

## Academic Guide Exchange 2022-2023

Faculty of Technology, Innovation & Society



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**Courses offered in English**

**THE HAGUE**  
UNIVERSITY OF  
APPLIED SCIENCES

# **Academic Guide Exchange 2022-2023**

**Faculty of Technology, Innovation & Society**

## **Author**

TIS International

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## Courses

Course title	ECTS	Semester 1 Term 1	Semester 1 Term 2	Semester 2 Term 3	Semester 2 Term 4
EPS International Project part 1 & 2	30		x		x
EPS Smart Manufacturing and Robotics	30		x		x
EPS Sustainable Urban Engineering	30		x		
EPS (Sustainable) Packaging Design and Innovation	30		x		x
EPS BE SMART: Strategies for Smart Sustainable Cities	30		x		
Embedded Systems	30	x	x		
Robotics and Vision Design part 1 & 2	30			x	x
Design with Nature	30				x
Prototyping and Craftsmanship	30		x		

# About the Faculty of Technology, Innovation and Society

The world faces big challenges, and we are looking for new answers and technical innovations to solve them. We need to be critical and look ahead to make improvements to the world we live in, from harnessing renew-able energy supplies for sprawling cities to using robots to improve quality of life. At the Faculty of Technology, Innovation and Society (TIS), students work on real life commissions from businesses and government organisations to help make a better world, working alongside multidisciplinary students in an international setting.

## International programmes

The Faculty of Technology, Innovation and Society offers a range of international programmes. These include bachelors taught in English, minors, exchanges and five European Project Semester (EPS).

## International minors

Co-production, reflection, networking, energy and inspiration are at the core of our international minors. For example, in our Climate Change minor, students examine this crucial issue from an international perspective. While they learn to innovatively deploy robots in industry, agriculture and care in our Robots and Vision Design minor.

Did you know that embedded systems are found in many devices and applications, for example, washing machines, telephones, heating devices, cars, medical appliances, measuring devices and internet connected devices? Students can discover more on the two-part Embedded Systems minors. Or delve into the creativity, production, design, ergonomics and marketing of packaging on Packaging Design and Innovation.

If you are interested in studying a minor at the study programme Process and Food Technology, please send an email to [tis-international@hhs.nl](mailto:tis-international@hhs.nl).

## Exchange programmes

An exchange at THUAS is a truly international experience. THUAS welcomes more than 500 exchange students from around 50 nationalities every academic year. Our academic year is divided into two semesters, which start in September and the end of January.

All exchange students must be proficient in the English language. Exchange students can choose from the subjects offered within a faculty or select one or more of our minors. These 15 ECT courses are available to all students at THUAS, including exchange students.

Our exchange students gain a rich cultural experience by working alongside the large number of international full-time students on English-language bachelor's degree programmes. Our high-quality programmes encourage students to explore each other's cultures to become open-minded and independent thinkers - essential qualities in today's market. Working in a multicultural and cosmopolitan environment becomes second nature to our students.



**The Faculty TIS has two campuses:**

The Hague and Delft. Each location has its own character. The main campus in The Hague is the largest and characterized by a vibrant and international atmosphere. The campus in Delft is located on the premises of TU Delft. Please note on which campus your course takes



# European Project Semester

The European Project Semester (EPS) programme is offered by 18 European universities in 12 countries to students who have completed at least two years of study. EPS is aimed at engineering students, but students on engineering projects are also welcome.

EPS is design orientated and arms students with all the necessary skills to face the challenges of today's world economy.

It incorporates a blend of projects and problem-based learning. You'll work in international and interdisciplinary teams on assignments. Some of these are run in partnership with businesses and industries. You'll learn to take responsibility for your project work and develop your inter-cultural and communication skills.

Please note that for all EPS programmes the following documents are needed when you apply.

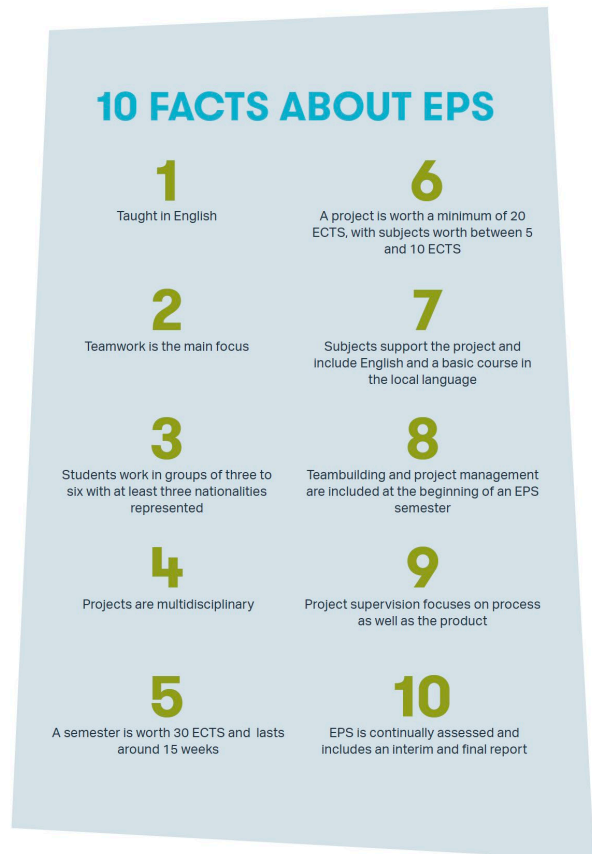
1. Motivation Letter
2. Curriculum Vitae
3. Transcript of records

You can send the documents to [tis-international@hhs.nl](mailto:tis-international@hhs.nl)

## EPS subjects

The Faculty of Technology, Innovation and Society offers five EPS subjects, which will be explained in the following pages:

- International Project (Urbinn, FS)
- Smart Manufacturing & Robotics
- Sustainable Urban Engineering
- Packaging Design & Innovation + Sustainable Packaging Design & Innovation
- BE SMART: Strategies for SMART Sustainable Cities





## EPS International Project

Title course	
Credits	30 ECTS
Code	TBK-HMVT21-LL30
Entry requirements	An application letter including a detailed portfolio / curriculum vitae and grades to the contact person of this minor
Semester	1 or 2
Method	Lecture, project work, assessment
Lecturer(s)	Eveline Kapteijn-Kruijswijk
Learning outcomes	Learning to work together in multidisciplinary projects
Recommended or required reading/tools	t.b.d
Assessment methods	Attendance, project work and assessment
Level	Third or fourth year
Course content	This minor is the first of two minors. This minor is continued by the minor International Project 2 (IP2). In the environment of a complex multidisciplinary engineering project students originating from several European and non-European countries will broaden and/or deepen their professional knowledge and skills depending on their discipline, interest and experience within one of the three main processes of the project, i.e. project management, engineering and support.



### Contact

**Eveline Kapteijn-Kruijswijk**

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- +31 6 3829 2244

## EPS Smart Manufacturing and Robotics

Title course	
Credits	30 ECTS
Code	W-HMVT18-SMR
Entry requirements	Basic knowledge of production technologies• 90 ECTS (propedeuse/first year points do not count)• Sufficient English to participate in group work, understand lectures and written material
Semester	1 or 2
Method	Lecturers, practicums, tutorials and projects
Lecturer(s)	ir. T. Brilleman (Thijs)
Learning outcomes	Learning to deploy robots in manufacturing environments. Gaining practical knowledge and skills in programming production robot setups and implementing the use of vision, external sensors, actuators and machine learning in these setups
Recommended or required reading/tools	t.b.d
Assessment methods	2 projects and 2 sets of practicals
Level	Third or fourth year
Course content	<p>The global competitive landscape of manufacturing is rapidly changing due to the onset of advanced manufacturing technologies. Smart manufacturing combines the advantages of mass production and piecewise production to bring about a fundamental change in the way production processes designed, built and executed. This industrial robot automation focused minor prepares you -by hands- on practice and theory – for this change. You will learn to design and simulate an entire factory as well as program our own industrial robots.</p> <p>For more information and past projects, please refer to:  <a href="http://www.robotminor.nl">http://www.robotminor.nl</a>.</p>



### Contact

ir. T. Brilleman (Thijs)

- +31 15 260 6270
- [t.brilleman@hhs.nl](mailto:t.brilleman@hhs.nl)
- [www.robotminor.nl](http://www.robotminor.nl)

## EPS Sustainable Urban Engineering

Title course	
Credits	30 ECTS
Code	RO-HMVT19-SUE
Entry requirements	Students must have at least 90 credits in their major.
Semester	1
Method	Lectures, guest-lectures, workshops and group project
Lecturer(s)	Anton Hanemaaijer
Learning outcomes	Students apply the knowledge and insight gained through their own study programmes within a multi-disciplinary team, required in the planning and design of a multifunctional urban construction.
Recommended or required reading/tools	t.b.d
Assessment methods	Short assignments, group project
Level	Third or fourth year
Course content	<p>The main task is to create an initial design and 25-year project plan for a multifunctional urban construction with farming, working and living functions. The initial design and project plan contains the architectural, engineering and managerial solutions to make an energy-positive, sustainable, circular proof and long-term economically feasible urban infrastructure. Three modules are offered during the semester:</p> <ul style="list-style-type: none"> <li>• Smart Design</li> <li>• Building Systems</li> <li>• Sustainable Exploitation</li> </ul> <p>The modules are divided in two phases: basic knowledge and in depth knowledge. In the first six-week phase, all students follow the three modules. In the second phase of 10 weeks, students can choose their courses.</p>



### Contact

**A.M. Hanemaaijer**

- +31 70 445 8726
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# EPS (Sustainable) Packaging Design and Innovation

Title course	
Credits	30 ECTS
Code	IPO-HMVT16-PDI, IPO-HMVT16-SPDI
Entry requirements	Packaging Design & Innovation: Student must have completed their first year. Sustainable Packaging Design & Innovation: the minor Packaging Design & Innovation (PDI) has to be successfully completed.
Semester	1 or 2
Method	Design education, lectures, company visits / excursions, Self-tuition
Lecturer(s)	W.H. Colenbrander, G.J. de Koning
Learning outcomes	The goal is not only to gain knowledge about the complexity of packaging design but also to work on relevant skills, such as doing research, presentations (oral and written), designs, generating ideas, different alternatives and assess the suitability of solutions.
Recommended or required reading/tools	t.b.d
Assessment methods	Project work and written report
Level	Second, third or fourth year
Course content	Packaging Design & Innovation: This minor has been developed within the programme Industrial Product Design for the specialization Pack-aging Design. The minor is intended as an introduction to the field of packaging and packaging design. The overall objective of this minor is to get acquainted with the process of designing packaging. The student combines creativity, knowledge of production, design, ergonomics and marketing. The student is introduced in a relatively short time to know another area of expertise. Sustainable Packaging Design & Innovation: Subject of this minor is redesign of an existing packaging concept centered around sustainability as explained in the text above. The actual assignment, the design project, will be formulated in cooperation with a company. Examples of design projects are industrial packaging, consumer packaging or last-minute-packaging (packaging which is applied at the very last moment of sale). Research skills are being trained by so-called student lectures. Students prepare these lectures by doing research about a selected theme and writing a detailed report.



## Contact

### W.H. Colenbrander

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- [W.H.Colenbrander@hhs.nl](mailto:W.H.Colenbrander@hhs.nl)

### G.J. de Koning

- +31 70 445 8952
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## BE SMART: Strategies for Smart Sustainable Cities

Title course	
Credits	30 ECTS
Code	RO-HMVT20-BES
Entry requirements	An application letter including a detailed portfolio / curriculum vitae and grades to the contact person of this minor.
Semester	1
Method	Lecture, tutorials, excursions
Lecturer(s)	C. Verweij, B. Hilckman
Learning outcomes	Obtain knowledge regarding the challenges that the Sustainable Development Goals pose to urban development • Learning analysis, design and intervention methods to stimulate and manage urban transitions
Recommended or required reading/tools	t.b.d
Assessment methods	Ex.: Project work, attendance & participation
Level	Third or fourth year
Course content	<p>Challenges:• The challenge of sustainable development: population and consumption growth exceed- in the planetary limits.</p> <ul style="list-style-type: none"> <li>- Local and global</li> <li>- Technology, the culprit?</li> <li>- Pollution, consumption and equity</li> <li>- Global equity and world order</li> <li>• Climate Change mitigation</li> <li>• Climate Change adaptation</li> <li>• Eco Systems, Pollution, emissions, waste and waste water</li> <li>• Resource scarcity, recycling, circular material flows</li> <li>•Urban health challenges in the built environment: clean air, noise, clean water, green areas, urban heat</li> </ul>



### Contact

#### C.Verweij

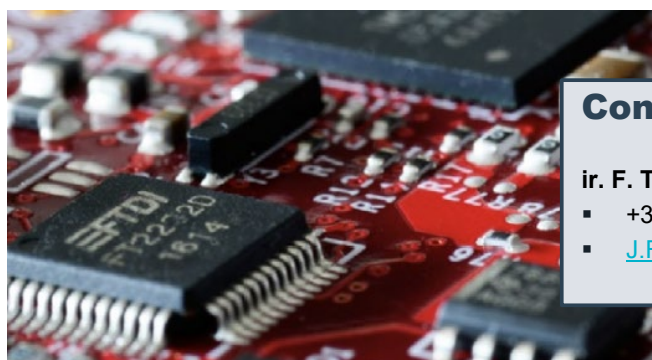
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- [C.Verweij@hhs.nl](mailto:C.Verweij@hhs.nl)

#### Bas Hilckman

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## Embedded Systems (EMES)

Title course	
Credits	30 ECTS
Code	E-HMVT20-ES
Entry requirements	The student should have relevant experience in the following fields: <ul style="list-style-type: none"> <li>• Programming skills: basic experience in writing programs for a compiler or interpreter language, such as C, C++, Python, Pascal or Matlab</li> <li>• Mathematics: Matrix vector processing, solving sets of linear equations</li> <li>• Basics of control engineering: transfer functions, block schemes, system responses</li> <li>• Project management: experience with working in project groups, writing a plan of approach, parallel planning, goal oriented working</li> <li>• Basic skills in digital electronics, reading and drawing schematics</li> <li>• Experience with real-time systems and/or data-communication is an advantage.</li> </ul>
Semester	1
Method	Lectures, workshops
Lecturer(s)	ir. F. Theinert
Learning outcomes	By following the minor Embedded Systems the student will learn to design state-of-the-art microcontroller systems and will thereafter be able to apply this
Recommended or required reading/tools	t.b.d
Assessment methods	Written exam
Level	Third or fourth year
Course content	Today Embedded Systems are found in many devices and are used in a large variety of instruments and applications. Most users do not know that their device contains an embedded system. Examples of applications are washing machines, telephones, heating devices, automobiles, consumer devices, medical appliances, measuring devices, internet connected devices (IoT knowledge to realize prototypes using professional and modern tools and components.



### Contact

ir. F. Theinert

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## Robotics and Vision Design part 1 & 2

Title course	
Credits	30 ECTS
Code	ME-HMVT19-RVD
Entry requirements	Matrix calculus: matrix vector multiplication, solving set of linear equations; • Dynamics: speed, acceleration, free body diagrams and equation of motion; • Basics of control engineering: transfer functions, block schemes, system responses; • Introduction in programming: some experience with writing of programs in a compiler or interpreter language, such as C, C++, Python or Matlab; • Experience with design projects: knowledge of the V-model, functional decomposition, experience with working in project groups, writing a plan of approach, parallel planning, goal oriented working.
Semester	2
Method	Lecture, project, tutorials
Lecturer(s)	dr. ir. P.R. Fraanje
Learning outcomes	You will learn how to: • model the kinematics and simulate (arm-type and mobile) robotic systems; • design a robot controller and implement it on a platform such as ROS, the Robot Operating System; • translate control tasks into optimization problems and how to solve these with a computer program; • design a vision system (optics and image capturing) for robotic systems; REGULAR MINOR • apply various image processing techniques to extract relevant features; • design and evaluate learning algorithms to learn complex behavior using data from different types of sensors; • analyze design problems of an external stakeholder in which intelligent robots will be used; • investigate and evaluate results from (scientific) literature and exploit these for the purpose of the project; • design, implement, test and integrate robotic and vision subsystems to realize an intelligent robot product for an external stakeholder; • guarantee the quality of the design and the realized product by performing a rigorous requirements analysis and verification.
Recommended or required reading/tools	t.b.d
Assessment methods	Project work, attendance & participation
Level	Third or fourth year
Course content	Today robots are being applied in many fields, from industrial automation and defence to agriculture, health care and assistance of handicapped persons. By following the minor Robotics and Vision Design, you will learn the state-of-the-art of robotics and vision techniques and you will learn to apply this knowledge to design and realize an intelligent robot prototype using commercial-off-the-shelf (COTS) equipment.



### Contact

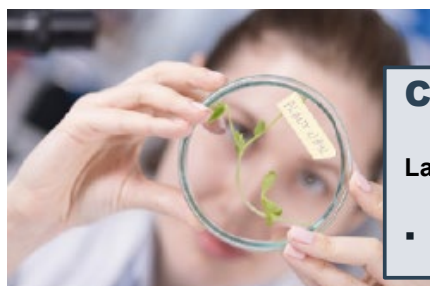
dr. ir. P.R. Fraanje

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## Design with Nature

Below you will find a list of the courses within the bachelor programme. These courses are offered in English, unless stated otherwise. Also, the courses are all optional, unless indicated it is compulsory.

Title course	
Credits	30 ECTS
Code	DE-HMVT18-DWN
Entry requirements	Students should submit a Letter of Motivation (500 words in English) that explains their interest in the field of design with nature, what they would like to learn and achieve by taking this minor. Letter of motivation should be sent to Laura Stevens <a href="mailto:l.i.stevens@hhs.nl">l.i.stevens@hhs.nl</a> at the time of online enrolment. The applicants will be informed about the result of their application within 10 working days after the submission of the letter.
Semester	2
Method	Lectures, workshops, teamwork
Lecturer(s)	Laura Stevens
Learning outcomes	Learn to use tools/techniques learned from nature (Biomimicry) 2. Learn about the Global Goals of the United Nations (also known as Sustainable Development Goals) 3. Work together with students and professionals of different disciplines such as software engineering, biology and life sciences and Industrial design to form and implement product concepts 4. Use rapid prototyping tools and techniques to test your ideas 5. Be urged to participate in the Biomimicry Global Design Challenge 6. Reflect on your role as an open innovator in the edge of design and as a Biomimicry designer (practitioner).
Recommended or required reading/tools	t.b.d
Assessment methods	Project work
Level	Third or fourth year
Course content	Nature is probably world's most effective designer, having solved many big and small challenges in the course of evolution and adaptation.



### Contact

Laura Stevens

- [l.i.stevens@hhs.nl](mailto:l.i.stevens@hhs.nl)



## Prototyping and Craftsmanship

Below you will find a list of the courses within the bachelor programme. These courses are offered in English, unless stated otherwise. Also, the courses are all optional, unless indicated it is compulsory.

Title course	
Credits	30 ECTS
Code	IDE-HMVT18-PRCR
Entry requirements	You should have completed the propaedeutic exam and obtained at least 60 ECTS of the main phase of your study
Semester	1
Method	Project work, lectures, workshops, excursions
Lecturer(s)	S. Kabbes
Learning outcomes	In this course you will learn methods and techniques that will help you in the process of making design decisions concerning materials, prototyping methods to measure results, iteration and evaluation.
Recommended or required reading/tools	t.b.d
Assessment methods	Attendance & participation, project work
Level	Third or fourth year
Course content	The Prototyping and Craftsmanship course is part of the Industrial Design Engineering program. In this course you will learn methods and techniques that will help you in the process of making design decisions concerning materials, prototyping methods to measure results, iteration and evaluation.

### Contact

#### S. Kabbes

- +31 70 445 8956
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## Process and Food Technology minors

An academic year is divided into four terms. You can choose the following subjects:

- **Term 1**  
Minor programme on Food Product Design or subjects of year one  
(Block 1.1 Water Treatment)
- **Term 2**  
Subjects from year 2 (Block 2.2 - Food Processing) or subjects from year 1  
(Block 1.2 - Food Products)
- **Term 3**  
Subjects from year 2  
(Block 2.3 - Responsible Operations) or year 1 (Block 1.3 - Inorganic Products)
- **Term 4**  
Subjects of year 3 (Specialization 1) or year 2 (Block 2.4 - Polymer Science) or year 1 (Block 1.4 - Organic Products)

You can request the manuals of the different subjects by sending an email to [tis-international@hhs.nl](mailto:tis-international@hhs.nl). Please contact lecturer Mr. Maikel Maloncy ([m.l.maloncy@hhs.nl](mailto:m.l.maloncy@hhs.nl)) when you have questions about the courses.



## Studying in The Netherlands

There are many good reasons to study in The Netherlands. Dutch education is one of the most innovative and forward thinking systems in the world. It's based on student-led learning, debate and hands-on experience.

The Netherlands also offers a high standard of living at a fairly low cost. Dutch society is liberal and open-minded with a vibrant cultural scene. You'll be part of a dynamic cosmopolitan and multi-cultural community right in the heart of Europe.

It is a small country with a big international presence and is the 21st largest economy in the world. Some of the world's biggest multinationals, including Philips, Heineken, KLM, Shell, ING Bank and Unilever are Dutch. Sony, Sara Lee and Microsoft all have their European HQs here.

The Netherlands has two main types of higher education institutions - research universities and universities of applied sciences. Research universities are mainly responsible for offering research-oriented programmes, while universities of applied sciences offer programmes which focus on the practical application of arts and sciences.

### Campus life

THUAS has campuses in The Hague, Zoetermeer and Delft. You'll find the Faculty of Technology, Innovation and Society in both The Hague and Delft.

The main campus in The Hague is centrally located close to parliament and world-famous international organisations like the International Criminal Court.

Since the Delft campus opened in 2009, it has earned itself an excellent reputation in higher technical education and now offers eight degree programmes - Applied Mathematics, Electrical and Electronic Engineering, Engineering Project Leader associate degree, Industrial Engineering and Management, Computer Science, Engineering Physics, Mechanical Engineering and Mechatronics.

Delft is a high-tech and scientific hub with research centres and environmental technology companies - the perfect place to nurture your skills. Companies cluster in the Clean Tech Delta and Medical Delta. The Technological Innovation Campus is a hot bed for environmental research into sustainable energy sources and biofuels and cancer treatments. We work with institutions like TNO, Deltares, UNESCO-IHE, DSM and Exact.

### More information?

- Please also check the website for information:  
[www.thehagueuniversity.com/programmes/other-courses/exchange-programmes/what-can-i-study](http://www.thehagueuniversity.com/programmes/other-courses/exchange-programmes/what-can-i-study)
- Do you want to apply?  
<https://www.thehagueuniversity.com/programmes/other-courses/exchange-programmes/practical-information>