

Teaching and Examination Regulations
(under Articles 7.13 and 7.59 of the Higher Education and Research Act)

UT Bachelor's Programmes

The Dean of the faculty,

in view of the Articles 9.5, 9.15, paragraph 1 under a, 7.13 paragraph 1 and 2, 9.38, under b, and 9.18, paragraph 1 under a, and 7.59 of the Higher Education and Research Act (WHW), and

in due consideration of the recommendations of the Board of Studies, as well as the approval by, or advice of, the Faculty Council, pertaining to the specific appendix of the programme in question,¹

hereby authorizes the Teaching and Examination Regulations of the following educational programme:

Creative Technology

¹ The right of recommendation relates to Article 7.13 of the Higher Education and Research Act in respect of parts a through g. The right of approval relates to Article 7.13 of the Higher Education and Research Act in respect to other parts.

TABLE OF CONTENTS

Section 1	GENERAL.....	4
Section 2	Student counselling.....	6
Section 3	Exams.....	8
Section 4	Examinations.....	11
Section 5	Appeals and Objections.....	11
Section 6	Conflicts, Amendments and Implementation.....	11
Programme appendix to the Teaching and Examination Regulations of the Bachelor's programme Creative Technology.....		(12)+1

Preamble Applicability

1. Each programme has a specific programme appendix.
2. For each programme, the general section and the specific programme appendix together form the Teaching and Examination Regulations for the applicable Bachelor's programme.
3. The general section and the specific programme appendix of the Teaching and Examination Regulations are approved by the Dean.
4. The Teaching and Examination Regulations apply to all students registered with the applicable programme.
5. A programme's Examination Board sets down the Examination Board Regulations for the execution of its tasks and powers in accordance with Article 7.12b of the WHW.
6. The jurisdiction of the Examination Board of a programme extends to all units of study that are part of a student's programme.
7. The stipulations in this general section of the Teaching and Examination Regulations, in the specific programme appendix of the Teaching and Examination Regulations and in the programme Examination Board Regulations also apply to units of study provided by lecturers from other programmes or institutions.
8. An English translation of the general section and the specific programme appendices of the Teaching and Examination Regulations and the Examination Board Regulations is available for the English-language Bachelor's programmes. In conflicting situations the Dutch text shall take priority over the English text.
9. Please read all qualifications such as him, her, he and she as gender neutral.

Section 1 GENERAL

Article 1 Definitions

The terms used in these regulations should be interpreted as meaning the same as in the Higher Education and Scientific Research Act (WHW), insofar as they are defined in that Act.

The following terms and definitions apply to this regulation:

Binding recommendation on continuation of studies (BSA):	negative binding recommendation in continuation of studies, as meant in Article 7.8b, paragraph 3 of the WHW, concerning the student's registration with a programme and declared by the Examination Board on behalf of the Board of the University.
EB:	Executive Board of the University of Twente.
Dean:	Head of the faculty.
EC:	European Credit (EC), a credit point of 28 hours as described in the WHW.
ECTS:	European Credits Transfer System: European agreements on a system for expressing student study load; the study load of an academic year is 60 European Credits, or 1680 hours (see Article 7.4 of the WHW).
Examination:	An examination is deemed successfully completed if the exams required for the units of study of a programme or the propedeutic phase of a programme have been successfully taken.
Board of Examiners:	The programme's Examination Board is appointed by the Dean in accordance with Article 7.12a of the WHW.
Examiner:	The individual who has been appointed by the Examination Board to hold the exams in accordance with Article 7.12c of the WHW.
Examination Programme:	The specific contents of units of study recorded in the Student Information System (SIS) that an individual student is to complete during the course of a programme, inclusive of any optional (elective) programme components.
Authorized Proof of Result:	An authorized proof of result is a list or other written document initialled by or on behalf of an Examiner, or a result published via the Student Information System (SIS).
Institution:	University of Twente.
Unit of Study:	A unit of study in a programme as described in Article 7.3, paragraphs 2 and 3 of the WHW.
Degree programme:	The applicable curriculum of the programme as recorded in the specific programme appendix.
Programme:	The Bachelor's programme as described in the appendix to the Teaching and Examination Regulations.
Director of Studies:	Person appointed by the Dean to manage the degree programme.
Practical exercise:	A practical exercise, as described in Article 7.13 paragraph 2d of the WHW, is a unit of study or part of a unit of study, whereby the emphasis is placed on the student's activities, such as: <ol style="list-style-type: none">1. carrying out literature research, an assignment or a preliminary design, writing a thesis, article or 'position paper', or giving a presentation in public;2. carrying out a design or research assignment, doing tests and experiments, participating in practicals, practising skills;3. "following an internship, taking part in field work or an excursion;"4. participating in other educational activities deemed as necessary and aimed at achieving the required skills.
Student:	Anyone registered with a programme in accordance with Article 7.34 and 7.37 of the WHW.
Student Information System (SIS):	Application authorized by the Board of the University for registration and for providing information on all relevant data on the students and the university, as described in the WHW.
Student Counsellor:	Person appointed by the Board of the University who acts as contact between the student and the university as described in Article 7.34, paragraph 1d of the WHW.
Student advisor:	Person appointed by the Dean of the Faculty who acts as contact between the student and the university, and in this role represents the interests of the students, as well as fulfilling an Advisory role.
Academic year:	The term that starts on 1 September and ends on 31 August of the following year. The academic year is 60 ECs or 1680 hours.
Study Plan	A plan prepared by the students describing their degree programme itinerary.
Study Rate:	Number of ECs achieved in a certain period divided by the number of ECs that can nominally be achieved in this period.
Exam:	An evaluation of the knowledge, insight and skills of the student, as well as the assessment of the results of this evaluation.
UT:	University of Twente.
Working day:	Any day from Monday to Friday with the exception of official holidays and the prearranged 'bridging days' (brugdagen) on which the staff are free.
Act:	The Higher Education and Scientific Research Act (WHW), in the Dutch Bulletin of

Acts, Orders and Decrees, number 593, and as amended since.

Article 2 Programme Content

The items as described in Article 7.13, paragraph 2, a to j and l, s and t of the WHW are laid out in the specific appendix of each programme.

Article 3 Final Attainment Targets of the Programme

The goals and final attainment targets (Article 7.13 paragraph 2c of the WHW) are described in the specific programme appendices.

Article 4 Admission to the Programme

1. Admission is granted to the programme if at least one of the requirements with regard to prior education for enrolment in university education is met in accordance with the WHW, Article 7.24 on prior education requirements, Article 7.25 on additional entry requirements, Article 7.28 on exemption on the basis of other diplomas and Article 7.29 on exemption on the basis of successfully completed entrance exams.
2. The conditions pertaining to this entrance exam are described in detail in the latest version of the document entitled "University Entrance Exam and other admission regulations for admission to Bachelor's programmes" (Colloquium Doctum en andere toelatingsregelingen voor toelating tot bacheloropleidingen). This document can be found on the University of Twente's website.

Article 4a Language

1. The Bachelor's programmes are taught in the Dutch language in accordance with the University of Twente's Code of Conduct for Working Languages (Gedragscode Voertalen) and in accordance with Article 7.2 of the WHW.
2. An alternative language may be used for a Bachelor's programme with the authorization of the Programme Director if:
 - a. it concerns a part of the curriculum that is given in the form of a guest lecture by a non-Dutch speaking lecturer, or
 - b. the specific nature, design or quality of the curriculum, or the origin of the students, requires it.
3. If neither the Examiner nor the student objects, the exam can be taken in a different language.
4. Programme-specific supplements to the stipulations in this article and the manner in which an English language programme can guarantee that it meets the conditions of the above-mentioned Code of Conduct for Working Languages are recorded in the programme appendix and/or the Examination Board Regulations.

Section 2 Student counselling

Article 5 Study Plan

1. The student is required to submit a study plan for a semester prior to the start of this semester. The deadline for submitting the study plan and the required format is communicated to the student by the Dean of the programme in due time.
2. The programme itself determines the student's study plan for the first semester of the first academic year. This study plan will comprise all units of study of the first semester of the first academic year of the programme. In exceptional situations, the student may change this study plan in consultation with the Student advisor.
3. After the deadline as described in paragraph 1 above, second sentence, the student can change the study plan in consultation with the Student advisor.
4. The student may receive an advice about their study plan if the Student advisor deems this necessary.
5. The details of the method used by the Student advisor to advise on the students' study plans will be made known by the Programme Director before the start of the academic year.

Article 6 Student counselling

1. The Dean is responsible for student supervision, which includes informing the student of study opportunities within and without the programme. The Dean has given a mandate to the Programme Director of the programme to execute the tasks of student supervision.
2. Each student is appointed a Student advisor.
3. The Student advisor supervises the student and offers advice on study-related matters, as well as personal problems if the student so desires. The Student advisor also advises the student on facilities for specialized supervision within and without the university.
4. If a student wishes to make use of their right to specific supervision or facilities, they must contact the Student advisor. The Student advisor records the agreements with the student in the SIS, from which agreements rights may be derived.
The following applies to special facilities:
 - a) Students who fall behind in their studies through demonstrable circumstances beyond their control or personal circumstances have the right to request extra supervision or facilities.
 - b) The right to the aforementioned supervision or facilities concerns the right to additional individual student supervision. This includes dispensation from participation in programme components and/or the use of special facilities, if necessary and possible. Such dispensation and special facilities can only be granted by the Examination Board.

Article 6a First year recommendation on continuation of studies

1. At the end of the first year of registration with the programme, each student receives a written recommendation on the continuation of their studies within or without the programme.
2. The recommendation as meant in paragraph 1 will amount to a negative binding recommendation to continue studies if the student has achieved less than 45 EC in the first year. Any additional requirements are included in the specific programme appendix in the WHW.
3. The manner in which the recommendation is carried out is described in the 'University of Twente Directive on Recommendations on Continuation of Studies' (*Richtlijn bindend studieadvies Universiteit Twente*).
4. The Examination Board is mandated by the Board of the University to make a negative binding recommendation to continue studies.
5. A binding recommendation on continuation of studies applies solely to the programme with which the student is registered.
6. The student can request a verbal explanation of the recommendation and/or information on the continuation of their studies within or without the programme or any other opportunities for further education.

Article 7 Studying with a Disability

1. A disability is a protracted physical, sensory or other functional disorder that might limit the student's academic progress.

2. The extra facilities considered most effective for the student in question are discussed in an interview with the Student advisor. The extra facilities are intended to safeguard the student's achievement of the final attainment targets.
3. On the basis of the interview described in paragraph 2, the student submits a written application for the facilities in consultation with the Student advisor.
4. The application is submitted to the Dean of the faculty, preferably three months before the student is to participate in classes, exams and practical exercises for which the facilities are required.
5. The application is supported by documents that can reasonably be requested in support of the application (such as a doctor's or psychologist's letter or, in case of dyslexia for example, a report by a testing bureau registered with BIF, NIB or NVO).
6. The Dean of the faculty makes a decision, within 20 working days of receipt of the application, or as earlier as the urgency of the application necessitates it, on the validity of the application as described in paragraph 3, and informs the student and the Student advisor of their informed decision.
7. The Student advisor ensures that the relevant parties are informed in due time of the facilities granted to the student with a disability.
8. Should the Dean of the faculty turn down the application in full or in part, the Dean will inform the student of the justification for this rejection and the possibilities for making an objection and an appeal. An objection must be submitted in writing to the Objections, Appeals and Complaints Desk at Student Services within six weeks of notice of the decision.
9. Should extra facilities be granted, it will be stated for what term this grant will apply. The applicant and the Student advisor will evaluate the facilities before the end of this term. During this evaluation parties will discuss the effectiveness of the facilities provided and whether they should be continued.

Section 3 Exams

Article 8 Registration, Withdrawing Registration, Frequency and Periods

1. There will be an opportunity at least twice a year to sit written or oral exams. Practical exercises can be completed at least once per year.
2. There is in any case at least one opportunity to sit an exam at the end of the period in which the applicable unit of study had been taught.
3. If a student fails to achieve a mark of 6 or higher after two attempts to sit an exam for a unit of study, and the student wishes another opportunity to sit this exam, an application must be made to the Examination Board. This application must be accompanied by a plan of action, which will be drawn up by the student in consultation with the Student advisor. The Examination Board decides whether or not to grant the application.
4. The details of the stipulation in paragraph 3 are made known by the Programme Director before the start of the academic year.
5. In contradiction with that determined in paragraph 1 of this article, an opportunity to take an exam for a unit of study that is part of the degree programme, but which was not taught during that particular academic year, shall be offered at least once per academic year.
6. In certain cases the Examination Board can deviate from the number of times and the manner in which exams can be taken.
7. At least one month before the start of the semester the exam timetable for that semester is published with the dates and times of the exams.
8. The Dean must approve any changes to the exam schedule. Students will be informed of any changes. The Programme Director must inform the Examination Board of the decision to make these changes during the next exam meeting.
9. The student is required to register for written exams via the SIS.
10. Should the student fail to register before the close of registration, they will lose the right to take that particular exam.
11. The student must withdraw from an exam no later than the day before the exam in question.
12. Should a student fail to appear for an exam for which they registered via the SIS, and from which they failed to withdraw in time (in accordance with paragraph 11), this is recorded in the SIS as a fail. This will count as an unsuccessful exam attempt as meant in Article 3.

Article 8a Types of Exams and Information about the Exams

1. A unit of study is completed with an exam.
An exam can comprise one of the following types:
 - a written exam;
 - an oral exam;
 - a series of tests;
 - the assessment of practical exercises as meant in Article 1;
 - a combination of the above.
2. The Examination Board of the relevant programme is to publish the following programme details at least two weeks before the start of the teaching period:
 - the exam requirements (in any case which material is to be tested);
 - further information concerning the method of examination;
 - the weight of a particular exam for the final result of a series or combination of exams.
3. The information in Article 2 is any case published in the electronic learning environment (Blackboard) of the unit of study in question.
4. The student has the right to view model exam questions, practice exams or representative old exams, and the relevant answers, as well as the assessment standard for the exam in question.

Article 9 Oral Exams

1. Oral exams are taken in public, unless the Examination Board decides otherwise due to extraordinary circumstances.
2. A student or Examiner who wishes third parties to be present during an oral exam must inform the Examination Board at least 10 working days prior to this exam.
3. If the Examination Board has determined that members of the Examination Board (or an Observer representing the Examination Board) is to be present during an oral exam, this is made known to the Examiner and the student at least one working day prior to the exam.

Article 10 Validity of Exams

1. A successfully completed unit of study is valid for a term of six years.
2. The student can submit a request to the Examination Board to have the validity of a result as meant in paragraph 1 extended. The Examination Board may not refuse this request without a valid reason. The Examination Board will provide a written justification if it turns down this request.
3. The results of exams that are part of a series or combination of exams are valid only during the academic year in which they are achieved. The Examiner of the unit of study may determine an alternative arrangement. In this case the Examiner will inform the Examination Board. The alternative arrangement must be made known via the electronic learning environment (Blackboard).

Article 11 Registration and Publication of the Results

1. The result of a written exam or practical exercise is published via the SIS within 20 working days.
2. The result of an oral exam is made known to the student within one working day in the form of an authorized proof of result provided by the Examiner.
3. The provisions of paragraph 2 do not apply if the oral exam is part of a series of oral exams of the same unit of study, which take place on more than one day. In that case, the Examiner determines the result within one working day after conclusion of the series of oral exams.
4. If the result of a unit of study is based on the completion of one or more assignments, papers or theses, then the date of submission of the final assignment, paper or thesis will count as the exam date.
5. Should the Examiner not be able to meet the term as described in paragraphs 1 and 2 due to extraordinary circumstances, they will report this with reasons to the Examination Board. The student is informed of the delay as soon as possible by the Examination Board whereby the new term within which the result will be made known is also communicated. If the Examination Board is of the opinion that the Examiner has not met their obligations, it may appoint another Examiner to ascertain the result of the exam.
6. If a second exam opportunity is planned shortly after the first, the results of the first exam will be published at least ten working days prior to the second exam.
7. The student can request a certified study progress overview from the Student Services Desk if required.
8. If a student receives more than one authorized result for one and the same unit of study, the highest result will apply.

Article 12 Right of Inspection and Justification

1. The student has the right to hear a justification of the results of an exam from the Examiner. If no collective discussion of the results is held, the student may submit a request for an individual discussion of the results to the Examiner within two weeks of publication of the exam results. This discussion, or a collective discussion, must be held within five weeks of publication of the exam results. After this term of five weeks the student will no longer have the right to a discussion of the results of an exam and a justification of the assessment by the Examiner.
2. "The examiner responsible for the assessment of a student's written exam is also responsible for ensuring that this work is kept on file in the administration of the relevant chair or department for at least two years following publication of the results." The student has the right of access to this work during this term.
3. The Examination Board may permit deviations from the provisions of paragraphs 1 and 2.

Article 13 Administrative Errors

If, following the publication of an exam result, a marks sheet, or an overview of a student's progress, an alleged error is discovered, the discoverer, be it the university or the student, is required to make this known to the other party immediately upon finding the error and to cooperate with rectification of the error.

Article 14 Exemption from an Exam or Practical Exercise

1. The Examination Board can, at a student's request, grant that student exemption from an exam or practical exercise. If applicable, the Examiner in question may be consulted first.
2. The grounds under which the Examination Board can grant exemption from a specific exam pertain solely to the level, content and quality of exams or tests previously taken by the student, or knowledge, insight and skills acquired by the student outside of the sphere of university education.
3. Students may also be exempted from assignments or practical exercises by the Examination Board if they can demonstrate that a specific assignment or practical exercise, or the execution of such assignment or exercise, will likely place them before a moral dilemma. In such a case the Examination Board decides whether the practical exercise or assignment can be carried out in another manner to be determined by it.

Section 4 Examinations

Article 15 Flexible Programme

The Board of Examiners of the programme decides on requests for permission to take an elective programme as referred to in Article 7.3d of the Act. The Examination Board assesses whether a flexible programme is appropriate and consistent within the domain of the programme and whether the level is high enough in light of the final attainment targets of the programme.

Article 16 Programme Examinations

1. The programme has a first-year examination ('propedeuse') and a Bachelor's examination.
2. The first year of study at the programme is known as the propedeutic phase and has a study load of 60 ECs.
3. The Bachelor's programme has a study load of 180 ECs. The programme consists of a propedeutic phase with a study load of 60 ECs and a second and third year, each with a study load of 60 ECs.

Article 17 Periods, Frequency of Examinations and Issuing of Certificates

1. In accordance with Article 7.10, paragraph 2 of the WHW, the propedeutic or Bachelor's examination is deemed successfully completed if the exams in the propedeutic or Bachelor's phase have been taken successfully.
2. The Examination Board declares the student to have successfully completed the propedeutic or Bachelor's examination if they meet the examination requirements, and invites the student to accept the relevant certificate and marks sheet or supplement. The date recorded on the certificate – the examination date – is the date on which the student successfully completed the last remaining unit of study.
3. The student may make a request in writing to the Examination Board to postpone declaring the examination as 'successfully completed' and also to postpone the presentation of the certificate. The student must indicate the length of postponement they desire in this request.
4. The details of the stipulation in paragraph 3 will be included in the Examination Board Regulations.
5. If the student has requested postponement on the basis of paragraph 3, the examination date will be the date following postponement on which the Examination Board has decided to declare the student to have successfully completed the examination.

Article 18 Degree

Participants who have successfully met all requirements for the Bachelor's examination are awarded a Bachelor of Science (BSc) degree.

Section 5 Appeals and Objections

Article 19 Individual Appeals and Objections

An appeal against a decision made by the Examination Board or an Examiner, and objections to decisions made by the Dean on the basis of these regulations, must be submitted in writing to the Objections, Appeals and Complaints Desk at Student Services within six weeks of notice of the decision.

Section 6 Conflicts, Amendments and Implementation

Article 20 Conflicts with the Regulation

If other additional regulations and/or provisions pertaining to teaching and/or examinations conflict with these Teaching and Examination Regulations, the present Teaching and Examination Regulations take precedence.

Article 21 Amendments to the Regulations

1. Amendments to these Teaching and Examination Regulations are determined by the Dean in a separate decree.
2. In principle, amendments to these regulations do not apply to the current academic year. Amendments to these regulations may apply to the current academic year if the interests of the students' are not prejudiced within reasonable bounds, or in situations of force majeure.
3. Amendments to these regulations have no effect on earlier decisions of the Examination Board.

Article 22 Transitional Arrangements

1. In case of amendment of the Teaching and Examination Regulations, the Dean may decide on a transitional arrangement with a predetermined term of validity.
2. The transitional arrangement will be published on the applicable programme's website.
3. Points of departure for a transitional arrangement if a degree programme is changed:
 - a) Changes to a degree programme are published before the start of the academic year in which they are to apply.
 - b) No guarantee can be given that all the units of study of a programme, as these were defined upon a student's registration with a programme, will actually be taught in the degree programme. The degree programme as most recently approved by the Dean is taken as the basis for establishing the results of the propedeutic and Bachelor's examination.
4. These transitional arrangements shall at all events include:
 - a) which lapsed units of study are equivalent to which units of study, or parts thereof, in the changed degree programme as recorded in the specific programme appendix;
 - b) that if a unit of study that does not involve a practical exercise is deleted from a programme, then students are to be given two opportunities in the following academic year to take the relevant exam, either orally or in writing, or to undergo another form of assessment;
 - c) that if a unit of study that involves practical exercises is deleted from a programme, and during that academic year no opportunities are offered to carry out these practical exercises, at least one unit of study is designated to replace the lapsed unit of study;
 - d) the term of validity of the transitional arrangements.
5. The stipulations in Article 4 of a transitional arrangement must be approved by the Examination Board.
6. In exceptional cases, and if this is to the student's advantage, the Examination Board may allow a deviation from the number of times and the way in which exams for a lapsed unit of study may be taken.

Article 22a Review of the Teaching and Examination Regulations

The Programme Director, under mandate by the Dean, is responsible for the regular review of the Teaching and Examination Regulations and takes into account the resultant study load for the students to enable this to be monitored and adjusted if necessary.

In accordance with Article 9.18 of the WHW, the Board of Studies is responsible for issuing an advice on the Teaching and Examination Regulations as well as the annual assessment of the manner in which the Teaching and Examination Regulations are executed.

Article 23 Publication

The Teaching and Examination Regulations and the Examination Board Regulations are published via the website of the programme in question.

Article 24 Date of Commencement

The date of commencement of these regulations is September 1st, 2012 and replaces the regulations of September 1st, 2011.

The dean of the faculty authorizes,

in view of the Articles 9.5, 9.15, paragraph 1 under a, 7.13 paragraph 1 and 2, 9.38, under b, and 9.18, paragraph 1 under a, and 7.59 of the Higher Education and Research Act (WHW), and

in due consideration of the recommendations of the Board of Studies, as well as the approval by, or advice of, the Faculty Council.

Enschede, July 3rd, 2012

Programme 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 regulations of the bachelor's programme Creative Technology of the Faculty of Electrical Engineering, Mathematics and Computer Science of the University of Twente.

Contents

a.	The programme's final qualifications	2
b.	Programme and examinations	3
	First year examination	3
	Bachelor examination	3
	Authority of the Examination Board	3
	Tables of units	3
	The nature of teaching activities	3
	The nature of assessment	3
	Table 1: the first year – the propedeuse	4
	Table 2: the second year	5
	Table 3: the third year	6
	Options and electives of the second year	6
	Options and electives of the third year	6
	Final project	7
c.	Specializations	7
d.	The conditions of admission to units of study and interim examinations	7
	Enrolment as a second year student	7
	Admission to units of study of the second year	7
	Admission to units of study of the third year	8
	Admission to the Final Project	8
	Authority of the Examination Board	8
e.	<i>Bindend studieadvies</i> (notice of exclusion), study plan, student counselling, and tutoring	8
	<i>Bindend studieadvies</i>	8
	Study plan	9
	Student counselling	9
	Tutoring	9
f.	The language of the programme, and language proficiency conditions for admission	9
g.	Practicals	10
h.	Study load	10
j.	Master's programmes	10
k.	Provisions for part-time students	10
m.	Transitional arrangements	11
	1. Regulation 2012-2013 regarding the first year's exam (propedeuse)	11
	Table 4: substitution of units to meet first year's examination requirements	11
	2. Regulation 2012-2013 regarding the second year programme and the Bachelor's exam	12
	Table 4: substitution of units to meet second year requirements	13

a. 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 multidisciplinary**)
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**)

b. Programme and examinations

First year examination

The student passes the propedeuse (first year's) examination by completing² the units of study of table 1.

Bachelor examination

The student passes the Bachelor's examination by passing the propedeuse examination, and completing the units of tables 2 and 3.

Some units in tables 2 and 3 are options, some are electives. The student's choice of options and electives must meet the requirements of the subsections *Options and electives* below.

Authority of the Examination Board

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 the subsections *Options and electives* when choosing their options and electives.

Tables of units

The tables 1, 2 and 3 offer the following information for each unit:

- The name of the unit
- The study load of the unit, in EC (European Credit, 1 EC amounts 28 study hours)
- The nature of the teaching activities, expressed in letter codes, see explanation below
- The nature of the assessment, expressed in letter codes and numbers, see explanation below
- Enablers/Prerequisites, to participate in some units of study, it is mandatory to have completed at least some other preceding units. The preceding units are enablers for the units which have them as prerequisites. (The enabler/prerequisite relation is indicated by the abbreviations NM, which stands for New Media, or ST, which stands for Smart Technology; more explanation is below the tables)

The nature of teaching activities

The abbreviations for teaching activities must be read as follows.

- A (Assignments) Students work on assignments, under supervision of a teacher and/or assistant.
- D (Deliverable) a result is being produced, which can be demonstrated and observed; the product is more than mere text for reading.
- G (Group) students collaborate in a group.
- I (Interaction) questions are raised, discussed and answered, in collaboration between students and teacher.
- L (Lectures) an expert speaker addresses the students.
- P (Presentations) the students address their fellow students.

The nature of assessment

The abbreviations for assessment must be read as follows.

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

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

² To complete a unit means to pass the unit's assessment with a sufficient result.

Table 1: the first year – the propedeuse

	study load in EC	teaching activities ³	assessment ⁴	enablers
We Create Identity	5	LPIDG	DPE(2)	
Smart Environments	4	LPIDG	DPE	ST
Living and Working Tomorrow	5	LPIDG	DPEO	
Have Fun and Play!	5	LPIDG	DPE	
Visual Communication	4	LPI	D	NM
Sketching for CreaTe	3	LIA	D	
Interactive Visualization	4	LPID	DE	NM
Designing in Context	3	LAI	D	
Human Factors	3	LPDG	A	
Introduction to Computer Science	2	LIAG	APE	
Programming and Physical Computing	7	LIA	AO(2)	NM
Introduction to Physical Systems and System Dynamics	5	LIA	AO(3)	ST
Introduction to Mathematics and Modelling	6	LIAD	DW(3)	ST
First year portfolio	4	I	D(4)	P
Year 1	60			

A number (n) between brackets in the assessment column indicates that the interim examination for the unit consists of n separate sub tests.

The abbreviations for enablers must be read as follows

- NM (New Media) students must have completed these units before they can participate in the New Media course of the second year (see *section c, Specializations* below).
- ST (Smart Technology) students must have completed these units before they can participate in the Smart Technology course of the second year (see *section c, Specializations* below).
- P students must have completed the first year portfolio before they can participate in the second year portfolio.

³ The abbreviations are explained in the subsection *The nature of teaching activities* above.

⁴ The abbreviations are explained in the subsection *The nature of assessment* above.

Table 2: the second year

	study load in EC	teaching activities ⁵	assessment ⁶	prerequisites
Ambient Screens	5	LPIDG	DEP	45
Hybrid Worlds	5	LPIDG	DEP	45
Creative Explorations in Art, Science and Technology	2	A	H	45
Animated Narration	3	LPID	D	45
Innovation and Entrepreneurship for IBA	3			45
Startrix for CreaTe	5			45
Programming with Structures	5	LID	AO	45
Web Services and Data-driven Applications	4	LA	A	45
Introduction to Probability and Statistics	3	LI	W	45
Research Methodology	2			45
Systems and Signals	3		W	45
either Strategies and Protocols	3	LI	W	45+r
or Queues and logistics	3	LI	W	45+r
<i>either Smart Technology</i>	15		(4)	45+ST
<i>or New Media</i>	15		(4)	45+NM
Second Year Portfolio	2		(2)	45+P
Year 2	60			

A number (n) between brackets in the assessment column indicates that the interim examination for the unit consists of n separate sub tests.

The two pairs of units preceded by “either...or” are options. Each student has to complete at least one of the units of each pair.

The units which are printed in italics are specific for a specialization. See also *section c, Specializations* below. Students who opt for Smart Technology take the Smart Technology unit. Students who opt for New Media take the New Media unit. Both units have a study load of 15 credits.

The prerequisites must be understood as follows (see also *section d, The conditions of admission to units of study*, and *section e, Bindend studieadvies, study plan, student counselling and tutoring*):

- 45 To participate, students must have completed units of the first year with a total study load of at least 45 EC
- +r To participate, students have to register, and their registration must be accepted; the courses have a limited capacity for participation
- +NM (New Media) To participate, students must have completed the NM enablers of table 1.
- +ST (Smart Technology) To participate, students must have completed the ST enablers of table 1.
- +P To participate, students must have completed the first year portfolio.

⁵ The abbreviations are explained in the subsection *The nature of teaching activities* above.

⁶ The abbreviations are explained in the subsection *The nature of assessment* above.

Table 3: the third year

	study load in EC	teaching activities	assessment	prerequisites
<i>Free space to establish a profile (profleringsruimte)</i>	30			90
<i>Electives</i>	15			90
Final Project	15			150
Year 3	60			

The units of table 3 which are printed in italics describe electives and options for the student. See the subsection *Option and electives of the third year* below.

The prerequisites must be understood as follows (see also *section d, Conditions of admission to units of study*)

90 To participate in these units of study, students must have completed units of their first and second year totalling at least 90 credits.

150 To start the Final Project, students must have completed 150 EC of the entire programme.

Options and electives of the second year

At the end of the first year students must choose between two options in their second year: Smart Technology and New Media. See *section c, Specializations*, below.

During the second year students choose between two mathematics courses: Strategies and Protocols, and Queues and Logistics.

The regulations governing the choice between options in the second year are in *section d, The conditions of admission to units of study*.

Options and electives of the third year

Profleringsruimte

Students have to choose courses with a study load of 30 EC in semester 5 (of the programme), This is the *profleringsruimte*, i.e. the free space to establish an individual profile in the curriculum.

In the *profleringsruimte*

students can take courses to prepare for further study in a Master's programme,

students can take a standard or individual minor programme

students can take one semester of courses at another (foreign) university (which is in fact a special kind of an individual minor),

students can take the opposite course of their second year specialization (15 EC), and combine this with a choice of other courses with a 15 EC study load in total, to make an individual 30 EC minor, and possibly more.

The regulations governing the choice of courses for the *profleringsruimte* in the third year are in *section d, The conditions of admission to units of study*.

Electives

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

The choice of electives must serve at least two purposes:

1. students are confronted with a view on the human-technology relationship which is largely inspired by behavioural or management sciences, and
2. students work on ethics and professional standards for design.

Among the courses which meet condition 1 are:

Design against Crime

Education Entertainment

Among the courses which meet condition 2 are:

Computer Ethics

Philosophy and Ethics of New Media

Introduction to Philosophy of Technology

The regulations governing the choice of *electives* of the third year are in *section d, The conditions of admission to units of study*.

Final project

In their Final project students complete graduation work with a study load of 15 EC.

Graduation work consists of

1. A design project, where context and goals are set preferably by an external party.
2. A graduation report, with appendices when necessary, in which the student renders account of the graduation project and the design approach, and describes and documents literature search, surveys and experiments conducted during the project, as well as the prototypes and other deliverables which result from the project.
3. A summary of the graduation report.
4. A public presentation and defence of the graduation work.

The student can start graduation work at the beginning of a semester.

The deadline for graduation work is at the end of the semester in which it started. This period of time cannot be extended. If the deadline is not met, the examiners will assess the graduation work anyway. This may result in a fail.

Students can start graduation work only if they have completed 150 EC of their programme.

c. Specializations

At the end of the first year students choose between two options: Smart Technology and New Media. Programmes for these tracks (or specializations) 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.

Admission to the options is discussed in *section d, Conditions of admission to units of study*.

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

Enrolment as a second year student

To be enrolled as a second year student in Creative Technology, students need a notice of admission. (Or alternatively, their notice of exclusion must have been suspended.) More details on these notices are in *section e, Bindend studieadvies, study plan, student counselling and tutoring*.

In any case, according to *article 6a* of the main text of these regulations, for a notice of admission students need to complete at least 45 EC of their first year's programme.

Admission to units of study of the second year

Specific conditions of admission to (i.e. prerequisites for) units of study are in the tables of *section a, Programme and examinations*, where the units of study are listed.

For units of the second year these requirements partly coincide with the conditions for a notice of admission.

To participate in units of study of the second year the following conditions must be met:

- a. There is a registration as either New Media or Smart Technology student
- b. Study units of the first year with a total study load of at least 45 credits have been completed.
- c(Math) To take either Queues and Logistics or Strategies and Protocols, the student's registration for the course of his/her choice must have been accepted. There is a registration procedure for students to apply for participation, the number of participants for each course is limited.
- d(ST). To take Smart Technology as a specialization in the second year, the enabling units of the first year must have been completed. The enabling units for ST are (see also table 1)
Smart Environments
Introduction to Physical Systems and System Dynamics
Introduction to Mathematics and Modelling
- d(NM). To take New Media units as a specialization in the second year, the enabling units of the first year must have been completed. The enabling units for NM are (see also table 1)
Visual Communication
Interactive Visualization
Programming and Physical Computing

With the last study advice preceding the final notice of exclusion or admission for the second year, the Examination Board will ask the students to announce their choice of track.

After the registration for a specialization, and a check if all conditions are met, the Examination Board issues a formal permission for the participation in second year units. Students without such a permission can be excluded from classes and interim examinations.

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

Admission to units of study of the third year

To participate in units of the third year, the following conditions must be met

- a. Study units of the first and second years must have been completed with a total study load of at least 90 credits.
- b. (*profileringsruimte*) The second year tutor has given permission (on behalf of the Examination Board) for the courses in the *profileringsruimte*; the tutor has the authority to refuse permission even if a proposed choice of courses meets the requirements b1, b2 and b3.
 - b1. (*profileringsruimte*) The units of study in the *profileringsruimte* are courses offered by an institution or programme which has an accreditation proving its university level, or comparable.
 - b2. (*profileringsruimte*) The units of study of an introductory nature among the courses in the *profileringsruimte* have a total study load of at most 20 EC; the amount of practical work in the *profileringsruimte* does not exceed a study load of 15 EC.
 - b3. (*profileringsruimte*) The units of study devoted to foreign culture and language among the courses in the *profileringsruimte* have a total study load of at most 10 EC
- c. (*electives*) The second year tutor has given permission (on behalf of the Examination Board) for the choice of electives; the tutor has the authority to refuse permission even if a proposed choice of courses meets the requirements c1, c2, c3 and c4.
 - c1. (*electives*) At least one unit among the electives deals with ethics and professional standards.
 - c2. (*electives*) other units among the electives deal with human-product relationships, from the perspective of behavioural and/or management sciences, except for students who opt for an effort as described under c3 or c4.
 - c3. (*electives*) one unit among the electives, with a study load of 5 EC maximum, can be an assistantship in a final project of a fellow student. 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.
This option cannot be combined with the option under c4.
 - c4. (*electives*) one unit among the electives, with a study load of 5 EC maximum, can be devoted to academic writing. This option cannot be combined with the option under c3.

The Examination Board sets rules for the assistantships under c3.

Admission to the Final Project

To start their Final Project, students must have completed units totalling 150EC of the programme.

Authority of the Examination Board

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. Note however that the Examination Board can never overrule a previous notice of exclusion (see *section e, Bindend studieadvies, study plan, student counselling and tutoring*)

e. Bindend studieadvies (notice of exclusion), study plan, student counselling, and tutoring

Bindend studieadvies

By *article 6* of the main text of these regulations, all students get a progress evaluation regarding the continuation of their studies at the end of their first year.

By *article 6a*, only students who have completed 45 EC of their first year are eligible for a positive advice to continue.

A negative advice is compelling and absolute, it amounts to a notice of exclusion (in Dutch: this study advice is a *bindend studieadvies*). For appeal in exceptional cases, see below.

For students in Creative Technology there are no extra provisions besides the minimum requirement to get a positive advice (a notice of admission to the second year). A student who has taken 45 EC of the first year gets a positive advice.

In accordance with the university directive for study advice and notices of exclusion, the procedure towards the final advice (and exclusion or admittance) has the following steps:

Before the start of the academic year, new first year students are informed by the Director of Education about the study advice, the threshold value for notices of exclusion, and the admittance/exclusion procedure for the second year.

Half way through the second quarter students get a provisional advice by the Examination Board.

Half way through the fourth quarter students get a second provisional advice by the Examination Board.

At the end of the academic year the Examination Board issues the final advice.

A negative advice is a notice of exclusion, but the student may lodge an appeal against the exclusion with the university *BSA commissie*. Under special circumstances, as defined in the Act, the *BSA commissie* may decide to suspend the exclusion.

Study plan

By *article 5* of the main text of these regulations, each student maintains a study plan, which is a study programme itinerary.

Decisions about choice of specialization, choice of electives and courses in the *profielingsruimte* are taken on the basis of the information in the student's study plan.

The specific rules for the implementation of article 5 are as follow.

For section 5.1: The student advisor maintains the regulations of this article. The student advisor sends the students a digital form, allowing the student a 10 days period to fill it. The form must be filled and returned at the last day preceding the examination period of the quarter..

For section 5.2

The study plan for the first quarter of the first year is set by the course management. This plan will have all units of the first semester (of the first year). Modification of this standard plan is possible after consultation of the student advisor. At the beginning of each quarter, students are requested to update their plan (see the implementation of 5,1). The update is obligatory for students who failed subjects of the original plan.

For section 5.3

Students who wish to update their study plan (outside the periods mentioned in section 1), can do so after consultation of the student advisor.

For section 5.4

For first year students, their study plan is discussed in every meeting with their student advisor. The student advisor can send an e-mail response to a student's study plan, but only if the adviser finds it necessary to do so.

For students in their second or later year, the student advisor decides at what time and to whom a response to the study plan will be given.

Students requesting an advice on their study plan, will always receive the requested advice.

For section 5.5:

The implementation of this section has been outlined in the implementation of articles 5.1-5.4.

If a student wants to use a third (or later) attempt at an interim examination, the request for such an attempt must always be accompanied by a recent study plan. Contents of the plan may influence the advice of the student advisor and the decision of the Examination Board.

Advice regarding study plans is not taken into account in matters regarding notices of exclusion.

Study plans cannot be considered to be private.

Student counselling

By *article 5* of the main text of these regulations, each student has a student advisor, who, in accordance with the university directive for study advice and notices of exclusion, is the primary person to address for students in matters concerning their study.

The student advisor for Creative Technology has a task in mentoring, i.e. personal guidance oriented to personal problems and personal growth.

Tutoring

Every student of Creative Technology has a tutor. Tutors are university staff members who take care of academic guidance and professional growth of their tutees (a tutee is a student who is guided by the tutor).

The Examination Board delegates advice and approval for choices of specializations, courses in the *profielingsruimte*, and choices of electives to the tutors.

f. 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 (overall score), before admission can be granted.
4. Students who meet the admission requirements of *section f, 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.

g. Practicals

No special provisions apply to the organisation of practicals.

h. Study load

The study load of units of study can be found in the tables of *section b, Programme and Examinations*.

j. 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, Programme and Examinations*, under *subsection Options and electives of the third year*.

k. Provisions for part-time students

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

m. Transitional arrangements

1. Regulation 2012-2013 regarding the first year's exam (propedeuse)

Occasion: This regulation is necessary because the first year's programme changes, starting September 2012. The earlier regulation regarding study units of the first year of 2011-2012 is incorporated in this regulation.

Term of validity: until September 1, 2014.

Contents of the regulation:

Students who started their studies before September 1, 2012 can take their first year's exam if they meet the following requirements:

1. They have completed units of study with a study load totalling 60 EC;
2. According to the table below, they meet the examination requirements, by substitution.
 - a. In case of *first year EC excess*, i.e. after application of the first year substitution table the student takes the first year's exam with more than 60 EC, the surplus in EC can be used in the application of regulation 2 below.
 - b. In case of *first year EC shortage*, i.e. after application of the first year substitution table the student's accumulated study load remains below 60 EC, the tutor decides on behalf of the Examination Board about the extra requirements that must be met.
 - c. In case of incomplete substitution, i.e. the student meets only part of the substitution requirements for a specific unit, and other parts of the substitution can no longer be obtained, the examiner of the unit to be substituted decides about the extra requirements that must be met.

Table 4: substitution of units to meet first year's examination requirements

To take the exam without:		You must have instead:	
2011	We Create Identity	both	1967 We Create Identity
			1967 Web Technology
2012	Smart Environments		1967 Smart Environments
2011	Living and Working Tomorrow		1967 Living and Working Tomorrow
2011	Have Fun and Play!		1967 Have Fun and Play
2011	Visual Communication		1967 Graphic Design
2012	Sketching for CreaTe		1967 Sketching for CreaTe
2012	Interactive Visualization		1967 Interactive Visualization
2012	Designing in Context		1967 Designing in Context
2012	Human Factors		1967 Human Factors
2012	Introduction to Computer Science		1967 Introduction to Computer Science
2011	Programming and Physical Computing		1967 Programming for CreaTe
2012	Introduction to Physical Systems and System Dynamics		1967 Dynamical Systems
2011	Introduction to Mathematics and Modelling	both	1967 Motion and Modelling
			1967 Creative Exploration of Structures
2011	First year portfolio	both	1967 Systems and Signals
			1967 Introduction to Probability and Statistics

2. Regulation 2012-2013 regarding the second year programme and the Bachelor's exam

Occasion: This regulation is necessary because the second year programme changes, starting September 1, 2012. The earlier regulation regarding Design Marketing and Business Management of 2011-2012 is incorporated in this regulation.

Term of validity: until September 1, 2015.

Contents of the regulation:

Students who started their studies before September 1, 2012 can take their Bachelor's exam if they meet the following requirements:

1. They have completed their first year's exam in accordance with the regulations of this Programme Appendix;
2. According to the table below, they meet the examination requirements of the second year, by substitution.
 - a. Under no circumstance a unit of study which counts (or has counted) to obtain the first year's exam, can be used as a substitute in the second year substitution table, nor can any unit be used twice as a substitute.
 - b. In case of *first year EC excess*, i.e. if the conditions of Regulation 1 sub a apply, study load which did not count for the first year's exam can either count as compensation of EC shortage in the second year (see article c below) or as study load in the "profileringsruimte" (or both).
 - c. In case of *second year EC shortage*, i.e. after application of the second year substitution table the student's accumulated study load for second year units remains below 60 EC, first year EC excess can be used to compensate for the difference. If there is no such compensation, or the compensation is insufficient, the tutor decides on behalf of the Examination Board about the extra requirements that must be met.
 - d. In case of *second year EC excess*, i.e. after application of the second year substitution table the student has an accumulated study load in second year units which exceeds 60 EC, the surplus in EC can be used as study load in the "profileringsruimte".
 - e. In case of incomplete substitution, i.e. the student meets only part of the substitution requirements for a specific unit, and other parts of the substitution can no longer be obtained, the examiner of the unit to be substituted decides about the extra requirements that must be met.

The table is at the next page

Table 4: substitution of units to meet second year requirements

To take the exam without:		You must have instead:	
2012	Ambient Screens	either or	2010 2011 Ambient Screens Ambient Screens
2012	Hybrid Worlds	either or	2010 2011 Hybrid Worlds Hybrid Worlds
2012	Animated Narration		2010 Advanced Graphic Design
	Innovation and Entrepreneurship for IBA		Marketing for IBA
2012	Startrix for CreaTe		Startrix
2012	Web Services and Data-driven Applications	either or	2010 2010 Data-driven Applications Web 2.0 Mashups
2012	Smart Technology	all of	Introduction to Electronics Telecommunication Control Systems Sensors
2012	New Media	all of	Game Development Virtual Environments 3D modelling
2012	Research Methodology	one of	Web 2.0 Mashups 3D modelling Strategies and Protocols Queues and Logistics
2012	Second year portfolio	one of	Web 2.0 Mashups 3D modelling Strategies and Protocols Queues and Logistics