination during the second examination period is possible in modified form

Extra information on the examination methods

- Assignment (portfolio / all relevant deliverables).
- In every design project, the students are evaluated on a prototype, the portfolio and a presentation. In addition, competences related to ‘design attitude & active participation’ are monitored on a weekly basis and subject to a rubric.

Calculation of the examination mark

**First examination period**

80% permanent evaluation of which:

- 30%: active participation and design attitude (not possible to retake in the second exam period)
- 30%: portfolio for Sketching, Prototyping, Morphology
- 20%: final assignment
- 20%: periodic assessment (sketching exam).

In case a student scores lower than 10/20 for one of the permanent evaluation criteria he/she cannot pass the course. If the combined (of three modules together) final score would be over the grade of 10 on 20, but in any one of the module(s) have a grade under 10, the final course grade will be corrected to the highest non-passing grade (9/20). Following the course (during course hours) is mandatory. A minimum attendance policy (80%) applies for the ‘design attitude & participation’ grade. In case of illness, justified absences should be supported by a Doctor’s report, which needs to be submitted to the official administration, and also to be shown to the course instructors.

**Second examination period**

80% permanent evaluation in modified form.

The grade for ‘active participation & design attitude’ and passed modules is carried over from the first examination period. For the other module(s), the distribution percentages of the first examination period remain valid.

- 20% Periodic assessment:
- Score of the second chance exam (written examination).