



## Specialisation Medisign

The healthcare sector today faces many challenges. Well-designed products and services are the perfect facilitators for sustainable change.

The healthcare sector is one of the fastest growing and changing industries across the world. It is heavily affected by societal challenges like ageing and global developments, such as patient empowerment and heavy use of technology. The Medisign MSc specialisation educates dedicated and skilled design engineers in topics such as user experience in healthcare, integrated care, basic surgical skills and biomechanics.

A basic educational principle of the specialisation is that students apply their knowledge and skills in direct contact with stakeholders: healthcare professionals, patients and informal caregivers. Application areas range from design for the operating room to mental health to elderly care. The topics of care, cure and prevention are addressed in both research and education.

Medisign students will not only meet the course objectives of their Integrated Product Design (IPD) and Design for Interaction (Dfi) programme but also:

- gain insight into healthcare and the products that are used in this field;
- learn to carry out research in the medical field related to product development;
- learn about the structure and processes of the human body;
- learn about cognition and informational processes related to medical product development.

### Programme

To specialise in Medisign you are required to complete at least one master project and a thesis project focusing on a medical topic. Additionally, you need to select at least three courses minimally 9 EC from the Medisign electives list. Other projects and modules with a healthcare focus are optional. The other courses to be taken will be part of your IPD or Dfi master's programme.

## Medisign electives at the faculty of Industrial Design Engineering

- **Capita Selecta Medisign (3 EC) (Obligatory course)**  
Encourages an exchange between professionals and Medisign students in monthly meetings at which design challenges and research topics in the medical field are presented and discussed.
- **Anatomy and Surgical Techniques for Engineers (3 EC)**  
This module, taught at the Erasmus Medical Center Rotterdam, trains the student in the body's musculo-skeletal system and in basic techniques of minimal invasive surgery, providing students with a feel for surgery.
- **eHealth (3 EC)**  
This elective focuses on different eHealth related topics, such as shared decisionmaking, ageing and persuasive game design. Students will develop a personal vision about their role as designer in the eHealth industry.
- **Biomechanics (3 EC)**  
Main topics include the skeleton as a mechanical system, the form and function of joints, and the mechanical properties and functions of biological materials such as bone and skin.

- **Rules & Regulations for Designing Medical Devices (3 EC)**  
The focus of this course is on the CE marking process including ISO norms and risk management. It makes design students aware about the impact of rules & regulations on design choices.
- **Tools & Methods from Health Psychology (3 EC)**  
Addresses the basics of health psychology by educating about the usage of validated questionnaires and psychological models in the design process.
- **Cognitive Ergonomics for Designers (3 EC)**  
Cognitive ergonomics are concerned with mental processes, such as perception and reasoning, as they affect interactions among humans and other elements of a system. Topics include mental workload, decisionmaking, skilled performance, and training.
- **Experiencing Persuasive Environments (3 EC)**  
Gaining knowledge about how experience, environments and persuasiveness influence each other. Insights will be applied in a medical assignment.

In addition, courses from other faculties can be chosen.

## Examples of graduation projects

- Facilitating teamwork in the OR by design.
- Robotic personal assistance tool for elderly people.
- Game for online burnout therapy.
- Business model for 1-day hip surgery.
- Bone simulator for training surgical skills.

## Career prospects

Graduates who specialise in Medisign are all-round engineers who have experience in design in an interdisciplinary team in the medical field. In this growing field, there are abundant design opportunities. Participants in the Medisign programme have found jobs at (medical) design companies like Indes, Spark Design, VanBerlo as well as multinationals active in the medical equipment field such as Philips and Karl Storz.



Alumnus Lotte Cornelisse  
The Netherlands

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I graduated from the Integrated Product Design master's with the Medisign specialisation. My graduation assignment was carried out for the Reinier de Graaf Hospital in Delft. During this period I developed a surgical device to provide better accessibility in the hip joint during the procedure of hip arthroscopy. During the master's programme I followed an internship at MEDD, a design agency that focuses on healthcare. After my graduation, I started working as a user-centred designer at MEDD. By using the user-centred approach I was involved in product development as well as in research projects and process analysis. This job gave me the opportunity to put my knowledge into practice. For a few months now, I have been working at Vilans. Vilans is a centre of expertise for long-term care. As a junior employee, I work

in the department of Innovation and Research. In this job my focus is on eHealth projects. I am involved in research into the application of new technologies for longterm care - for example the use of domotics. Having a background in industrial design is a great advantage in this job and gives me the feeling that I really can apply what I learned at TU Delft. Using the Design Thinking approach gives me a head start as a junior employee in this professional environment. My ambition is to combine state-of-the-art technology for human care by using the user-centred design approach. In my first year after graduation, I was able to put into practice what I learned at TU Delft and continue my development in Medisign. A really satisfying experience!

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Student Jeroen van de Ruit  
The Netherlands

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Shortly after having started the Design for Interaction master's programme, I decided to enrol for Medisign. Ever since high school I have had an interest in medicine and this specialisation turned out to be the perfect opportunity to combine two very different fields of expertise. Little did I know that the vast possibilities of Medisign would radically alter my perspective on my studies and, more importantly, remind me of my responsibility as a designer.

During a little over 18 months, I have studied the behaviour of diabetic patients, designed surgical instruments for dissection, interviewed numerous doctors and nurses for a project on patient transportation and studied specific areas of a hospital environment. Opportunities for interesting projects are endless and depend largely on the motivation and persistence of the student. Therefore,

Medisign isn't so much a specialisation as an opportunity for students to go far beyond previous boundaries. Every single course and elective enables the acquisition of skills to incorporate the specific attention of medical design needs. It is equally rewarding to always present your findings alongside other Medisign students, and to broaden your knowledge of other areas of medicine. Now that I am close to the end of my studies I can conclude with my graduation project, which again has the enticing opportunity to enhance interactions and enable a more secure way of patient transportation. Medisign has left me with a real sense of just how broad the medical field can be and at this point I can only imagine the projects I might one day work on. One way or another, I hope to further pursue my interest in medicine and maintain the idea that any medical design should not make a user's experience different, but rather, better.

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## Admission requirements and application procedures

### Dutch university BSc degree

If you hold a BSc degree of Industrial Design Engineering from Delft University of Technology, Eindhoven University of Technology or University of Twente, you will be admitted directly into the programme. If the master's programme does not follow directly on from your undergraduate programme, you will be required to take additional courses in a so-called bridging programme. For more details and to see which master's programmes are open on completion of your BSc degree at a Dutch university, go to:

[www.io.tudelft.nl/schakelen-naar-IO](http://www.io.tudelft.nl/schakelen-naar-IO).

If your degree is not listed here you will not be admitted.

The deadline for application is 30 November. Students who are accepted can register before 1 February on:

[www.tudelft.studielink.nl](http://www.tudelft.studielink.nl).

### Dutch higher education BSc degree

To start a master's programme with a hbo BSc degree, you will first need to check the relevance of your degree at:

[www.io.tudelft.nl/schakelen-naar-IO](http://www.io.tudelft.nl/schakelen-naar-IO).

At this website you will also find information about the additional admission requirements, the registration procedures, and the registration deadlines. If your degree is not listed, or if you do not meet the additional admission requirements, your application will not be taken into consideration.

The deadline for application is 30 November. Students who are accepted can register before 1 February on:

[www.tudelft.studielink.nl](http://www.tudelft.studielink.nl).

For more details consult the brochure:

**Van HBO naar Industrieel Ontwerpen**

or visit the webpage:

[www.io.tudelft.nl/schakelen-naar-IO](http://www.io.tudelft.nl/schakelen-naar-IO).

### International degree

To be considered for admission to a master's programme, applicants with an international BSc degree must make a formal application for admission.

For the starting moment in September the application period starts in October and closes on 1 April. Please note that your complete application should reach TU Delft before 1 December, should you want to apply for a TU Delft Excellence scholarship. For the starting moment in February the application period starts in August and closes on 1 October.

To start a master application, please complete the online application and pay the (refundable) application fee of € 100. The required application documents need to be uploaded digitally through the upload portal. Please visit the webpage for admission requirements, deadlines, application procedures and contact information: [www.io.tudelft.nl/medisign](http://www.io.tudelft.nl/medisign).

### For further information

Please visit the website for all details, complete requirements, deadlines and contact information:

[www.io.tudelft.nl/medisign](http://www.io.tudelft.nl/medisign)

### Further information for Dutch applicants

Academic Counsellors

ir. J.C. Thieme, [j.c.thieme@tudelft.nl](mailto:j.c.thieme@tudelft.nl)

ir. C. Veldhuizen, [c.veldhuizen@tudelft.nl](mailto:c.veldhuizen@tudelft.nl)

ir. W.M. Biemond, [w.m.biemond@tudelft.nl](mailto:w.m.biemond@tudelft.nl)

### Further information for international applicants

Internationaal Office IDE

[internationaloffice-io@tudelft.nl](mailto:internationaloffice-io@tudelft.nl)

Faculty of Industrial Design Engineering

Landbergstraat 15

2628 CE Delft

The Netherlands

### More information on:

Scholarships: [www.scholarships.tudelft.nl](http://www.scholarships.tudelft.nl)

Online education:

[www.tudelft.nl/online-education](http://www.tudelft.nl/online-education)

Our campus: [campus.tudelft.nl](http://campus.tudelft.nl)



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