

Design, Styling and CAID (E640095)

Course size (nominal values; actual values may depend on programme)
Credits 9.0 Study time 270 h Contact hrs 84.0 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 2)	Dutch, English	seminar: practical PC room classes	24.0 h
		lecture	12.0 h
		seminar	36.0 h

Lecturers in academic year 2018-2019

Christiaens, Yannick	TW18	staff member
Rysman, Olivier	TW18	lecturer-in-charge
Saldien, Jelle	TW18	co-lecturer

Offered in the following programmes in 2018-2019	crdts	offering
Master of Science in Industrial Design Engineering Technology	9	A

Teaching languages

Dutch, English

Keywords

styling - emotion - Computer Aided Industrial Design

Position of the course

In this course the students are offered insights into:

- physical and digital conceptual processes of industrial goods
- techniques for a structured approach towards designing products
- the effect of styling onto the psyche of people

This course includes the following partims:

- design, styling
- CAID
- EMO-design
- study visit

Contents

Design-styling

The student starts from a known set of demands and an existing base structure of a product fabricated on an industrial level. Within the geometrical structure the student searches to achieve a formal design and functional materialisation of this product within the limits of materials and sociological and/or artistic trends. The functional geometry is described in the assignment. Through the interaction between physical and digital prototyping, the student will conceive the shape of the final design. Students learn to take decisions regarding materials, finishing, texture, joints and colours to achieve the desired aesthetical effect. In concreto this means that formal decisions (parting lines, textures, colours, folding lines,...) are linked to production techniques, function and ergonomics.

CAID

The digital part of the course (Computer Aided Industrial Design) focusses on gaining insights in the different modelling methods and the ability to choose and apply the most suitable method depending on the product to be modelled. The following methods are taught: solid modelling, surface modelling and subdivision modelling.

Besides these modelling methods we apply other known techniques that facilitate and speed up the decision making process :

- Reverse engineering: with 3D scanning one can digitize the physical prototype and create/evaluate a multitude of virtual alternatives very fast through reverse engineering.

During the modelling phase these strategies are discussed: systematic (bottom-up), holistic (top-down), overbuilding, additive/subtractive. From here on the physical model can be developed further.

- Computer rendering: this technology lets users evaluate textures and colours in a virtual environment.

EMO-Design

The students will receive insights in human perceptions related to emotions. How can we design products that elicit emotions? The students will receive different exercises to understand the importance of emotions in design and to learn how to implement this knowledge in their own design projects. During the course the students need to build their own emo-design portfolio based on the exercises.

Exercise 1: BASIC EMOTIONS

Task in short: A personal representation of the 6 basic emotions that are defined by Ekman and generally accepted as biologically universal to all humans. (Ekman, P. & Friesen, W. V --- 1969)

Aim: To reflect on the relation of emotions and product design and the association between products and emotions.

Exercise 2: ANIMAL EXPRESSION TRANSFER

Task in short: To create a hybrid object, combining and mapping expressions and behaviors from an animal to the expressions and functions of an everyday object. On expressions of interaction and coherency.

Aim: To explore how behaviors and interactions express themselves, sometimes only over time and in use. To get a better understanding of the interplay between expressions, interactions and functions. To design for coherency.

Exercise 3: EMOTIONS FROM MUSIC TO FORM

Task in short: To transfer emotions experienced through music into 3D shapes for products.

Aim: To learn to tap into your own emotions and use your feeling as a designer to shape products.

Study visit

The study visit (about halfway the semester) enables students to compare the curriculum to the actual and historical reality. Specific company visits (e.g. foreign design and styling bureaus) show the actual context of designing while visits to musea show the different trends regarding materials, styling and design in their historical context. Because the local environment often acts as a catalyst for certain trends the architecture and cultural-historical aspects are also taken into consideration during these visits.

During the study visits the existing and new international collaborations with local universities and institutes are tightened. This can be done with e.g. a common design project with local students and/or companies.

Initial competences

Design-styling

Student has attended 'vormstudie' and 'industriële vormgeving' (or similar through linking course)

CAID

Having followed the course 'Advanced CAD'.

When 'Advanced CAD' was not attended:

- Be able to model anything in Siemens NX CAD, be it mechanical or free form model (surfacing)
- insight in topology of virtual models
- be able to work in a multi-user/multi-program CAD environment

Final competences

- 1 Is able to apply 3D scanning and reverse engineering to convert a physical mock-up into a digital CAD model.
- 2 Is able to recognize emotions in existing products and integrate emotions in future product designs.
- 3 Can materialise a product on a styling and functional level based on material and production requirements while keeping track of social and artistic trends.

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

Lecture, seminar, seminar: practical PC room classes

Extra information on the teaching methods

- Lecture in English
- Workcollege: guidance in English or Dutch according to the preference of the students, reporting of the results in English
- Skills test: coaching in English or Dutch according to the preference of the students, assignment and reporting in English

Learning materials and price

- Personal laptop with dedicated graphics card is obligatory
- Software (gratis):Siemens NX CAD software (Verplicht) Uitgever:Siemens PLM

References

- CAD/CAM: Principles, Practice and Manufacturing Management
- McMahon/Browne / Harlow : Addison-Wesley, 1993
- NX for designers: S. Tickoo / Schererville : Cadcam Technologies, 2010

Course content-related study coaching

Evaluation methods

end-of-term evaluation and continuous assessment

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

Skills test

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

Skills test

Examination methods in case of permanent evaluation

Portfolio, participation, assignment, report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is not possible

Extra information on the examination methods

Periodic evaluation : Skills test (Vaardigheidstest) (PC): PC exam for CAID

Permanent evaluation: poster, prototype and digital model + renderings

Calculation of the examination mark

75% final project design/styling/EMO-design/CAID: permanent evaluation

20% final exam CAID: PC-examn

5% project work study visit: report or alternative project