

Appendix to the Teaching and Examination Regulations of the Bachelor's programme Creative Technology

The regulations in this appendix are part of the teaching and examination regulation of the bachelor's programme Creative Technology of the Faculty of Electrical Engineering, Mathematics and Computer Science of the University of Twente.

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a. Programme and examinations

The student passes the propedeuse (first year's) examination by completing¹ the units of study of table 1.

The student passes the Bachelor's examination by passing the propedeuse examination, and completing the units of tables 2 and 3. The student's choice of options and electives must meet the requirements of the subsection Options and electives of this section.

The Examination Board may decide that students pass their examination even if some results are insufficient. The rules set by the Examination Board for passing examinations are in the Rules for Assessment and Examination.

The Examination Board may grant students permission to deviate from the requirements of subsection *Options and electives* when choosing their options and electives.

¹ To complete a unit means to pass the unit's assessment with a sufficient result. The tutoring unit is no exception to this rule. The tutor issues assessment reports for the Examination Board's audit.

Table 1²³: the first year – the propedeuse

	category	study load in EC	teaching activities	assessment	prerequisites
670061 We Create Identity	CA	3	LPIpG		-
670062 Living and Working Tomorrow	CA	6	LPIpG		-
670063 Have Fun and Play!	CA	6	LPIpG		-
670051 Creative Exploration of Structures	CE	2			-
670021 Sketching for CreaTe	DE	2	Llp		-
670022 Graphic Design	DE	2	LPpl		-
670023 Designing in Context	DE	2	LPpl		-
670024 Human Factors	DE	3			-
670011 Smart Environments	ST	3	LPIpG		
670012 Dynamical systems	ST	6	LI		
670001 Web technology	NM	3	LPIp		
670002 Interactive Visualization	NM	5	LPIp		
670041 Introduction to Computer Science	CS	3	LPIG		-
670042 Programming for CreaTe	CS	5	Llp		-
156701 Motion and Modelling	MA	3	LI		-
156702 Signals and Systems	MA	3	LI		-
156703 Introduction to Statistics and Probability	MA	3	LI		
Tutoring					
Year 1		60			

² The abbreviations in the teaching activities and the assessment column are explained in sub section *The nature of teaching activities and assessment* below.

³ The category column assigns one of eight categories to each unit of study. The categories are explained in sub section *Categories* below

Table 2⁴⁵⁶: the second year

	category	study load in EC	teaching activities	assessment	prerequisites
Ambient Screens	CA	8	LPIpG		1
Hybrid Worlds	CA	9	LPIpG		1
CE in art, science and technology	CE	2	LPIpG		1
3 D Modelling	DE	2	Llp		1
Advanced Graphic Design	DE	2	LPI		1
Digital Content Creation Tools	DE	2	LI		1
Design marketing	BI	3	LPI		1
Business management	BI	3	LI		1
<i>Introduction to electronics</i>	ST	4	Lp		1,2
<i>Wireless communication systems</i>	ST	4	Lp		1,2
<i>Control systems</i>	ST	4	Llp		1,2
<i>Sensors</i>	ST	3	Llp		1,2
<i>Web 2.0 Mashups</i>	NM	3	LPIp		1,3
<i>Virtual environments</i>	NM	6	LPIp		1,3
<i>Game development</i>	NM	6	LPIp		1,3
Programming with structures	CS	5	Llp		1
Data-driven Applications	CS	3			1
Strategies and Protocols	MA	3	LI		1
Queues and logistics	MA	3	LI		1
Tutoring					
Year 2		60			

1. To participate in these units of study, students must have a registration as either an ST or an NM student. Moreover they must have completed units of their first year totalling at least 40 credits. See also section h.
2. To participate, 10 credits in MA or ST are mandatory (see section h)
3. To participate, 10 credits in CS or NM are mandatory (see section h)

⁴ For an explanation of the category, teaching activities and assessment columns see table 1.

⁵ The numbers in the prerequisites column refer to the text at the end of the table.

⁶ The units of study in italics are optional. Students either take the units in the ST category, or the units in the NM category, but not both. See also sub section *Options and electives below*.

Table 3⁷⁸⁹: the third year

	study load in EC	teaching activities	assessment	prerequisites
<i>Electives</i>	15			1
<i>Free space to establish a profile (profileringsruimte)</i>	30			1
Final Project	15			2
Year 3	60			

1. To participate in these units of study, students must have completed units of their first and second year totalling at least 80 credits. See also section h.
2. To start the Final Project, students must have completed the entire programme, except this project. See also section h.

Categories

In tables 1 and 2 units of study are classified in eight categories. The categories are:

Category	Abbreviation	number of courses in year 1	number of courses in year 2	Total number of courses
Creative Applications	CA	3	2	5
Creative Explorations	CE	1	1	2
Design	DE	4	3	7
Business	BI	0	2	2
Smart Technologies	ST	2	4*	6
New Media	NM	2	3*	5
Computer Science	CS	2	2	4
Mathematics	MA	3	2	5
		17	19	36

Options and electives

At the end of the first year students must choose between two options: Smart Technology and New Media. Programmes for these specialisations differ in the second year. Students who opt for Smart Technology take the units of the ST category in table 2. Students who opt for New Media take the units of the NM category of table 2. Both options have a study load of 15 credits.

⁷ For an explanation of the teaching activities and assessment columns see table 1.

⁸ The numbers in the prerequisites column refer to the text at the end of the table.

⁹ The units of study in italics are optional. See also sub section *Options and electives* below.

* Each student chooses a track and takes either the ST courses or the NM courses, but not both

Admission to the options is discussed in section h.

Students can use semester 5 (totalling 30 EC) for various purposes. This is the free space to establish a profile (“profileringsruimte”) in the curriculum.

- They can take courses to prepare for further study in the Master’s programme Communication Studies.
- They can take courses to prepare for further studies in Industrial Design Engineering.
- They can take courses to prepare for further studies in Mechatronics or Electrical Engineering.
- They can take the courses (and projects) of the minors Ondernemerschap or Management to prepare for a role on the labour market.
- A one semester stay at another (foreign) university is also an option.
- And finally, students who just want to broaden their knowledge in related topics which are not in the curriculum (e.g., computer music, image or language processing), can use the free space for their profile (profileringsruimte) to do so.

Students need permission for their use of free space to establish their profile. The Examination Board issues a regulation regarding this permission.

Students have to choose electives in the third year totalling at least 15 EC.

The choice of electives is restricted by the following rules.

1. At least one unit of study among the electives deals with ethics and professional standards
2. The other units of study among the electives deal with human-product relationships, except for students who opt for an effort as described under 3.
3. Students can participate in a final project of a fellow student, as an assistant, with a maximum study load of 5 credits. It must be clear that the student doing the final project defines the work of the assistant, and acts as his or her manager. An examiner appointed by Examination Board is responsible for the assessment of the assistant’s work.

The Examination Board sets rules for such assistantships.

The nature of teaching activities and assessment

The tables above specify the nature of teaching activities and assessments for the various units of study in their “teaching activities” and “assessment” columns.

The abbreviations must be read as follows.

For teaching activities

- L (Lectures) an expert speaker addresses the students.
- P (Presentations) the students address their fellow students.
- I (Interaction) questions are raised, discussed and answered, in collaboration between students and teacher.
- p (Product) a result is being produced, which can be demonstrated and observed, The product is more than ere text for reading.
- G (Group) students collaborate in a group.

For assessment

- W (Written) students participate in a session for a written examination.
- O (Oral) oral examination
- E (Essay) students hand in one or more essays.
- H (Homework) students hand in homework assignments.
- P (Public defence) student give a presentation and (publicly) defend the results of an assignment
- p (Product) students demonstrate the results of an assignment (a working prototype, a result to be analyzed and observed, not mere text)

These codes characterize interim examination. The examiner will observe these characteristics, but may add more detailed requirements for assessment.

b. Specializations

At the end of the first year students must choose between two options: Smart Technology and New Media. They make a difference in the second year.

Students who opt for Smart Technology take the units of the ST category in table 2.

Students who opt for New Media take the units of the NM category of table 2.

Both options have a study load of 15 credits.

Admission to the options is discussed in section h.

c. The programme's final qualifications

The intended learning outcomes of the Creative Technology curriculum are captured by the following 12 final qualifications for the Creative Technology graduates. Names for the qualifications are in boldface.

1. Graduates are skilled in problem-finding, idea and concept generation, and in the identification of opportunities for the exploitation of new technology; they can develop concepts and ideas, using the latest tools, into key prototypes. (**Concept generation and prototype development**)
2. Graduates can evaluate concepts and ideas from the viewpoints of functionality, performance, experience, user acceptance and usability, marketing and societal implications (issues like privacy and security); they can present the results of their evaluation in an understandable manner. (**Evaluation of concepts**)
3. Graduates understand the workflow of a design process, can plan such a design process, and are aware of the effects that unforeseen circumstances (new ideas, new requirements, lack of resources) may have on this planning. (**Understanding and planning the design process**)
4. Graduates can assume a role in a multi-disciplinary team, are aware of personal strengths and weaknesses, can develop a personal vision and can capture requirements and knowledge from different fields of specialization. (**Collaboration and multidisciplinaryity**)
5. Graduates know the relevant theories underpinning graphic design in all its aspects (including the use of colour and motion, the combination of text and other visual means, and even the combination of graphics and sound) (**Skills and knowledge in graphic design**)
6. Graduates know the relevant (web technology, databases, dynamic and control systems) technologies to be used, and the relationships they have to one another and to graphic and motion design (qualification 5), concerning both principles and functionality. In addition to this, each student has additional technological knowledge, which concerns, depending on his specialization, either knowledge of (serious) games and 3D (virtual) environments or knowledge of sensors, wireless communication and electronics. (**Knowledge of technology**)
7. Graduates can implement algorithms and combine principles from physics and mathematics at the level required to demonstrate an application. (**Skills in technology**)
8. Graduates can analyze and classify system behaviour and express the analysis in mathematical models; they can use tools to perform simulations, they are capable of critical evaluation of their simulations. (**Skills and knowledge in modelling and simulation**)
9. Graduates know how to develop a business plan. (**Business knowledge**)

10. Graduates are aware of the roles of designers in society, and the standards (ethically and legally) for professional behaviour. **(Roles in society)**
11. Graduates can communicate with experts and non-experts about all aspects of his field, i.e. firstly concerning concepts, ideas, opportunities, and design workflow (qualifications 1,3), secondly concerning evaluation of concepts (qualification 2), and finally concerning prototype development and technological and modelling issues (1,6,7,8); this communication covers presentation, justification and documentation, and (to a limited extent) scientific debate; in this communication the graduate knows how to employ modern media. **(Communication)**
12. Graduates are capable of logical reasoning; they are inquisitive and capable of posing proper questions; they can critically evaluate results obtained (by themselves and others); they are capable of critical reflection and can adapt their behaviour on the basis of that reflection, and are aware of gaps in their own knowledge and skills; they are prepared to learn and capable of learning. **(Basic academic attitude)**

d. Practicals

No special provisions apply to the organisation of practicals.

e. Study load

The study load of units of study can be found under a.

f. Master's programmes

The master's programme for Creative Technology graduates, in accordance with section 7.13, subsection 3 of the Act, is the Human Media Interaction Programme of the University of Twente.

Admission to other Master's programmes depends on study units in the student's "profielingsruimte". See section a, subsection *Options and electives*..

g. Provisions for part-time students

The programme offers no provisions for part-time students. The programme is a programme for full-time study.

h. The conditions of admission to units of study and interim examinations

Conditions of admission to units of study are in the tables of section a, *Programme and examinations*, where the units of study are listed.

To participate in units of study of the second year students must meet two conditions:

- a. They are registered as either New Media or Smart Technology students
- b. They have completed study units of the first year with a total study load of at least 40 credits.

To take ST units as a specialization in the second year, at least 10 credits in MA and/or ST of the first year must have been completed.

To take NM units as a specialization in the second year, at least 10 credits in CS and/or NM of the first year must have been completed.

To participate in units of the third year, students must meet a single condition
c. They have completed study units of the first and second years with a total study load of at least 80 credits.

To start their Final Project, students must have completed all other units of the programme.

The Examination Board issues a regulation for students who wish to change their registration (from NM to ST or conversely).

The Examination Board may grant permission to students to start in their second or third year, or in their Final Project, even if they do not meet the requirements of this regulation.

i. Transitional arrangements

No transitional provisions apply.

j. The language of the programme, and language proficiency conditions for admission

1. The language of the programme is English. This applies to teaching and examination.
2. The Examination Board can grant permission to teach and conduct interim examination in another language. Permission can be granted only if it serves the quality of the assessment.
3. Dutch students with a vwo diploma meet the English language proficiency requirements for admission.

Students from countries participating in the Lisbon treaty for whom English is a subject of their final examination, meet the language proficiency requirements for admission.

In particular, German students with English up to their Abitur (13 years) meet the English language proficiency requirements for admission.

Students who went to school in a system of education where the language of teaching is English, meet the language requirements. (The admissions office maintains an official list of these countries. This list is decisive.)

Others must explicitly prove their proficiency at IELTS 6.0 level (over all score), before admission can be granted.

4. Students who meet the admission requirements of section j, subsection 3 above, but without English language proficiency corresponding to the IELTS 6.0 level, must take English language courses to overcome their deficiency. The dean issues a regulation concerning the conditions for participation in these courses, and the faculty's contribution in the costs of these courses.
5. The dean issues a regulation concerning the assessment of English language proficiency of staff members who teach courses in the programme, and of the support staff for the programme. All staff involved must meet the language requirements of the regulation. Courses to improve English proficiency of staff members are provided.