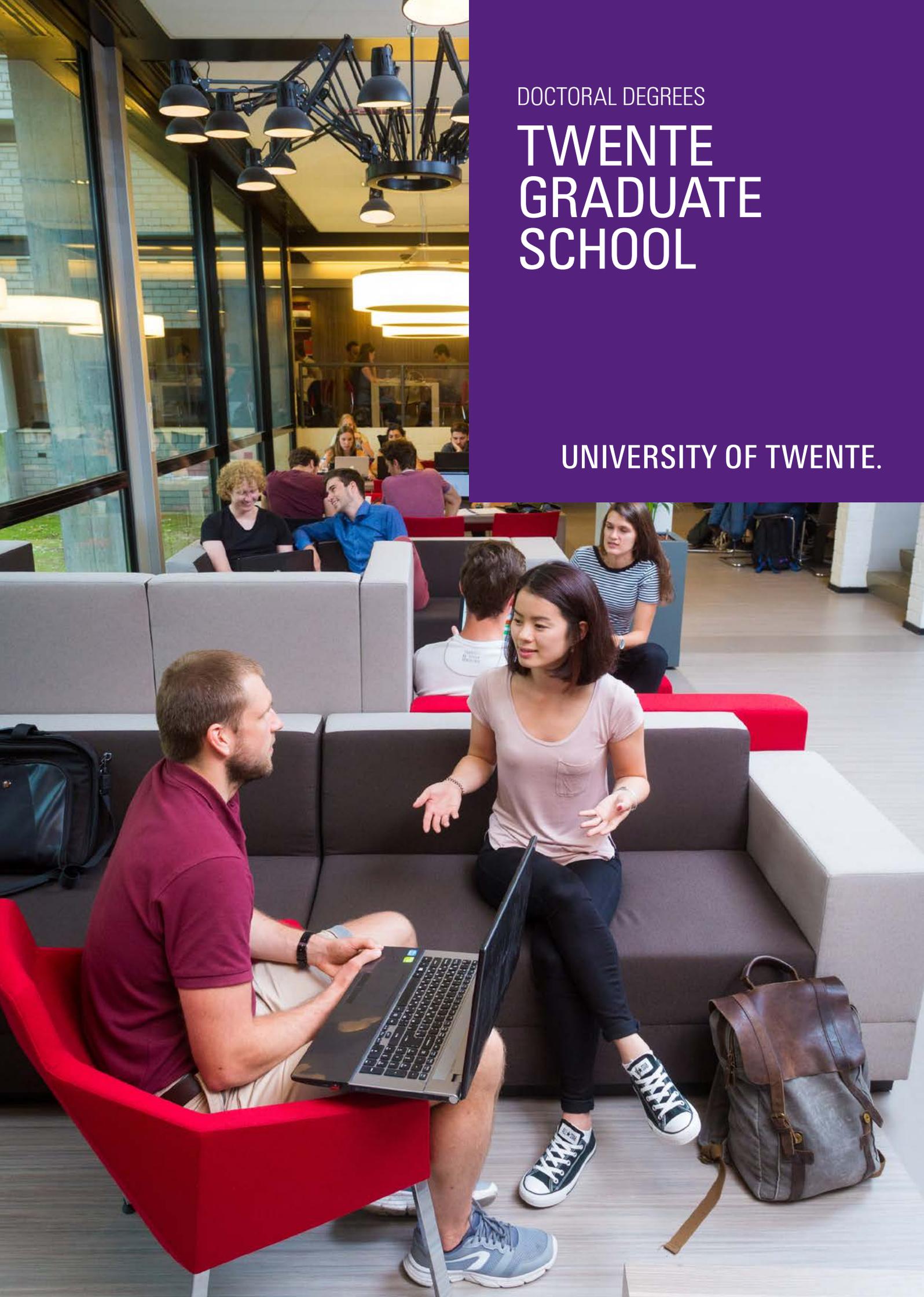


DOCTORAL DEGREES

# TWENTE GRADUATE SCHOOL

UNIVERSITY OF TWENTE.

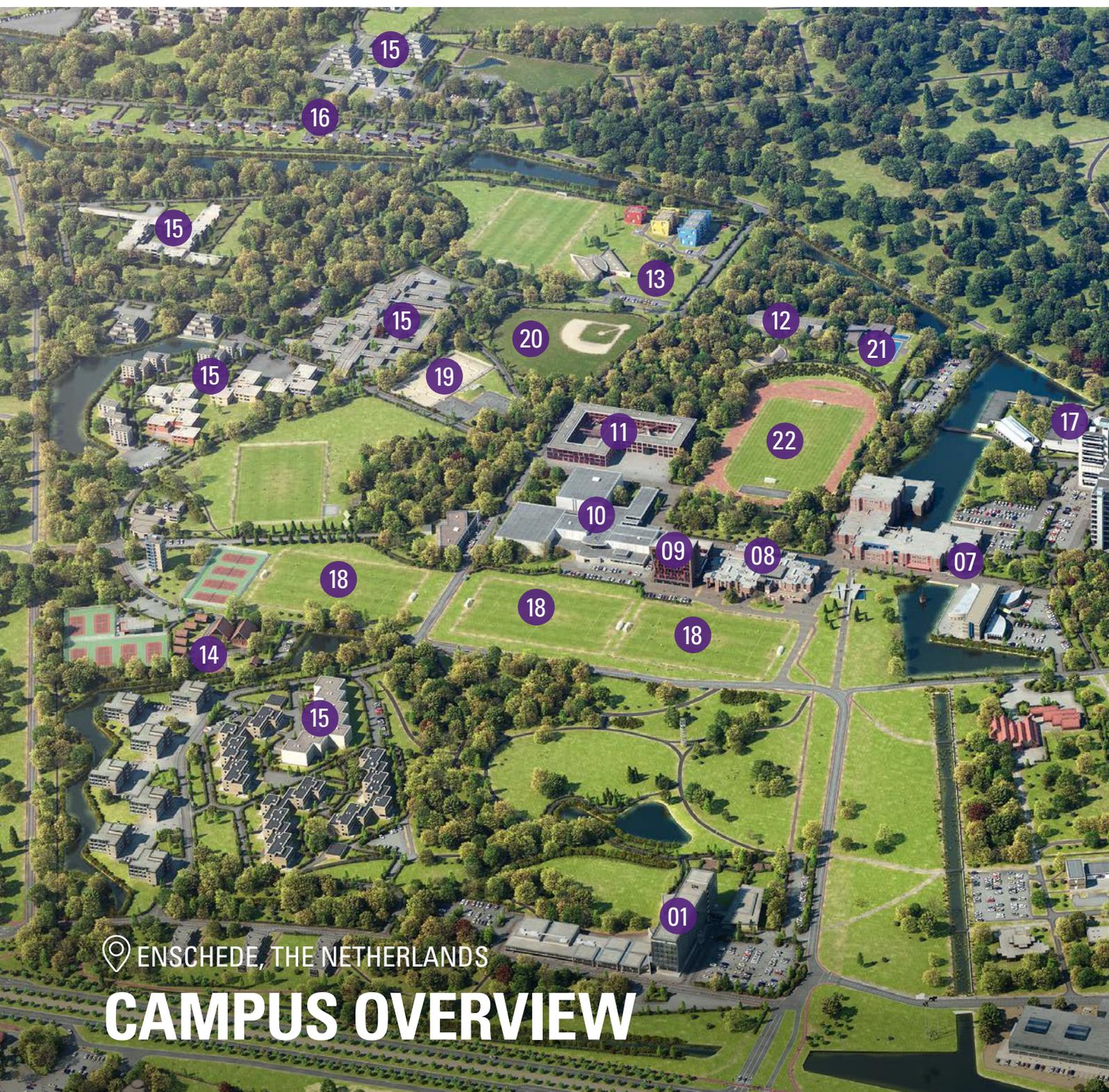




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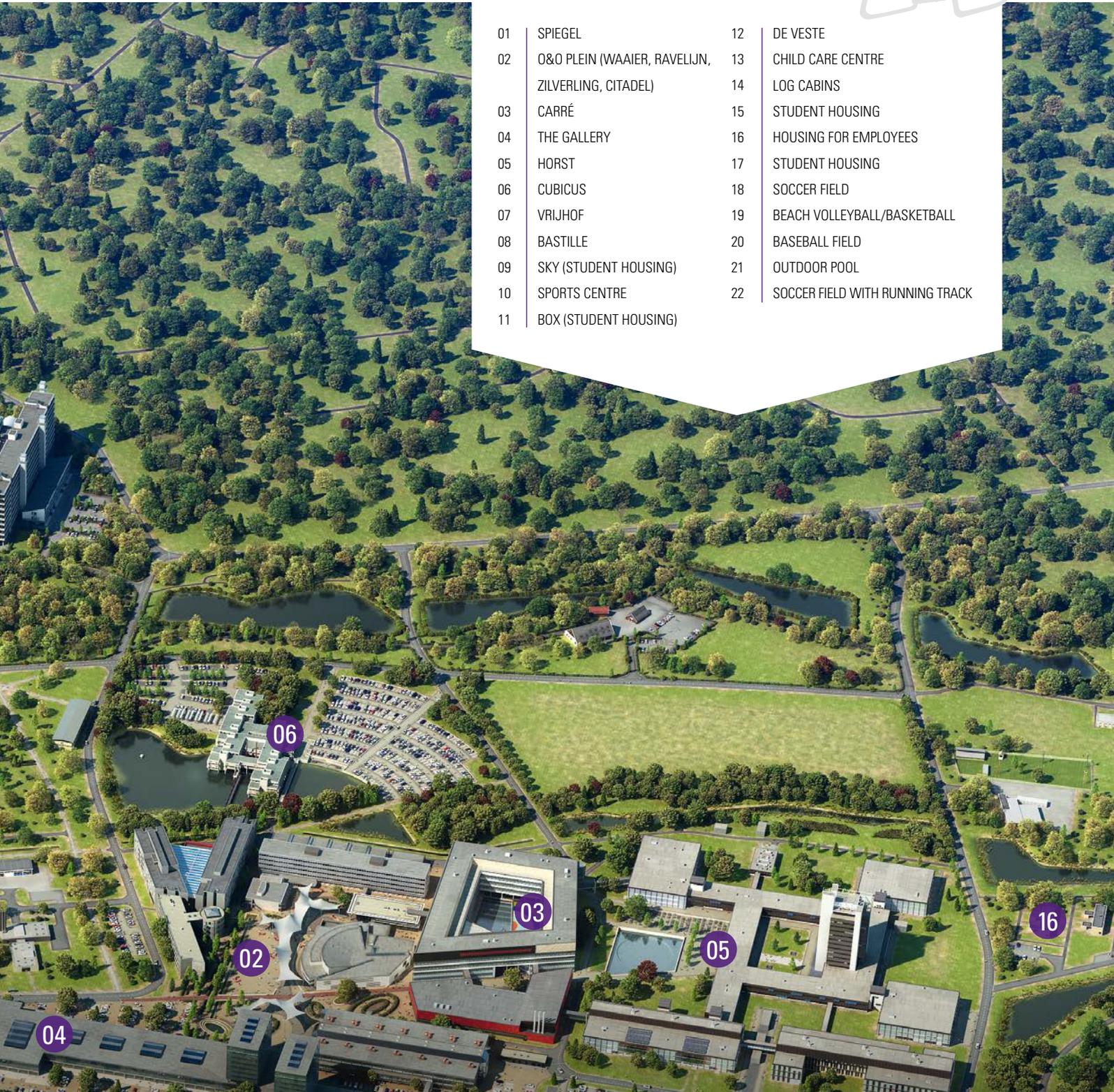


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 ENSCHEDE, THE NETHERLANDS

# CAMPUS OVERVIEW



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# AN INTRODUCTION TO TWENTE GRADUATE SCHOOL

Are you an outstanding Master graduate interested in pursuing a career as a scientific researcher or technological designer? Then you will be pleased to know that Twente Graduate School (TGS) offers a wealth of options in this domain. We coordinate high-quality PhD and PDEng programmes based on topics closely related to the work of the University of Twente's research institutes and departments. All programmes are taught and supervised by expert researchers and designers.

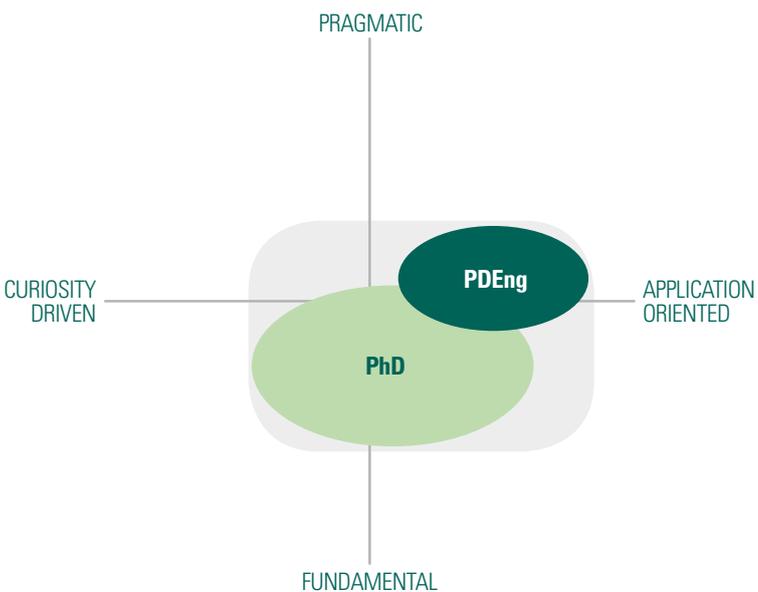
## PHD (DOCTOR OF PHILOSOPHY)

A PhD involves spending 4 years studying a particular research area in depth in our research groups. Your research activities will provide you with the skills and experience required to become an independent researcher. As part of your research you will disseminate the knowledge you acquire through, for example, publications in academic journals. During the 4-year programme you will take at least 30 credits of PhD education through activities such as courses. This in-depth and wide-range individual programme covers academic skills (both generic and discipline specific) as well as career development. The cornerstone of a PhD is writing your final PhD thesis, which you will present and defend in public. After successfully completing your PhD you will be awarded the title of Doctor (Dr., equivalent to to PhD, as specified in the Dutch Higher Education Act (WHW), article 7.18 and 7.22).

## PDENG (PROFESSIONAL DOCTORATE IN ENGINEERING)

More practically oriented than the PhD programmes and certified by the Dutch Certification Committee for Technological Design Programs (CCTO), the University of Twente's PDEng programmes take 2 years to complete and focus on technological design. Developed in consultation with industry partners, these tailor made programmes combine an educational part at the university (~60 credits) and a practical design part in industry (~60 credits). The courses in the educational part will provide you with the necessary background to develop technological designs within a company. During the practical part, you will work on a challenging and innovative technological design project – a real-world problem that needs to be solved. Supervised by university staff as well as engineers from industry, you will transfer knowledge and research results into technological innovation in industry and society. Upon successful completion of a PDEng programme you are entitled to use the title of Professional Doctorate in Engineering (PDEng).





## UNIVERSITY OF TWENTE: HIGH TECH HUMAN TOUCH

The High Tech Human Touch philosophy is integral to the vision of the University of Twente. We are pioneers in fusing technology, science and engineering with behavioural and social sciences to impact the world around us. Our passion for understanding our planet and improving life for everyone on it leads to this unique cross-disciplinary approach being applied by students, scientists and educators alike.

By building upon our excellence in scientific disciplines we contribute to addressing some of today's major societal challenges:

- ✓ IMPROVING HEALTHCARE BY PERSONALIZED TECHNOLOGIES
- ✓ CREATING INTELLIGENT MANUFACTURING SYSTEMS
- ✓ SHAPING OUR WORLD WITH SMART MATERIALS
- ✓ ENGINEERING OUR DIGITAL SOCIETY
- ✓ ENGINEERING FOR A RESILIENT WORLD





# PhD RESEARCH OPPORTUNITIES

The University of Twente features three powerful research institutes that focus on cross-disciplinary research. In addition, our faculties have their own (disciplinary) research programmes, spread over departments, institutes, and knowledge centres. The latter are smaller in size than the institutes and cover a specific field of expertise.

## **MESA+ INSTITUTE FOR NANOTECHNOLOGY**

MESA+ is one of the world's largest nanotechnology research institutes. Here 525 scientists engage themselves with semiconductors, life sciences, food technology, sensor technology, and energy. MESA+ has a structure containing five research clusters (Strategic Research Orientations): Applied NanoPhotonics, NanoMaterials for Energy, Enabling Technologies, Nanotechnology for Innovative Medicine and Risk analysis, and Technology Assessment.

**[UTWENTE.NL/EN/MESAPLUS](http://UTWENTE.NL/EN/MESAPLUS)**

## **TECHMED CENTRE**

TechMed Centre is one of the world's largest and best research institutes in the field of biomedical technology and technical medicine. Over 300 researchers focus on top technology for patients. They work from three different perspectives: Imaging & Diagnostics, Neural & Motor Systems, and Bionano Technology & Advanced Manufacturing.

**[UTWENTE.NL/EN/TECHMED](http://UTWENTE.NL/EN/TECHMED)**

## **DIGITAL SOCIETY INSTITUTE**

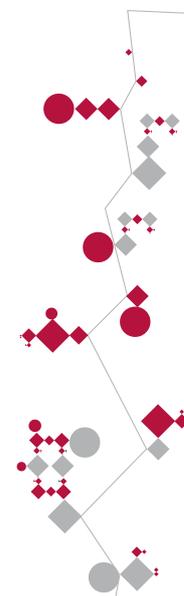
The Digital Society Institute performs research in the field of ICT and ICT applications. Research groups are working across disciplines on modern-day technological, economic, and social issues. A total of 450 researchers are connected to the institute: computer scientists, electrical engineers, mathematicians, and behavioural scientists.

**[UTWENTE.NL/EN/DIGITAL-SOCIETY](http://UTWENTE.NL/EN/DIGITAL-SOCIETY)**

## **FIND OUT MORE**

Would you like to know which research themes are covered within the UT – disciplinary as well as cross-disciplinary – and whether a specific theme matches your aimed future education?

**[UTWENTE.NL/RESEARCH-GROUPS](http://UTWENTE.NL/RESEARCH-GROUPS)**





GREANNE LEEFTINK

PHD INDUSTRIAL ENGINEERING  
& BUSINESS INFORMATION SYSTEMS

”  
DOING A PHD ENABLED ME  
TO NOT ONLY FIND A SOLUTION  
FOR CHALLENGING HEALTHCARE  
LOGISTICS PROBLEMS, BUT TO  
FIND THE BEST SOLUTION, USING  
ADVANCED MATHEMATICAL  
TECHNIQUES.

”

During my Master's in Industrial Engineering and Management I developed a firm preference for applied research in healthcare logistics. For my PhD research I deliberately chose the UT's CHOIR research centre, as it highly values close collaboration with healthcare practice. I am convinced that such collaboration is very important to the dissemination of research results. Furthermore, I am certain that I cannot solve real-life healthcare logistics problems from behind a desk at the UT, but only when I also work and collaborate with healthcare professionals. Combining theory and practice is what I loved most during my PhD.

Being part of a close group of other PhD students gave me the opportunity to talk to people with similar experiences. I also learned a lot from more senior PhD students. Professionally, the PhD programme made me grow into a more independent researcher. On a personal level, I learned that I really enjoy teaching and doing research, and that I get really motivated by seeing students grow. Consequently, I decided to pursue an academic career after my PhD. I'm happy to say that I now hold an assistant professor position in which I combine teaching and research.



ELMER LASTDRAGER

PHD SERVICES, CYBERSECURITY &amp; SAFETY

”  
I REALLY ENJOYED MY TIME  
AT THE UT. MY FELLOW PHD  
STUDENTS AND POST-DOCS  
WERE A WELCOMING GROUP.

”

My PhD research was focused on phishing methods. Having previously taken my MSc in Computer Science, I wanted to look at phishing from a technical point of view. But I was also very interested in the social side. If you talk to people about phishing, everybody claims they will never fall for a phishing email. However, many people do click and get victimised. In the course of my PhD programme, I got to combine both approaches: look at phishing from a technical point of view, collecting millions of emails and analysing them, and perform experiments to measure human behaviour.

I really enjoyed my time at the UT. My fellow PhD students and post-docs were a welcoming group. During numerous lunch and coffee breaks we would discuss anything, from research problems to holiday destinations. We also had a bi-weekly seminar in which everyone would present and discuss their results. Besides researching and publishing skills I learned how to supervise Bachelor's and Master's students, and how to steer them into completing their goals. I also discovered productive networking opportunities; when I presented my results during events, I got in contact with many organizations that do interesting research in my field.



# PDENG PROGRAMMES

The University of Twente offers four PDEng programmes, all tailor made in close cooperation with industry partners. As part of a cross-disciplinary team you will learn to design high-level, creative and innovative solutions to complex issues.



## CIVIL ENGINEERING

Civil engineering projects are rapidly gaining in complexity. Consequently, the world requires highly qualified civil engineering designers who know how to solve technical as well as non-technical issues. Consider for example the application of technological innovations, or an urbanised area with many and often conflicting constraints from a management perspective. The PDEng programme in Civil Engineering addresses this need. As a PDEng trainee you will deal with issues regarding, for instance, the accessibility of urban areas, high-quality public transport, asset management, underground constructions, etc. Graduates are in high demand from many types of organizations, both governmental and non-governmental, as well as major research institutes.

## ENERGY AND PROCESS TECHNOLOGY

The PDEng programme in Energy and Process Technology focuses on creating technological solutions for products and processes within the main themes of energy technology, process technology and materials. Examples of technological design issues include sustainable energy systems, energy efficiency in industry, application of new materials in the energy and process industries, process optimization, etc. Based on functional and market based requirements, the programme focuses on quality, environmental, and sustainability aspects. The programme approach is firmly methodological, with an emphasis on tackling the many uncertainties that need to be dealt with in this field. As a graduate of this PDEng programme, your scope of possible employers ranges from large multinationals to smaller companies in industry.

## MAINTENANCE

In the field of maintenance, there currently is a large gap in approaches between technical specialists and operations managers, originating from different views on maintenance. That is why the PDEng programme in Maintenance takes a decidedly cross-disciplinary perspective. A major challenge in this respect comes from the fact that maintenance is a dynamic process that should continuously be adjusted based on changes in the system and its environment. By addressing technical as well as operational aspects, the programme establishes the much needed link between the relevant fields of expertise. Graduates are renowned for being versatile technological designers capable of designing efficient and effective maintenance processes.

## ROBOTICS

In today's world there is a strong need for highly qualified designers with a firm grasp of modern robot technology and a cross-disciplinary approach to solving issues in this field. The PDEng programme in Robotics addresses this need, with a focus on creating technical solutions for the industrial sector (e.g. automatic welding robots), for maintenance and inspection purposes (e.g. sewer surveys), and for medical use (e.g. rehabilitation or surgical robotics). After graduation you will be in high demand from possible employers, with a scope ranging from large multinationals to smaller companies in the industrial, maintenance, and medical sectors.



ANOEK GEERS

PDENG ROBOTICS - BIOMECHANICAL ENGINEERING

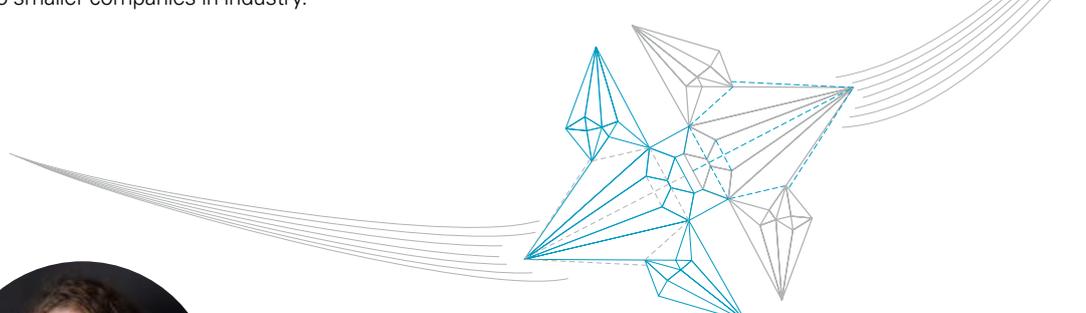
”

BY PARTLY WORKING AT THE COMPANY FOR TWO YEARS, IT REALLY FEELS LIKE YOU ARE PART OF THE TEAM, AND YOU GET THE OPPORTUNITY TO LEARN FROM THE KNOWLEDGE FROM COLLEAGUES AS WELL.

”

After taking my Master's in Biomedical Engineering I worked in industry as a project engineer in a non-biomedical field for three years. When the PDEng Robotics programme at the UT came along, it was a perfect opportunity to return to biomedical engineering and perform applied research in this specialization. My PDEng project within the Biomechanical Engineering group focused on the development of an actuated head support attached to an electric wheelchair. Within the project, I researched and developed several ways to control the position of a head support, resulting in a first proof-of-concept for adaptive head support.

There is a lot of freedom in the programme; with plenty of flexibility in what courses to take and when to take them. Partly working at a company for two years really makes you feel like you are part of the team. What's more, you get the opportunity to learn from from colleagues as well, which helps greatly with the integration (embedding) of the design project.



# APPLICATION & ADMISSION

As a PhD or PDEng candidate you should have a Master's degree or an equivalent qualification from an officially recognized university or accredited academic institution in a discipline related to that of the intended doctoral programme.

SELECTION FOR **ALL OUR PROGRAMMES** IS BASED ON PRIOR MSc RESULTS, TALENT AND MOTIVATION.

That being said, if you have yet to complete your MSc programme, you can still apply for admission. You may then be granted conditional acceptance based on your transcripts, detailed curriculum information, relevant research and expected graduation date. However, you must submit your MSc diploma before you can start a PhD or PDEng programme.

## PhD CANDIDATES

THERE ARE **THREE WAYS** TO ENTER A PHD RESEARCH PROGRAMME AT THE UNIVERSITY OF TWENTE.

01

### APPLY FOR A REGULAR PHD POSITION

You can apply for a regular PhD position via our website. All relevant requirements are described in the respective vacancy descriptions. See [utwente.nl/vacancies](https://utwente.nl/vacancies) for current vacancies.

02

### ARRANGE YOUR OWN FUNDING

You may also be admitted to a PhD project under your own funding or with a scholarship. In order to be considered, you need to contact the head of the research group you would like to join, indicating your qualities, intended research topic and motivation. It is essential that a full professor has shown willingness to become your PhD supervisor. In case of a positive final decision, the department will register you as a guest researcher and arrange for your arrival (including your visa). Find all our research groups and departments on [utwente.nl/en/research-groups](https://utwente.nl/en/research-groups)

03

### SEND IN AN OPEN APPLICATION

You can also send in your open application. You will be contacted as soon as a vacancy becomes available for which we consider you to be an appropriate candidate.

## PDEng CANDIDATES

THERE ARE **TWO WAYS** TO APPLY FOR A POSITION IN A PDEng PROGRAMME AT THE UNIVERSITY OF TWENTE

01

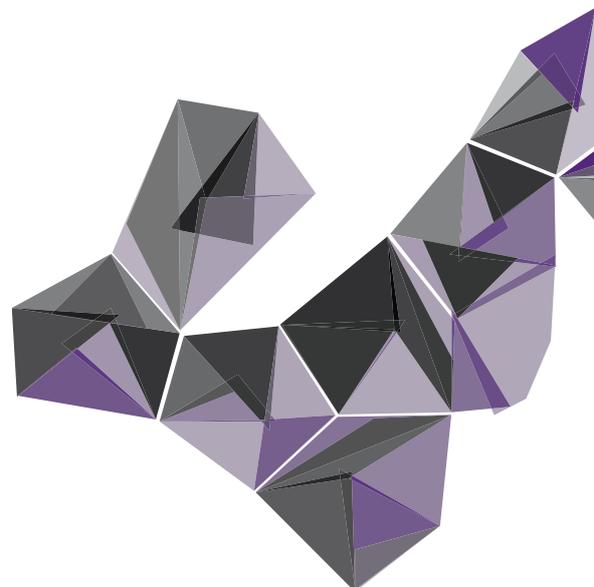
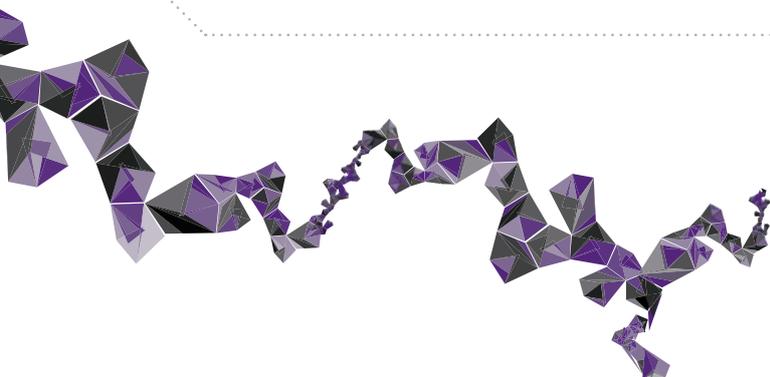
### APPLY FOR A PDEng POSITION

You can apply for a regular PDEng position via our vacancy website. All relevant requirements are described in the respective vacancy descriptions. See [utwente.nl/vacancies](https://utwente.nl/vacancies) for current vacancies.

02

### SEND IN AN OPEN APPLICATION

All our PDEng programmes depend on agreements with external partners. If there are currently no vacancies available you can submit an open application. We will then contact you as soon as a vacancy becomes available for which we consider you to be an appropriate candidate.



## HOW TO APPLY

Always submit your application for a PhD or PDEng position with the following:

- ✓ A short curriculum vitae (maximum one page A4).
- ✓ A motivation letter (maximum one page A4).
- ✓ A Master's programme transcript containing the grades of the courses and final project/thesis.

Send your (open) application for a PhD to the relevant professor in your field of study and for a PDEng position send it to:

- ✓ Civil Engineering: **ce-pdeng@utwente.nl**
- ✓ Energy and Process Technology:  
**ept-pdeng@utwente.nl**
- ✓ Maintenance: **mt-pdeng@utwente.nl**
- ✓ Robotics: **robotics-pdeng@utwente.nl**

For more information on our application procedures, please check [utwente.nl/tgs](http://utwente.nl/tgs)

## INTERNATIONAL CANDIDATES

For PhD and PDEng candidates with a non-Dutch qualification some additional requirements apply.

## LANGUAGE REQUIREMENTS

International candidates are admitted if they have sufficient command of the English language. Official documents with test results are required for candidates who did not complete their secondary and tertiary education in the English language. The University of Twente accepts the following English-language tests:

- ✓ An academic IELTS-test (International English Language Testing System) showing a total band score of 6.5.
- ✓ TOEFL (Test of English as a Foreign Language) via the internet (TOEFL-iBT) of at least 90.
- ✓ Cambridge CAE-C (CPE).

## DOCUMENTS AND PERMITS

The staff at the University of Twente's Office for Foreign Employees are specialists in Dutch immigration procedures. They will take care of any applications for visas, residence permits and work permits for future and current international guest researchers and staff. In addition, you can always contact the Office for Foreign Employees for information about living and working in the Netherlands. Please note: in case you will be employed by a company, the company will be responsible for your visa, residence and work permits.







LISANDRO JIMENEZ ROA

PDEng CIVIL ENGINEERING, CONSTRUCTION  
MANAGEMENT & ENGINEERING GROUP

”  
SO FAR MY EXPERIENCE  
AT THE UT HAS BEEN  
VERY REWARDING. I REALLY  
LIKE THE INTERNATIONAL  
ATMOSPHERE.  
”

My original MSc programme was in Civil Engineering, at Del Valle University, Colombia. My Master's thesis focused on the evaluation of the out-of-plane instability of singly-reinforced concrete walls subjected to cyclic loads through numerical models and laboratory specimens. Although I like academia very much, I have come to realize that I prefer applied research. This PDEng programme is perfectly suited to this idea, as it is halfway between pure research carried out in academia and the needs of industry.

So far my experience at the UT has been very rewarding. I really like the international atmosphere, as well as the campus, so full of nature. The facilities are very well maintained and the lectures I've attended so far are really dynamic. Finally, perhaps most importantly, the UT offers space for integration with other students, promoting multidisciplinary. My message to prospective UT PDEng students? If you're comfortable halfway between industry and pure research, find a design topic that you are passionate about and just go for it!



DAN IONITA

PHD SERVICES, CYBERSECURITY & SAFETY

”  
DON'T DO IT JUST FOR THE  
DEGREE. DO IT TO TRAVEL, LEARN,  
AND CONTRIBUTE TO SCIENCE!  
”

My PhD programme was funded by a European project called TRESPASS: Technology-supported Risk Estimation by Predictive Assessment of Socio-technical Security. The project encompassed 17 partners from all over Europe and aimed to develop a more structured approach to assessing the risks of developing, operating and using complex systems consisting of people, computers, and even physical elements. When I first found out about this PhD position, I was really attracted by the topic, as information security is critical for the new digital society. Furthermore, I knew some of the people involved in the project and wanted to work with them.

The research resulted in a spin-off together with my supervisor. During my PhD I also learned a lot about information security which allowed me to apply for a part time post-doc to help pay the bills while we set up the company. As a PhD student at the UT I really appreciated the flexible working hours, but what I enjoyed the most was the informal working atmosphere. It is really easy to connect and collaborate, but also to relax. It is really a great place to work!

# 7 GOOD REASONS TO CHOOSE THE UNIVERSITY OF TWENTE

## 01 ONE OF THE WORLD'S LEADING RESEARCH UNIVERSITIES

The University of Twente is in the top 200 of the world's 18,000 universities. In Europe, we're rated as one of the 25 best universities (source: lifehack.org).

## 02 HIGH TECH HUMAN TOUCH

Our cross-disciplinary approach gives us a unique position. By crossing boundaries and making unexpected connections we create solutions that people and society really need.

## 03 GLOBAL AMBITION AND A COLOURFUL MULTICULTURAL COMMUNITY

With over 80 nationalities the University of Twente is a colourful multicultural community. Most of our programmes are English-taught and we keep raising our international profile.

## 04 EUROPE'S MOST ENTREPRENEURIAL UNIVERSITY

Already recognized as the Netherlands' most entrepreneurial university, our ambition is to become the European leader in entrepreneurship.

## 05 THE ONLY 'PARK-STYLE' CAMPUS IN THE NETHERLANDS

Situated at the edges of two vibrant cities, our campus is a breath-taking and sustainably managed parkland of 146 hectares dotted with state-of-the-art facilities – from libraries and laboratories to cultural and sports facilities.

## 06 A GLOBAL NAME IN RESEARCH

Our research institutes are committed to leading the way in areas ranging from nanotechnology to technical medicine, social sciences, and (spatial) information technology.

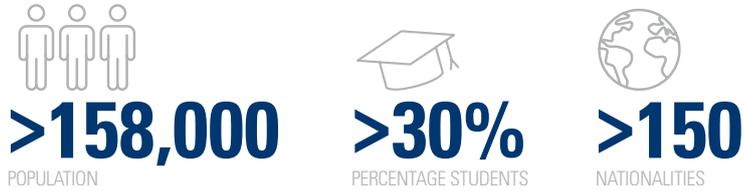
## 07 MANY POSTGRADUATE OPPORTUNITIES

The University of Twente offers high quality structured PhD and PDEng programmes aimed at preparing graduate students for distinguished careers in scientific research or technological design.



# FACTS & FIGURES

## ENSCHEDE IN NUMBERS (2017):



## UNIVERSITY OF TWENTE IN NUMBERS (2017):



## UNIVERSITY OF TWENTE OVERALL RANKINGS



MORE DETAILS: [UTWENTE.NL/GO/RANKINGS](https://utwente.nl/go/rankings)

# BOOST YOUR CAREER AT THE UNIVERSITY OF TWENTE.

Go to [utwente.nl/tgs](https://utwente.nl/tgs) for more information  
on our PhD and PDEng programmes or  
find your research position directly at  
[utwente.nl/vacancies](https://utwente.nl/vacancies).

## CAMPUS ADDRESS

University of Twente  
Twente Graduate School  
Drienerlolaan 5  
NL-7522 NB Enschede  
The Netherlands

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[utwente.nl/tgs](https://utwente.nl/tgs)

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