

### Examples of graduation projects

- Non-invasive and continuous wearable device to monitor vital signs.
- Improving activity behavior of demented elderly by light design.
- Doplor: Artful warnings towards a more silent Intensive Care.
- Improving the experience of a ride with the "wish-ambulance".
- Service roadmapping of smart care solutions.
- Use of persuasive game elements to increase physical activity.

### Career prospects

Graduates who specialize 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, multinationals active in the medical equipment field such as Philips, consultancies like TNO, hospitals and start-ups.



## More information

More information on the master specialisation Medisign can be found on the website: [www.io.tudelft.nl/medisign](http://www.io.tudelft.nl/medisign)

## Contact

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Master specialisation

# Medisign

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# A specialisation in 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), Design for Interaction (Dfi) and Strategic Product Design (SPD) 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, Dfi or SPD master's programme.

## Medisign electives (3EC) at the faculty of Industrial Design Engineering

### • Capita Selecta Medisign

Encourages an exchange between professionals and Medisign students during weekly meetings at which design challenges and research topics in the medical field are presented and discussed.

### • Tools & Methods from Health Psychology

Addresses the basics of health psychology by educating about the usage of validated questionnaires and psychological models in the designprocess.

### • eHealth

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

Main topics include Digital Human Models (DHM), 3D anthropometry, biomechanical modelling & simulation and analyzing (dynamic) human-product interactions.

### • Rules & Regulations for Designing Medical Devices

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.

### • Anatomy and Surgical Techniques for Engineers

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.

### • Cognitive Ergonomics for Designers

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, decision-making, skilled performance, and training.

In addition, courses from other faculties can be chosen.

