Bijlage 4 Beschrijving opleidingsminoren FHTenL 2022-2023

Inhoud

Smart Innovation
Minor regulation 2022-2023

Terug naar begin

1. Name minor: Smart Innovation

2. English name: Smart Innovation

3. Content of Minor

Introduction

Students will have a look at innovation and research from a technical as well as a conceptual and design perspective. They will focus on information gathering/processing and product design and learn how data can be gathered by different means, be communicated, interpreted, combined, processed and transformed into information understandable for others. Minor activities are based on carrying out research in innovative areas which will lead to a prototype showing applicability. Usability improvement is done by analyzing user behaviour on prototyping events. The official language of this minor is English.

Goals

The student understands what applied research and innovation is and can participate in an applied research project. The student has basic knowledge on how to plan, organize and carry out research as well as how to apply innovative techniques. More specific, the learning goals are that the student is able:

- to carry out innovative applied research,
- to apply innovation techniques,
- to show how to design and build innovative prototypes,
- to do research through design in which the user is central,
- to work as a team member in a project group and applies different technologies and methods as mentioned above, to realize a prototype of an innovative concept.

Resume for diploma supplement

The minor Smart Innovation gives students an opportunity to experience innovative research. The purpose of the minor is to gain a multidisciplinary view of innovation and how it is applied to research as well as thorough understanding and knowledge about how to carry out research. Students learn how to design and build prototypes in multidisciplinary teams by applying research methods and also carry out an individual research.

4. Education components *(see article 17, general section TER)*

The total work load for this minor 30 European Credits (EC), duration is 1 semester. The minor consists of the following modules:

Modules	*Project*	*Research*	*Innovation*	*TOTAL*
Studyload in hours	560	140	140	840

Description of the modules:

Modules	*Description*	*studyload*
Project	In the project you apply knowledge gained in the other modules. In multidisciplinary groups, you will develop an innovative application/product/service, based on applied research. The module includes coaching and may include project specific lectures (enabling skills). We give much attention to user centred design. Where needed, specific related topics and techniques out of your major domain can be taught in more detail.	560
Research	Theory (problem statement, research question, information gathering, analysis, decision making, technical writing etc.) and practice (application of what is learned to the project).	140

Innovation	Theory (managing innovation) and practice (innovation/creativity techniques) is run during the first part of the minor. In the Innovation module, the student is introduced into the wide field of innovation with all its aspects. What is innovation? Which fields of engineering are related? What are tools to innovate? Guest speakers are invited, and field trips are made where applicable.	140

For each of these modules, more detailed information is available in a separate module description.

Scheduled weekly hours:

Course	*Duration*	*Theory*	*Feedback*	*Workshop*	*Project work*
Project	1 semester	1x2 hr	2x2 hr		16 hr
Research	1 quarter	1x2 hr		2x2hr	
Innovation	1 quarter	1x2 hr		2x2hr	

5. Enrolments in the education components

Minor enrolment follows regular procedure, as stated on the Fontys website.

6. Overview of tests and registration for the tests *(see article 20 & 22, general section TER)*

Students don't have to enrol themselves for the tests. For Innovation the exam is scheduled at the end of the quartester. The due date for the research paper is Monday of the third week of the second quarter. Students get feedback on their work during feedback and workshop hours.

Modules	*Assessment*	*individual/ group*	*Scores*
Project	• research report • research paper • handover document • final prototype demonstration • poster and video presentation • project archive (e.g. software repository)	All assessment products are the result of teamwork, but when grading the products, the following aspects are assessed: • Group: Content, approach and result • Individual: Team skills, quality, quantity, reliability, applied research, application of innovative techniques	1.0…10.0
Research	Individual research paper and/or (video) blog etc.: research skills, writing skills and skills of presenting research activities (blog) will be assessed	Individual	1.0…10.0
Innovation	Written exam: knowledge, innovation skills, understanding will be assessed	Individual	1.0…10.0

7. Passing the minor *(see article 19, paragraph 3, general section TER)*

Each assessment of the minor will be rated with a mark between 1.0 and 10.0. To pass this minor the student has to satisfy following requirements: all marks >=5.5. Where marks are composed of sub marks it is described in the module descriptions.
A student will only get credits assigned as soon as he brings all above mentioned (part 4) modules to an end successfully, so either 30 ECTS or no credits at all (0 ECTS) are assigned.

8. Examencommissie (*article 38, general section TER)*

The examination board for this minor is represented by the examination board of Fontys Hogeschool Techniek en Logistiek Venlo (fhtenl-excie@fontys.nl).

9. Validity period

This information remains valid for the duration of the 2022-2023 Academic Year.

10. Entry Requirements minor

Students must have successfully completed their propaedeutic year. If the propadeutic year is not (yet) completed, students have to get permission by the examination board to enrol in the minor. Other students who can show a similar level of skills required for doing innovative research may participate depending on availability of (educational) resources.

11. Not accessible for
This minor is not accessible by students who can not show the entry level.

12. Contact
This minor is offered by Fontys Hogeschool Techniek en Logistiek Venlo. For further information please contact:

- Gé Schriever: g.schriever@fontys.nl, phone: 0885086600

No other requirements are to be met for participation in the minor or passing the minor than mentioned in these minor regulations.

Design for Engineers
Minor regulation 2022-2023

Terug naar begin

1. Name minor: Design for Engineers

2. English name: Design for Engineers

3. Content of minor

Introduction

In our everyday life we encounter a lot of products that are designed and manufactured. There's a lot that takes place before such products come into existence. The actual engineering often focusses on the last part of the development-proces. These products were all in some way designed. So design plays an important role in the creation of products. Within companies, teams often consist of designers as well as engineers to create innovative products.
Knowledge of the design process is essential for successful engineering.
The minor Design for Engineers combines theory and skills with practical work in a project.

The project is the core of this minor. Theoretic modules support the core. The minor contains 'self select modules', offered to enable students to elaborate in Engineering (e.g. Solidworks Motion,) or in Industrial Design (e.g. Web design, Digital sketching, Advanced Product Photography). Self select modules give students the opportunity to create a course which best suits his/hers interests and experience. In order to offer the students to follow the latest trends or a better fit to the core project, the organization of the minor has the right to add or replace self select modules during the academic year.
The list of self selection modules will be updated before the start of the minor and communicated to the participants.

Goals

Students will be able to:

- Develop or optimize a product.
- Gain a thorough helicopter view of the product's renewal- or innovation cycle
- communicate and collaborate with students from different courses and nationalities.
- communicate and collaborate with client companies in a professional manner.
- communicate (write, speak, present and listen) in English.
- develop an own expertise based on the courses they select (see self select modules).
- gather information and obtain the skills to succesfully implement in a product development project.
- Use the Product Design and Development Process, as a means to manage the development of an idea from concept through to production.
- Employ research and analysis methodologies as it pertains to the product design process, meaning, and user experience.
- Apply creative process techniques in synthesizing information, problem-solving and critical thinking.
- Demonstrate and employ hand drawing and drafting principles to convey concepts.
- Use basic fabrication methods to build prototype models.
- Demonstrate, apply, explain, and recognize basic engineering, mechanical, and technical principles.

Resume for diploma supplement

The minor gives the students an opportunity to experience product development in teams. Collaboration with (foreign) students and communication with group members play an important role. Students as a group (i.e. bringing own expertise and expertise of other group members deliver the best possible solutions during product development cycle. The purpose of the minor is to gain a thorough helicopter view of the product renewal- or innovation cycle.

4. Education components *(see article 17, general section TER)*
The work load for this minor 30 European Credits, duration is 1 semester. The following minor parts (modules) have been defined:

Project module	*Self select modules**	*workload*	*Self select modules**	*workload*
Multidisciplinary Project of a complex product	Market research	28	Human Factors	56
	Materials & Production	28	Design Competition	56
	Sustainability	28	Solid works Motion	56
	Business Management	28	Solid works Surface Modeling	56
	Patent research	28	Solid Works Topology	56
	Ethics	28	Composites	56
	3D printing basics	28	Digital Sketch Tablet	28
	3D printing intermediate	28	Photography Basics	28
			Photography Advanced	28
			Web design	56
			Rhinoceros 3D	28
			Keyshot	56
			Automotive Engineering	56
Total 560 hours	+ Select a total of			280 hours
Minimum total hours:	840 hours			

* A student needs to select from the modules in the list which represent a minimum workload of 280 hours. This list is an example of the self select modules offered in 2018 and is subject to changes; adding or replacing modules that offer more suitable themes.

Description of the modules
Project module
The project element aims to provide an experience of multi-disciplinary integration within a complex design project.
In the project students will have the opportunity to:

- Gain experience of the complexities of multi and interdisciplinary working.
- Broaden their knowledge of disciplines on the periphery of their main study.
- Gain or further their experience of generating and developing conceptual ideas.
- Analyse and evaluate design concepts against established criteria.
- Work as part of an integrated team developing a product to a working prototype stage.
- Define product specifications based on user and situation analysis.
- Develop product design solutions meeting established performance criteria
- Research and evaluate a relevant study topic.

Self select modules (subject to changes; adding or replacing modules that offer more suitable themes)

Modules	*Description*	*Studyload in hours*
Market research	Lecture on the theory of market research, how to organize, how to interpret the results, how to report etc. The students will have to do a market research in groups and in relation to the project.	28
Materials and Production	Series of (guest) lectures on materials and production techniques	28
Sustainability	Series of lectures on sustainability (methods and theories)	28
Business Management	Series of (guest) lectures on the business side of product development, organization-structures, financing etc.	28
Intellectual Property	Series of (guest) lectures on copyright, patent right, patent search, etc. The students will have to do a patent research.	28

Ethics	Introduction module to the basics of ethics. Discussions based on ethical flows.	28
3D printing basics	background and basic knowledge about 3D printing and additive manufacturing. About the What, Why and How.	28
3D printing intermediate	practical module. From 3D modeled digital object to 3D print.	28
Human Factors	Practical module in which groups of students take on an ergonomic problem and apply an ergonomic research set-up.	56
Solid Works Motion	Practical module, introducing the Solid Works Motion module. The student will learn how to analyse the kinematic and dynamic behaviour of Solid Works assemblies	56
Solid Works Surface Modeling	Practical module, introducing free form Surface modeling. The student will learn how to construct complicated free form surfaces and surface transitions in Solid Works.	56
Solid Works Topology	Practical module, introducing software that enables you to make designs inspired by nature. This approach is especially interesting in combination with 3D printing	56
Composites	Series of lectures and practical tests on the use of composite materials and engineering constructions	56
Digital Sketch Tablet	Practical module, improving the presentation skills. The student will learn how to make product renderings with a digital sketch tablet in combination with the software Painter and Photoshop	28
Photography Basic	Practical module, learning the basics of photography and the use of the photo studio.	28
Photography Advanced	Practical module, expanding the possibilities on product photography, based on the Photography Basic module.	28
Web design	Practical module, broadening your presentation skills. The student will learn how to set up a web pages, lay-out, do's and don'ts.	56
Rhinoceros 3D	Practical module, broadening your presentation skills. The student will learn to use the 3D modeling software Rhinoceros. This software is common for concept visualization where the concept needs to be detailed to a more convincing level then a (digital) sketch, but not to an engineering level as you would do in Solid Works.	28
Keyshot	Practical module in which more advanced surface modelling will be combined with professional rendering software (Keyshot).	56
Design Competition	Entering a design competition (National or international). Like a small design project, the student must study the brief, make conceptual designs and present the final design on a professional level.	56
Automotive Engineering	Series of lectures on several automotive principles such as steering geometry, suspension, drive systems etc.	56

5. Enrolments in the education components

Minor enrolment follows regular procedure, as stated on the Fontys website.

External students can contact Remko Killaars (r.killaars@fontys.nl)

6. Overview of tests and registration for tests *(see article 20 & 22, general section TER)*

Students don't have to enrol themselves for the tests.

Modules	Assessment	individual / group	Assessment scale
Project	Report + presentation + peer assessment	group	1 .. 10
Market research	Report	group	1 .. 10
Materials & Production	Presentation	in pairs	1 .. 10
Sustainability	Presentation	in pairs	1 .. 10
Business Management	Assignment	group	1 .. 10
Intellectual Property	Assignment	individual	1 .. 10
Human Factors	Report	group	1 .. 10
Solid works Motion	Assignment including report	in pairs	1 .. 10
Solid works Surface Modelling	Assignments	individual	1 .. 10
Solid Works Topology	Assignments	individual	1 .. 10
Composites	Assignments	individual or in pairs	1 .. 10
Digital Sketch Tablet	Assignment	individual	1 .. 10
Photography Basic	Assignment	individual	1 .. 10
Photography Advanced	Assignment	individual	1 .. 10
Web design	Assignment	individual	1 .. 10
Rhinoceros 3D	Assignment	individual	1 .. 10
Keyshot	Assignment	individual	1 .. 10
Automotive Engineering	Assignment including report	in pairs	1 .. 10
Design Competition	Assignment	individual	1 .. 10
Ethics	Report	individual	1 .. 10
3D printing basics	Assignment	individual	1 .. 10
3D printing intermediate	Assignment	individual	1 .. 10

5. Enrolments in the education components

Minor enrolment follows regular procedure, as stated on the Fontys website.
External students can contact Remko Killaars (r.killaars@fontys.nl)

6. Overview of tests and registration for tests *(see article 20 & 22, general section TER)*
Students don't have to enrol themselves for the tests.

Modules	Assessment	individual / group	Assessment scale

Project	Report + presentation + peer assessment	group	1 .. 10
Market research	Report	group	1 .. 10
Materials & Production	Presentation	in pairs	1 .. 10
Sustainability	Presentation	in pairs	1 .. 10
Business Management	Assignment	group	1 .. 10
Patent research	Assignment	individual	1 .. 10
Applied Ergonomics	Report	group	1 .. 10
Solid works Motion	Assignment including report	in pairs	1 .. 10
Solid works Surface Modelling	Assignments	individual	1 .. 10
Solid Works Topology	Assignments	individual	1 .. 10
Composites	Assignments	individual or in pairs	1 .. 10
Digital Sketch Tablet	Assignment	individual	1 .. 10
Photography Basic	Assignment	individual	1 .. 10
Photography Advanced	Assignment	individual	1 .. 10
Web design	Assignment	individual	1 .. 10
Rhinoceros 3D	Assignment	individual	1 .. 10
Advanced Modeling and Rendering	Assignment	individual	1 .. 10
Automotive Engineering	Assignment including report	in pairs	1 .. 10
Design Competition	Assignment	individual	1 .. 10
Ethics	Report	individual	1 .. 10
3D printing basics	Assignment	individual	1 .. 10
3D printing intermediate	Assignment	individual	1 .. 10

7. Passing the minor
The minor end grade is a weighted average (weights correspond to workload) of the module grades. A student passes the minor if all modules are >= 5,5 or 'pass'.
A student will only get credits assigned as soon as he brings all above mentioned (part 4) modules to an end successfully, so either 30 EC or no credits at all (0 EC's) are assigned.

8. Examencommissie (*article 38, general section TER)*
The examination board for this minor is represented by the examination board of Fontys Hogeschool Techniek en Logistiek Venlo (fhtenl-excie@fontys.nl).

9. Validity period
This information remains valid for the duration of the 2022-2023 Academic Year.

10. Entry Requirements minor
Students must have successfully completed their propaedeutic year. If the propadeutic year is not (yet) completed, students have to get permission by the examination board to enrol in the minor. Students from outside Fontys FHTenL have to explicitely ask for admission. This is given by the contact persons, mentioned in point 12. English language at IELTS level 6 is strongly recommended.

11. Not accessible for
There are no specific groups excluded from enrolment, other than mentioned in part 10.

12. Contact
This minor is offered by Fontys Hogeschool Techniek en Logistiek Venlo. For further information please contact Remko Killaars (r.killaars@fontys.nl)

No other requirements are to be met for participation in the minor or passing the minor than mentioned in these minor regulations.

HBO-TOP programme
Minor regulations 2022-2023

Terug naar begin

1. Name minor: HBO-TOP programme

2. English name: HBO-TOP programme

3. Content of minor
During this programme, the student will take courses at the TU/e. The set of courses is a pre-master and will prepare the student for a master programme. The set of courses is determined by the TU/e and depends on the master that the student has in mind. Successfully finishing this minor gives the student the right to enrol for the corresponding master programme at the TU/e, after finishing their Bachelor at Fontys.

The HBO-TOP program of the masters below are already approved by the examination board of Fontys Hogeschool Techniek en Logistiek Venlo. Are you interested in following a premaster programme at the TU/e, other than mentioned below, please contact the minor coordinator. He/she will send a request for approval to the examination board. It is not possible to design your own premaster programme. The TU/e is responsible for the development of these HBO-TOP programmes.

Approved programmes:

- Operations Management and Logistics (OML) for students of Mechatronics.

Resume for diploma supplement

The HBO-TOP programme is a set of courses, followed at the TU Eindhoven, which can replace the pre-master and can be applied as a minor. The set of courses depends on the corresponding master.

4. Education components (see article 17 general section of the TER)
The courses in the programme are determined by the TU/e and depend on the corresponding master. The total amount of credits is 30 ects, spread over one academic year.

5. Enrolment in the education components
Enrolment starts with the enrolment for the course ‘Basic math’. To start the HBO-TOP programme in September 2023, this enrolment will be in January 2023. Information about the enrolment process can be obtained from the minor coordinator.

6. Overview of tests and registration for tests (see articles 20 and 22 general section of the TER)
Tests depend on the TU/e.

7. Passing the minor
The minor end grade is a weighted average (weights correspond to workload) of the course grades. A student passes the minor if all 30 credits at the TU/e are obtained.

A student will only get credits assigned as soon as he brings all modules to an end successfully, so either 30 EC or no credits at all (0 EC’s) are assigned.

To obtain the credits, the student has to submit a certified list of marks of the TU/e.

8. Examination Board (see article 38 general section of the TER)
The Examination Board of TU/e is authorized to deal with individual requests from students regarding this minor. The Examination Board to contact depends on the faculty to which the chosen programme belongs. The contact information will be available after registration.

For FHTenL specific matters, the examination board of FHTenL can be contacted via fhtenl-excie@fontys.nl

9. Validity
This information applies to study year 2022-2023.

During the academic year, it is possible to get HBO-TOP programmes (other than those mentioned in section 3) approved by the examination board of Fontys Hogeschool Techniek en Logistiek Venlo. It is not possible to design your own premaster programme. The TU/e is responsible for the development of these HBO-TOP programmes.

10. Entry requirements minor
To participate in this programme, the following requirements must be met:

- Propaedeutic diploma successfully obtained;
- Formal permission of the coordinator
- Successfully obtained the TU/e evening course 'Basic math' (followed during semester 4)

11. Not accessible for
All students not registered at one of the study programmes below (all at Fontys Hogeschool Techniek en Logistiek Venlo).

- Industrial Design Engineering (Dutch and International)
- Mechanical Engineering
- Mechatronics

12. Contact
For further information please contact the coordinator Janneke de Jong (j.dejong@fontys.nl)

No other requirements are to be met for participation in the minor or passing the minor than mentioned in these minor regulations.

Composite Minor
Minor regulation 2022-2023

Terug naar begin

1. Name minor: Compositie minor

2. English name: Composite minor

3. Content of minor
Introduction
This minor is for students who did not succeed in finishing a minor outside FHTenL. The content of this minor is not prescribed.
Taking into account modules passed in the host institution students can complete a minor using modules/units of study from within FHTenL. This requires the formulation of a (new) learning agreement and on successful completion of the agreed modules students will be awarded the credits gained in the host institution in addition to those gained in the composite minor.

Goals

- To give students who did not succeed in finishing a minor outside FHTenL succesfully the opportunity to keep the acquired results and complete a minor.
- To standardise the way in which missing credits are repaired
- To garantuee quality standards for tests of missing credits

Summary
The contents of the composite minor can be chosen by the student from all post-propedeutic FHTenL modules. Prerequisite for access to this minor is that a student has gained results in another minor but was not able to complete the originally chosen minor.

4. Overview of the courses in the minor *(see article 17, general section TER)*
The work load for this minor is variable but always less than 30 EC's (European Credits). Modules can be chosen within FHTenL but have to be post-propaedeutic and cannot have any overlap with the major course of the student.

Description of the units of study
The modules that a student will participate in have to be available within FHTenL. The modules can be chosen by the student but no overlap with the major or previous minor is allowed. The level of the modules has to be post-propedeutic.

5. Enrolment in the education components
This minor is only accessible for students who have already participated and passed modules in a minor but where not able to gain all 30 credits (30 ECs) needed to finish that minor. Students need to formulate a learning agreement (at fhtenl-excie@fontys.nl) for the complete minor including the already passed modules (and their weight in EC's) in the previous minor, based on advice of the curriculum owner of their major course. The learning agreement (bearing the signature of the curriculum owner) has to be submitted to the FHTenL Examination Board for approval. The learning agreement form can be found on the portal of the examination board.
Students participating in this minor have to be aware that by bringing previously passed modules into this minor they change from the original minor to this minor. On their graduation certificate only the name plus summary of this minor will be stated. E.g. the certificate will not show the title 'minor abroad' but will say 'composite minor'.

6. Overview of tests and registration for tests *(see article 20 & 22, general section TER)*
As stated in the TER of the course.

7. Passing of minor
Examination of the modules is according to the TER of the course.

8. Examination Board (*article 38, general section TER)*

The examination board for this minor is represented by the examination board of Fontys Hogeschool Techniek en Logistiek Venlo (fhtenl-excie@fontys.nl).

9. Validity period
This information remains valid for the duration of the 2022-2023 Academic Year.

10. Entry Requirements minor
n.a. see 11. Accessibility

11. Accessibility
This minor is only open to students from FHTenL. Students must have passed modules in a previous minor outside Fontys.

12. Contact
This minor is offered by Fontys Hogeschool Techniek en Logistiek Venlo. For further information please contact the curriculum owner of your major course.

No other requirements are to be met for participation in the minor or passing the minor than mentioned in these minor regulations.