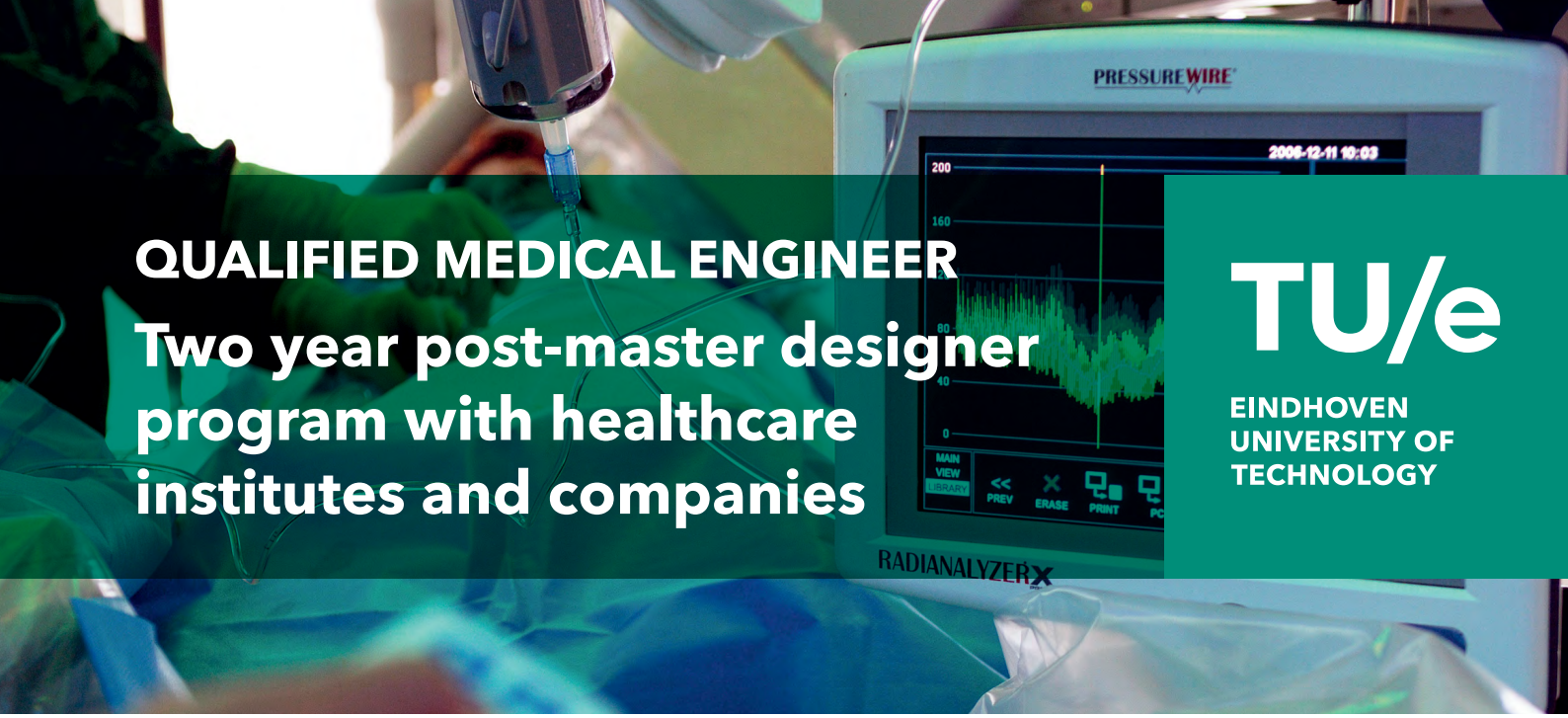


QUALIFIED MEDICAL ENGINEER

Two year post-master designer program with healthcare institutes and companies

TU/e
EINDHOVEN UNIVERSITY OF TECHNOLOGY

The research in your research group leads to publications and new technological developments for healthcare. However, the road to actual implementation is still long. In the two-year post-master designer program Qualified Medical Engineer (QME), academic engineers are trained to support the next steps in the development process. In their projects they bring technology closer to healthcare, including real implementation (or at least a first proof of principle) in daily practice. To reach this goal, QME trainees closely work together with professionals from various disciplines, such as clinicians, medical technology professionals, managers and ICT specialists from healthcare institutes, as well as with professionals from companies and with researchers from universities.

What is the post-master program QME?

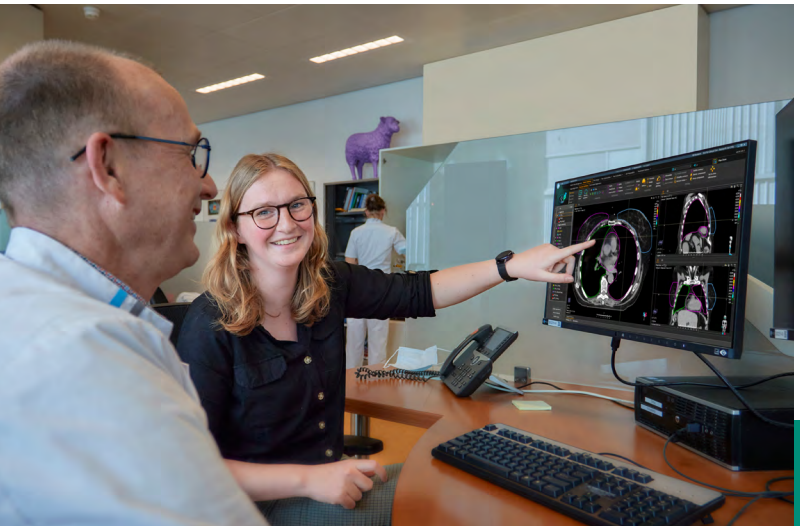
The post-master program Qualified Medical Engineer (QME) of the Eindhoven University of Technology (TU/e) is a two-year designer program. This program fulfills the growing need for professionals working on the interface between technological innovation and daily clinical care. During the program, trainees work on relevant projects from day one, in parallel to an extensive training program of courses and workshops. The QME program is recognized by the Dutch government and leads to the degree of EngD (Engineering Doctorate).

Why this program?

Technology has an increasing impact on healthcare. In healthcare, one must be able to rely on the effective and safe use of (new) medical technology. Medical Technology not only concerns medical equipment, but also - for example - model-based decision support applications for medical specialists, the use of AI in clinical software, or procedures that are optimized on the basis of smart algorithms. QME trainees are of great added value to research groups that develop such technologies for healthcare, the more since they are trained to (further) develop, test and implement these new technologies into clinical practice.

What is the structure of this program?

Our vision is that our trainees are best trained in daily practice. Hence, the program is designed such that QME trainees carry out projects from day one and spend a significant part of their time in healthcare institutes (and/or at a company). In parallel, they get QME courses and supervision from both QME and research groups.



QME Nienke Bakx and her supervisor Coen Hurkmans at Catharina Hospital Eindhoven (CZE). Nienke received her EngD Cum Laude.
Photo Jarno Verhoef (CZE).

Coen Hurkmans: "The QME is capable to translate new scientific insights into clinical innovations. She can also put these into practice within a team."

Frans van de Vosse (TU/e): "The program QME is focused on the patients of today, not only on the patients of tomorrow."

QUALIFIED MEDICAL ENGINEER

What is a design project?
Next to smaller projects, the QME trainee carries out one large design project. This project should have a clear link with (clinical) cure and care. The design project is performed in a systematic and structured approach. The trainee finally delivers concrete results, which can vary from a first 'proof of principle' with a prototype to actual implementation in healthcare, for instance in a pilot. On this design project the trainee will be evaluated by a formal committee.

What are the characteristics of a trainee?
A QME trainee has a solid background at an academic level and is able to understand the new technology that is developed in your research group and to discuss this with (healthcare) professionals of other disciplines and at different levels. It is also characteristic that the trainee is intrinsically motivated to apply new technology as effectively and safely as possible in clinical practice.

What about the employment and costs?
The trainee is full-time employed in your research group (as a TOIO: technological designer in training) or at the healthcare institute/ medical company, depending on the funding. If there is no internal candidate for this, we will jointly look for a suitable external candidate. The training costs (around 60k Euro) are largely reimbursed by the Dutch government and the employer (research group/ healthcare institute/comany) contributes € 5,000 per training year.

What about the funding?
It is very diverse how a training place can be financed. Many grant providers - such as TTW and ZonMW - offer the option of including EngD positions (such as QME) in project proposals, in addition to PhD positions.

How are candidates selected?
Perhaps your research group already has a suitable candidate in mind, for instance someone who has recently successfully finished a master project in your group. Or there is an employee at the involved healthcare institute (or company) for whom this program is a good next step in his/her career. Otherwise, QME can recruit nationally, in close consultation with all parties involved. Candidates are pre-selected by QME, further selection is a joint procedure between the parties that are involved; the final say is with the party that will appoint the trainee for two years.

What is the language in this program?
Because the Dutch language is the professional language of healthcare in the Netherlands in general, trainees in this program can fluently communicate in Dutch (both oral and written, level C1 or C2). Furthermore, they can also communicate very well in English, so that they possibly can also have non-Dutch-speaking supervisors and - whenever expected - can write the project documentation in English.

Is your research group interested?
Whenever your research group is interested, please contact us to further discuss the possibilities.

QME website: **tue.nl/qme**
QME office: **smpee.qme@tue.nl**
Director: Frans van de Vosse **f.n.v.d.vosse@tue.nl**
Program Manager: Ivonne Lammerts **i.m.m.lammerts@tue.nl**
Other Supervisors: Alina van der Giessen, Beatrijs van der Hout, Michaël Lansbergen, Teun Minkels.

QME Tim van den Boom and QME Bettine van Willigen; they received the EngD TU/e Thesis Award for their design project at LifeTec Group and Catharina Hospital Eindhoven.

Supervisors Marco Stijnen (LifeTec Group) and Pim Tonino (Catharina Hospital Eindhoven): "Tim and Bettine have worked well together in this project, with effective interaction with all stakeholders of LifeTec Group, Catharina Hospital Eindhoven and TU/e. In their project work, they always had to strike the balance between what is ideal for clinicians versus what can AngioSupport actually deliver, and what is computationally possible. We are proud that this ultimately resulted in a first working prototype and the TU/e EngD Thesis Award!"

photo: SMPE/e © BvOF [Bart van Overbeeke Photography]