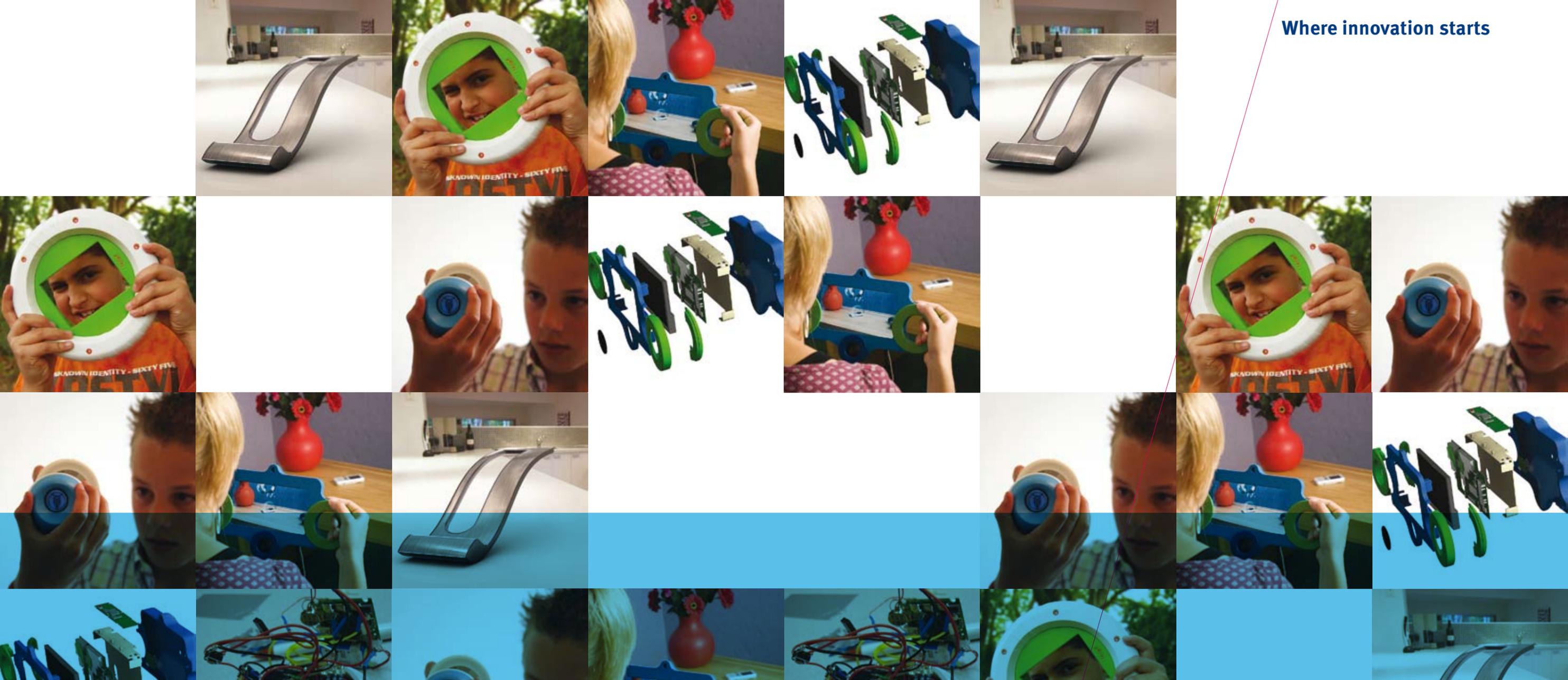


Where innovation starts



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# ID Education Guide

2008-2009

**TU/e** Technische Universiteit  
Eindhoven  
University of Technology

**TU/e** Technische Universiteit  
Eindhoven  
University of Technology

# Preface

The department of Industrial Design at the Eindhoven University of Technology enters its eighth year of educating students to become professional designers. Not just any designer, but unique opportunity creators for societal transformation through intelligent systems. In this ID education guide you can read all about our focus and approach.

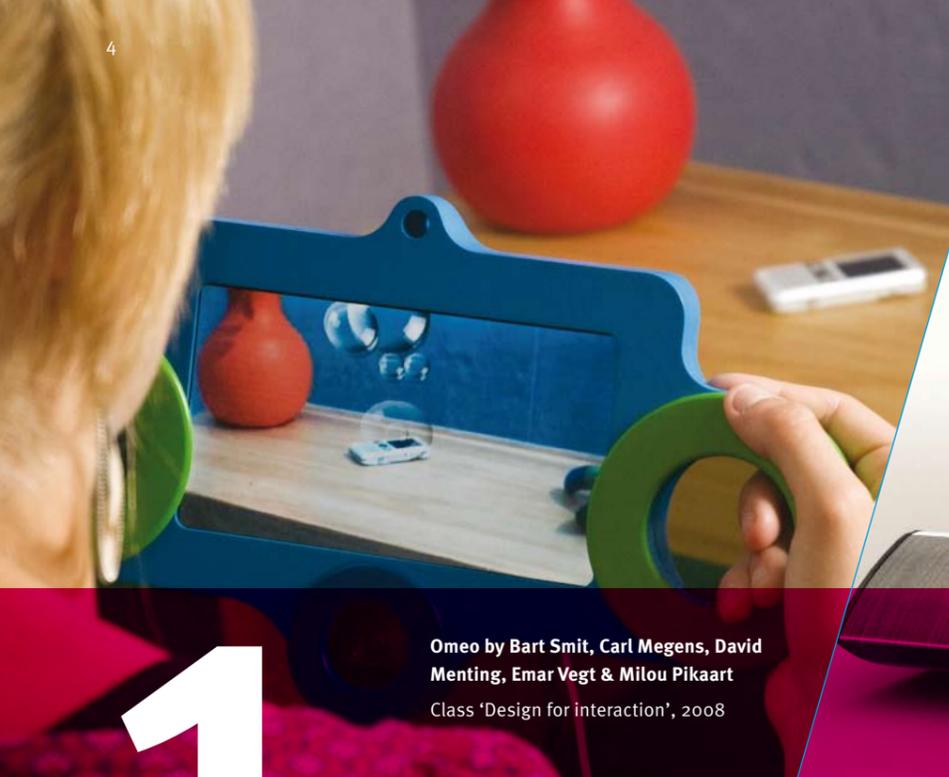
If you are familiar with our department, you will notice a number of differences with respect to last year. The overall approach of competency-centred learning remains pivotal, but the implementation can differ at points. For example, we have fine-tuned the competency framework and emphasise the growth as a designer including identity building. We focus the assessment on this growth and moved from a mainly text-oriented self evaluation (SE) towards an interactive (visual) showcase. With respect to the organisation of design projects, we shifted from Domains to Themes, and (consequently) altered the Bachelor spaces. This education guide elucidates the core of this year's educational program, including the changes that we made.

We would like to thank all people who contributed to this guide and our intranet, either by providing input or by critical readings. These contributions are crucial for successful implementation of our educational program. We hope that this guide breathes the beauty and the uniqueness of our department of Industrial Design, and enhances the identity, expertise and community building we aim for. But the proof of the pudding is in the eating of course. Therefore, on behalf of the Board and Educational Affairs, I wish you all an inspiring and creative year.

Caroline Hummels  
Director of Education

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Omeo by Bart Smit, Carl Megens, David Menting, Emar Vegt & Milou Pikaart  
Class 'Design for interaction', 2008

# 1

## Foundation: ID in a nutshell

The educational program of Industrial Design at the TU/e (ID) is unique and distinguishes itself by its focus on intelligent systems for societal transformation and by its approach, namely competency-centred learning. In order to strengthen this foundation, we stimulate identity building, expertise building and community building, which refer to both the individual level (student and staff) and the department level (we as Industrial Design).

Eindhoven University of Technology (TU/e) intends to be a research driven, design oriented university of technology at an international level with the primary objective of providing young people with an academic education within the 'engineering science & technology' domain. It aims to advance the development of technological innovations leading to the growth of welfare and well being, both within its own region (technology & innovation hotspot Eindhoven) and beyond.

**(The Mission of the TU/e)**

In 2001, TU/e started the department of Industrial Design. It is a rapidly growing department with nearly 500 students, both Bachelor and Master, and almost 100 staff members involved in education. There are more than a thousand industrial design courses around the world. The educational program of Industrial Design at the TU/e (ID) distinguishes itself by its focus and approach, which is reflected in the mission statement for our education at ID: 'Educating unique opportunity creators for societal transformation through intelligent systems', where systems mean 'networked technology, products, services and users within a societal context, and the interaction between them'. We educate these opportunity creators by using a competency-centred learning approach.

Remote for B&O by Joris van Gelder  
Final Master Project, 2008



In the remaining part of this chapter we will shortly explain the two areas, i.e. focus and approach, as well as the three resulting pillars of our department: identity building, expertise building

and community building. In the following chapters we will explain the details of both areas and pillars in depth and the consequences this has for our educational program.

### Foundations of ID / Mission statement and approach

mission statement ID education

Educating unique opportunity creators for societal transformation through intelligent systems

systems = networked technology, products, services and users within a societal context, and the interaction between them

ID

approach ID education

Competency-centred learning

competency = an individual's ability to select, acquire and use the knowledge, skills and attitudes that are required for effective behaviour in a specific professional, social or learning context

## Focus: intelligent systems for societal transformation

Based on discussions with the industry, the department decided to concentrate on the design of intelligent systems, products and related services, which addresses aspects such as adaptive behaviour,

context-awareness and highly dynamic interaction.

Within the Bachelor's the focus will be on interactive products with an awareness of intelligent systems, which moves to depth and

expertise on intelligent systems within the Master's. Students learn to integrate various approaches in the design process such as human, socio-cultural, interaction, technological and business process aspects.

The ID discipline is based on three paradigms: design, engineering and social science. As products become more and more intelligent and are accepted as part of a system where people interact with people, people interact with products and even products start interacting with each other, the social context is also becoming increasingly important.

As products become more and more intelligent and are accepted as part of a system where people interact with people, people interact with products and even products start interacting with

each other, the social context is also becoming increasingly important. Generating innovative concepts and original ideas are emphasized in the program. More specifically, we want our graduates to be people who are able to transform our world, preferably in beautiful ways, and create opportunities instead of solving problems. Because technology is so rapidly and innovatively created by the technology providers of the world, it is potentially capable of transforming our world, but not in ways that we (can) know of beforehand. So instead of educating students for analysing the needs of users in existing product ecologies we aim towards a more radical goal: we want to educate students who are able to apply these new technologies in ways that are new and daring, driven by a design vision of how our world could be, and validated afterwards by solid user research. (Hummels & Frens, 2008)

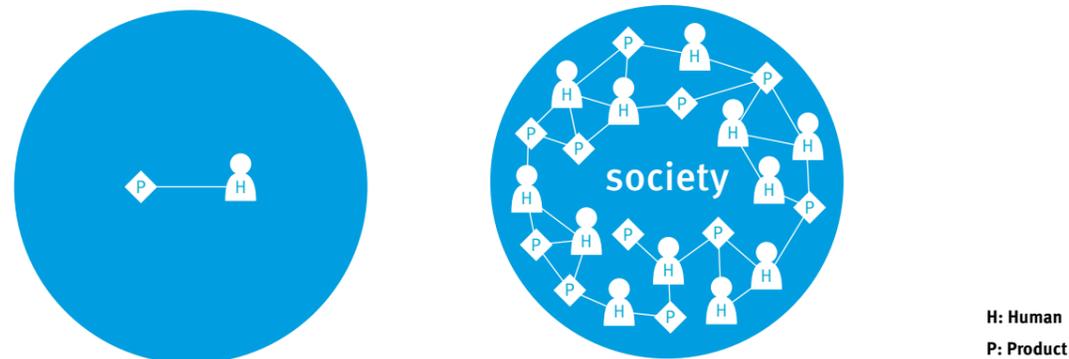
For example, design uses formal scientific notations (based on mathematics) as well as knowledge that is harder to formalise (e.g. aesthetics and creativity). Moreover, knowledge can be obtained through the analytical skills of the designer (e.g. analysing user behaviour), as well as through the synthetic skills of the designer (e.g. building physical models).

In addition to skills and knowledge, competency development focuses on the designer's attitude, such as taking responsibility and professionalism. Competency-centred learning is a highly person- and context-dependent process. A different context asks for different competencies and different students will prefer different competencies and develop them differently. Therefore, our students take responsibility for and create their own program. They can choose assignments and modules that best match their learning goals and required competency development of that semester. All this, of course, within the structure and content the department provides and with the help of senior employees (staff) who serve as project coach, competency coach and expert. Moreover, students work on projects with different (real) clients and experts, which tunes their competency development.

Because competency-centred learning is a holistic approach, the assessment focuses on the overall growth as a designer including identity building. Students go through different stages during and after their study: (blank –) awareness – depth – expertise – visionary. Reflection on and in action (Schön, 1983) as well as reflection for action are important mechanisms to stimulate and direct this growth. During the semester, the coach, assignor, lecturer and expert provide feedback on student achievement in the different learning activities, which the student uses to reflect on his or her competency development. At the end of the semester, the student creates/updates his or her showcase that elucidates the development as a designer over the past semester, fitted in with the history as a designer up till that point and the envisioned development in the future.

The student carefully selects deliverables from learning activities to create the showcase and underpins it with evidence and feedback from coaches, assignors, lecturers and experts. This interactive showcase is assessed at the end of each semester.

## People and products



## Approach: competency-centred learning

Taking into account recent developments in both the professional and educational field, the ID course is based on an educational model in which competency development and self-directed learning are pivotal.

We give students, or 'junior employees' as we call them, a professional role to create solutions within a professional setting. Competency-centred learning gives equal weight to knowledge, skills and attitudes, and stimulates students to learn by doing. Within our department, a competency is defined as "an individual's ability to select,

acquire, and use the knowledge, skills, and attitudes that are required for effective behaviour in a specific professional, social, or learning context".

Therefore, it offers a holistic view of design, in which the students are integrating ten competency areas towards the overall competency of designing. The nature of design beautifully intertwines the different types of knowledge with different human skills, in this case cognitive, emotional, perceptual-motor and social. It is about learning and performing through practical application, while simultaneously acquiring theoretical skills.

## Three pillars: identity, expertise and community building

Our focus on intelligent systems and the use of competency-centred learning has resulted in three main pillars of the department: identity building, expertise building and community building. This process of building refers to an individual level (student and staff) as well as to the department level (we as Industrial Design).

Identity building is tightly connected to our approach of competency-centred learning. We focus on the growth as a designer and very importantly the development of identity as a designer. Expertise building is needed in order to be able to design the complexity of intelligent systems. We need to build our individual expertise

as well as the expertise of the entire department to go beyond interactive products and move towards really intelligent systems.

Finally, and maybe most importantly, people are the most important asset of our department. Together, so all junior and senior employees, we are Industrial Design. We have a beautiful and extensive body of knowledge and skills, and highly motivated and passionate people. By working together, sharing our expertise and becoming an even stronger community, we can reach our mission statement for the education of ID.

# 2

## Competency-centred learning

**Present-day society asks for self-directed and life-long learning. Therefore, our ID curriculum is competency-centred, an educational model in which learning and working come together. We have designed a variety of learning activities with an emphasis on experiential learning and self-reflection, while taking into account differences between individual students. The ID competency framework shows the ten specific competency areas that are involved during designing as well as the integration, the overall competency of designing.**

Society in the 21st century is characterised by rapid changes in various domains, e.g. political, economical, social, aesthetical and ethical. At the same time science and technology are developing at a very high pace, which turns this era into a 'knowledge age'. The amount of knowledge is increasing very fast and is expected to go on growing at an even higher pace. Together with the advances in information and communication technology, this increases the volume of easily accessible information beyond imagination. Functioning effectively in this society requires the ability to creatively and flexibly deal with large amounts of constantly evolving information and the ability to learn continuously. Life-long learning, in turn, requires the ability to direct and regulate your learning. The notion of self-directed or self-regulated learning refers to the degree that students are behaviourally, metacognitively and motivationally active in their learning.

These societal changes are reflected in the professional working place. They also denote the challenge that higher education faces in having to prepare students to become professional experts in this new working place. They need to become experts who create, apply and disseminate knowledge and continuously construct and reconstruct their expertise in a process of life-long learning. They also need to become experts who are required to work in teams, to cooperate with experts in various fields, and to participate in complex networks of information, resources and instruction. Meeting the goals of education requires a high consistency between instruction, learning and assessment. Since the goals of education in the knowledge era have changed, a new perspective for this consistency is needed. This new perspective has emerged in the constructivist paradigm, the umbrella for learning perspectives that focus on mind-world relations.

Common to these perspectives is the key notion of activity: the understanding that learning (which includes knowledge) is an active construction of meaning by the learner.

**“They need to become experts who create, apply and disseminate knowledge and continuously construct and reconstruct their expertise in a process of life-long learning.”**

The constructivist learning paradigm has resulted in, amongst others, competency-centred educational models. (Birenbaum, Segers, Dochy and Cascallar, 2003)

Lamp by Jaap Knoester  
Module 'Aesthetics of Interaction', 2008

## Competencies

The Industrial Design curriculum at the TU/e is competency-centred, an educational model in which learning and working come together. This competency-centred educational model is grounded in the constructivist perspective on learning.

The notion of competency is defined as “an individual’s ability to acquire, select and use the knowledge, skills and attitude that are required for effective behaviour in a specific professional, social or learning context”. From this definition the role of knowledge acquisition appears: acquiring knowledge is no longer an end but a means to develop a particular competency needed to perform a specific task or role.

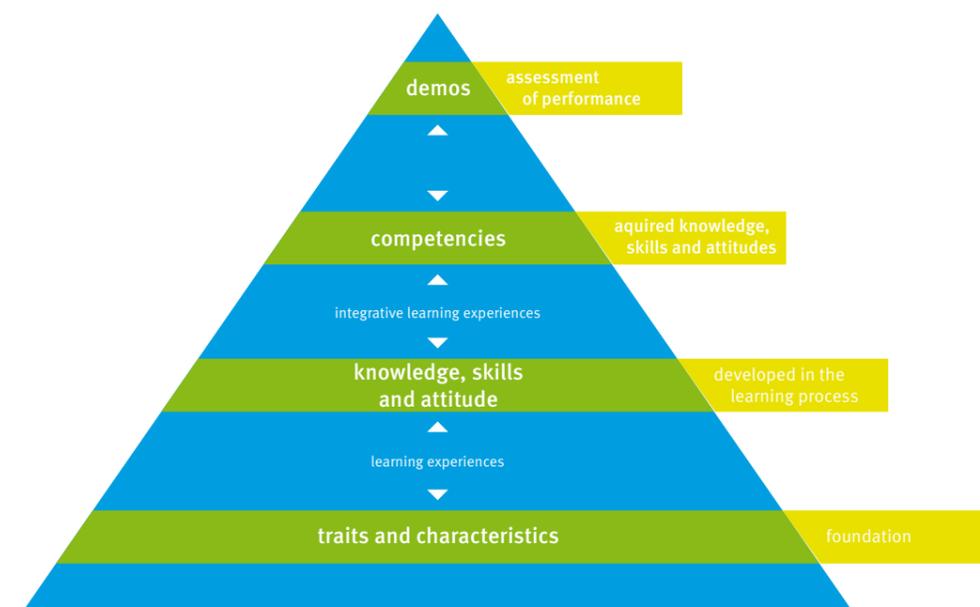
The conceptual learning model below clarifies the definition of a competency and its relationship with knowledge. Each rung of the ladder is considered to affect the rungs above and below.

The explanation of the terms used is taken from Voorhees, 2001:

- Traits and Characteristics are the foundation for learning, the innate make-up of individuals on which further experiences can be built. Differences in traits and characteristics help explain why people pursue different learning experiences and acquire different levels and kinds of knowledge and skills.
- Knowledge, skills and attitude are developed through learning experiences, broadly defined to include study, work, participation in community affairs, etc.
- Competencies are the result of integrative learning experiences in which knowledge, skills and attitude interact to form bundles that have currency in relation to the task for which they are assembled.
- Demonstrations (demos) are the result of applying competencies. It is at this level that performance can be assessed.
- The competency definition also shows that competencies are developed in a specific context and that the assessment of competency development is performance-based.

### Conceptual learning model

Adapted from: R.A. Voorhees, 2001



## A competency-centred educational model

The very notion of competency marks the shift in educational goals, which go beyond teaching specific knowledge. The goal of a competency-centred curriculum such as Industrial Design is to facilitate and promote student learning.

This is accomplished by creating an environment in which students are engaged in authentic learning activities and roles. Authentic in this context means derived from or similar to tasks and roles in the professional practice of designing. Performing these tasks and roles is not an end in itself.

It is intended to generate a meaningful learning experience: learning to determine what to perform, how to achieve this performance and why to achieve this. The ‘how’ refers to competencies to be developed and the ‘why’ to the ultimate goals of all the generated learning experiences: integration into the overall competency of designing, growth as a designer, identity building and life-long learning.

### Implications of a competency-centred approach

#### Authentic context

Within our competency-centred learning approach we have designed a variety of learning activities, each with their own purpose. Some of these activities have an authentic context to reflect professional practice, which includes experiencing and performing different tasks and roles, having real clients for projects, and being coached by professional design practitioners (about 40% of the coaches).

#### Context-specific

Competencies are developed in a specific context. The task or role at hand determines which competencies students can or need to develop. This determines the knowledge, skills and attitude students acquire. It implies that students’ knowledge and skills acquisition is exemplary. They acquire particular knowledge and skills required in a specific context, which demonstrates

their potential to acquire knowledge and skills rather than their ability to acquire a particular body of knowledge (exhaustive acquisition).

#### Taking into account differences between individual students

Students have different ways of learning and different needs for developing competencies. This implies that we do not have one fixed program for all students (supply-oriented). Instead, our students are responsible for determining what to learn and which learning activities suit best (demand-oriented), of course taking into account the departments’ view of designing, the 10 ID competency areas and the competency-centred learning. We also address the different learning needs of every individual because we aim at educating unique opportunity creators.

#### Students need to take responsibility

To a much larger extent than in a more traditional program, students need to take responsibility for their own learning. This applies to directing and managing their learning process, determining what kind of designer they want to become, choosing and planning suitable learning activities, proving that they have achieved an adequate competency development and setting the scene for their assessment.

#### Self-reflection as a crucial ability

Given the large responsibility students need to take for their own learning and given the nature of the design process, students need to be able to reflect in action, on action (looking back) and for action (linking current achievements to future development and activities). Reflection is a necessary tool for self-directed learning as well as for becoming a reflective practitioner in designing.

#### Changing roles for staff members

The primary role for staff members moves away from teaching ‘content’ to facilitating, supporting and promoting student learning. This also applies to assessments.

### Holistic approach for assessment

The ID program focuses on students' development of the overall competency of designing and it allows for individual differences. Developing a set of competencies is essentially a cyclical process, which requires a more holistic way of assessment and an instrument that reflects the cyclical and individual nature of student growth. A portfolio has the potential to meet these demands because it is authentic, comprises a variety of sources, is built over a longer period of time and allows for individual profiles. The showcase students build for their assessment is part of this portfolio.

### Experiential learning

Students develop their competencies by doing authentic tasks and reflecting on the meaning

of these learning experiences for their overall development and growth. This means that students acquire experiential (tacit) knowledge next to theoretical knowledge. From an educational point of view, this process is captured adequately by Kolb's experiential learning theory, which describes learning as a four-stage cycle. Contrary to the more traditional approach in which students start this cycle with knowledge acquisition, students at ID can start anywhere in the cycle as long as they go through the whole cycle. From a designing point of view, students' experiential learning to design is captured in Schön's reflective practitioner. (Kolb, 1984, Schön, 1983)

## ID competency framework

The educational model we use at our department focuses on self-directed and continuous growth as a designer, i.e. a "unique opportunity creator", by means of competency development. This is reflected by the ID competency framework. An inner circle and an outer circle characterize the framework.

### Inner circle: Overall competency of designing

The inner circle focuses on integration, the overall competency of designing. It is basically a design process, the "reflective transformative design process", which consists of five activities that take place within the societal setting, but without a specific order. Dependent on the person, context, or phase within the design process, the student determines where he starts, how often he swaps from one activity to another (although frequent changes are stimulated), and the order in which the student undertakes activities. This way the process supports flexibility and individuality. Moreover, every time the student switches activities an opportunity for reflection occurs (blue lines). This could help novices in design to train their reflective practice.

The central activity of the process is ideating, integrating and realising intelligent systems that

support societal transformation. In this continuing process the designer gains insight into the design opportunities. During the process these insights are physicalised and result into a final solution. The development of these solutions is guided by a vision (top circle), in our case a vision on transformation from our current reality to a new reality through an intelligent system. We encourage students to search for innovative solutions that are meaningful and valuable for users and our society. Among other things this means that students need to develop a sense of the ethical aspects of what it means to intervene in people's lives.

Because meaningfulness and value are person- and context-related issues, we believe that the solutions have to be tested in society (bottom circle). In order to validate the quality of the vision and the solutions, experiencability of the solutions is crucial, by the designer himself but also by others in the real setting.

The two remaining circles show the two types of skills the designer uses to develop solutions thus integrating knowledge and skills, i.e., using the cognitive skills of the designer to generate knowledge (right circle) as well as using the perceptual-motor and emotional skills within design action to generate knowledge (left circle).

### Outer circle:

#### Ten competency areas enabling designing

The outer circle relates to ten specific competency areas that are involved during designing, either related to the content of the system to be designed, or to the approach needed for the act of designing or becoming a designer/unique opportunity creator.

#### Competency area:

##### Ideas and Concepts

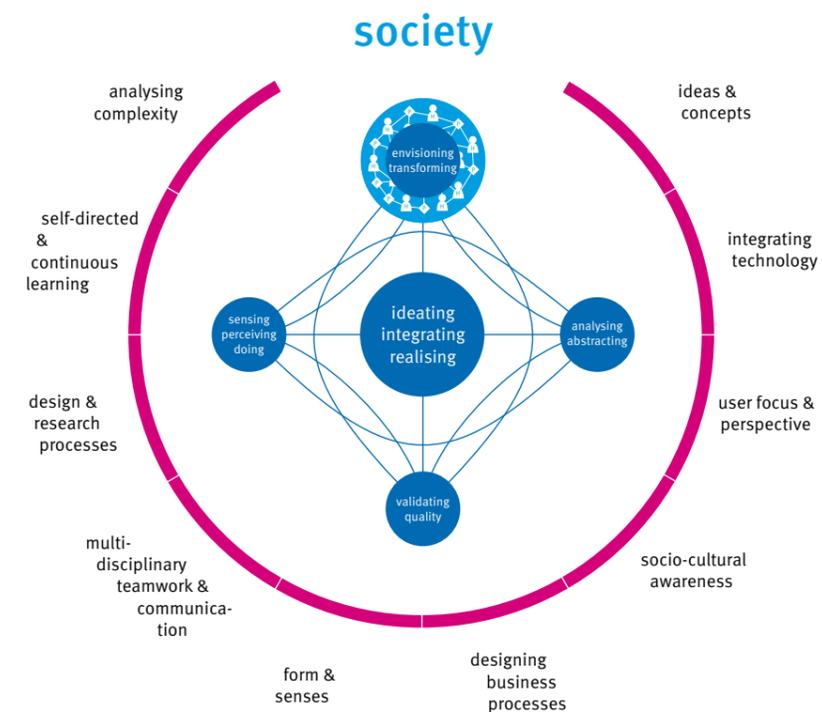
Develop visions and innovative ideas and concepts through creativity techniques, through experimentations and through the translation of research.

Ideas and concepts are initiated through different ways of doing and thinking according to your attitude, influences and experiences such as:

empathic thinking (concerned with feeling and sensing your way), associative thinking (compares and makes connections with different objects, places and experiences), thinking with your body and hands (e.g. sketching, physical modelling, the choreography of interaction), different analysis and selection processes to select and match the best design, and observing the flow of experience and actions as a part of the concept forming process.

The process of generating ideas to develop into selected concepts is a major step. It is essential to practice your ability to generate and select ideas, as the key to producing effective design concepts. Train and obtain quality through quantity. Ideas are born from your experiences, observations and interactive imagination with physical/graphical objects & products.

### ID competency framework





Move the Music by Tom van Bergen, Wouter Kersteman, Floor Mattheijssen & Joris Zaalberg  
Module 'Designing for embodied interaction', 2008

Both non-explicit and purposeful observations provide natural conclusions about the immediate human/space/object relationships – basically ‘the world around us’.

The development of solutions needs to be guided by a vision, in general about transformation from our current reality to a new one through an intelligent system. We encourage students to search for innovative solutions that are meaningful and valuable for users and our society, which means that it is important to train envisioning: what kind of society do we want to have, what kind of social change does the product to be designed need to have. This means that this competency area is related to competency area ‘social-cultural awareness’, e.g. ethical aspects of what it means to intervene in people’s lives, and historical awareness.

As an industrial designer you need to have a variety of activities and tools for the process of ideas generation, concept development and vision development.

**Competency area:**  
**Integrating Technology**

Being competent in integrating technology means being able to explore, visualize, create and demonstrate innovative concepts and experiences using technology, as well as analysing the technical and economic feasibility of complex designs in which technology is integrated. Moreover, one needs to understand scientific writings and be able to communicate with engineers and researchers of another discipline.

Designing interactive and intelligent systems and building prototypes requires training in choosing sensors and actuators, object oriented design, algorithms, circuits, mechanisms and integrating them in the overall competency of designing.

Next to the sensing, perceiving and doing side, developing ones analytic skills to determine the technical and economic feasibility of a design can be done through informed judgements through calculations, pieces of math and appropriate math tools, as well as generating sufficient knowledge that enables you to read further and go into depth on technological, design-related issues.

Designers typically work in multi-disciplinary teams. This, and the fact that intelligent systems can overstretch at some point the skills and knowledge of Industrial Design students, requires students to understand scientific writings and be able to communicate with engineers and researchers of another discipline. Thus understanding E, I and W as disciplines and being able to cooperate with the E, I and W engineers, which may require reading specifications and datasheets, documenting hardware and software, and finally awareness of computer science and artificial intelligence.

**Competency area:**  
**User Focus and Perspective**

Understand human characteristics, goals and needs, the context of use and create empathy with users throughout the design process. Design user-system interaction for user experiences.

Insight into characteristics, goals and needs of human beings is indispensable for designers in order to create intelligent systems, products and related services that improve the quality of life. The designer needs to have knowledge about the cognitive limitations and capabilities of human beings (what they can learn, remember and how they think, etcetera). Likewise, the designer needs to know about human emotions and attitudes, as well as about human perceptual-motor skills. Finally, people have different personalities, are member of age groups, cultural groups, social groups, all of which influence their requirements and needs and the way they interact with systems and products.

Understanding of and mastering methods for user research and testing will enable you to create empathy with the users and obtain feedback about your proposed solutions, so that you can optimally tune intelligent systems, products and related services to the characteristics and goals and needs of human beings.

Knowledge about how to design the user interface and the skills to do so will enable you to create engaging user experiences.

**“You need to learn to drive the design process from an awareness and understanding of developments in society, envision your designs in society, place the development of systems in a broader perspective.”**

**Competency area:**  
**Socio-Cultural Awareness**

The mission statement of our education at ID, ‘Educating unique opportunity creators for societal transformation through intelligent systems’, puts an emphasis on societal embedding and impact of the intelligent systems, products and related services to be designed.

Therefore, you need to learn to drive the design process from an awareness and understanding of developments in society, envision your designs in society, place the development of systems in a broader perspective, and take position in and evaluate the possible impact of a system, product or service on society.

Industrial Design is inevitably part of the larger human society and culture. Global society develops at a breathtaking pace. Mega trends like ageing, globalization, new technology and issues like scarcity of resources, political power, economic and demographic development, play an important role in what the world will be like in the future and inevitably influence each undertaking in life. A designer needs to develop a keen bird’s eye perspective on this continually changing cultural landscape, turning observations and knowledge into intelligent systems which match the needs of societies and cultural communities, as well as enabling societal transformation.

This inevitably incorporates ethical and philosophical questions related to taking responsibility for society and the notion of “good” design. In order to be able to transform society and create future, one needs a clear understanding of the past, including design history.





Tiny Love by Frank van de Ven  
B2.2 project, 2007

**“With the shift towards interactive products, aesthetics focuses nowadays on (the beauty of) dynamic form and interaction, which includes static form.”**

**Competency area:**  
**Designing Business Processes**  
Bringing new products to users in a global market of a dynamic international industrial context requires knowledge of industrial business processes.

This competency area covers the topics that relate to bringing new products to users in a global market using a dynamic international industrial context. It focuses on (structures of) industrial

profiles. Moreover, the system or product is not finished when it leaves the production line, neither when it leaves the shop. Intelligent products are a never-ending story.

Students are able to model, analyse and (re-) design business processes for the successful introduction into the market of intelligent systems, products and related services. They understand that a range of products might be needed for long-term business success, and they are able to design product architectures that last several generations of products and/or allow for a family of products to be introduced efficiently to the market.

They are aware of the role(s) of different players in a business network and of effects of different cultures on (communication and information in), often globally distributed business processes.

Designing products and designing business processes have many similarities, including the competencies needed for this activity, where designing business processes has a strong focus on the industrial context.

**“Design projects by nature involve many different stakeholders and experts, where designers can play a leading role in the assimilation and integration of many different parts of the project. ”**

business processes that are currently used to bring high-tech products to the market under the influence of a continuous influx of new technology with a high degree of uncertainty of future user

**Competency area:**  
**Form and Senses**  
Experience and develop through doing and abstraction, aesthetic (physical) languages that connect thought and interactive form, in order to communicate specific properties of the design concept.

The world is inherently meaningful for us, i.e., we perceive the world in terms of what we can do with it, and by physically interacting with it we access this meaning and we express meaning. Vision, hearing, touch, taste and smell all affect our reactions to objects, spaces and the physical world we inhabit.

In the past aesthetics focused on the appearance/ static form of products, where form is the arrangement of a set of elements – these can be visual elements comprising the shape, size, or colour of an object, it can be a set of sounds arranged in time, or it might be a series of smells selected to create a specific effect. With the shift towards interactive products, aesthetics focuses nowadays on (the beauty of) dynamic form and interaction, which includes static form. Because interaction creates meaning, it can stimulate designers to explore, study and design the relationships between a variety of aspects

such as sensation, dynamic character, story, rich adaptive and tangible interaction, interaction style, experience, emotion, function, form and semantics.

**Competency area:**  
**Multidisciplinary Teamwork and Communication**  
Work together towards a common goal using all strengths within a team and communicate opinions, ideas, information and results clearly and convincingly.

Design projects by nature involve many different stakeholders and experts, where designers can play a leading role in the assimilation and integration of many different parts of the project. The focus on intelligent systems, which might become so complex, urges designers to cooperate with other experts. Inevitably this requires special skills and experiences to work in multidisciplinary teams, which are often internationally based. Teamwork is about working together, where the whole is of more value than one person working alone. Teamwork is about understanding the differences between people, how to work together towards a positive goal and most of all, teamwork is about good communication and project management.



Robot by Bram van der Vlist & Rick van de Westelaken  
Class 'Technology', 2007

Communication has different faces and goals. One can communicate internally, for example with visualisations/physicalisations to enhance imagination and reflect on action. One can also communicate externally with team members, clients, experts, users, any interested audience, etc. to show and discuss design-related issues.

The type of communication, e.g. presentations (e.g. oral, graphical), discussion, written reports, can be dependent on the type of activity and audience. It involves clarity, inspiration and passion, convincing others, coming to the essence, selling one's ideas, by using (body) language, gestures and materials. Understanding and being able to manipulate aspects such as structure, grammar, language and terminology, appropriateness for the reader/listener, gestures and body language, purpose, atmosphere and context can support one's message. It also requires one to act as a professional within the realm of Industrial Design.

**Competency area:**  
**Design and Research Processes**  
Master the design process and the research process and adjust these processes to the demands of the task at hand.

An Industrial Designer should be able to run the design processes efficiently and effectively, to reflect on different kinds and different ways of designing and be able to choose an appropriate design strategy for their design challenges (with a strong emphasis on the focus of his department). Therefore you need to understand what kind of activity designing is, how it differs from other

human activities, and which abilities you should develop to become a designer.

A successful design is highly dependant on a thorough research process as a 'knowledge builder' and 'information gatherer' about the subject domain. Specific research and design processes are planned and organized according to the nature of the design subject and context; these can be quite different and need to be considered carefully according to the required project deliverables.

**Competency area:**  
**Self-directed and Continuous Learning**  
Take responsibility for and give direction to your own personal development, based on a continuous process of self-reflection and out of curiosity for future developments in technology and society.

Developments in society are characterized by an enormous increase in available knowledge and information, which makes it impossible for graduates to have a complete command of their academic discipline. There is just too much to know and to learn, and what you know today may well be out of date in a number of years. Industrial Design as an academic discipline, too, is susceptible to changes. In your professional life as a designer you will be challenged to create an environment that adapts to and supports the lives of individual people. Rather than acquiring a particular body of knowledge, this requires your ability to acquire, select and use the knowledge, skills and attitudes that you need for effective behaviour in a specific context.

This, in turn, requires an attitude of openness: to developments in your profession and in society, but also towards your own performance and learning needs in professional situations. You graduate once but you will never stop learning. The ability to learn is at the core of becoming a life-long learner. You should get an understanding of what learning is as an activity, discover what your preferred learning style and learning strategy is, learn how to play with various styles and strategies, and develop the skills you need to design your own learning process. This understanding should be grounded in theoretical as well as experiential knowledge.

In a competency-centred program such as ID you need to direct and manage your own competency development, learning process and learning activities: what do you want or need to learn, and what does it take to achieve it? This requires the ability to orientate yourself on what there is to learn, to set your own learning goals, to choose suitable learning activities (and sometimes create your own), to plan, execute and monitor these activities, to analyse your learning outcomes in terms of competency development and to evaluate if you have achieved the goals you set. In the end you should also be able to self-assess your competency development and growth as a designer. It may be needless to say but the self-management aspect of this competency only works if you take full responsibility for your own learning process.

Learning – and designing – is a process of trial and error. From making mistakes, in particular, you can learn about yourself and about designing. But this takes the courage and the ability to look more closely at yourself, your learning process and learning outcomes. What knowledge and skills have you actually acquired, what went well in the process, what went wrong, why did it go wrong, are you satisfied with the results, are experts satisfied with your results, why not, what do the results say about your identity building as a designer, what would you do differently next time? This ability to observe and reflect on your own learning, on the design process and on your overall development as a designer is essential to develop yourself professionally as well as personally. The ability to communicate all this will enable others to give you feedback, which will enable you to enhance your learning experience.

Finally, self-directed and continuous learning is a competency that enables the development of the other competencies. At the same time your experiences with the other competencies provide you with specific instances of self-directed learning and as such with input for self-reflection. In this respect the development of the other competencies and self-directed learning are processes that will reinforce one another.

**“This ability to observe and reflect on your own learning, on the design process and on your overall development as a designer is essential to develop yourself professionally as well as personally.”**

**Competency area:**  
**Analysing Complexity**  
Create and use models (mathematical, data, generic) in order to justify design decisions and support the design of complex highly dynamic and intelligent systems.

Design problems generally are complex and ill defined. Analysis, abstraction and formal modelling can be powerful tools to unravel principle patterns and mechanisms in the complex reality and to explore the potential impact of design decisions. Physical modelling, which is used to describe physical relations between parameters resulting into systems behaviour, is followed by mathematical modelling to describe this behaviour in mathematical relations.

Models are the starting point for simulation and optimization. The results are, in another phase of the design cycle, compared with prototype tests and analyses.

Analysing Complexity is related to the competency area 'Integrating Technology' . Mathematics as “the language of Engineering and Science” is used as a powerful and indispensable tool. However, modelling can be an adequate tool for the other competency areas too.



Laurens Doesborgh, Sjors Eerens,  
Jabe Pieter Faber, Jasper Dekker &  
Jan Gillesen  
Class 'Design for interaction, 2008

# 3 Learning activities

Within our competency-centred learning approach we offer a variety of learning activities to reflect professional practice, including experiencing and having different tasks and roles. In order to be able to educate unique opportunity creators, we address the different learning needs of every individual. We offer at least six different learning activities: projects, assignments, modules, classes, minors and IDentity 'vertical' activities.

Scope by Bas Groenendaal  
Final Master Project, 2008

higher level'. Staff roles include competency coach, project coach, assignor, module/class lecturer and expert (see chapter eight). A common element in these roles is giving feedback to students. In the course of a learning activity the staff member concerned (e.g. an assignor) gives frequent verbal feedback, in a dialogue and in discussions with the students. This verbal feedback is intended to make explicit to students what they have achieved so far (feedback on action / on learning). Moreover, it helps students to relate their learning process and deliverables to their competency development, to understand the competency areas, and to explore how their competency development achieved across various learning activities can enhance one another. But it is also meant to be feedback for action/for learning: how can students take the next step or achieve a higher level? It is this meaningful link between feedback and feed forward in particular that facilitates and enhances students' learning, deliverables, competency development and design process. After students have presented or handed in their deliverables, and these have been discussed between staff member and students, the staff member gives final written feedback on the quality of students' deliverables, related competency development, and design process. This final written feedback is input for students' reflection on their learning outcomes and competency development achieved in the learning activity. It also serves as input for the assessor.

**“Learning activities are not a target but a gate that opens up the knowledge, skills and attitudes students need to develop competencies.”**

Before explaining the various learning activities we will briefly touch upon the part that Themes play in the ID department. After the paragraphs per learning activity this chapter concludes with an overview of the Bachelor and Master program. This overview lists the composition per block: what type of learning activities are involved and how many of each type do students have to do?

As junior employees, students are required to perform learning activities that represent particular tasks and roles. In addition, they need to do a particular amount of work per semester (e.g. four assignments and two projects in block B1.1). Learning activities are not an end in itself but a means to generate learning processes and competency development in a specific context (mainly outer circle). To put it differently, learning activities are not a target but a gate that opens up the knowledge, skills and attitudes students need to develop competencies. The deliverables students produce in the context of the various learning activities are tangible proofs of developing one or more competencies. Ultimately, though, students' competency development is meant to enable and enhance their overall competency of designing and their growth as a designer (inner circle). The assessment process reflects this interaction between inner and outer circle: the focus is on designing and growth as a designer, backed up by the quality of students' deliverables and competency development achieved in learning activities rather than completing a particular number of learning activities.

Staff members in various roles facilitate, support and promote students' learning and development. Promoting is used in the sense of 'taking to a

## Themes

At the start of this academic year we will be working with Themes instead of Domains to organise projects. Themes relate to an area of interest of our department given our mission statement, without specifying the characteristics of the topic up front. Nevertheless, we can characterise them in some way.

Themes:

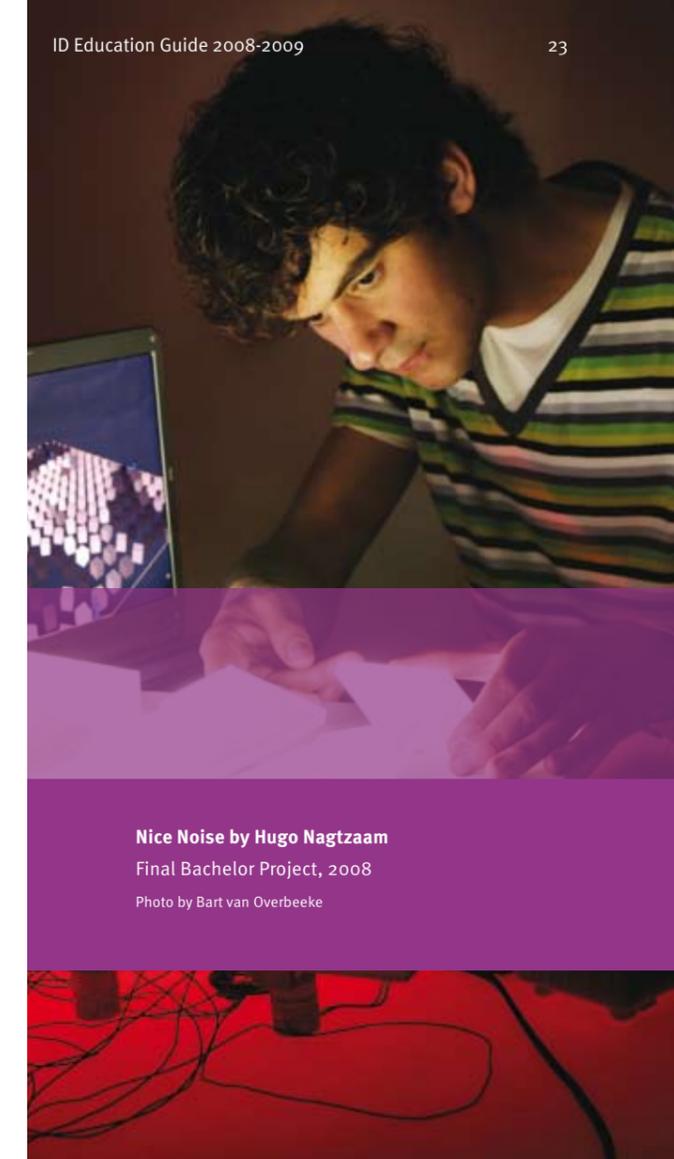
- connect to and breath our mission statement;
  - give primacy to the overall competency of designing and comprise the ID competency framework including all ten areas;
  - are not exhaustive nor exclusive, but flexible and develop over time based on our mission statement, our research, societal trends, industrial focus, motivation and expertise of our coaches, students and competency framework;
  - connect the different years, grow over time thus expanding the body of knowledge and expertise and bringing the department and all employees at a higher level
- consist of coaches (ID staff members, (external) experts and design practitioners), industrial partners and students
  - support opportunity-driven design
  - cover at least two of the paradigms of design, engineering and (human) science and preferably all three which is reflected by the background, attitude and capacity group membership (if applicable) of the different coaches involved, including design practitioners and experts from industry
  - include external clients (e.g. industry, commerce, design firms, R&D departments)
  - comprise several projects that reflect the focus and direction of that particular theme

We shifted from Domains to Themes to enhance internal and external links, and to stimulate integration and community building (family feeling). Themes link the expertise, motivation, identity & passion of students and coaches. Themes emphasize competency-centred learning for students as well as staff, especially identity building and expertise building, and address the

“Themes are not exhaustive nor exclusive, but flexible and develop over time based on our mission statement, our research, societal trends, industrial focus, motivation and expertise of our coaches, students and competency framework.”

need for self-directed and continuous learning which will differ for all individuals. Themes aim at strengthening the link between research and education, the different paradigms, the four capacity groups, Bachelor and Master, including between de different years, as well as the link between the department and university, industry and commerce.

Themes will be creating links between projects and other learning activities such as with assignments, modules and classes. They will develop over time including the development of theme-exceeding platforms, knowledge valorisation, visibility and communication, and will get a strong connection with the /d.search-labs.



Nice Noise by Hugo Nagtzaam  
Final Bachelor Project, 2008  
Photo by Bart van Overbeeke

### Themes 2008-2009

Collection is exemplary of Themes for the 2008-2009 first semester

#### Adaptive & Rich

##### Keywords

tangible interaction, perceptual-motor skills, custom behaviour, environment, smart, dynamic form, rich interaction, embodied, ambient, transformative, influencing, beauty

#### Calm & Aware

##### Keywords

traces, non intrusive, signals, messages, clues, flow, reminders, control/confidence, expression, information decoration, resonance

#### Discovering & Learning

##### Keywords

laboratory, open-endedness, exhibition, educational tools, reflection, thinking process, creativity, inspiration, extraction, awareness, depth, serendipity, data representation, data retrieval, coaching, training, browsing

#### Medical Care

##### Keywords

intelligent textiles, measuring movement, measuring physiology, on the body, physical, mental, simulation, garment, actuators, sensors, monitoring, training

#### Playful Interactions

##### Keywords

immersion, emotions, discovery, intrinsic motivation, exploration, musical instruments, toys and games, music, sound, means and goals, rules, protocols, engagement, emergence, funology

#### Social Interaction

##### Keywords

social activity, networks, social cohesion, neighbourhood, meeting, etiquette, enchantment, contact, group/private, connectivity, sharing, communities, cool collectives

#### AutoMobility

##### Keywords

automotive, commuting, navigation, safety, comfort, persuasion, fear, flow, mobile living space, interior/exterior, logistics, public transport, connected cars

#### Experiences & Emotions

##### Keywords

narrative, context, belonging, 'boredom, moodiness...', diversity, commitment, social skills, cognitive skills, respect, empathy, 'feelings, emotions, expressions', emotional skills, intimacy, pleasant, culture, privacy, curiosity, meaning, quality of life, value, caring

#### Between Realities

##### Keywords

invented reality, algorithms, suggesting, abstraction, supported reality, intervening, adapting, real life, crossing physical and virtual, protocols, mapping, adding, scripting, augmented reality, mimicking, simulated reality, emergent behavior

#### Social Robots & Humanoids

##### Keywords

sensory-motor skills, social skills, embodied, empathy, expression, meaning, intervention, body language, context, smart

#### Virtues & Values

##### Keywords

human rights, 'design 4 all extreme', nelson mandela, millenium goals, 'mcdonough and braungart', prahalad, responsibility, design for debate, societal change, turnaround thinking, break through thinking, 'real individualism', 'future life and society'

#### Wearable Senses

##### Keywords

roadmapping, garment, intelligent textiles, measuring movement, measuring physiology, training, on the body, actuators, sensors, monitoring, sports

## Projects

Projects are the backbone of the ID curriculum. Within the projects students develop their competencies in an authentic context, often including a real client. Projects allow for integration of the competencies into a design process, integration of research processes into the design, connecting development of the outer circle to the inner circle.

Doing projects enables students to develop their overall competency of designing and to experience their growth as a designer. Projects in the first year of the Bachelor also provide students with the opportunity to work and learn in teams. In a typical working week students spend 60% of their time to project work.

The project coach facilitates and supports students' learning and competency development, amongst others by giving frequent feedback. In the course of the project this feedback is given in a dialogue with the students. This verbal feedback is intended to improve students' learning, and to facilitate and enhance students' deliverables, design process and competency development. So it is not only feedback of learning (looking back at what a team or student has achieved) but also feedback for learning (looking forward to how the team or student can make as much progress as possible). After the team or student has presented the project at the exhibition, the project coach gives final written feedback on the quality of the deliverables, related competency development and the design process.

Throughout the Bachelor and the Master students do projects that are related to one of the themes. These projects, though, vary in size as well as focus.

### Bachelor first year

First-year Bachelor students do a new project each quartile, which amounts to four projects in the first year as a whole. The focus of first-year projects is on awareness of the design process. Given this focus on awareness, each of these four projects should be related to a different theme, so students get acquainted with four themes in the first year.

At the start of each quartile first-year students have to indicate their preference for three projects by registering in Studyweb. They will be allocated to their first preference project as much as possible, and to the coach linked to that project. But this will not be feasible in each and every case. First year students do three team projects and one individual project.

At the exhibition in the IDentity week (halfway and at the end of the semester) students present their final project deliverables, design process and identity building as a designer. Based on the team's / the individual student's final project report and the exhibition they receive final project coach feedback in writing. Project-related deadlines are all included in the Bachelor Planning<sup>4</sup>, which can be found on our intranet.

### Bachelor second year

Second-year Bachelor students do a new project each semester, which amounts to two projects in the second year as a whole. Projects in the second year focus on in-depth experience with and knowledge of the design process. Despite the overall theme of depth, second-year students are advised to choose their projects from themes they have not been involved with yet to broaden their scope. If there is good reason to do a project from the same theme for a second time, this is possible of course. At the start of each semester second-year students, too, have to indicate their preference for three projects by registering in Studyweb. Again they will be allocated to their first preference project as much as possible, and to the coach linked to that project. Second-year students do one team project, and one project that partly consists of team work and partly of individual work.

In the midterm IDentity week students present the interim results of their project. In the IDentity week at the end of the semester they present their final project deliverables, design process and identity building as a designer.

#### Registering preferences

indicate your preference for projects/Themes on <http://studyweb.tue.nl>



Newsflash by Guus Baggermans

M1.1 project, 2008

Based on the team's/individual student's final project report and the exhibition they receive final project coach feedback in writing. After having received this final feedback the student reflects on learning process and competency development achieved in the project. Project-related deadlines are all included in the Bachelor Planning<sup>4</sup>, which can be found on our intranet.

### Bachelor third year

Third-year Bachelor students only do one project, as part of Block B3.2: the individual Final Bachelor Project (FBP). The focus of the FBP is a continuation of in-depth experience with and knowledge of the design process. In addition, the FBP should reflect the student's identity building as a designer. As a rule, students either select a project idea off the shelf that themes have in store, or they choose a project that has already run before (in the first, second or third year) but has the potential to be expanded. In either case students have to turn the project (idea) into an elaborate proposal to make it their 'own' FBP, fitting one of the themes. As a third option, students may bring in their own project idea for an FBP and write an elaborate proposal that is related to one of the themes. Students should be aware, though, that this option takes a lot of time and requires specific capabilities. In all cases students are advised to look for an external client for their FBP.

Delivering an elaborate FBP Proposal is part of Block B3.1. When students start with Block B3.1 they have to indicate the preferred theme for their FBP by registering in Studyweb. After this registration they are allocated to this theme, and to a coach. They build their elaborate FBP Proposal in close collaboration with their FBP coach. Students should have their proposal approved at the completion of Block B3.1. If their proposal is not ready for approval by then, this needs

to be done in the first weeks of Block B3.2. When students start Block B3.2 they register for their FBP and theme, again in Studyweb.

Like second-year students B3.2 students present their FBP at an exhibition twice: their interim project results in the midterm Identity Week and their final project deliverables, design process and identity building as a designer in the first Assessment Week at the end of the semester. Based on the student's final FBP report and the exhibition (s)he receives final project coach feedback in writing. Students will do their B3.2 assessment on the exhibition day by presenting and discussing their showcase. A few weeks in advance there will be a green light meeting to check whether the student is on track. As a rule, students need to complete their FBP within one semester. In exceptional cases students are allowed to extend this period with half a semester only. Project-related deadlines are all included in the Bachelor Planning<sup>4</sup>, which can be found on our intranet.

#### More information

more detailed information on the FBP Proposal, FBP deliverables and criteria, the FBP report (including citing, bibliographic referencing and plagiarism) can be found on [intranet / education / guides and manuals](#)

or as part of the semester process on the intranet [intranet / education / semester process](#)



Scope by Bas Groenendaal  
Final Master Project, 2008

**“Master students are advised to look for an external client for their Final Master Project.”**

### Master first year

First-year Master students do two individual projects: a designer-oriented project in Block M1.1 and a design-researcher-oriented project in Block M1.2. The focus of both projects is expertise building. At the start of the semester students select a project within one of the themes, and are allocated to the coach(es) linked to that project. Then they have to register for this project in Studyweb (<http://studyweb.tue.nl>).

In the midterm IDentity week students present the interim results of their project. In the IDentity week at the end of the semester they present their final project deliverables, design process and identity building as a designer. Based on the student's final project report and the exhibition (s)he receives final project coach feedback in writing. Project-related deadlines are all included in the Master Planning<sup>4</sup>, which can be found on our intranet, and the schedule of the project weeks is included in both the Master Planning<sup>M</sup> and Master Planning<sup>S</sup>. These plannings are part of this guide.

### Master second year

Second-year Master students only do one project, as part of Block M2.2: the Final Master Project (FMP). The focus of the FMP, too, is expertise building in terms of the competency areas (outer circle) as well as the overall competence of designing (inner circle). As a rule, students bring

in their own project idea for a FMP and write an elaborate proposal that is related to one of the themes. This elaborate FMP proposal, though, is part of Block M2.1. Here four weeks are allocated to building and delivering an elaborate FMP proposal. When students start with Block M2.1 they have to indicate the preferred theme for their FMP proposal by registering in Studyweb (<http://studyweb.tue.nl>). After this registration they are allocated to this theme, and to a coach. They build their elaborate FMP proposal in close collaboration with their FMP coach. Master students, too, are advised to look for an external client for their FMP. Students should have their proposal approved at the completion of Block M2.1. If their proposal is not ready for approval by then, this needs to be done in the first weeks of Block M2.2. When students start Block M2.2 they register for their FBP and theme, again in Studyweb.

Like third-year Bachelor students M2.2 students present their FMP at an exhibition twice: their interim project results in the midterm IDentity week and their final project deliverables, design process and identity building as a designer in the first Assessment Week at the end of the semester. Based on the student's final FMP report and the exhibition (s)he receives final project coach feedback in writing. Students will do their M2.2 assessment (Master's examination) on the exhibition day by presenting their showcase. A few

weeks in advance there will be a green light meeting to check whether the student is on track. As a rule, students need to complete their FMP within one semester. In exceptional cases students are allowed to extend this period with half a

semester only. Project-related weeks and deadlines are all included in the Master Planning<sup>4</sup>, which can be found on our intranet, and Master Planning<sup>M</sup>, which is part of this guide.

## Assignments

**Assignments are learning activities for Bachelor students. They represent 56 hours of individual work (as a counter balance to the team work in projects). The scope of an assignment is mostly one or two competency areas. Compared to projects, the context of assignments is more constructed (as opposed to authentic).**

They provide students with the opportunity for either awareness building of a particular competency area, for in-depth competency development or, in some cases, for the acquisition of specific knowledge and skills (outer circle). This competency development enables or enhances development of the inner circle: the overall competency of designing and growth as a designer. It also enhances students' competency development in the projects. In a typical working week, students spend 40% of their time to assignment work.

The assignor facilitates and supports students' learning and competency development, amongst others by giving frequent feedback. In the course of the assignment this feedback is given in a dialogue. This verbal feedback plays a crucial part in students' learning process. It is intended to facilitate and enhance students' competency development and the quality of their deliverables. Moreover, it helps students to relate their learning process and deliverables to their competency

development, to understand the competency areas, and to explore how their competency development achieved in assignments and projects can enhance one another. The presentations and discussions in the last assignment week (and possibly the week before that) are also meant for this. So it is not only feedback of learning (looking back at what a team or student has achieved) but also feedback for learning (looking forward to how the team or student can make as much progress as possible). After the presentation and discussion at the last assignment meeting the assignor gives final written feedback on the quality of the deliverables and related competency development for every individual student. Then students reflect on learning process and competency development achieved in the assignment.

First- and second-year Bachelor students do four assignments per block. B3.1 students do no assignments at all and B3.2 students only do two assignments next to their FBP. Students choose their own assignments, based on the competency development they want to achieve in the block concerned. In the IDentity Week at the start of each semester they have to register for the assignments of their choice in Studyweb (<http://studyweb.tue.nl>). Assignments have a limited number of seats so students need to take this into account when determining which assignments they want to do (have a plan B). The goal of doing assignments is to develop particular competencies rather than completing a particular number

#### More information

more detailed information on the FMP can be found on [intranet / education / guides and manuals / links](#)

Fear Inducer (explorative model)  
by Jurgen Westerhoff  
M1.1 project, 2008

of tasks. Therefore students can only register for 4 assignments per semester (so the 'surplus' arrangement no longer exists). If there is a specific reason for doing an additional assignment students either need to involve their competency coach or the study advisor. Assignment-related deadlines are all included in the Bachelor Planning<sup>4</sup>, which is also part of this guide.

For students starting with block B1.1 in August 2008 the following assignments are mandatory: DG000 Introducing Competency Centred-Learning (112 hours), DG300 UFP Basics and DG501/DG502/DG503 Analysing and Modelling NPD. For competency area Integrating Technology they are required to do either DG200 Creative Programming for Designers or DG220 Introducing Electronics, DG200 Creative Programming for Designers or DG220 Introducing Electronics. For the remaining three assignments B1.1 students are required to choose 1 assignment from each of the competency areas Ideas and Concepts, Socio-Cultural Awareness and Form and Senses. The assignment Introducing Competency-Centred Learning helps B1.1 students to learn the ID department and more specifically the competency-centred learning approach of ID, including the various competency areas. Through lectures, workshops, trips, exhibitions, etcetera, students are informed about the ins and outs of the competency areas.

#### Transitional arrangements

Due to the change from 40-hour to 56-hour assignments and the policy that students can only enrol for the required number of assignments per block, there are transitional arrangements for the following students:

- students who received a C-verdict in the July 2008 assessment due to incomplete assignment work (one or two assignments missing)
- students who have done more than the required number of assignments in the previous semester and have created an assignment surplus

These arrangements are included in the Education and Examination Regulations 2008 – 2009, which can be downloaded from our intranet.

#### More information

more detailed information on the assignment planning and organisation can be found on the intranet [intranet / education / guides and manuals / links](#)

## Modules

**Modules are learning activities for Master students. They represent 40 hours of either small group work or individual work. The scope of a module is mostly one or two competency areas. Like assignments in the Bachelor, the context of modules is more constructed (as opposed to the authentic context for projects). They provide students with the opportunity for expertise building in a particular competency area or, in some cases, for the acquisition of specialised knowledge and skills (outer circle).**

This competency development enables or enhances development of the inner circle: the overall competency of designing and growth as a designer. It also enhances students' competency development in the projects. Module lecturers have the option to offer a follow-up module for more in-depth or specialised competency development. A module is scheduled in a full week, the so-called module weeks. The module lecturer facilitates and supports students' learning and competency development, amongst others by giving frequent feedback. In the course of the module this feedback is given in a dialogue. This verbal feedback plays a crucial part in students' learning process. It is intended to facilitate and enhance students' competency development and the quality of their deliverables. Moreover, it helps students to explore how their competency development

achieved in modules and other learning activities can enhance one another. The presentations and discussions on the last module day are also meant for this. So it is not only feedback of learning (looking back at what a group or student has achieved) but also feedback for learning (looking forward to how the group or student can make as much progress as possible). After the presentation and discussion at the last module day the module lecturer gives final written feedback on the quality of the deliverables and related competency development for every individual student. Then students reflect on learning process, competency development and expertise building achieved in the module.

An overview of the number of modules students (can) do per block can be found hereafter in this chapter. All modules are electives. Students choose modules that fit in their Personal Development Plan. In the IDentity Week at the start of each semester they have to register for the modules of their choice in Studyweb (<http://studyweb.tue.nl>). The goal of doing modules is to develop particular competencies and to build expertise, rather than completing a particular number of tasks. Therefore students can only register for the number of modules that is required for the block they are going to do (so no working ahead anymore). If there is a specific reason for doing an additional module students either need to involve their competency coach or the study advisor. Module weeks and module-related deadlines are all included in the Master Planning<sup>4</sup>, which can be found on our intranet.

## Classes

**Classes are learning activities for Master students (blocks M1.2 and/or M2.1). They represent six full weeks of either small group work or individual work, scheduled as three times two weeks. The scope of a class is mostly the area of one and sometimes two capacity groups.**

The context of students' learning in classes is more constructed (as opposed to the authentic context for projects). Classes provide students with the opportunity for expertise building in one or more competency areas (outer circle) with a clear connection to the overall competency of designing and growth as a designer (inner circle). This expertise building also enables and enhances students' competency development in the FMP.

The class lecturer facilitates and supports students' learning and competency development, amongst others by giving frequent feedback. In the course of the class this feedback is given in a dialogue. This verbal feedback plays a crucial part in students' learning process. It is intended to facilitate and enhance students' competency development and the quality of their deliverables. Moreover, it helps students to explore how their competency development achieved in the class and other learning activities can enhance one another. The presentations and discussions on the last class day are also meant for this. So it is not only feedback of learning (looking back at what a group or student has achieved) but also feedback for learning (looking forward to how the group or student can make as much progress as possible). After the presentation and discussion at the last class day the class lecturer gives final written feedback on the quality of the deliverables and related competency development for

every individual student. Then students reflect on learning process, competency development and expertise building achieved in the class.

Master students have to do at least one class and can do two classes as part of Block M1.2 and/or M2.1. The number of modules they do is accordingly. So Block M1.2 either consists of a design-researcher project plus either one class or plus six modules. Block M2.1 consists of the FMP proposal plus either 10 modules or plus one class and four modules. Students' choice depends on their Personal Development Plan and the offer of classes and modules in the semester at hand.

## Minors

**Minors are learning activities for B3.1 students. Students' choice for a particular minor depends on their learning goals for Block B3.1 as well as the purpose each of these minor types serve.**

Students can choose from the following types of minor:

- an exchange at a university abroad, with which ID has a bilateral agreement. This is an option if students want to gain experience with learning in a another educational model or culture, or if they want to acquire expertise that is not available at the ID department or the TU/e
- an internship at a design office, a company, an R&D or design department of a large company in the Netherlands or abroad. This might be an appropriate choice for students who want to gain 'real-life' experience with design projects, experience the difference between learning at ID and learning in a professional setting, or gain experience with learning and working in another culture
- a minor program at one of the other TU/e departments or at one of the other Dutch universities of technology (Delft and Twente). Students may opt for this if they want to acquire expertise that is not available at the ID department, if they want to gain experience with another educa-

Not all classes are offered every semester. In the IDentity Week at the start of each semester they have to register for the class of their choice in Studyweb (<http://studyweb.tue.nl>). Class weeks and class-related deadlines are all included in the Master Planning<sup>l</sup>, which can be found on our intranet, and Master Planning<sup>m</sup>, which is part of this guide.

### More information

more detailed information on the class planning and organisation can be found on the intranet [intranet / education / guides and manuals / links](#)

tional model or if they want to use the minor program to prepare for a Master's program at the department or university involved. Due to the transition from 'lintminor' to 'blokminor' the TU/e departments do not start minor programs in the academic year 2008 - 2009

- a free minor program within or outside the TU/e. For this type of minor students compose their own program and submit this to the Board of Examiners for approval. This is an option for students who want to acquire specific knowledge or expertise

B3.1 students may not be able to schedule their internship or exchange within one semester. In this case their B3.1 assessment is delayed with half a semester. See the Bachelor Planning<sup>l</sup>, which can be found on our intranet, or minor-related deadlines and for the assessment-related deadlines in case of a midterm assessment.

### More information

conditions for admittance to a minor programme (third and fourth options) and more detailed information on selecting, registering and getting approval for a selected minor can be found on our intranet [intranet / education / guides and manuals / links](#)



Active Explorers by Rick van de Westelaken, Arne Wessels, Jurgen Westerhoff & Jing Wang  
Class 'Design for Interaction', 2008



Lighting Tiles by Balasz Szekely, Lisa op 't Hof, Ivo Stuyfzand, Rob Tieben, Pieter van Wegberg & Jurgen Westerhoff  
B2.1 project, 2006

## Identity weeks

Identity weeks are 'vertical' activities for the ID department as a whole. They enable and stimulate identity building, expertise building and community building.

Depending on the scheduled moment in a semester, they either focus on the inner circle, the outer circle or on both. IDentity weeks are represented as light grey blocks in the short, medium and long Bachelor and Master Planning. The IDentity week at the start of the semester is meant to be a start-up. Students write their Personal Development Plan (PDP) with long-term goals for their growth as a designer (inner circle) and short-term goals for their development in the semester concerned (outer circle). In that same week they use their PDP to choose and register for learning activities by means of which they can achieve their competency development goals. The overviews of the Bachelor and Master program show from which learning activities students need to choose per block (see below).

Half way the semester there are also two IDentity weeks. In the first of these weeks students reflect on what they have achieved in their learning activities so far and document this in their portfolio (outer circle). This is their preparation for the exhibition days in the second half of this week,

when students show their project. At this exhibition they also present a poster on their growth as a designer, with a focus on their project. In the second of these weeks students start with their showcase for that semester. They reflect on how their competency development so far has contributed to their development of the overall competency of designing and their growth as a designer (inner circle). They also select the deliverables that illustrate this best. If applicable, they adjust their PDP for the second half of the semester. In this week workshops, symposia etcetera are organised for all staff members and students, to promote identity building, expertise building and community building (both inner and outer circle).

**"IDentity weeks are 'vertical' activities for the ID department as a whole."**

In the IDentity week towards the end of the semester students, again, reflect on what they have achieved in their learning activities so far (outer circle) and document this in their portfolio. This is their preparation for the exhibition days in the second half of this week, when students show their project, as well a poster with their, mainly project-related, growth as a designer. In the following week (first assessment week) they complete their showcase to visualise and prove their development of the overall competency of designing and their growth as a designer (inner circle).



### Programs / Bachelor

#### First Year

##### 1st semester (B1.1) (30 ECTS)

4 assignments  
2 projects (2x team)  
portfolio / showcase activities and assessment preparation  
other curricular activities focused on competency development

##### 2nd semester (B1.2) (30 ECTS)

4 assignments  
2 projects (1x team, 1x individual)  
portfolio / showcase activities and assessment preparation  
other curricular activities focused on competency development

#### Second Year

##### 1st semester (B2.1) (30 ECTS)

4 assignments  
2 projects (1x team, 1x individual)  
portfolio / showcase activities and assessment preparation  
other curricular activities focused on competency development

##### 2nd semester (B1.2) (30 ECTS)

4 assignments  
1 project (1x team)  
portfolio / showcase activities and assessment preparation  
other curricular activities focused on competency development

#### Third Year

##### 1st semester (B3.1) (30 ECTS)

internship / exchange or minor  
FBP Proposal  
portfolio / showcase activities and assessment preparation  
other curricular activities focused on competency development

##### 2nd semester (B1.2) (30 ECTS)

2 assignments  
Final Bachelor Project (FBP)  
portfolio / showcase activities and assessment preparation  
other curricular activities focused on competency development

### Master

#### Fourth Year

##### 1st semester (M1.1) (30 ECTS)

design project  
6 modules  
portfolio / showcase activities and assessment preparation  
other curricular activities focused on competency development

##### 2nd semester (M2.2) (30 ECTS)

design-researcher project  
class or an equivalent of 6 modules\*  
portfolio / showcase activities and assessment preparation  
other curricular activities focused on competency development

#### Fifth Year

##### 1st semester (M2.1) (30 ECTS)

1 class or an equivalent of 6 modules\*  
4 modules  
FMP Proposal  
portfolio / showcase activities and assessment preparation  
other curricular activities focused on competency development

##### 2nd semester (M2.2) (30 ECTS)

Final Master Project (FMP)  
portfolio / showcase activities and assessment preparation  
other curricular activities focused on competency development

### Bachelor and Master programs

The Bachelor program consists of 6 blocks. It comprises a Propedeutic examination (after year 1) and is concluded with the Bachelor's examination (the Block B3.2 assessment). The Master program consists of 4 blocks and is concluded with the Master's examination (the M2.2 assessment).

\* at least one Master Class: either in M1.2 or M2.1



Noes by Milou Pikaart  
M1.1 project, 2008

# 4

## Growth as a designer

Students perform learning activities that yield particular deliverables. In order to achieve these deliverables they need to develop particular competencies (the outer circle of our competency framework). These deliverables and related competency development contribute to the development of students' overall competency of designing, and to their growth as a designer (the inner circle). This overall development requires thorough understanding and integration of the ten ID competency areas.

StoryTail by Wouter Kersteman, Lissa Kooijman,  
Remco Magielse, Jaap Knoester & Floor Matthijssen  
Class 'Design for interaction', 2008



### Stages of growth as a designer

Students perform learning activities that yield particular deliverables. In order to achieve these deliverables they need to develop particular competencies (the outer circle of our competency framework). These deliverables and related competency development contribute to the development of students' overall competency of designing, and to their growth as a designer (the inner circle of our competency framework). This overall development requires thorough

understanding and integration of the ten ID competency areas.

For students' overall development (inner and outer circle) we distinguish five developmental stages: Blank, Awareness, Depth, Expertise, and Visionary. In the figure on the next page these stages are visualised as growth of the inner/outer circles. The figure below shows which stage students are expected to have reached at the end of each year in the ID Bachelor and Master program. The gradients in this figure show that excellent students may well achieve beyond the expected stage.

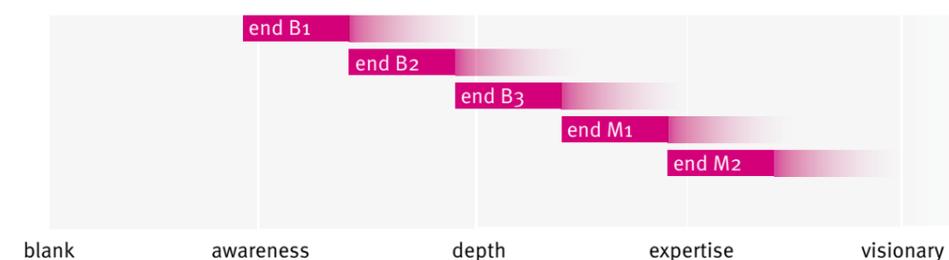
#### Stage 1: Blank

When students enter our department they are like blank, unwritten pages with respect to our view on designing, educational model and competency framework. For them the design process is probably just a phrase, a set of unknown activities: one big blur. They do know that our program is competency-centred, but the majority of them do not have the slightest idea what the notion of competency means and what the ID competency areas entail.

#### Stage 2: Awareness

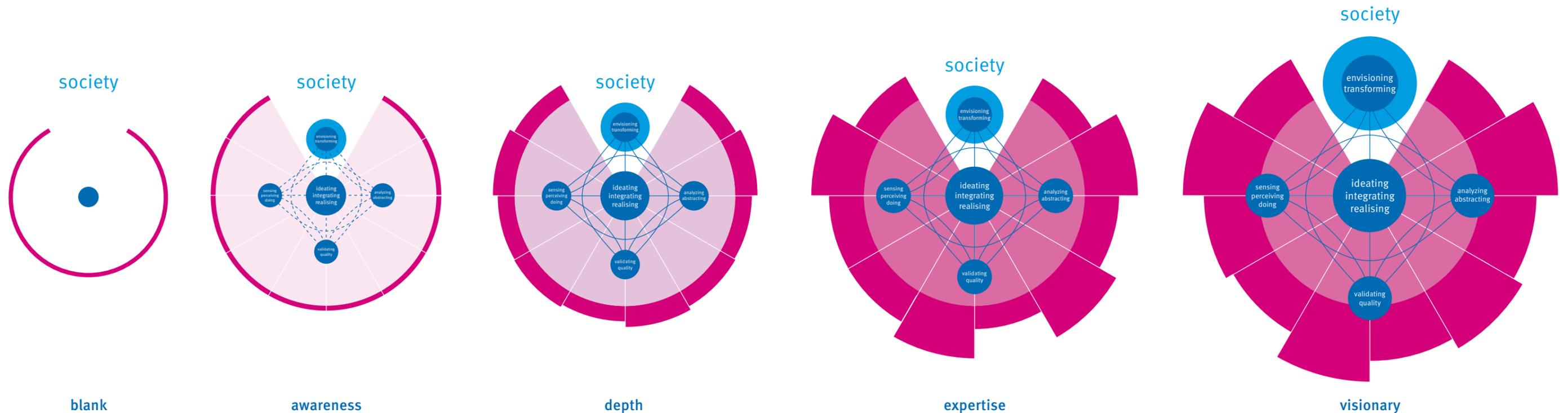
In the first year students have performed a number of assignments and projects. They have received their first feedbacks, and have written their first reflections on their learning experiences within learning activities, deliverables and competency development achieved. They have built a showcase twice, in which they reflect on their overall competency of designing, on their design process(es) and their growth as a designer. At the end of their first year students demonstrate awareness of what the ten ID competency areas

#### Stages of growth as a designer over the five years



## The five stages

The shown developments in the ten competency areas are exemplary



entail as related to their own work, what their own overall competency of designing is, what their own growth as a designer is, how competency development contributes to overall development, and what a design process may constitute. They have built awareness with respect to interactive systems.

### Stage 3: Depth

Depth is the expected stage for Bachelor graduates. Students have years two and three to achieve this. The stage of depth is characterised by knowledge and skills building, including experiential knowledge as well as theoretical knowledge. Students demonstrate depth in particular competency areas and in their skills as a designer: sensing/perceiving/doing and analysing/abstracting, next to emotional and social skills. Depth also shows in their ability to integrate, and their professional attitude and responsibility as a designer. In their reflections they connect competency areas to one another and establish connections between competency areas, the overall competency of designing and

overall growth. They have gained experience with the five activities within the “reflective transformative design process”, and with jumping from one activity to another while reflecting on the previous one. They demonstrate understanding of this design process as a whole. They have built an awareness of intelligent systems and demonstrate depth in interactive systems. Their showcase communicates (the beginning of) a clear identity developing over time.

### Stage 4: Expertise

Expertise is the expected stage for Master graduates. When students have achieved this stage, the inner and outer circles have merged and are inextricably intertwined in all activities. They demonstrate expertise building in the overall competency of designing, in growth as a designer and in particular competency areas while showing depth in others. Expertise in particular competency areas shows in the quality of students’ deliverables and in their ability to discuss and communicate their expertise to others. Expertise in growth as a designer is reflected in students’

showcase and their view of designing in their reflections. This expertise is demonstrated, too, in their integration of interactive and intelligent systems into their design. Expertise in the overall competency of designing is reflected in their ability to integrate various approaches in their design process (design, engineering and social science). It also shows in their ability to comfortably jump back and forth between the five activities within the “reflective transformative design process”, reflecting on the steps they take and trusting their senses. They demonstrate an academic level of designing.

### Stage 5: Visionary

Visionary is the stage that excellent Master graduates may have started to develop. For many graduates this is the stage they will work on and arrive at after their graduation. Dorst (2004) defines this stage as follows: “The world discloser or ‘visionary’ consciously strives to extend the domain in which he/she works. The visionary develops new ways things could be, defines the issues, opens new worlds and creates new domains. To do this a visionary operates more on

the margins of a domain, paying attention to other domains as well, and to anomalies and marginal practices that hold promises for a new vision of the domain.”

**“The world discloser or ‘visionary’ consciously strives to extend the domain in which he/she works. The visionary develops new ways things could be, defines the issues, opens new worlds and creates new domains.”**

In the Bachelor as well as the Master a strong emphasis is put on envisioning for societal transformation and students are stimulated to develop their own vision on society. When a designer has reached the stage of visionary all his/her designs breathe this overall vision, which has become the salient aspect of his/her identity, and this visionary expertise is recognised by other experts in and outside the field of industrial design.

## Feedback and assessment

Competency-centred learning is a cyclical, highly individual and context-dependent process. This requires a holistic approach to designing a curriculum and corresponding assessment. The goal of our curriculum is to facilitate and promote students' development of the overall competency of designing and their growth as a designer.

It is the students' responsibility to determine what kind of designer they want to become, what competency development this requires and what learning activities they need to perform to achieve this. Important mechanisms to facilitate, enhance and direct this growth are feedback, reflection, a holistic approach to assessment, and learning activities that generate competency development. The role and nature of learning activities have been explained in the previous chapter. Feedback, reflection and assessment each have their own scope and purpose, which will be explained in the paragraphs below. But first we will give a schematic overview of the relations between these four mechanisms at the level of a semester, in the figure below.

At the start of the semester students write their PDP with long-term goals for their growth as a designer and short-term goals for the semester. Based on this PDP they select various learning activities. In the context of a specific learning activity, for example a project, students produce deliverables which they have achieved by developing particular competencies. Their project coach gives them verbal feedback during the project and written feedback at the end of the project. Students use this feedback when they reflect on the quality of their deliverables, their design process and their competency development achieved (reflection on action) and how this relates to their future development and activities (reflection for action). Their competency coach gives them feedback on their learning and competency development process. At the end of the semester students review all deliverables, feedbacks and reflections to determine how these have contributed to their overall development and growth as a designer. This results into the update/creation of their showcase. It is this showcase which is assessed. This assessment gives the students feedback on the developmental stage at which they are, how this fits in their long-time ambitions and if they are ready for promotion to the next block. Then this process starts all over again the next semester.

### Feedback

The scope of most feedback is a learning activity, the exception being competency coach feedback, which addresses students' process of competency development over a semester as a whole. The focus of feedback is on the quality of students' deliverables and related competency development, as achieved in a particular learning activity. As indicated before, feedback plays a crucial part in facilitating, supporting and enhancing student learning. This implies that students need to get frequent feedback during the learning activity. This enables them to use this feedback to accomplish high quality deliverables and to achieve the goals they set for particular competency area(s). Feedback during the learning activity also enhances its meaningfulness: it supports students' reflection in and on action, and creates a link between what students have achieved so far and what they still want or need to achieve. For this purpose verbal feedback is most effective, in a dialogue and discussion with students. In a dialogue the feedback giver can check whether the feedback has 'landed' and the student can ask for clarification. Discussions support students' understanding of, amongst others, the competency areas and enhance their critical thinking. Both support students in their reflections on their competency development achieved. More than previous years we would like to emphasize the relevance and importance of giving this verbal feedback frequently.

At the end of a learning activity, after the students have presented or handed in their deliverables, students receive final written, individual feedback. This feedback is a conclusion on what students have achieved: the quality of their deliverables and related competency development. To make this written feedback less time-consuming we have designed feedback scales in which the assignor, coach or lecturer can indicate the level the student has achieved. There is also room to write down specific or remarkable issues with respect to the student's attitude or approach, quality of the deliverables or competency development achieved. This written feedback is evidence for the student and input for the assessor. Written feedback needs to be available for students in time, i.e. in the week after the last meeting with assignor, coach

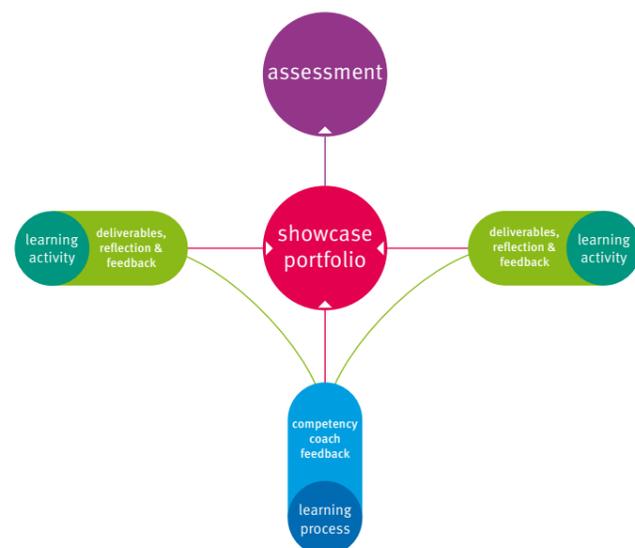
or lectured. They need it for their reflection on the learning activity concerned as well as for adjusting their competency goals for other/new learning activities in the same semester.

### Assessment

The scope of an assessment is the student's development of the overall competency of designing and growth as a designer, as communicated through his or her showcase portfolio, and underpinned with evidence: of the quality of their deliverables, and of their development of the competency areas. The formal function of an assessment is to take a decision on the student's progress in the program and to assign credits or not. In our case this is determined by the developmental stage a student has achieved, related to the block he has been doing: (blank) - awareness - depth - expertise - visionary. The formal decision we take is 'promotion to the next block or not'.

Assessments also have a feedback function, which plays quite a prominent role in a competency-centred educational model such as ours. The assessment provides students with an evaluation of their overall development as a designer over the past semester, fitted in with the history as a designer up to that point and the envisioned development in the future. This may be a confirmation, modification or rejection of what students themselves communicated through and concluded in their showcase. In this respect the assessment is also feedback on the students' ability to self-assess. Last but not least assessment feedback fulfils a feed forward function: it helps students fine-tune or adjust their long-term goals for their growth as a designer and set competency development goals for the next semester.

### Learning activity and learning process to assessment



## Portfolio and showcase

The portfolio as a whole is the student's tool for directing and managing his or her development. The showcase, as part of the portfolio, is the student's tool to demonstrate and communicate development of the overall competency of designing and growth as a designer.

In the first semester we will use an 'updated' version of IDPortal for this; after that we will implement a new platform for this, Winvision (see chapter 5).

In the course of a semester, students essentially go through iterative learning loops at two levels: a loop of competency development in each learning activity they do, and a loop of growth as a designer over the semester as a whole. For each learning activity they store the deliverables in the portfolio, together with the written feedback and their own reflections. In these reflections they look back on what they have achieved (reflection on action) and how this will direct and shape their future development (reflection for action). Deliverables, feedbacks and reflections are evidence for their showcase. In the planning time is dedicated for

this: the IDentity weeks half way and at the end of the semester.

At the end of the semester students create/update their showcase. This showcase is visual and interactive. Students review all deliverables, feedbacks and reflections to determine how these have contributed to their overall development and growth as a designer. In order to create/update their showcase students carefully select deliverables and enrich them with reflections on their development as a designer. They underpin their overall development with links to evidence from their learning activities. The frame for this development is on the one hand the five-stage model for students' growth as a designer, and on the other hand students' own long-term goals for their individual growth as a designer. The showcase communicates students' development as a designer and the development of the overall competency of designing over the semester, fitted in with their history as a designer up to that point (previous showcase(s)) and their view of the designer they want to become (long-term goals). The past is transformed, the present becomes the past, the future becomes the present.

## Assessment procedure

As a rule, students are assessed at the end of the semester. B3.1, B3.2 and M2.2 students may postpone their assessment by half a semester, either because of the planning of their minor (B3.1) or because of a delay in the completion of their project (B3.2 and M2.2).

In the assessment two parties are involved: the student and the assessor. For B3.2 and M2.2 assessments, the Bachelor and Master examinations, a two-member panel is involved and the assessment procedure is slightly different (see next paragraph). To each assessor a number of students are assigned in advance (prior to the exhibition in which students show their project). The student builds his or her showcase, which

needs to be ready in the first assessment week. Specific deadlines for this are included in the L-version of the Bachelor and Master Plannings. The assessor assesses the students who have been assigned to him or her in the second assessment week. The formal and more detailed assessment procedure, including the various verdicts and how to decide on a particular verdict, is included in the "Examination Requirements 2008 - 2009", to be found on our intranet. In brief, the assessment is a three-step process:

- As a first step in the assessment process the assessor goes through the student's showcase with the focus on the student's development of the overall competency of designing and the student's growth as a designer. The central question is whether the student has achieved (or, in case of excellence, has gone beyond) the

expected developmental stage of growth as a designer: see figures on pages 35 and 36 and the paragraph on assessment on page 38. The student's development of the competency areas and the quality of his or her deliverables are input for this: they have already been established in the context of the learning activities the student performed. In the showcase the student has included links to evidence for this, so the assessor can easily get an overview. The assessor writes down his evaluation of the student's development, tentative verdict and justification, and questions or topics he wants to address in the meeting with the student.

- The second step in the assessment process is a meeting between assessor and student. This meeting gives the assessor the opportunity to either get clarification of or discuss particular aspects or parts of the showcase in more detail. This way the assessor can fine-tune his or her

evaluation of the student's development and growth, and check the tentative verdict. For the student this meeting is an opportunity to demonstrate his overall development and growth in a different way (verbally as opposed to the visual/written communication in the showcase).

- The third and last step is the assessor meeting. Here assessors discuss their tentative verdicts and the ground(s) on which they arrived at these verdicts. If applicable they also discuss whether and why students qualify for 'excellence'. This discussion may result in modification of some of the verdicts. It is the assessor who decides on the final verdict for the students he or she has assessed, taking into account the preceding discussion.

After the assessor meeting each assessor finalises his or her assessment forms and puts them in IDPortal / Winvision.

## Examination

For the Bachelor's the examination consists of the B3.2 assessment and for the Master's the examination consists of the M2.2.

Though the essence of these examinations is the same compared to 'regular' assessments, the procedure differs with respect to the following:

- The student is assessed by a two-member assessment panel: his or her coach and an independent assessor.
- Block M2.2 exclusively consists of the student's FMP. Likewise, Block B3.2 largely consists of the student's FBP. That is why there is a green light meeting between student and assessment panel a few weeks before the exhibition week. At this meeting it is decided whether or not the student is on track with his or her FBP/FMP, and thus ready for an assessment at the end of the semester.
- Because of the prominent part the FMP and FBP play in Block M2.2 and B3.2, respectively, the exhibition is part of the assessment. That is also why this combined exhibition/assessment is scheduled one week after the regular exhibitions, so in the first assessment week.

- Both assessors go to the student's exhibition of his or her final project and poster with project-related growth as a designer. Prior to the exhibition they have already gone through the student's final project report and showcase. After the assessors have visited the student's exhibition and have asked questions on the project, they invite the student for a meeting with them. Just like the other assessments, the focus of this meeting is on the student's overall development and growth, so clarification of and/or more detailed discussion of the student's showcase. As part of this meeting the panel gives the student their assessment feedback and decision on the verdict.
- The graduation ceremony is scheduled on the same day the combined exhibition/assessment takes place, in the afternoon. This enables friends and relatives of graduation candidates to attend various student exhibitions.

### More information

the full and more detailed graduation procedure can be found on the intranet [intranet / education / guides and manuals / links](#)



# 5 Communication

Given the fact that we have only employees, junior and senior, we encourage everyone to support the PR and communication internally and externally. That is why all spaces and all Themes have exhibition zones to present ideas and findings, with a strong emphasis on demonstrating and experiencing through prototypes. During the semester we will organise exhibitions, symposia and workshop to disseminate ideas and expertise and enhance the community.

## Infrastructure

The foundation of our department, i.e. the concentration on intelligent systems and the competency-centred approach, can be translated into three important pillars: identity building, expertise building and community building. In order to support these three areas of building, enable self-directed and continuous learning for all our employees, and stimulate communication and sharing, we need a specific infrastructure.

Therefore, IDPortal will be replaced by new software called Winvision – Digital Portfolio (DP) during this academic year. It is a first (small) set towards the envisioned new infrastructure. DP enables us to focus on growth as a designer by making and assessing a graphically-oriented interactive showcase with a personal style, while linking to evidence (movies, pictures, sound files, reflections of learning activities, feedback).

## Publications

Another way of communicating our results is through papers and journals. As we aim at strengthening the relation between research and education, we encourage students to report on their work in journal articles and/or conference papers. We have two means for supporting the students in doing this: time and financial support.

### Time

If you want to write an article or paper on your work you can enrol for the assignment/module Reporting in a journal article or conference paper. This assignment/module is an individual learning activity. You can only enrol for this if your coach during the previous semester or another member of our staff volunteers and agrees to support this writing process about a previous project. Without such consent students can still write papers, but this will not be acknowledged as an assignment or module work.

### Financial support

The department can decide to give financial support to cover part of the conference fees and

travel expenses. Because the number of applicants increases quickly we cannot automatically grant you a budget when a paper is accepted.

### Requirements

In case of the journal article as well as the conference paper, there should be a peer review procedure. A request for financial support should be submitted in advance, at the start of the semester. If the conference is valuable for our department, and the project/outcome of high quality, we can give a green light for financial support if the paper gets accepted. The amount and height depends on the number of requests and available budget. Moreover, the student will write a report about the conference, thus expanding the expertise of everyone at the department. Both the final version of the paper and the report will be published on the ID website.

### More information

more detailed information on financial support can be found on the intranet:

<http://w3.id.tue.nl/nl/department/>

### Infrastructure

Communication, reflection and experience

Stimulate self-directed and continuous learning

#### Identity building

- overview
- portfolio
- communication
- layers assessment
- (zoom in and out)
- different modalities
- assessment

#### Expertise building

- develop expertise
- finding and sharing info
- documenting and saving
- develop platforms
- practice what you preach
- being designer, user, researcher and subject
- PR & exhibitions
- inspiration

#### Community building

- integration research & education, as well as different paradigms
- digital and physical integration
- enhance communication
- visibility expertise students, coaches and experts
- together towards mission statement
- networking
- alumni

The responsibility is shifted towards the students, who control and manage their own portfolio, including requesting feedback etcetera. Like students, coaches, assignors and lecturers will also have their own portfolio.

Until DP is implemented, we will use IDPortal but in an adjusted manner, with the focus on creating showcases and being assessed on it with our

new assessment procedure. Instructions about the 'updated' IDPortal as well as DP will be given during the first semester.

## 6

# Organisation

Competency-centred learning is not applicable to students only, but also to all staff members. We like every individual as well as the entire department to develop their identity and expertise, and together grow as a community.

We move towards a network organisation with more responsibility for employees. Instead of a hierarchy with rules and control, the network organisation is based on flexible self-managing teams that share knowledge and expertise and collectively come to decisions within the overall framework of the department. This organisation aims at supporting self-directed and long-life learning, stimulates creativity and innovation, and fits perfectly with competency-centred learning and taking responsibility for one's own (individual & departmental) development.

Within this network organisation, employees can have different roles within education simultaneously, for example being a coach, assignor/lecturer, assessor, coordinator, theme champ, member of a theme and expert.

## Staff roles

Within our competency-centred learning environment we distinguish various staff roles to facilitate, support and enhance student learning. Since we want an authentic learning environment, about 40 percent of our coaches are design practitioners.

For each role the central question is: what do students want or need to achieve, what is required for this and how can I support and enhance their process and results, given my specific staff role and professional expertise? A number of the different roles will be shortly discussed.

### Staff roles

#### Staff role: Coach

Coaches play a crucial part in facilitating, supporting and enhancing students' competency development and growth as a designer. The scope and focus of the coaching role may vary: either competency development over a semester (competency coach, CC), or a learning activity such as a project (project coach, PC) or a minor (exchange, internship). In most cases coaching includes both: for a given group of students a staff member performs both the role of CC and PC.

The role of competency coach focuses on the process of students' competency development. Within our framework this is the competency area Self-directed and Continuous Learning (outer circle), and the overall competency of designing and growth as a designer (inner circle). Students discuss their PDP with their competency coach, progress within their learning activities, relation between work results and competency development, how this relates to their overall development, and how to build their showcase around this. Competency meetings are mostly individual (between CC and individual student) but may also be in small groups (between CC and several students). The CC gives students feedback from a holistic, competency development point of view.

The project coach supports students in the context of the project, which students either do in teams or individually. So project coaching includes team and individual coaching. The focus of project coaching is the design process, project

management, team processes and the quality of the deliverables. This includes the students' development of separate competency areas (outer circle) in the context of the project and the overall competency of designing (inner circle as well as relation between outer and inner circle). The PC gives students feedback from a design process perspective.

Coaching students who do a minor (block B3.1) is similar to project coaching though there is an essential difference: these students are not at the department but at another university/department or a company. This makes it 'distant coaching'. B3.1 students do two learning activities: their minor and the FBP proposal. For their minor students also have a coach at the university or company concerned, the organisation coach. For the TU/e coach this implies a strong focus on students' competency development and support for the FBP proposal. This coaching role is also referred to as faculty coach.

#### Staff role: Assignor and Lecturer

Assignors and lecturers facilitate, support and enhance student learning in the context of specific learning activities: assignments, modules and classes. These learning activities mostly address one or two particular competency areas (outer circle), though classes also address the interaction between outer and inner circle. Assignors and lecturers support and enhance students' acquisition of specific knowledge and skills, framed within a particular competency area as a whole. Within this context assignors and lecturers perform the role of expert. They support students in achieving awareness or depth (assignments), or expertise (modules and classes). They also provide students with pointers how to transfer a particular approach or view to projects or other learning activities, so students can build up awareness, depth or expertise in various contexts. At the scheduled meeting with students they discuss 'content' (specific knowledge and skills), relate this to the competency area as a whole, and give students feedback on their progress and achievement within the assignment, module or class. Assignors and lecturers provide students with feedback on the quality of their deliverables and related competency development from an expert point of view.

**Staff role: Expert**

The role of expert is comparable to the role of assignor or lectures. An essential difference is that experts do not have their 'own' learning activities in the program. Instead, students themselves have to contact them if they need consultancy from an expert, mostly in the context of the project they are doing. Students should only contact an expert after thorough preparation so they can get the most out of their meeting with the expert and do not claim time for vague questions or for information they can easily retrieve themselves. From the second year onwards, students should really involve experts in their projects to achieve depth or expertise in particular competency areas and in their deliverables.

**Staff role: Assessor**

The role of assessor focuses on evaluating the developmental stage a student has achieved at a particular moment, framed by the student's history as a designer (development up to that point) and the student's ambitions (long-term-goals for growth as a designer). So this evaluation is not absolute but relative. The assessor examines the student's development of the overall competency of designing and his or her growth as a designer, and checks the student's development of separate competency areas and the quality of the deliverables. He or she determines what a student has achieved (assessment of learning) and relates this to the next developmental stage (assessment for learning). The assessor takes a formal decision on the student's progress in the program (promotion to next block or not) and gives feedback on the student's overall development from a holistic point of view.

**Staff role: Theme Champ**

A Theme Champ is the catalyst of the Theme. The Champ motivates and stimulates coaches and the team, makes connections to possible experts and clients (tries to arrange contracts) and stimulates the communication of the Theme externally, although all other Theme members will also perform these activities. The Champ actively explores possibilities for connections to or new Theme related modules and assignments. The Champ develops the vision of the Theme together with the Theme coaches, and stimulates the team to develop the Theme further.

The Theme Champ is an expert in the area of the Theme, but does not need a specific function or hierarchal rank. It can be a freelancer as well as a professor. The role of Theme Champ is a temporary one, which will last for a half to about two years.

**Staff role: Manager of education**

The Management Team Education will consist of several members, including the Director of Education and the Manager of Education. Our new Manager of Education is Henri in 't Groen. He is responsible for operational / organisational issues regarding education on the departmental level and is thus able to connect the different activities and turn them into a coherent organisation.

**Staff role: Coordinator**

Within our network organisation we have different structures and teams that work together, such as the Themes and the different years. Therefore we have coordinators that support these different teams and smoothen the communication and organisation, in order to optimise the integration of the different activities. The coordinators can either be linked to a Theme or a year or the Identity weeks, or a combination of several of these entities. We will publish on intranet which coordinator will be linked to which activities and teams.

**Staff role: Study Advisor**

The study advisor is also provides support to students. Students can consult the study advisor for all kind of issues that affect their study progress, academic achievement or study planning. These issues may be related to personal circumstances (e.g. dyslexia, RSI, home situation), study choice, motivation or complaints. Students are also advised to consult the study advisor if they want to modify the composition of a block or if they want to submit an appeal against the assessment verdict from or treatment by the assessor. Requests for a modified block and appeals need to be submitted to our Board of Examiners.

**More information**

More detailed information on requesting a modified block and appeals can be found on the intranet: <http://w3.id.tue.nl/nl/department/>



Module 'Form building', 2006

Students themselves may take the initiative for a meeting with the study advisor, their coach can refer them to a study advisor, or they can be invited by the study advisor (first-year students who receive a Hold-verdict). For a meeting with the study advisor students need to make an appointment with the study advisor through the Bachelor or Master secretary (see overview).

**Education and Student Service Centre**

The central Education and Student Service Centre (STU) also provides student support: training activities on study skills, consultation with psychologist, or testing/advice if a student doubts about his study choice (is ID the right place for me). Students can go to STU directly; in other cases the study advisor or coach can refer students to STU.

**Contact information**

first check the information on the intranet:

<http://w3.id.tue.nl/nl/department/>

for short questions, send an email to:

[idstudyadvisorbachelor@tue.nl](mailto:idstudyadvisorbachelor@tue.nl) or

[idstudyadvisor@tue.nl](mailto:idstudyadvisor@tue.nl)

for an appointment with the study advisors Bachelor's:

Sjanneke van der Velden, HG 1.31

for an appointment with the study advisors Master's:

Valerie Roestenburg, HG 1.31

**Study Advisors**

**Bachelor, students A-N**

Christina Morgan, HG 1.31

**Bachelor, students O-Z**

Yolanda Hübner, HG 1.31

**Master, all students**

Esther Gielen, HG 1.31



“Due to the shift from Domains to Themes, we have designed a new lay-out for the Bachelor spaces based on flexible working places.”

## Spaces

Due to the constant growth in student numbers, the housing of the User System Interaction program (USI) in our department and - consequently - moving a number of colloquium rooms within the Bachelor spaces, we are beyond our limits of offering everyone their individual working place.

Moreover, due to the shift from Domains to Themes, we have designed a new lay-out for the Bachelor spaces based on flexible working places. For the Bachelor we offer zones for different activities within the four spaces, i.e. green, grey, yellow and orange. Depending on your activity you select a place to work. This could mean that you will sit in different places throughout the day.

### More information

more information on successful implementation of flexible workspaces, by Interpolis, can be found on the internet

- [http://www.bonnema.com/project\\_interpolistilburg.htm](http://www.bonnema.com/project_interpolistilburg.htm)
- [http://www.interpolis.nl/images/onzekijkopwerken\\_tcm163-122695.pdf](http://www.interpolis.nl/images/onzekijkopwerken_tcm163-122695.pdf)
- [http://www.architectenweb.nl/aweb/redactie/redactie\\_detail.asp?id=10524](http://www.architectenweb.nl/aweb/redactie/redactie_detail.asp?id=10524)

### Zones for different activities

We have created zones to support at least the following activities:

- desktop work for groups and individuals
- discussion and meetings
- tinkering, paper prototyping and making mood boards
- workshops
- assignments, modules, lectures, instructions
- presentations
- exhibitions
- visibility and meeting point themes
- computer work, internet access, writing feedback (fixed PC's for staff)
- relax
- silent reading and dreaming
- storing your work and materials

This means that you can sit everywhere, in every one of the four spaces, and in all different zones, depending on your work and preferences. A floor plan is provided on page 50-51.

### Clean desk policy

In order to make this concept feasible, we need a clean desk policy for all Bachelor spaces. Therefore all users of the Bachelor spaces are expected to tidy up all their belongings after they have finished working at a workspace, so that the next person can use the space to work. We have clustered the storage spaces, which you can use to store your belongings, materials, models etc. If you experience any problems e.g. with respect to storing your belongings or lay-out of furniture, please contact the responsible student warden of that space.

We offer all students the possibility to buy a small personal movable trolley with handle to store their belongings safely and move their belongings towards the desired working space. Moreover, it can be used to sit on. We have placed an example in front of room HG 3.89. Students who are interested can contact the Service Desk.

Besides this clean desk policy, we expect all students to use their workspace as an employee, and not as an additional space of the students' home. External people or clients often come in, so the environment they work in should communicate a professional working atmosphere.



### Supporting software: Office Communicator

Because people don't have a fixed place anymore, it might become more difficult to find each other. Therefore, we offer Office Communicator (OCS 2007) which connects phone, e-mail, video-conferencing and chatting. Users can get access to all OCS functionality at their working place. OCS enables for example to call with every fixed phone at the TU/e. This is feasible using Office Communicator or several other Office applications. Offered functionality:

- presence in the building and availability
- chatting
- audio conferencing
- video conferencing
- calling to all four-digit numbers within the TU/e
- sharing applications

### Download information

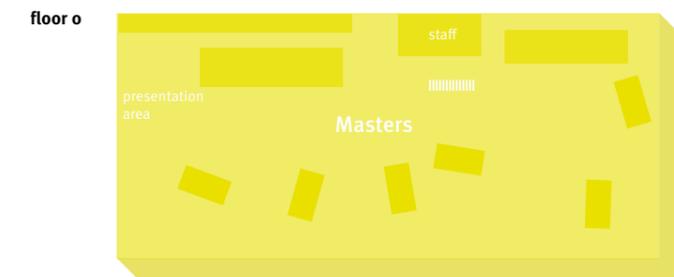
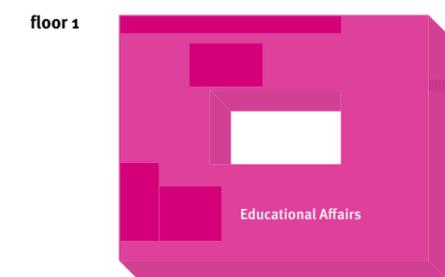
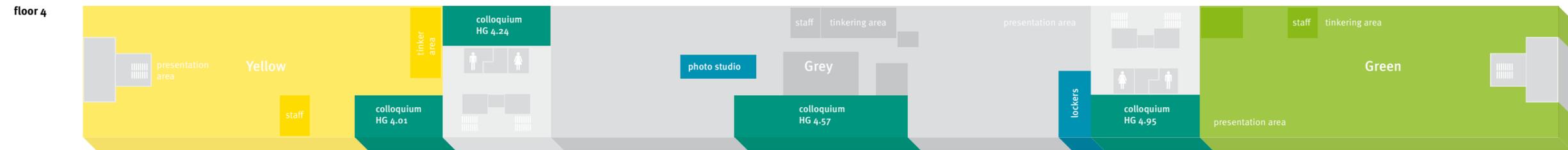
the Office Communicator software can be downloaded from the intranet [intranet / ict / software](#)

Floor plan

South

Middle

North





+jewel by Eva Hopma  
Final Bachelor Project, 2007  
Photo by Bart van Overbeeke

# 7

## Code of conduct

Students are considered to be junior employees. Like senior employees, they are expected to contribute to a professional learning and working environment. By doing so, they enable identity, expertise and community building for individuals as well as the department as a whole.

### Clean desk policy

At Industrial Design we have a 'clean desk policy' for all students, Master's included.

Bachelor students do not have their own work space anymore. They choose a zone in one of the spaces that matches their activity best. When they are ready they clean up the desk / work space and go to the next zone for their next activity. This system will only work if everybody adheres to a clean desk policy.

Besides this clean desk policy for Bachelor students, we expect all students to use their work space as an employee, and not as an additional space of the students' home. External people or clients often come in, and we want our learning environment to communicate a professional working atmosphere.

### Working full-time

For students we have created professional work spaces, geared to doing a variety of activities. We would like students to fully benefit from these facilities, which implies being at the department for all work-related activities.

Being here full-time gives students the opportunity to share experiences and knowledge with other employees, which enables expertise and community building at the individual and departmental level. Working full-time means making 40 hours a week, eight hours per day on average (and of course more hours when either the task or your own development requires this). Fortunately the TU/e knows the system of flexible start and ending when it comes to working hours: your start can be anywhere between 8.00 and 10.00hrs in the morning, and your ending between 16.00 and 18.00hrs in the afternoon. So everybody is here from 10.00 to 16.00hrs to give ample opportunity for appointments and scheduled activities.

Of course learning activities can (and will) be scheduled outside the 10 to 4 time slot, for example assignment meetings. Given these flexible working hours it is essential that you let your colleagues know when you will be in and when you will leave.

### Referencing and citing, fraud and plagiarism

When you use ideas, theories, visuals or graphics from others in your own writing, it is crucial to use the proper way of referencing and citing.

Presenting someone else's work or ideas as your own is a criminal act in any professional environment, design practice as well as academia. And it is simply not done out of respect for each other. If a student does so, this will have severe consequences.

#### Time is precious

Being a professional means that you do not waste your own and somebody else's time. Try being productive in the time that you are here and stick to deadlines. If you have an appointment with either fellow students or senior employees, prepare well for the meeting. Determine in advance what you want to get out of this meeting, in what way you would like to make use of the other employee's expertise, and what this requires in terms of preparation (retrieving information, phrasing specific questions, etcetera). If somehow you are prevented from attending a scheduled meeting or being in time for that meeting, you contact everyone involved, in time.

#### Illness or absence

If you become ill or cannot be present for another reason, they should notify all persons with whom they collaborate, so fellow students, coach, assignor, lecturer or expert. It is crucial that you do so in time. After you have recovered you get in touch with these persons so you can make arrangements to get back on track as soon as possible. Your colleagues, both senior and junior, will help you with this. If your illness or absence takes more than a few days, it is likely to affect your academic progress and possibly cause a study delay. In this case you should contact your competency coach and study advisor right away.

#### More information

For more information about referencing and citing see [intranet](#)  
[intranet / education / guides and manuals](#)