



university of  
 groningen

## For whom?

The highly selective admission procedure is open to students from the University of Groningen and the University of Twente.

Talented, ambitious students from the following course programmes are welcome to apply:

- (Applied) Physics
- Chemistry
- Chemical Engineering
- Industrial Engineering and Management
- Industrial Design Engineering
- Mechanical Engineering
- Electrical Engineering
- Computing Science
- Artificial Intelligence
- Human Machine Communication
- Other science studies with clear technical components that are applicable to the HTSM sector, such as (Applied) Mathematics, Biomedical Engineering, Life Science and Technology.



## Selection criteria

- Posses a Bachelor's degree by 1 September with good to excellent results, including an above-average Bachelor's thesis.
- Have good oral and written skills in English (TOEFL 580).
- Be highly motivated toward the focus of the programme: multidisciplinary, innovative, high tech product development.
- Be able to pair great intellectual ability with technical skills and interests.
- Posses specific personal qualities: creative, original, proactive, innovative, independent and persevering.
- Be motivated and able to collaborate with other (technical) disciplines in multidisciplinary teams.
- Have a desire to broaden knowledge beyond the borders of your own discipline and beyond technical and non-technical limitations.



## More information

More information about the programme and selection procedures are available on the following website:

[www.rug.nl/honours/htsm-masterprogramme](http://www.rug.nl/honours/htsm-masterprogramme)

University of Groningen  
email: [htsm-honours@rug.nl](mailto:htsm-honours@rug.nl)  
Honours College  
Academy Building  
Broerstraat 5, 9712 CP Groningen, The Netherlands

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# High Tech Systems and Materials Master's Honours Programme

Excel together at the frontiers of knowledge:  
High tech, human touch



[www.rug.nl/honours/htsm-masterprogramme](http://www.rug.nl/honours/htsm-masterprogramme)



honours college  
university of groningen/campus fryslân  
faculty of mathematics and natural sciences

UNIVERSITY OF  
TWENTE.

PHILIPS



## Excel together at the frontiers of knowledge: High tech, human touch

- Are you looking for an extra challenge on top of your Master's degree?
- Would you like to be trained by excellent scientists and optimize your chances of having a high-profile industrial career or PhD position?
- Would you like to deepen your knowledge of your own field while also joining forces with students from other (technical) disciplines?
- Are you up for challenging real-life product development assignments on the forefront of innovation in the High Tech Systems and Materials (HTSM) sector?

Then the HTSM Master's Honours Programme is just what you are looking for!

The University of Groningen Honours College – in cooperation with Philips Consumer Lifestyle, University of Twente and University Campus Fryslân – is offering talented, motivated students the opportunity to challenge themselves with this unique Master's Honours Programme.

### About the programme

Tackling real-life product development challenges and working in multidisciplinary teams are the key elements of this programme.

- **Kick-off meeting.** Philips will give you a preview into their current product development challenges. Together with students from other disciplines, you will form a team and collectively decide upon which challenge(s) to tackle.
- **Masterclasses.** You will gain (further) knowledge and understanding of the characteristics and processing of plastics, metals, electronics and embedded software. Through masterclasses on innovation management, industrial design and multidisciplinary collaboration, your team will have the essential information to develop an innovative solution for your chosen product development challenge.
- **Personal development.** You will learn to optimize your team skills (how to effectively communicate and make good decisions) as well as your creative abilities (how to think out-of-the-box and put theory into practice).



Innovation is at the core of High Tech Systems and Materials. To be able to continuously innovate and improve products and processes, the sector is in need of excellent scientists who can collaborate in multidisciplinary teams, look beyond the borders of their own field, be open-minded towards other disciplines and the outside world, and be prepared to go the extra mile every day.



- **Product proposal and plan of approach.** Smarter use of materials? Enhanced functionality or improved usability of an existing product? Or a new product concept altogether? Whatever solution your team may invent, you will need to convince a panel of experts of its validity before your team can move on to the next phase. You will write and present a product proposal and plan of approach. In the product proposal, you will provide information on all aspects of your proposed solution (What challenge does it solve? Who is it for? What are the features and functions of the product? How will it stand out from the competition?). In the plan of approach you will indicate how the proposed solution will effectively and efficiently be manufactured and tested during summer school.
- **Summer School.** Your team will manufacture, test and finalize the proposed and approved product solution during summer school on-site at the Production Center of Philips Consumer Lifestyle in Drachten.
- **Masterwork.** You will demonstrate your ability to independently put into practice the acquired knowledge through an individual product development assignment for a high tech industrial company of your own choosing.



**Challenge:**  
Dust removal by electrostatic force  
Present vacuum cleaners require an input power of up to 2 kW and produce relatively high noise levels. This seems to contradict primary function of the appliance: detaching and removing small dust particles.

**Possible assignment:**  
Investigate the application of electrostatic forces for the primary function of dust removal and handling.

### Key facts

Study workload: 20 ECTS  
Programme start: Autumn  
Duration: 18 months  
Language: English  
Classes: Mostly outside regular course hours  
Deadline for application: Please check the website

