Join us at the
FACULTY OF TECHNOLOGY, INNOVATION & SOCIETY!

Courses offered in English (2020-2021)
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* For these design minors, a major in design is required. For more information, please send an email to tis-international@hhs.nl.
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## DISCLAIMER

The information contained in this guide is, to the best of our knowledge, true and accurate at the time of publication and is solely for information purposes. Changing circumstances may cause alterations in its outline at any time. The programme of The Hague University of Applied Sciences accepts no liability for any loss or damage howsoever arising as a result of use or reliance on this guide or on the information thereon or in respect of information accessed via any links from the Web pages.
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 renewable 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 four European Project Semester (EPS) International programmes.

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.

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 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 place.
EUROPEAN PROJECT SEMESTER

EPS
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 eps@hhs.nl

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

- International Project 1 + 2 (Urbinn, FS)
- Smart Manufacturing & Robotics
- Sustainable Urban Engineering
- Packaging Design & Innovation + Sustainable Packaging Design & Innovation
10 FACTS ABOUT EPS

1. Taught in English
2. Teamwork is the main focus
3. Students work in groups of three to six with at least three nationalities represented
4. Projects are multidisciplinary
5. A semester is worth 30 ECTS and lasts around 15 weeks
6. A project is worth a minimum of 20 ECTS, with subjects worth between 5 and 10 ECTS
7. Subjects support the project and include English and a basic course in the local language
8. Teambuilding and project management are included at the beginning of an EPS semester
9. Project supervision focuses on process as well as the product
10. EPS is continually assessed and includes an interim and final report
**EPS MINOR**

**INTERNATIONAL PROJECT**

**Sustainable Mobility**
This EPS is made up of two international project minors. Students work in international engineering teams on complex, multidisciplinary projects to expand their professional knowledge in project management, engineering and support processes (marketing, communications, human resource management, public relations, finance, fundraising etc.).

Students will participate in one of two ‘Living Lab’ projects – Formula Cruisers and Urbinn. These project assignments are subject to change because they are based on demand from relevant industries and relationships with other institutions.

**Living Lab “Sustainable mobility”**
This lab runs various projects on the topic of sustainable mobility:

**Urban Innovations**
The ultimate aim of this project is to produce an electric powered car designed for passenger and/or cargo transport in the urban area of the city of Delft. The project includes quantifying the vehicle’s ecological footprint. The state-of-the-art technology used will of course take into account sustainability and user-friendliness.

**Formula Student**
Aim is to build a race car that will compete in a race in Silverstone 2017 and maybe in Germany and Austria as well.

**Other projects**
Projects come and go. Please inform at the coordinator for other opportunities.

**Formula Cruisers**
“*It’s great working on a project with an international team from different cultures, learning about different places and how we do things differently.*” Callum Jones, 21, Nottingham Trent University, UK

On the Formula Cruisers minor, you’ll get the chance to be a part of the team designing and building an electrical racing car to compete at the Silverstone racing track in the UK and even Germany and Austria.

**Urbinn**
“We get the opportunity to take initiative and be creative and there’s freedom to explore new ideas.” Laura Tudorie, 23, University Politehnica of Bucharest, Romania

This sustainable urban vehicle project looks at solving issues of congestion and pollution with an innovative electric powered car designed to transport people and cargo in Delft.

The goal is to improve the lives of billions of people in the urban environment in 2025 using state-of-the-art technology.

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*Website*

*Facebook*
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.

Objectives

1. Project Management
Managing the team members in the engineering and support processes on the strategic level and on the operational level. This means setting up and controlling vision, mission, strategy, planning and control on the basis of all kinds of budgets (mass, energy, volume, finance, ...). Performance control of all engineering and support processes, meaning diagnosing of and intervening in these processes.

2. Engineering
Depending on the phase of the project and the discipline of the student (mechanical engineering, electronics, computer science, physics, mathematics, mechatronics, etc, etc) he/she will make a contribution to the orientation phase (setting system and subsystem requirements), design phase (ideas, concepts, designs), construction phase (procurement, assembling, production), application or consumers phase (performance, participating international contests).

3. Support
The support processes are in the domains of marketing, communication, information management, human resource management, public relations, finance, fund raising etc. Students will develop business objectives, plans of approach and execute them.

Entry requirements

As the student will be involved in a complex multidisciplinary project the entry requirements are as follows:

1. A match has to be made between available assignments within a specific project and the student. This is done in a mandatory personal interview with the senior project leader.

For this the student has to send in an application letter including a detailed portfolio / curriculum vitae and grades to the contact person of this minor.

2. The student has mastered English spoken and written and will show this in the intake interview.

Teaching methods + Study load

- Studyload International Project 1 is: 420 hrs = 15 credit points (cp)
- Studyload International Project 2 is: 420 hrs = 15 credit points (cp)
- Personal Coaching and project: 24 hrs
- Project Management Courses: 86 hrs
- Project Work: 276 hrs
- Languages & Culture: 28 hrs
- Social Activities: 6 hrs

Contact

Eveline Kapteijn-Kruijswijk
e.f.kapteijn-kruijswijk@hhs.nl
+31 6 3829 2244

International Project

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Contact Hours

With team: full time (40 hrs/wk), including personal coaching of 1 hr/wk.

Subject themes

- Finance and Control
- Technology and Design
- Computer Science
- International themes
- Management, organization, human resources
- Public relations
EPS MINOR
SMART MANUFACTURING AND ROBOTICS

This award-winning international EPS is taught in two parts, both based in Delft. You’ll get the opportunity to build state-of-the-art automotive prototypes for the industry.

Content

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.

For more information and past projects, please refer to: http://www.robotminor.nl.

Objectives

After completing this minor the student has the following abilities:

- Program actual industrial robots;
- Integrate robots into production lines;
- Create machine vision solutions;
- Professional client contact;
- Design factories.

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.

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 materials

International students may enrol after three years (or with an equivalent of 135 ECTS) of university education (including first year points). Students must have a basic but broad understanding of materials engineering. They should have proven technical design and group project work skills and completed one or more internships in industry.
The minor consists of two projects of 10 weeks. In the first 2-3 weeks of each project, courses and practicums are taught to get the students quickly acquainted with the hard- and software skills to successfully finish the projects. If you pass your project, you will have week 10 and 20 off.

EPS cluster project 1 “Implement a real robot in a real production line” (total: 8 ECTS)

7 ECTS*: various practicums and tutorials on state-of-the-art robot control, vision, programming, designing and intercultural teambuilding.

- Lectures and practicums: full-time for the first 2-3 weeks
- Tutoring, 4-8 hours per week
- Project: full-time for the remaining weeks

EPS cluster project 2: “Implement a real robot in a real, more advanced production line” (total: 10 ECTS)

5 ECTS*: various practicums and tutorials on state-of-the-art machine learning, sensors data processing, joining and intercultural teambuilding

- Lectures and practicums: full-time for the first 2-3 weeks
- Tutoring, 4-8 hours per week
- Project: full-time for the remaining weeks

*Specific course content dependent on projects and student group needs.

You will get two projects and two sets of practicals to make a total of 30 ECTS.

Teaching methods + Study load

The minor consists of two projects of 10 weeks. In the first 2-3 weeks of each project, courses and practicums are taught to get the students quickly acquainted with the hard- and software skills to successfully finish the projects. If you pass your project, you will have week 10 and 20 off.

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- Tutoring, 4-8 hours per week
- Project: full-time for the remaining weeks

*Specific course content dependent on projects and student group needs.

You will get two projects and two sets of practicals to make a total of 30 ECTS.

Contact Hours

Approximately 15 hours per week. During the projects, you will be working full-time.

Subject theme

Technology & Design

Contact

ir. T. Brilleman (Thijs)
+31 15 260 6270
t.brilleman@hhs.nl
www.smrdelft.nl

Smart Manufacturing and Robotics

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EPS MINOR
SUSTAINABLE URBAN ENGINEERING

This EPS is all about improving urban wellness by creating a multifunctional urban construction design for future cities.

Content

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:

- Smart Design
- Building Systems
- Sustainable Exploitation

The modules are divided into 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.

Objectives

Students apply the knowledge and insight gained through their own study programmes within a multidisciplinary team, required in the planning and design of a multifunctional urban construction.

Entry requirements

Students must follow a higher professional education programme in architecture, civil engineering, building construction, mechanical engineering, electrical engineering, technical business management, climate management, industrial design engineering, facility management or equivalent. They must have at least 90 credits in their major.

Students from other disciplines with an affinity for the course can also register with approval from the programme coordinator.
Teaching methods + Study load

There is a commissioning party from outside the university (a client), and students play their own role (consultant in their own discipline). Students are coached on the process (2 coaches) and on subject content (one contact person per discipline).

Systems engineering and multidisciplinary design methods are common themes that run throughout all subjects.

Three modules are given at the level of introductory courses:

- Smart Design
- Building Systems
- Sustainable Exploitation

Specialization in each discipline is offered through the in-depth modules of the second semester phase.

The basic modules make use of blended learning. Part of the content is to be learned and assessed via short assignments digitally previous the lecture. The in-depth modules have a part with classical lecture (by the teacher or by a guest lecturer) and a part for expert advice related to the project.

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Contact Hours

Total study-load: 40 hours per week

- Lectures/tutorials: 9 hours a week
- Project workshops, incl. excursions: 8 hours a week
- Coaching: 4 hours a week
- Group meetings / self-study: 19 hours per week

It is a full time minor where presence to all classes, workshops and group work is compulsory.

Subject themes

- Technology and Design
- Management and Organisation

Contact

T. B. Salcedo Rahola
+31 15 260 6312
t.b.salcedorahola@hhs.nl
Packaging Design & Innovation

This minor has been developed within the programme Industrial Product Design for the specialization Packaging 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.

Eventually the students present the outcome in a lecture to be concluded by a question and debating round. Examples of selected themes are environmental management systems, recycling, sustainability, biomimicry, ecodesign, globalization, corporate social responsibility (CSR), CSR of small and medium enterprises and CSR of emerging economies.

Objectives

Packaging Design & Innovation

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.

Sustainable Packaging Design & Innovation

Sustainable Packaging stands for the integration of environmental aspects in the design of a product/packaging combinations. This means that, in addition to marketing, economic and technical criteria also take into account environmental criteria. Sustainable packaging improves the quality perception of products, leads to cost savings, helps to meet legislation and provides environmental benefits. In this minor attention is given to developments in the field of sustainability in relation to packaging development. Sustainability should be understood in most broad sense: both technically and economically.
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.

Teaching methods + Study load

Design Education: 32 hours
Lectures: 48 hours
Company visits / excursions: 16 hours
Self-tuition: 228 hours
Resit (if applicable): 76 hours

Contact Hours

15 contact hours per week

Subject themes

- Economy & Business
- Management & Organisation
- Technology & Design

Contact

W.H. Colenbrander
+31 70 445 8962
W.H.Colenbrander@hhs.nl

G.J. de Koning
+31 70 445 8952
G.J.deKoning@hhs.nl

Packaging Design & innovation
+ Sustainable Packaging Design & Innovation

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BE SMART: STRATEGIES FOR SMART SUSTAINABLE CITIES

Content

Challenges:

• The challenge of sustainable development: population and consumption growth exceeding the planetary limits.
  - Local and global
  - Technology, the culprit?
  - Pollution, consumption and equity
  - Global equity and world order

• Climate Change mitigation
• Climate Change adaptation
• Eco Systems, Pollution, emissions, waste and waste water
• Resource scarcity, recycling, circular material flows
• Urban health challenges in the built environment: clean air, noise, clean water, green areas, urban heat

Objectives

• 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

Apply these methods in a hands on project regarding an urban area transition or niche experiment, deal with stakeholders and report results (written and orally).

Teaching methods + Study load

Part I and II will be taught by lectures, followed by tutorials and exercises.

Larger exercises will take place regarding geo-information systems and the use of open data.

Excursions and site visits will be important to obtain first-hand knowledge and meet stakeholders.

Contact Hours

- Term 1: 10 hours of lectures/tutorials, 8 hours of supervised exercises
- Term 2: 4 hours of general progress meeting, 8 hours of group supervision

Subject theme

International & Technology and Design

Contact

C. Verweij
+31 70 445 8971
C.Verweij@hhs.nl

Karel Mulder
+31 6 29053564
K.F.Mulder@hhs.nl

Bas Hilckman
s.p.hilckmann@hhs.nl

Strategies for Sustainable Cities

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CLIMATE CHANGE IN
INTERNATIONAL PERSPECTIVE

Content
Our urbanizing world needs to urgently address the challenges posed by climate change. The Dutch approach to urban development is characterized by its integrated model for urban development. But how does it work when this approach is applied outside the specific context of the Netherlands where this was originally developed?

The application of this model in an international setting with a different culture, different laws, different geology, different climate and different governance structures requires certain parts of this approach to be adapted.

Objectives
This minor considers climate change in an international perspective.

A key part of the minor will be the participation in a joint project. In this project you will investigate the impact of climate change on spatial development for a specific international location.

As part of this, interventions in the urban development are to be designed to mitigate or to adapt to this climate change.

You will need to define the boundary conditions for the specific location, including intercultural sensitivity, local climate adaptation plans and policies, international and local governance models and financing of development.

The project is supported by lectures and workshops that address relevant topics on globalization, climate change and governance.

As part of the course, you will be developing your own intercultural sensitivity, presentation skills and personal development objectives.

Entry requirements
Students must be 3rd or 4th year students in order to participate in this minor.

Teaching methods + Study load
The successful completion of this minor is equivalent to 15 ECTS.

Contact Hours
Approximately 20 hours per week plus significant effort as part of a project team.

Contact
Yvonne Lubbers
Y.Lubbers@hhs.nl

Ellen Geurts
E.H.M.Geurts@hhs.nl

Climate Change in International Perspective

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CLIMATE CHANGE IN
INTERNATIONAL PERSPECTIVE

Reinventing
Cities
An innovative urban projects to
stimulate urban mental development
EMBEDDED SYSTEMS (EMES)

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)... 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 knowledge to realize prototypes using professional and modern tools and components.

Objectives
More specifically, the student will learn how to:

- Work with different microcontroller architectures
- Convert customer requirements into hardware and software specifications
- Create hardware design requirements
- Examine and evaluate results from scientific literature and develop software on different development platforms
- Apply this information in the project work
- Carry out an engineering project using applicable group skills and project management skills
- Design, implement and test algorithms and optimize their performance
- Design software with ‘state of the art’ tools using open-source and commercial tool-chains
- Specifically design and evaluate algorithms to implement complex behavior using data from different sensors
- Design vision-systems and process images
- Perform tests and verifications to guarantee the quality of the design and the realized product

Entry requirements
To start with this minor the student should have relevant experience in the following fields:

- Programming skills: basic experience in writing programs for a compiler or interpreter language, such as C, C++, Python, Pascal or Matlab
- Mathematics: Matrix vector processing, solving sets of linear equations
- Basics of control engineering: transfer functions, block schemes, system responses
- Project management: experience with working in project groups, writing a plan of approach, parallel planning, goal oriented working
- Basic skills in digital electronics, reading and drawing schematics
- Experience with real-time systems and/or data-communication is an advantage.

In addition, the student should have successfully passed the propaedeutic phase, obtained at least 60 ECTS of the bachelor (main) phase of the study and have successfully completed at least one internship of three months (minimum of 15 ECTS).

Teaching methods + Study load
Course 1 (study load corresponds to 3 ECTS):
each week one lecture of 90 minutes, accompanied by homework and independent learning of approximately 4 hours.

Workshop 1 (study load corresponds to 2 ECTS):
each week one practical lab session of 90 minutes Students are required to prepare these sessions adequately.

Course 2 (study load corresponds to 3 ECTS):
each week one lecture of 90 minutes, accompanied by homework adn independent learning of approximately 4 hours.

Workshop 2 (study load corresponds to 2 ECTS):
each week one practical lab session of 90 minutes Students are required to prepare these sessions adequately.
Contact Hours

The minimal number of contact hours per week is 9 clock hours.

Subject themes

- Technology and Design
- Software (Programming)
- Hardware

Contact

ir. F. Theinert,
+31 15 260 6238
J.F.Theinert@hhs.nl

W. Muhammad
+31 15 260 6278
W.Muhammad@hhs.nl

Embedded Systems

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REGULAR MINOR
ROBOTICS AND VISION DESIGN PART 1 & 2

Content

Today robots are being applied in many fields, from industrial automation and defense 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.

Objectives

More specifically, 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;
- 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.
Entry requirements
Prerequisites for this minor are mastering the following subjects:

• 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.

Contact Hours
The minimal number of contact hours per week is: 10.5 hours (these are clock hours).

Subject theme
Technology and Design

Teaching methods + Study load
Courses and educational organization:

• Robot control (study load corresponds to 3ECTS):
  - each week one lecture of 90 minutes
  - each week one practical of 90 minutes
• Pattern recognition (study load corresponds to 3ECTS):
  - each week one lecture of 90 minutes
  - each week one practical of 90 minutes
• Machine learning (study load corresponds to 3ECTS):
  - each week one lecture of 90 minutes
  - each week one practical of 90 minutes

Project organization (study load corresponds to 6ECTS):

• Weekly meetings with project coach
• 3 guest lectures, each of 90 minutes
• 3 tutorials, each of 90 minutes

Contact

Robotics and Vision Design Part 1 & 2
Level Undergraduate
Length 2 x 10 weeks
Language English
Study credits (ECTS) 30
Location Delft
Osiris code ME-HMVT19-RVD

dr. ir. P.R. Fraanje
+31 15 260 6362
P.R.Fraanje@hhs.nl

ing. Theo Koreneef
+31 15 260 6304
T.J.Koreneef@hhs.nl
THE MANY FACES OF GLOBALIZATION

Graduates of The Hague University of Applied Sciences (THUAS) will work in a globalized world and need to have an understanding of global processes and global development.

Globalization is an irreversible process. Globalization comprises many processes that simultaneously affect different areas: economy, media, politics and identities, migration and the environment. Globalization is a complex process that is not yet complete; it continuously evolves at a fast pace. It remains difficult to fully grasp what globalization entails; especially to predict worldwide developments based on all-embracing theories and analyses of globalization. Everything is still open and far from determined: an unexpected event in one location can produce changes overnight throughout the globe. However, there are clear patterns and developments that deserve attention. Yet, in order to analyze and understand why a certain issue has specific characteristics it is necessary to bring in a multi-disciplinary perspective. Today’s professionals possess knowledge from several disciplines, but it is her/his consciousness as world-citizens that allow her/him to look into a certain issue from different sides, perspectives and disciplines.

In this minor, the following themes are dealt with:

1. **What is globalization?**
   Historical contextualization: what are the core characteristics of the current stage of globalization? Can current-day globalization processes be equated to a second modernization wave? Is the world converging towards a western-centered capitalist model? Or is this the beginning of the end of the power of Western countries, as alternative economic models and political systems spring up in other regions of the World, like South, East and Southeast Asia?

2. **World Population and food security**
   There are about 6 billion people in the world and the predictions point to 9 or 10 billion in 30/50 years from now. Access to water and food is not the same everywhere and population growth threatens to widen the gap even more between those who have plenty and those who have none. Are we heading towards a catastrophic situation or are there sustainable alternatives?

3. **Climate change, ecology and the environment**
   Current challenges and possible scenarios.

4. **ICTs as agents of globalization processes**
   The characteristics of knowledge economies and their output. Network societies and globalization.

5. **Global capitalist economy**

6. **Globalization and labor**
   World division of labor, migration and the re-location of industries and labor markets across the globe.

7. **Globalization and poverty**
   The rise of the “fourth world” or the world’s poorest nations. The gap between rich and poor is widening in every nation, as well as between rich and poor nations.

8. **Global Cities**
   More than half of the world population lives now in cities or major urban areas. What is the impact of urban growth and development on rural areas, migration and the environment?

9. **World Governance**
   Is international cooperation among states being replaced by cooperation networks located below the state-level and cutting across national boundaries? Is globalization bringing an end to the nation-state? What is its role in a context of more economic and financial interdependence among states?

10. **Human Rights and global justice**
    Protection of Human Rights, the cause for war. The majority of armed conflicts in the world today are internal or civil conflicts. The role of international organizations such as the UN is re-evaluated in the current globalization era.

11. **Globalization and Identities**
    Identities evolve and are contested in 4 major areas: religion (and the sharpening of fundamentalist doctrines); nationality (sharpening of nationalism and extremism), culture (migration and the multicultural society) and gender.
12. Globalization and the role of education, sports and music

Globalization and Post-Modernity. Can we draw a parallel between the foundations of industrial modernization period with the current process of globalization? Are there any moral limits to processes of rationalization, and technological evolution?

Objectives

The goal of this minor is to provide an introduction to the many aspects and dimensions of globalization. The daily challenges faced today by a wide array of professionals are not entirely local or national, but are also connected to developments occurring in Europe and in the rest of the world.

In the context of higher professional education, this means that future professionals are becoming critical world citizens. In order to become a critical world citizen, it is necessary to acquire specific knowledge, competences and skills.

At the end of this minor:

- The student is able to analyze and distinguish issues regarding globalization
- The student is able to use the differences between the students while working together
- The student is able to formulate a substantiated opinion on issues regarding globalization

Teaching methods + Study load

The successful completion of this minor is equivalent to 15 ECTS. Each week:

- Guest lectures: 8 hours
- Seminar: 2 hours
- Coaching: 2 hours
- Movie/documentary: 4 hours
- Up-to-you workshop: 2 hours
- Course on globalization: 4 hours
- Working on case study: 15 hours
- Preparation on course and seminar: 3 hours

There will be one or two excursions as well during the period.

Contact Hours

Approx. 20 hours per week

Subject theme

International

Contact

Sebastiaan Beresford
S.A.beresford@hhs.nl

The Many Faces of Globalization

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Content

Nature is probably world’s most effective designer, having solved many big and small challenges in the course of evolution and adaptation.

In this semester you will specifically:
1. 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).

Objectives

The general objective of the minor is to train students to create solutions for a wide range of challenges and to design products by learning about strategies and mechanisms from nature in order to implement these into the design of the product (design solution). This minor will enable students from different backgrounds to work within interdisciplinary teams of designers, scientist and engineers.

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 tis-international@hhs.nl 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.

Teaching methods + Study load

The course includes weekly lectures and hands-on workshops on diverse topics that support the project which is conducted by students who work in multidisciplinary groups.

Contact Hours

This minor requires 40 hours work per week:
• 14 contact hours p/w (tutoring/workshops/excursions)
• 26 hours p/w self-study and teamwork

Subject theme

• Economics and Market
• People and Culture
• Health and Sports
• Law, Security and Society
• ICT and Media Technology and Design
• International themes Work, Welfare and Education
• Management and Organisation

Contact

Laura Stevens
l.l.stevens@hhs.nl

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For this design minor, a major in design is required!
The Prototyping and Craftsmanship course is part of the Industrial Design Engineering program. During this course you will learn to apply prototyping methods and techniques into a design project. The design project is provided by a company or organization and it is your learning field throughout the semester. The P&C minor is a self-directed learning semester in which you follow weekly workshops about design process, prototyping methods and use of materials. Exercises on quality and precision will challenge your ideas and encourage interesting discussions about what constitutes 'good work' within the design practice.

Objectives
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.

During Module 2.3 of this course you will learn:

- To apply craftsmanship skills and techniques at an advanced beginner level on different assignments to make prototypes by combining different materials
- To make use of design methods, workshop facilities and tools efficiently
- To apply design process methods to accomplish personal expression in all assignments
- To reflect on the design decisions that are being made on the production of models and prototypes and to document these key decisions in your portfolio
- To optimize time and materials to accomplish the production of models and prototypes at an advanced beginner level

Entry requirements
You should have completed the propaedeutic exam and obtained at least 60 ECTS of the main phase of your study.

Teaching methods + Study load
Study load is based on 30 ECTS. Courses and educational organization. Content:

- Unit 1 (Back to the future) - Assignments to practice prototyping skills
- Unit 2 (The Craft of Designing) How to use craftsmanship in the design practice.
- Unit 3 (Craft is in the details) – Practicing quality in execution.
- Week 18 retake

Teaching methods:
- Project work
- Lectures
- Workshops
- Studio/workshop work
- Excursions

Contact Hours
The minimal number of contact hours per week is 12 hours, for 12 weeks.

Subject themes
- Craftsmanship
- Prototyping and Design

Contact
B.G. Bustamante Castillo
+31 70 445 8956
B.G.BustamanteCastillo@hhs.nl

S. Kabbes
+31 70 445 8956
S.Kabbes@hhs.nl

Prototyping and Craftsmanship

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For this design minor, a major in design is required!
DESIGN MINORS

These minors belong to the study programme of Industrial Design Engineering. All minors have a length of 2 x 10 weeks (30 ECTS). Please contact Mr. Marcel van Geffen when interested. You can send your email to m.vangeffen-1@hhs.nl. For these design minors, a major in design is required!

**ECONOMICS OF MASS**

This semester contains the nuances, understanding and methods to design products in large quantities. Next to designing for mass manufacturing it also puts design in the context of new advances in manufacturing and scarcity of materials.

**ENTREPRENEURSHIP**

You have an idea for an innovative product to put on the market. In this semester you’ll get started with your business plan, and plan the launch of your product.

**EXPLORING NEW TECHNOLOGIES**

How does technology impact our individual experiences or our physical and social environment? This is the semester in which you explore new concepts and technologies to understand the opportunities and benefits of technological advances. Such explorative approach is essential for designers who are keen to embrace emerging technologies as tools for increasing the quality of life.

**PRODUCT ENGINEERING**

In PE you focus on the technical aspects of designing products. You build on what you have learned in unit 2 of Boi and increase your knowledge on production techniques, calculating product measurements, and making smart and innovative material choices. You will go beyond the basics of working with 3D software.

**RESPONSIBLE DESIGN**

RD is the semester for you if you want to make sure the products and innovations you think up as a designer are in line with the 5 P’s: People, Planet, Prosperity, Peace, and Partnership. You will go indepth into what they mean for a designer. You will develop an ethically sound way of working, contributing to the sustainable development of our society with as much impact as possible.
SMART OBJECTS

With the internet of things emerging all around us, products more and more often contain smart technology. In this semester you will focus on designing these smart objects. You look at the interaction design of a product and how users can deal with the complexity and newness of it. Also you dive into the different technological solutions which continue to emerge rapidly.

SERVICE DESIGN

You will learn how design methods are relevant in designing intangible experiences such as a service. You will do creative user research; Facilitate workshops with different stakeholders, such as users and service providers. You will prototype and iterate a service experience. You will learn how the new service impacts the organisation.

You will get know an organisation and service providers, through stakeholder analysis and value flow modelling (business), applying creative methods to do user research, such as diaries, and customer journey mapping (research and methods and techniques). You will prototype and iterate a new service and test the user experience, with a service design blueprint and theatrical tools (user& behaviour and visualisation).
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 hotbed 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

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