

EDUCATION AND EXAMINATION REGULATION BACHELOR PROGRAMMES (EXCEPT FOR ATLAS)

General section

*of the programme part of the students' charter, including the
education and examination regulations (EER) for the
Bachelor's programmes Faculty EEMCS*

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1. General provision

Article 1.1 Applicability of these regulations

Explanation paragraph 2: right of consent Faculty council (FC), right of consultation Programme committee (PC).

1. This general section of the education and examination regulations applies to all students enrolled in the bachelor's programmes of the Faculty EEMCS.
2. For students who follow a study unit from another programme¹, the rules for testing apply that are laid down in the assessment plan of the study unit concerned, in the education and examination regulations and in the rules and regulations of the examination board of the programme that offers the study unit concerned. Special facilities² according to Article 6.2.5 can only be granted by the examination board of the programme for which the student is enrolled.
3. Each programme has its own programme-specific appendix.
4. For each programme, this general section and the programme-specific appendix together form the education and examination regulations for the bachelor's programme concerned.
5. The general section and the programme-specific appendix of the education and examination regulations are determined by the faculty board.
6. The institutional part of the students' charter includes a definition of what the UT considers as fraud. The rules of the examination board of the bachelor programme concerned has additional regulations about fraud, for instance about what action the examination board is entitled to take when they have detected a case of fraud.
7. The rules of the examination board of the bachelor's programme concerned include regulations about the rules of order during tests and rules in case of calamities.
8. The following rules about the language of the general section and the programme-specific appendix of the education and examination regulations and the rules of the examination board apply:
 - a) In the event of discrepancy, the Dutch version of this general section is binding.
 - b) For English-taught bachelor's programmes, English versions of the programme-specific appendix of the education and examination regulations and the rules of the examination board of the bachelor's programme must be available.
 - c) If both English and Dutch versions of the programme-specific appendix of the education and examination regulations and the rules of the examination board of the bachelor's programme concerned are available, both versions must include a rule about which version is binding in the event of discrepancy.
9. Requests for exceptions to provisions laid down in the education and examination regulations should be submitted to the examination board or the programme board, the guiding principle here is which body has the authority to make a decision on - or to make an exception to - a provision of these regulations.

Article 1.2 Definitions

The terms used in these Regulations should be interpreted as follows:

Academic year: The period that starts on 1 September and ends on 31 August of the following year.

Binding recommendation on continuation of studies (BSA): Recommendation on continuation of studies in accordance with Article 7.8b, paragraphs 1 and 2 of the WHW to which a rejection in accordance with Article 7.8b, paragraph 3 of the WHW is attached, issued by the programme board on behalf of the institutional board.

Assessment plan: A plan indicating how the testing of a module is organised. At first, it states the grading of the study units of the module, and secondly, the conditions for passing the entire module (including possible compensation rules within the module and compensation rules for study units or parts of study units of different modules).

Canvas: The digital learning management system of the University of Twente.

CPO: Personal Circumstances Committee. A committee formed by the institutional board that issues advice to the programme board in individual cases concerning the validity, term and seriousness of the personal circumstances of the student involved.

Curriculum: The entirety of compulsory and optional study units belonging to the programme, as set down in the programme-specific appendix.

EC: A unit of 28 hours of study workload, in accordance with the European Credit Transfer System, a full academic year consisting of 60 EC or 1680 hours (Article 7.4 WHW).

Education period: The period in which the study unit is offered. This period starts in the first week in which the study unit has any educational activity and ends in the last week in which the study unit has an educational activity and/or a test. Resits are not part of the education period. This period is not always the same as a quartile (a quarter of an academic year³).

Exam: An evaluation in a study unit of the knowledge, understanding and skills of the student, as well as the assessment of the results of this evaluation (Article 7.10 of the WHW); an exam may consist of a number of tests.

¹ This applies for example for a minor module, for an elective study unit from the study programme of a student and for a study unit which is not included in the standard study programme of the student. This does not apply, unless otherwise agreed, for units that are supplied.

² Under Article 6.2.5 this is about providing special facilities with regard to testing to a student with functional impairments. All other matters are handled by the examination board of the programme that offers the study unit.

³ <https://www.utwente.nl/en/ces/planning-schedules/frequently-asked-questions/>

- Examination board:** The body that establishes objectively and expertly whether a student meets the criteria set in the education and examination regulations regarding knowledge, insight and skills needed for obtaining a degree.
- Examiner:** The individual who has been appointed by the examination board in accordance with Article 7.12c of the WHW to hold exams and tests and determine their results.
- Exemption:** Establishing by the examination board that a student has acquired competences, i.e. on account of exams or final examinations in the higher education domain passed earlier, or knowledge or skills acquired outside the higher education domain, that are comparable in content, size and level to one or more study units or parts thereof.
- Faculty board:** Head of the faculty (Article 9.12 WHW).
- Final examination:** A programme concludes with a final examination. A final examination is deemed successfully completed if the study units belonging to a programme have been completed successfully.
- Honours programme:** Institution-wide Bachelor's Honours programme.
- Institution:** The University of Twente.
- Institutional board:** The Executive Board of the University of Twente.
- Module:** A total of 15 EC of one or more study units in which disciplinary knowledge, skills and attitude are developed and assessed in an as integrated and/or coherent way as possible.
- Module coordinator:** The individual charged by the programme board with organising the module.
- Module examiner:** In case the module consists of one study unit, the individual designated by the examination board to determine the result of the module.
- Part of study unit:** A part of a study unit.
- Programme:** The bachelor's programme referred to in the programme-specific appendix to these education and examination regulations.
- Programme board:** The committee charged by the faculty board with managing the programme. This may also be an individual person. In which case the term programme director is used.
- Programme committee (PC):** The committee as referred to in Article 9.18 of the WHW.
- Osiris:** System designated by the institutional board for registration and for providing information on all relevant data related to students and the programme, as described in the WHW.
- Practical exercise:** A practical exercise as referred to in Article 7.13, paragraph 2d of the WHW, is a study unit or part thereof, where the emphasis lies on the personal activity of the student, as described in the programme-specific appendix.
- Student:** Anyone registered with a programme in accordance with Article 7.34 and 7.37 of the WHW.
- Study adviser:** Person appointed by the faculty board who acts as contact between the student and the programme, and as such represents the interests of the students, as well as fulfilling an advisory role.
- Study load:** The amount of time an average student needs to capture the learning material. The study load comprises for instance project work, self-study, lectures and writing papers. The study load is expressed in credit points in accordance with the European Credit Transfer System.
- Study unit:** A component of the programme as described in Article 7.3, paragraphs 2 and 3 of the WHW. Every study unit concludes with an exam.
- Test:** An evaluation of the knowledge, understanding and skills of the student, as well as the assessment of the results of this evaluation. A test is a part of an exam. If a study unit has only one test, this coincides with the exam for the unit in question.
- UT:** University of Twente.
- WHW:** The Higher Education and Research Act (WHW), in the Dutch Bulletin of Acts and Decrees 1992, number 593, and as amended since.
- Working day:** Any day from Monday to Friday with the exception of official holidays and the prearranged compulsory holidays (compulsory days free of work) on which the staff is off.

Any terms not defined here have the meaning assigned to them by the WHW.

Article 2. Admission

Article 2.1 Prerequisites

Admission to the programme is granted if the requirements with regard to prior education for enrolment in university education are met, in accordance with the WHW, Articles 7.24, 7.25 and 7.28. The conditions pertaining to this can be found on the University of Twente's website⁷.

Article 2.2. Language requirement bachelor's programme for holders of foreign diplomas

Holders of diplomas from outside the Netherlands can only enrol in the following cases⁸:

- a) if the programme is offered in the Dutch language: after it has been shown that the requirement for adequate proficiency in the Dutch language to the level of the Dutch pre-university (VWO) examination has been met. The UT Admission Office provides a complete overview of the language requirements and certificates that show evidence of meeting these requirements⁹.
- b) if the programme is offered in the English language: after it has been shown that the requirement for adequate proficiency in the English language to the level of the Dutch pre-university (VWO) examination has been met. The UT Admission Office provides a complete overview of the language requirements and certificates that show evidence of meeting these requirements⁷.
- c) The provisions in paragraphs a and b relate to the entry requirements for incoming students. They involve only the formal aspects of language such as spelling and grammar: not academic language proficiency⁶. Acquiring academic language proficiency should be part of the programme's vision.

Article 2.3 Admission test or colloquium doctum

If the conditions referred to in Articles 2.1 and 2.2 are not met, the institution can grant an exemption on the grounds of a positive result of an admission test (colloquium doctum), in accordance with Article 7.29 of the WHW. The conditions pertaining to this can be found on the University of Twente's website⁷.

3. Content and structure of the programme

Article 3.1 Programme objectives and intended learning outcomes

Explanation: right of consent FC, right of consultation PC.

The qualities regarding the knowledge, insight and skills a student must have acquired upon completion of the programme (objectives and intended learning outcomes, Article 7.13, paragraph 2c of the WHW) are described in the programme-specific appendices.

Article 3.2 Structure of the programme

Explanation paragraph 1 f, j-l, paragraph 2: right of consent FC, right of consultation PC.

1. The programme is equivalent to 180 EC.
 - a) The curriculum always needs to contain a core programme of a maximum of 120 EC, a minor of 30 EC and a graduation phase of a minimum of 15 EC.
Exceptions are the programmes Advanced Technology and Technical Medicine which have electives instead of a minor or do not have a minor but a core programme of more than 120 EC.
 - b) The programme-specific appendix describes the core programme of the programme.
 - c) The curriculum is composed of modules.
 - d) A module is the total of 15 EC of one or more study units in which disciplinary knowledge, skills and attitude are developed and assessed in an as integrated and/or coherent way as possible.
 - e) Before the start of a study unit, the student must meet the prior knowledge prerequisites for that study unit, as described in the education catalogue.
 - f) In principle, the minors are done during the first semester of the third year of study.
 - g) The programme offering the minor module may set prerequisites for prior knowledge of the student for admission to the minor modules. These prerequisites must be included in Osiris.
 - h) The study programme in which the students is enrolled may set prerequisites for the number of ECs required for admission to the minor modules, these prerequisites have been included in the programme-specific appendix concerned.
 - i) The offer of minors from which the student can choose for his minor is limited by the restrictions in paragraph g and h. The offer can be examined on the website <https://www.utwente.nl/en/education/electives/minor/>
 - j) In principle, the graduation phase, requiring a minimum of 15 EC, is done during the second semester of the third year of study.
 - k) To be admitted to the graduation phase the student is required to have at least completed the core programme of the bachelor's programme.
 - l) The examination board⁴ is authorised to deviate from Article 3.2.1e, 3.2.1h, 3.2.1j and 3.2.1k in individual cases, if strict application of those terms would result in an unreasonable delay in study progress. In consultation with the study adviser, the student can submit a proposal to the examination board.

⁴ It is important that the student can still achieve the programme intended learning outcomes. As a result of this consideration, authority is formally placed with the examination board, since they must ensure that a student who has passed, has achieved the programme intended learning outcomes.

2. The programme is described in the programme-specific appendix to these regulations, in accordance with Article 7.13, paragraph 2 a to e, i, l, s, t and v of the WHW.

Article 3.3. The programme's language of tuition

Explanation paragraph 2-4: right of consent FC, right of consultation PC.

1. The official language of tuition is the language in which the education is given, in which teaching material is provided and in which tests and exams are held. In Dutch bachelor's programmes, study materials are provided in either the English or Dutch language.
2. The choice of the official language for the programme or a part of the programme lies with the programme board, for which the programme committee has the right of approval. The programme-specific appendix, which is established by the faculty board, specifies the language of tuition for the programme.
3. If there are deviations from this official language of tuition for components of the programme, this occurs in accordance with the UT Language Code of Conduct (Gedragscode Voertalen) and Article 7.2 of the WHW.
4. In Dutch bachelor's programmes parts of a study unit can be taught or tested in English if:
 - a) a lecturer or tutor of the study unit concerned is not a native speaker of Dutch, or
 - b) students of the bachelor's programme concerned are taught together with students of an English-language bachelor's programme, or
 - c) the programme board deems it necessary in order to meet one of the programme intended learning outcomes with regard to the communication skills in the English language.

Article 3.4 Exemption

Explanation: right of consent FC, right of consultation PC.

1. The examination board can grant students exemption from one or more complete study units at their request. To this end, the student will demonstrate that they have completed a component of a similar content, size and level of a university or higher professional education programme or have, as a result of work and/or professional experience, sufficient knowledge and skills regarding the study unit concerned.
2. The examination board is authorised to make exceptions to the provisions as stated in paragraph 1 and grant an exemption to a student from parts of a study unit.
3. An exemption granted by the examination board will be registered in Osiris with the concerning study unit or parts thereof with an EX (exemption).
4. Students cannot be forced to take extra study units or parts of study units in their curriculum instead of the granted exemption.
5. Students may be exempted from the obligation to participate in practical exercises if they can demonstrate that they expect to be placed in a moral dilemma as a result of the need to meet one of the requirements for this component. In such cases, the examination board decides whether the component can be carried out in another manner to be determined by the examination board.

Article 3.5 Flexible programme

Explanation: right of consent FC, right of consultation PC.

The examination board of the programme decides whether a student may take part in a flexible programme as stipulated in Article 7.3h of the WHW. The examination board assesses whether the programme is appropriate and consistent within the domain of the programme and whether the level is high enough in light of the intended learning outcomes of the programme.

4. Education and testing

Article 4.1 General

Explanation paragraph 1, 2, 3: right of consent FC, right of consultation PC.

1. The institutional board is responsible for the practical organisation of the exams and the final examinations.
2. A study unit is completed with an exam.
3. An exam consists of one or more tests.
4. Exams and tests can have various forms⁵. Tests or exams can be held online.
5. A test can be taken in multiple sessions or components, spread over time.
6. When a test or exam is held online by means of online surveillance⁶ or online proctoring⁷, the examination board may lay down further rules and conditions for online (proctored) testing.
7. These further rules and conditions must comply with the General Data Protection Regulation (GDPR⁸), the Data Protection Impact Assessment (DPIA⁹) on proctoring and the EER.

⁵ A test or exam can have the following forms: a written test, an assignment, an oral test, practical exercises, or a combination of these forms.

⁶ Camera-surveillance of student(s) during exams without recording via e.g. Canvas, Teams.

⁷ Surveillance of student(s) using special proctoring software e.g. Proctorio.

⁸ The text of the GDPR can be found here: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679>

⁹ The DPIA is an instrument to point out privacy risks of a processing operation to be able to take measures to mitigate those risks. In this case it is done for proctoring. Among a lot of other things, it describes the rights of the data subjects (in this case: the students) and the context in which proctoring can be used. <https://www.utwente.nl/remote-exams/students/proctoring/dpia-proctoring.pdf>

8. Pursuant to Articles 12-14 of the GDPR, students must be informed before the use of online surveillance or online proctoring about the processing of their personal data.
9. Pursuant the DPIA
 - a) in the event where no alternative exam method is reasonably possible, online surveillance or online proctoring can be used¹⁰.
 - b) the retention period of the data is 30 days unless the examination board decides that the data needs to be maintained longer for a fraud investigation.
10. Results of exams, tests or components of tests have to be announced to the students, in any case via Osiris or via the Grade Centre of Canvas. Osiris is used for the registration of grades.
11. The student has the right to refer to recent model test questions or trial tests or representative older tests and the related answers and the standard of the related assessment.
12. A test has a maximum duration of 3 hours¹¹.
If the examiner wishes to use a form of testing which takes more than 3 hours, they may request permission from the examination board to deviate from this provision. This request must be submitted not later than 4 weeks prior to the start of the period when a study unit is offered, to be able to meet the provisions in paragraph 19.
13. Test results are expressed in a grade from 1 to 10, with one decimal place, or as 'pass / fail'.
14. Exam results of a study unit, as determined by the examiner, are expressed in half grades from 1,0 up to and including 5,0 and from 6,0 up to and including 10,0 whereby:
 - Grades will only be rounded in the last phase of the assessment of the study unit.
 - The rounding is done in accordance with the following scheme:

In case n≠5	
Grade ≥ n.00 and <n.25	⇒ n.0
Grade ≥ n.25 and <n.75	⇒ n.5
Grade ≥ n.75 and <(n+1).00	⇒ (n+1).0
In case n=5:	
Grade ≥ 5.00 and < 5.50	⇒ 5.0
Grade ≥ 5.50 and <6.00	⇒ 6.0

15. Exam results of 6,0 or higher are a pass
16. Exam results, if passed, obtained at foreign universities will be registered as a P (Pass). Exam results obtained at Dutch universities will be adopted one-to-one in compliance with paragraph 14.
17. The ECs for a study unit will only be awarded if the exam has been successfully completed. No ECs will be awarded for parts of a study unit that have not been completed successfully.
18. If a student receives more than one result for the exam in the same study unit, the highest grade will apply. This also applies for the results of tests and components of tests within the same academic year and for the results of tests and components of tests that remain valid after the academic year in which they were obtained.
19. Through the education catalogue of Osiris, the programme board will announce at least the following aspects: size, course objectives and content of the module, language, required prior knowledge, mandatory and recommended study materials, design of the education (teaching methods) and testing.

Article 4.2 Modules

1. Each module has a module coordinator.
2. When a module comprises of one study unit, the examiner of this study unit is also module-examiner.
3. The examination board assigns the examiners for the study units and/or parts of study units

Article 4.3 Registering for a module, study unit and tests

1. To participate in a module or study unit, registration via Osiris prior to the start of the study unit is required.
2. By registering for the module or study unit the student is automatically also registered for the regular exam periods that go with this module or study unit.
3. Information on resits, the applicable conditions and the registration procedure will be published in the assessment plan.

Article 4.4 Module description and assessment plan

1. In the programme-specific appendix to these regulations, a module description is given for each module.
2. The module description defines at least:
 - a) if applicable, the study units that are part of the module and their related ECs;

¹⁰ This means online proctoring can be used for a few students as well as for all students.

¹¹ If a test consists of several parts spread over time, the maximum duration applies per part. Article 7.1, paragraph 10 includes a provision regarding the maximum extra time that can be allocated to students with dyslexia.

- b) if applicable, the number of ECs and the weighting factors of the parts of the study units;
 - c) the language of tuition and testing.
- Learning goals of the module and/or the learning goals of the study units that are part of the module will be published in time on Osiris and Canvas.
3. The assessment plan of a module is determined by the programme board after the module coordinator and/or the examiners of the study units that are part of the module have drawn up the assessment plan. The examination board advises on the assessment plan.
 4. At least 2 weeks prior to the start of the module, the assessment plan for the module is published on Canvas.
 5. The assessment plan of a module states at least:
 - a) when the module has been passed;
 - b) how the learning goals of the study units of the module are assessed;
 - c) the period of validity of the result of the test or tests of parts of a study unit
 - d) when tests will be administered
 - e) any required minimum grade per test; a minimum grade for a test may not be set higher than 5.5
 - f) resits for each test and – if applicable - any conditions for participating in the resit; for each study unit at least one resit has to be offered within the same academic year without any conditions for participating¹². An exception may be made for practical exercises¹³.
 - g) if applicable, any options to compensate test results within a study unit;
 - h) if applicable, any options to compensate test results with results from tests in other study units in the same module and/or results from tests in study units in other modules;
 - i) the grading period of each test; which is a maximum of 10 working days in compliance with Article 4.6.9 of these regulations.
 6. The programme board may modify the assessment plan during the course of the study unit.
 - a) The assessment plan may only be changed in consultation with the module coordinator and the examiners of the study unit or study units of the module.
 - b) The programme board consults the examination board beforehand in case of changes in the form or the method of administering of a test or tests. If the change involves nothing more than moving tests or test components to a timeslot other than as shown in the schedule, the programme board must inform the examination board of the decision to make the change at latest before the next meeting of the examination board.
 - c) Students are to be informed immediately of the change.
 7. Changes to the assessment plan may, in reasonable expectation, not put students at a disadvantage. Examination boards may provide special facilities in individual cases.

Article 4.5 Oral tests

1. Oral tests are open to the public, unless the examination board has determined otherwise in a particular case, possibly at the request of the examiner or the student.
2. A student or examiner who wishes third parties to be present during an oral test must submit this request to the programme board at least 15 working days prior to the oral test. The decision of the programme board will be made known to the student and the examiner not later than 5 working days before the oral test. The programme board must inform the examination board of the decision at their next meeting. This does not apply for public graduation colloquia, public presentations or group tests.
3. If the examination board has determined that members of the examination board (or an observer representing the examination board) are to be present during the oral test, it will notify the examiner and the student at least one working day prior to the test.

Article 4.6 Term assessment, date of exam or test

1. The examiner will inform the student of the result within at most 1 working day after conducting the oral test.
2. The provisions of paragraph 1 do not apply if the oral test is part of a series of oral tests for the same study unit, which take place on more than one working day. In that case, the examiner determines the result within one working day after the conclusion of the series of oral tests.
3. The deadline for determining and publication of the result of a written exam or an exam taken in some other way will be included in the assessment plan for the module.
4. The result of a test or part of a test will be made known to the student within 10 working days in compliance with paragraph 9 of this Article.
5. The exam result of a study unit will be made known to the student within 10 working days after the end of the education period in which the unity of study is offered. If the exam result is insufficient, and a resit is possible outside the education period in which the study unit is offered, and the examiner has determined that the students meet the terms and conditions to participate in the resit (in accordance with Article 4.4, paragraph 5f) this decision will also be made known to the students within 10 working days after the end of the education period in which the study unit is offered.
6. The date of exam is the date on which the last test for a study unit was passed.
7. The date of a test is the date on which a test is taken.

¹² A resit may also fall within the quartile with due observance of the provision in Article 4.6.9. If the result of a unit of study is determined by more than one test, there must be a resit for each test or part of a test. Combining several tests or parts of tests into one resit is allowed.

¹³ See the definitions in Article 1.2. These include projects and practical exercises.

8. If the assessment of a test is based on the completion of one or more assignments, a paper or a thesis, the deadline for submission of the final part will count as the test date.
9. If a resit is planned shortly after the first test, the results of the first test will be published at a time that provides the student with at least 5 working days to prepare for the resit.
10. Should an examiner not be able to meet the deadlines as described in paragraphs 1, 2, 4,5 and 9 due to special circumstances, they will report this with reasons to the examination board. The students involved will be informed of the delay as soon as possible including the new deadline when the result will be announced. If the examination board feels that the examiner has not met their responsibility, they can order a different examiner to determine the grade.

Article 4.7 Period of validity

Explanation paragraph 1: right of consent FC, right of consultation PC.

1. The period of validity for the results of an exam that has been passed is unlimited. The validity of an exam result can only be restricted if the tested knowledge, insight or skills are proven to be out of date.
2. A study unit that was not passed, has to be repeated completely in the next academic year. Results of parts of a study unit expire after the academic year. Exceptions are listed in the programme-specific appendix and in the assessment plan of the module.

Article 4.8 Right of discussion and review.

1. The student is entitled to a discussion, including review, of the results of a test with the examiner, where the examiner justifies the assessment.
2. If the examiner holds a plenary discussion, the student must make use of this opportunity to exercise their right of discussion as referred to in paragraph 1. In case the student cannot attend this plenary discussion or if the student was not offered the opportunity to discuss the justification of his assessment with the examiner, the student may submit a request to the examiner for an individual discussion within 5 working days after the plenary discussion. The individual discussion must take place no later than 3 working days prior to the next test opportunity.
3. If there is no plenary discussion of the test, the student may submit a request to the examiner for an individual discussion within 10 working days after publication of the results. The individual discussion must take place no later than 3 working days prior to the next test opportunity.
4. Plenary and individual discussions must take place no later than 5 weeks after the publication of the test results, but at least 3 working days prior to the next test opportunity, in the presence of the examiner or an authorised replacement.
5. Students have the right to inspect their work for a period of 2 years after the assessment.

Article 4.9 Retention period for tests

1. The questions, answers and the assessed work of written tests will be retained for a period of 2 years.
2. The retention period of final assignments of the bachelor's programme is at least 7 years.

Article 4.10 Evaluation of education

Explanation paragraph 1 and 2: right of consent FC, right of consultation PC.

1. The programme board is responsible for monitoring the quality of the programme.
2. The programme board is responsible for evaluating the programme.
3. The way evaluation is organised is described in the programme-specific appendix.

5. Final examination

Article 5.1 Examination board

Explanation: right of consent FC, right of consultation PC.

1. The faculty board appoints an examination board for each programme or group of programmes.
2. The faculty board establishes the examination board and appoints the members of the examination board based on their expertise in the domain of the relevant programme or group of programmes.
3. The faculty board ensures that the independent and expert operation of the examination board is adequate.
4. Under their own authority, an examination board define rules and regulations for examiners, exams and tests and the final examination (WHW Article 7.12b).

Article 5.2 Final examination

Explanation paragraph 1: right of consent FC, right of consultation PC.

1. In accordance with Article 7.10, paragraph 2 of the WHW, the bachelor's final examination is deemed successfully completed if the exams of the study units of the bachelor's programme have been taken successfully.
2. As proof that the final examination has been completed successfully, the examination board issues a certificate, after the institutional board has declared that the procedural requirements have been met. In this case, the date recorded on the certificate, i.e. the graduation date, is the date on which the student successfully completed the last remaining study unit (Article 7.11 WHW).
3. If so desired, the student has the right to submit a substantiated request in writing to the examination board to delay declaring the final examination as successfully completed and consequently the presentation of the certificate (WHW Article 7.11 paragraph 3). In principle the maximum duration of the delay that may be granted is 12 months. In

exceptional cases¹⁴ the student may have justifiable reasons to submit a request to delay the presentation of the certificate for more than 12 months.

4. If the student requests a delay on the basis of paragraph 3, the graduation date will be the date after the delay on which the examination board has decided to declare the student to have successfully completed the final examination.

Article 5.3 Degree

Explanation paragraph 1: right of consent FC, right of consultation PC.

1. Participants who have successfully met all requirements for the bachelor's final examination are awarded a Bachelor of Science degree.
2. The awarded degree will be stated on the certificate.

Article 5.4 Certificate

Explanation: right of consent FC, right of consultation PC.

1. The examination board grants a certificate as proof that the student has successfully passed their final examination. The chair of the examination board will sign the certificate. In their absence, it can also be signed by one of the members of the examination board.
2. The certificate will state the following (Article 7.11 WHW):
 - a) the student's name and date of birth;
 - b) the name of the institution and the programme as referred to in the register, referred to in Article 6.3 of the WHW, it concerns;
 - c) the date on which the final examination was sat;
 - d) which components¹⁵ the final examination included;
 - e) the degree awarded (WHW Article 7.10a);
 - f) where appropriate what qualification was attached thereto (taking into account Article 7.6, paragraph 1, of the WHW);
 - g) the date on which the programme was most recently accredited or passed the initial accreditation assessment as referred to in Article 5a.11 of the WHW.
3. The International Diploma Supplement will be appended to the certificate for the successfully completed final examination (WHW, Article 7.11, paragraph 4). The purpose of the supplement is to provide information on the nature and content of the completed programme, in order to support the international recognition of programmes. This supplement will contain at least the following information:
 - a) the name of the programme and the name of the University;
 - b) the fact that it is a programme in academic education;
 - c) a description of the content of the programme; where applicable also stating the specialization and/or minor taken;
 - d) the study load of the programme;
 - e) the components of the final examination and their assessment, based on the registration of grades in Osiris;
 - f) exams that were passed by the student, which are not part of the final examination;
 - g) if the student has successfully completed an honours programme during the bachelor's programme, this will be recorded on the diploma supplement as an extracurricular programme;
 - h) the average grade (Grade Point Average, GPA). The manner in which the GPA is calculated is stated on the diploma supplement.
4. If the examination board has granted the student a *judicium*, this will be stated on the certificate.
5. Students who have passed more than one exam and to whom no certificate as referred to in paragraph 1 of this article can be issued, can request a written statement from the examination board stating the exams they have passed (WHW, Article 7.11, paragraph 5).

6. Student guidance and (binding) recommendation on continuation of studies

Article 6.1 Study progress overview

The student can request a certified study progress overview from the Student Services Desk if required.

Article 6.2 Student guidance

1. The faculty board is responsible for student guidance, which includes informing the student of study opportunities in or outside the programme.
2. Each student is assigned a study adviser.
3. The study adviser guides the student and offers advice on study-related matters, as well as personal problems that may affect their studies if the student so desires.
4. If a student wishes to exercise their right to specific guidance or special facilities, they are required to contact the study adviser. The study adviser will record any agreements made with the student.
5. The following applies to the entitlement to special facilities:
 - a) demonstrable force majeure or personal circumstances;

¹⁴ Some examples (by way of illustration, not to exclude other situations): the student follows a double bachelor's programme, the student needs more time for a pre-master programme, an extensive extra-curricular activity requires more than 12 months.

¹⁵ 'Components' in the WHW refers to the study units that comprise the bachelor's final examination. Legally, these are all of the study units that are part of the modules and all modules that comprise one study unit of 15 EC. The programme determines which parts of study units are also mentioned on the certificate.

- b) if necessary and possible, dispensation for participation in exams or tests and/or the availability of special facilities with regards to testing. Such dispensation and additional testing opportunities can only be granted by the examination board.
- 6. An introductory interview is held with every student before 1 November of the first year in which they are enrolled in the programme.
- 7. In the first year in which they are enrolled in the programme, the student will receive a first preliminary recommendation on continuation of his studies in week 52 at the latest. This also applies to students in their second year of enrolment in the programme, whose recommendation on continuation of studies has been postponed. This recommendation is not binding.
- 8. In the first year in which they are enrolled in the programme, the student will receive a second preliminary recommendation on continuation of their studies in week 10 at the latest. This also applies to students in their second year of enrolment in the programme, whose recommendation on continuation of studies has been postponed. This recommendation is not binding.
- 9. Any student who receives a negative preliminary recommendation, will be invited for an interview with the study adviser to discuss the study method and a reconsideration of the choice of study.

Article 6.3 (Binding) Recommendation on continuation of studies

- 1. Each student receives a written recommendation on continuation of their studies within the programme no later than at the end of the first year of enrolment in the programme concerning, subject to Article 6.4. This recommendation is based on the student's study results and may be a positive or negative recommendation, in compliance with Articles 6.4 and 6.5.
- 2. The issuing of the recommendation on continuation of studies as referred to in paragraph 1 is by the institutional board to the programme board.
- 3. Results of completed parts of a study unit that remain valid beyond the current academic year are counted when issuing the recommendation on continuation of studies.
 - a) Only credits from study units and parts of study units in the first year of the programme that issues the final recommendation, count for determining the number of EC's.
 - b) Exemptions granted to the student for study units and parts of study units of the first-year count for determining the number of credits.
 - c) The programme board may set programme-specific requirements that must be met. These requirements are included in the programme-specific appendix. Programme-specific requirements may not state that all study units or parts of a study unit of a certain educational curriculum must be completed¹⁶.
- 4. The recommendation on continuation of studies as referred to in paragraph 1 may involve rejection from the programme, if the student, in the opinion of the programme board, is not deemed suitable for the programme because
 - the student has passed in total less than 45 ECs of the first year, or
 - has passed 45 ECs or more of the first year but does not meet the programme-specific requirements (as referred to in paragraph 3c of this Article).

A recommendation on continuation of studies that involves rejection is referred to as a binding recommendation on continuation of studies (BSA).

- 5. In its deliberations on attaching a rejection to a recommendation on continuation of studies, the programme board will take into account the student's personal circumstances at their request.
 - a) Personal circumstances are understood to be illness of the person involved, a physical, sensory or other impairment of the person involved, pregnancy of the person involved, exceptional family circumstances, top-level sports or top-level culture of the person involved and the membership of the university council, faculty council, programme committee or a board (category 3 or 4 in accordance with the FOBOS regulations).
 - b) The personal circumstances must be submitted to the Personal Circumstances Committee (CPO) for assessment. The application for assessment of the personal circumstances must be substantiated with evidence.
 - c) The CPO assesses the validity and seriousness of the personal circumstances. A recommendation is issued to the programme board and the relevant study adviser.
 - d) The programme board takes the judgement of the CPO into account in its handling of the student's request. The programme board will only take into account in its deliberations personal circumstances that have been reported to the study adviser by the student as soon as can reasonably be expected after they arose.
- 6. Before issuing a rejection, the programme board must first issue a warning to the student, while giving them a reasonable term to improve their study results, to the programme board's satisfaction. Moreover, the student has the right to be heard by the programme board before the issue of a binding recommendation (WHW Article 7.8b, paragraph 4).
- 7. The decision of the programme board with respect to the binding recommendation on the continuation of studies mentions the possibility of filing an appeal. Objections are only possible for a recommendation on continuation of studies involving rejection and the student may lodge an appeal within 6 weeks with the Board of Appeal for Examinations.
- 8. If a binding recommendation on continuation of studies has been issued to the student, they may not enrol in the same programme for a period of 3 subsequent academic years.
- 9. If a student re-enrols in the programme concerned after the period referred to in paragraph 8 of this Article, this enrolment is designated as their first-year enrolment and the relevant provisions of this paragraph apply in full.

¹⁶ For example: 'The student must have passed all mathematics study units from the B1 programme' is not permitted, whereas 'The student must have passed not less than 3 of the 4 mathematics study units from the B1 programme' is permitted.

Article 6.4 Discontinuation of enrolment

1. The programme is considered to be discontinued if the student stops taking courses or any form of tests of the programme and:
 - a) Submits a request for termination of enrolment to the UT, or
 - b) De-enrols for the programme at the UT, while they enrol in another programme at the UT and thus transfer to the other UT programme, or
 - c) Starts a study at another institution of higher education with a 'proof of paid tuition fee'.
2. If in their first year of enrolment for the programme, a student submits a request to terminate enrolment through Studielink not later than 31 January and they are de-enrolled before or on 1 February and they do not re-enrol for the same programme in that same academic year, a study recommendation as referred to in paragraph 1 of Article 6.3 will not be issued. If this student does re-enrol in the relevant programme, this enrolment is designated as their first-year enrolment.
3. Students who are de-enrolled after 1 February for the programme at the UT, will receive a recommendation on continuation of studies as referred to in Article 6.3 paragraph 1 from the programme they discontinued.

Article 6.5 Postponing recommendation on continuation of studies

1. The recommendation on continuation of studies as referred to in Article 6.3 paragraph 1 may be postponed if:
 - a) the student is enrolled in the programme on or after 1 October of the relevant academic year, whether or not this is due to a transfer as outlined in Article 6.4 paragraph 1b, and on 31 August at the latest has not met the requirements set in Article 6.3, paragraph 4, or
 - b) if personal circumstances preclude rendering an opinion on a student's academic capacities at the end of the first year of enrolment in the programme.
2. If the student whose recommendation on continuation of studies as referred to in Article 6.3, paragraph 1 has been postponed based on Article 6.5, paragraph 1, re-enrols in a subsequent academic year for the relevant programme, the end of the second year of enrolment in the relevant programme applies as the new deadline for the final recommendation. Within 6 weeks after the enrolment date the student will be notified in writing when the programme will issue the final recommendation. The same requirement as set out in Article 6.3; paragraph 3 applies to this recommendation.

In case of postponement based on paragraph 1a the recommendation on continuation of studies is issued by the programme in which the student is newly enrolled.
3. For students who transfer to a different programme within the UT before 1 October, the recommendation on continuation of studies will not be postponed on the basis of transfer and thus there will be no adjustment of the requirements as stipulated in Article 6.3 paragraph 4.

7. Studying with a functional impairment

Article 7.1 Studying with a functional impairment

1. A functional impairment is a physical, sensory or other impairment that might limit the student's academic progress.
2. Based on a discussion with the study adviser, the student will be consulted to determine which adjustments as referred to in Article 2 of the Equal Treatment Act on the basis of a Handicap/Chronic Illness (WGB h/cz) are deemed most effective for this student.
3. Adjustments are intended to remove specific obstructions when following the curriculum and/or sitting exams. Where necessary, these may concern facilities pertaining to the accessibility of infrastructure (buildings, classrooms and teaching facilities) and study material, changes to examination, alternative courses or a custom study plan. Realising the programme intended learning outcomes must be guaranteed when implementing changes.
4. On the basis of the interview described in paragraph 2, the student submits a written application for the facilities consultation with the study adviser. The application is submitted to the faculty board, preferably 3 months before the student is to participate in classes, exams and tests for which the facilities are required.
5. The application is supported by documents that can reasonably be requested to assess the application (such as a letter from a doctor or psychologist registered in the BIG register, or in case of dyslexia from a health care psychologist or remedial educationalist, also registered in the BIG register).
6. The faculty board makes a decision, within 20 working days of receipt of the application or earlier if the urgency of the application necessitates it, on the validity of the application as described in paragraph 4, and informs the student and the study adviser of their decision.
7. The study adviser ensures that the relevant parties involved are informed in due time of the facilities granted to the student with a disability.
8. Should the faculty board turn down the application in full or in part, the faculty board will inform the student of the reasons for this rejection and the possibilities for lodging an objection or an appeal. Objections must be submitted in writing within 6 weeks, of the decision being announced to the relevant party, at the Complaints Desk at Student Services.
9. Should extra facilities be granted, it will be stated for what term this grant will apply. The applicant and the study adviser will evaluate the facilities before the end of this term. During this evaluation, the parties will discuss the effectiveness of the facilities provided and whether they should be continued.
10. In the case of dyslexia, an additional period of 15 minutes for every hour is granted in the event additional time for a test is granted.

8. Amendments, transitional arrangements, appeals and objections

Explanation paragraph 8.5 and 8.9: right of consent FC, right of consultation PC

Article 8.1 Conflicts with the regulations

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

Article 8.2 Administrative errors

If, following the publication of a result, a grade list, or an overview of a student's progress, an apparent error is discovered by either the university or the student, is required to make this known to the other party immediately upon finding the error and with rectification of the error.

Article 8.3 Amendments to the regulations

1. Substantive amendments to these education and examination regulations are determined by the faculty board in a session.
2. In principle, substantive amendments to these regulations do not apply to the current academic year. Substantive amendments to these regulations may apply to the current academic year if the interests of the students are not prejudiced within reason or in situations of force majeure.
3. Amendments to these regulations have no effect on earlier decisions of the examination board.

Article 8.4 Transitional arrangement

1. In the case of amendments to the education and examination regulations, the faculty board may decide on a transitional arrangement.
2. The transitional arrangement will be published on the website of the programme.
3. Basic principles for a transitional arrangement if a curriculum is changed:
 - a) Changes to a curriculum are published before the start of the academic year in which they are to apply.
 - b) No guarantee can be given that all the study units or parts of study units of a programme, as they existed at the time of enrolment in a programme, will continue to be part of their programme. The curriculum as most recently approved by the faculty board serves as the basis for establishing the results of the bachelor's final examination.
4. The transitional arrangement will always include:
 - a) which lapsed study units or parts of study units are equivalent to study units or parts of study units in the current curriculum included in the programme-specific appendix;
 - b) that if a study unit or part of a study unit without practical exercises is removed from the curriculum, there will be opportunities in the subsequent academic year to take a written or oral exam or to obtain an assessment by some other means;
 - c) that if a study unit or part of a study unit that involves practical exercises is removed from the curriculum, in the subsequent academic year no opportunities are offered to carry out these practical exercises, at least one study unit will be offered as a suitable replacement for the lapsed study unit;
 - d) the period of validity of the transitional arrangement.

5. The transitional arrangement requires the approval of the examination board pursuant to the provisions of paragraph 4.
6. In exceptional cases, and if this is to the student's advantage, the examination board may allow deviation regarding the number of times and the way in which an exam or a test for a lapsed study unit or a lapsed part of a study unit can be taken.

Article 8.5 Assessment education and examination regulations

1. The faculty board is responsible for the regular assessment of the education and examination regulations and takes into account the resultant study load for the students to enable this to be monitored and adjusted if necessary.
2. In accordance with Article 9.18 of the WHW, the programme committee has an advisory role on some parts of the education and examination regulations and a right of consent on other parts.
3. The programme committee annually assesses the way in which the education and examination regulations are implemented.

Article 8.6 Appeal and objections

An appeal against a decision made by the examination board or an examiner, and objections to decisions made by the faculty board on the basis of these regulations, must be submitted in writing to the Complaints Desk at Student Services within 6 weeks after notification of the decision.

Article 8.7 Hardship clause

In the event of demonstrable, considerable unreasonableness and unfairness, departures from the provisions of these regulations can be permitted by the examination board or the programme board, as suggested in the relevant Articles of these regulations.

Article 8.8 Publication

The education and examination regulations and the rules and regulations of the examination board are published on the website.

Article 8.9 Entry into force

These regulations take effect on 1 September 2021 and supersede the regulations of 1 September 2020.

Enacted by the board of the Faculty EEMCS,

in view of Articles 9.5, 9.15, first paragraph under a, 7.13, first and second paragraph, 9.38, under b, and 9.18, first paragraph and 7.59 of the Higher Education and Research Act (WHW), and after consent of the faculty council.

Enschede, 27-07-2021

Explanatory memorandum

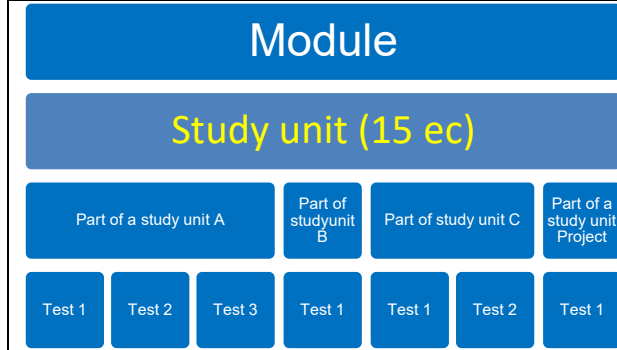
- When we speak of ***integrated*** education, we mean an integrated study unit that consists of different interdependent parts. These parts are assessed in an integrated manner. Integrated education is registered as one study unit, with 1 grade. The parts of an integrated study unit can be listed with “ECs” (as a measure of invested time) and grades are presented on a grade list.
- When we speak of ***coherent*** education, we mean that the education consists of different parts which are related. These parts are assessed separately. Coherent education is registered as separate study units with their own grades. The coherent module itself is not graded.
- Bachelor programmes decide for themselves which modules are integrated, and which are coherent.
- The number of ECs for a study unit is the same for all participating students. It is not possible for different designated target groups of students to receive different ECs for the same “study content and assessment”.
- It is possible to offer parts of an integrated study unit as a different study unit (with other learning objectives and assessment) to students of another bachelor programme.

Explanatory notes on terminology in assessment and the structure of a module.

Terminology in assessment
The bachelor is assessed with a Final Examination
A study unit is assessed with an exam.
Parts of a study unit are assessed with tests. A test can have the following forms: a written test, an assignment, an oral test, the assessment of practical exercises as referred to in Article 1.2, or a combination of these forms.

You can find the words ‘study unit’, part of study unit, Exam in the list of definitions (article 1.2).

Integrated module

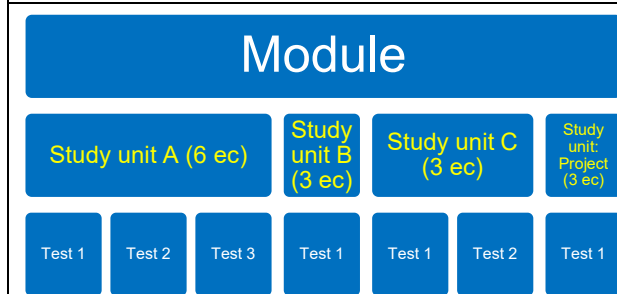


In integrated education, a module is a *study unit*. A study unit is tested with an exam. The exam result is expressed in half grades (see Article 4.1.9). This grade is determined by the *module examiner*. Successfully passed exams remain valid (see Article 4.7.2). A study unit that was not passed, has to be repeated completely in the next academic year. Results of parts of a study unit expire after the academic year. Exceptions are listed in the programme-specific appendix and in the assessment plan of the module).

Often, the integrated module is split up into *Parts of a study unit*, which are assessed with one or multiple *tests*. Results of tests are expressed in a grade from 1 to 10 with one decimal grade or as pass/fail (Article 4.1.8). Grades of *parts of a study unit* are determined by the *examiners*. Results of *part of a study unit (tests)* expire after the academic year in case the study unit was not passed (see Article 4.7.2).

In the study progress overview, *parts of study units* are listed with ECs and grades are presented on a grade list. The module is graded as well.

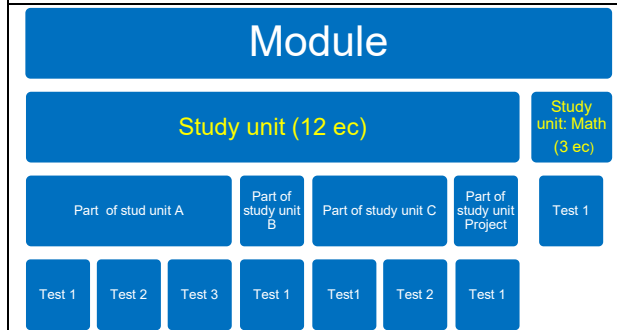
Coherent module



Coherent education consists of *study units* with their own grades. The coherent module itself is not graded. Each study unit is tested with an *exam*. The exam result is expressed in half grades (see Article 4.1.9). The result is determined by the *examiner* of the *study unit*. Successfully passed exams remain valid (see article 4.7.2). The exam can consist of multiple *tests* (see example: study unit A, the exam consists of 3 tests). Results of tests are expressed in a grade from 1 to 10 with one decimal grade or as pass/fail (Article 4.1.8). Grades of tests are determined by the examiners. Results of part of a study unit expire after the academic year in case the study unit was not passed (see article 4.7.2: A study unit that was not passed, has to be repeated completely in the next academic year. Results of parts of a study unit expire after the academic year. Exceptions are listed in the programme-specific appendix and in the assessment plan of the module).

In the study progress overview, coherent modules are registered with separate study units with their own grades and ECs.

Mix: Some modules are a mix of coherent and integrated education.



Mixed modules consist of *study units*; the modules itself is not graded. Each *study unit* is tested with an *exam*. The exam result is expressed in half grades (see Article 4.1.9). The result is determined by the examiner of the *study unit*. (see example: study unit Math). Successfully passed exams remain valid (see Article 4.7.2: A study unit that was not passed, has to be repeated completely in the next academic year. Results of parts of a study unit expire after the academic year. Exceptions are listed in the programme-specific appendix and in the assessment plan of the module).

The study unit can be split up into *Parts of a study unit*, which are assessed with one or more *tests* (in the example: 4 parts of a study unit). Results of tests are expressed in a grade from 1 to 10 with one decimal grade or as pass/fail (Article 4.1.8). Grades of tests are determined by the examiners. Results of part of a study unit expire after the academic year in case the study unit was not passed (see article 4.7.2).

In the study progress overview, these modules are registered with separate study units with their own grades and ECs.

EDUCATION AND EXAMINATION REGULATIONS

BACHELOR OF SCIENCE TECHNICAL COMPUTER SCIENCE

A. UNIVERSITY SECTION

B. PROGRAMME-SPECIFIC SECTION

2021-2022 academic year

SECTION B: PROGRAMME-SPECIFIC SECTION

BACHELOR TECHNICAL COMPUTER SCIENCE (B-TCS)

About this Section

The Education and Examination Regulations (EER) are subdivided into two sections (Section A and Section B), which together form the EER. Section A, which can be seen as the university section, includes provisions that may apply for all EEMCS Bachelor's degree programmes. Section B contains the provisions that are specific to the particular degree programme, in this case the Bachelor's programme in Technical Computer Science.

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SECTION B – PROGRAMME-SPECIFIC SECTION TECHNICAL COMPUTER SCIENCE

SECTION 1 - CONTENTS AND STRUCTURE OF THE PROGRAMME

Article 1.1 General objectives of the programme (WHW, Article 7.13, paragraph 2c)

The objective of the Bachelor's degree programme in Technical Computer Science is to train students at the Bachelor's level, instilling in them a solid foundation in mathematics and a thorough basic knowledge and understanding of the field of Computer Science. The programme is comprehensive and focuses not only on software and information systems, but also on computer systems and communication networks. The programme addresses skills and the societal context, and offers students the opportunity to explore another field by taking a minor. Students complete the programme by conducting an individual research project and a group design project.

Most graduates will continue their education by enrolling in a Master's programme, although the expertise and skills they acquire during the Bachelor's programme will allow them to find gainful employment in the field.

Article 1.2 The Programme Intended Learning Outcomes (WHW, Article 7.13, paragraph 2c)

Domain-specific content

In the domain of Technical Computer Science, the graduate is capable of:

- C1. *In the software sub-domain*: understanding, applying, analyzing and evaluating the principles of software development and software engineering; understanding and applying concepts of programming languages and formal methods.
- C2. *In computer and network systems*: understanding, applying and analyzing theories of architecture, organization and the management of computer systems, as well as principles of communication and network systems.
- C3. *In fundamentals of computer science*: applying algorithms, discrete structures and principles of parallel and distributed computing, and analyzing their complexity.
- C4. *In human media interaction*: Knowing and understanding how to design intelligent systems using principles of human-computer interaction and computational science.
- C5. *In information management and security*: Understanding theories, methods and techniques for the design of databases, as well as of relevant implementation and maintenance aspects; understanding fundamentals of security and applying them in networks; applying cryptography theories.
- C6. *In mathematics*: Applying discrete mathematics, calculus, linear algebra, probability and statistics; analyzing problems and solutions conceptually, using these mathematical theories.

Design

Regarding the general activity of design, the graduate is capable of:

- D1. Specifying a problem and devising a solution based on a general description of that problem, by selecting and applying appropriate methods, models and techniques.
- D2. Selecting and applying appropriate, domain-specific knowledge, methods, models and techniques to systems design in an integrated fashion.
- D3. Evaluating the properties of solutions/systems and making a substantiated choice between different solutions based on that evaluation.

Research

Regarding the general activity of research, the graduate is capable of:

- R1. Critically analysing domain-specific problems.
- R2. Systematically setting up and implementing a small research project.
- R3. Contributing to the further development of the domain by working in a sub-field

Organizational ability

Regarding the general activity of (self-)organization, the graduate is capable of:

- O1. Independently acquiring and incorporating new knowledge and skills as required.
- O2. Analyzing, reflecting on and discussing ethical, social, cultural and societal aspects of problems, solutions and developments in the domain.
- O3. Understanding team dynamics and working in a team and with a variety of stakeholders such as the client and end-users.
- O4. Communicating effectively with colleagues and non-specialists, both orally and in writing.
- O5. Organizing his/her working processes and reflecting on personal effectiveness contributions and actions.
- O6. Taking a position on an issue and of substantiating this position with regard to a design or scientific argument.
- O7. Appreciating, using input from and working with experts from multiple disciplines.
- O8. Understanding, appreciating and working with people with different cultural backgrounds.
- O9. The graduate is capable of shaping his/her learning process, his/her competencies and develop his/her professional identity, by deliberately choosing and completing parts of the programme that match personal capacities, skills, and motives.

Article 1.3 Content of the programme and related examinations (WHW, Article 7.13, paragraph 2a)

The table below shows the units of study comprising the Twente Education Model (TOM 2.0) curriculum. Annex 1 contains a curriculum that has been adjusted for the combined final degree audit for Technical Computer Science and Applied Mathematics. The Board of Examiners of the relevant programme is to publish details regarding the content of a unit of study in the course catalogue at least six weeks before the start of the teaching period (semester or quarter) in which the unit of study is offered.

Article 1.3.1 The TOM 2.0 curriculum

The table below shows the subjects in the order in which they are offered, the student's preferred prior knowledge and any additional prerequisites. The test schedules of the modules will be published on the module's Canvas page at least two weeks prior to the module commencement, and are part of these regulations. For reference, the test schedules of the previous year are published on the Programme Canvas page. Learning goals of the modules will be published in the course catalogue and are part of these regulations.

Table 1. Curriculum Technical Computer Science

Course code M	Module (15EC)	SU Course code	Study Units	Q	RK*	
B1 phase (Year 1)						
202001021	Pearls of Computer Science Module	202001022	Pearls of computer science Core	11EC	1A	
		202001190	Introduction to Math & Calculus 1A	4EC		
202001023	Software Systems Module	202001024	Software Systems Core	12EC	1B	
		202001197	Calculus 1B for CS	3EC		
202001025	Network Systems Module	202001026	Network Systems Core	12EC	2A	
		202001205	Linear Algebra for CS	3EC		
202001027	Data & Information Module	202001028	Data & Information Core	12EC	2B	
		202001233	Probability Theory for CS/BIT	3EC		
B2 phase (Year 2)						
202001029	Computer Systems Module	202001030	Computer Systems for CS	12EC	1A	
		202001234	Discrete Math	3EC		
202001031	Intelligent Interaction Design Module for CS/BIT	202001032	Intelligent Interaction Design for CS/BIT	12EC	1B	
		202001033	Statistical Techniques for CS/BIT	3EC		
202001359	Discrete Structures & Efficient Algorithms (Module)	202001360	Algorithmic Discrete Mathematics	5EC	2A	
		202001361	Languages & Machines	3,5EC		
		202001362	Algebra	3,5EC		
		202001363	Implementation Project on Graph Isomorphisms	3EC		
xxxxxxx	Minor/Elective module (see art 1.3.2)			15EC	2B	*1
B3 phase (Year 3)						
xxxxxxx	Minor/Elective module (see art 1.3.2)			15EC	1A	*1
xxxxxxx	Minor/Elective module (see art 1.3.2)			15EC	1B	*1
202001048)	Design Project Module	202001049	Design Project Core	15EC	1A or 2A	*2
202001050	Research Project Module	202001051	Research Project Core	15EC	1B or 2B	*2

*Required knowledge: *1 Requirement for participation in minor module: the B1 phase must be complete upon registration in Osiris. *2 Requirement for final semester: 120 credits consisting of mandatory modules + one elective module upon registration in Osiris.

Article 1.3.2 Elective section

1. The elective section consists of an elective module and two minor modules;
2. One of the elective modules listed in Table 2 must be chosen;

3. Approved minors are listed on the minors site: www.utwente.nl/minor;
4. A limited number of students can do an internship as a minor. All additional rules concerning internship are to be found on the programme's Canvas page.
5. In addition to (2), a maximum of one additional elective module listed in Table 2 may be taken as a minor;
6. For a minor outside the listed possibilities of the University of Twente, a so-called individual minor, approval of the Examination Board is needed prior to beginning of the minor. Such an individual minor should satisfy the following criteria:
 - a. The educational study unit of the minor must be at an academic level;
 - b. At least 15 of the 30 credits must involve a paradigm shift in the following sense:
 - i. The minor may be taken within the Netherlands, in which case its educational content may not fall within the field of computer science; or
 - ii. The minor is taken at an institution of higher education abroad, in which case the desired paradigm shift is taken to be achieved by the changed cultural embedding. In this case the content restriction does not apply, and up to five credits may be devoted to courses on the language and culture of the host country.
 - c. The educational study unit of the minor may not overlap with the contents of the programme;

Table 2. Elective modules can also be taken as a minor module

Course code M	Elective/minor Module	SU Course code	Study units	Q	Prerequisites
202001040	Smart Spaces Module	202001041	Smart Spaces Core	15EC	1A
202001042	Cyber-Physical Systems Module	202001043	Cyber Physical Systems Core	15EC	1B
202001044	Web Science Module	202001045	Social Network Structure and Dynamics	6,5EC	1B
		202001046	Games, Auctions and Voting	6,5EC	
		202001047	Web Science final project	2EC	
202001038	Programming Paradigms Module	202001039	Programming Paradigms Core	15EC	2B

See <https://www.utwente.nl/en/eemcs/examination-board/> for how to submit a request. Once approval has been granted, the Bureau of Educational Affairs (BOZ) is responsible for the administrative procedure involved in enrolling the student in the relevant minor.

Article 1.3.3 Sequence requirements (Article 7.13, paragraph 2s of the Act)

1. A student may enrol in the minor through the Minor Bureau once he/she has completed the B1-phase upon registration in Osiris;
2. A student may only enrol in the final semester modules Design Project (202001048) and Research Project (202001050) once he/she has earned at least 120 credits, including all first year study units, excluding minors.

Article 1.4 Programme format (WHW, Article 7.13, paragraph 2i)

The programme is only offered on a full-time basis.

SECTION 2 – LANGUAGE OF TUITION (Section A, Article 3.3, paragraph 1)

The programme is taught in English.

SECTION 3 - TEACHING AND ASSESSMENT

Article 3.1 Assessment and examination formats (WHW Article 7.13, paragraph 2l)

The test schedules of the integrated and coherent modules will be published on the module's Canvas page at least two weeks prior to module commencement, and are part of these regulations. For reference, the test schedules of the previous year are published on the Programme Canvas page.

Article 3.2 Registration of results

In addition to Article 4.1, Section A:

1. Exemptions for examinations are indicated with the code 'EX'. EX has no numerical value.
 - a. EX has no influence on Cum Laude (4.2.1.b).
 - b. UT switchers can request the examination board to approve and transfer already obtained grades of study units or modules
 - c. The examination board may decide to assign a numerical value to EX.
2. The examination results of sufficient (P) and insufficient (F) have no numerical values.

Article 3.3 Participation in tests (Section A, Art. 4.3.3)

1. If attendance in designated educational activities is a prerequisite for participation in a test, then the module coordinator must decide on granting exemptions to students resitting the test or defining an alternative method to satisfy the attendance requirement.
2. If a module has been changed and the non-divisible study unit is no longer clearly identifiable, then the module coordinator must decide which tests must be passed in order to complete the former non-divisible study unit.
3. Participation in tests that are offered, either scheduled or on-demand, next to the regular first attempt and resit is only allowed if a substantiated request by the student to the Examination Board is granted by the Examination Board.

Article 3.4 Third attempt to pass a module or study unit

If a student requires more than two consecutive academic years to pass a module or study unit, then the student must agree on a study plan together with the Study Advisor at least two weeks prior to the start of the relevant module or study unit. The study plan must include agreements on time keeping, active participation in tutorials and other aspects.

Article 3.5 Examination transparency

In addition to Article 4.4 Section A, the programme is to ensure that information is made available for each examination regarding its level, structure and marking norms, e.g. by providing a sample examination, an examination from a previous year or a collection of sample examination questions.

Article 3.6 Period of validity (Section A, Art. 4.7.2)

The test schedules, published on the Canvas page of the module as described in section 3.1, indicate which grades remain valid indefinitely.

Article 3.7 Confidentiality

In addition to Section A, Article 4.9.2:

1. Reports of final assignments are public documents except upon a request to the Program Board to deviate from this and to declare the report or parts of it temporarily confidential.
2. The Programme Board may deem a report to be confidential for a specific period based on a detailed request:
 - a. The first supervisor must submit a request to the Programme Board prior to the start of the final assignment.
 - b. The confidential report must be accessible/available to the committee responsible for assessing the final assignment, the Programme Board, and representatives of bodies that have a statutory duty of overseeing the quality of the assessment or the programme as a whole.
 - c. The parties mentioned above are required to observe confidentiality with regard to the report.
3. In the case of a confidential report as referred to in point 2, the public presentation of the report may be amended to ensure that no confidential information is made public.

Article 3.8 Teaching evaluations (Section A, Art. 4.10.3)

1. The online Student Experience Questionnaire (SEQ) is used for evaluation purposes at the conclusion of each module;
2. Additionally, the module coordinator may initiate supplementary evaluations, such as additional surveys and panel discussions during the module or at its conclusion;
3. If the SEQ results and/or student complaints give reason for concern, then the programme director is to discuss the matter with the module coordinator either during the module or at its conclusion;
4. They are to use this discussion to develop a plan for improving the remainder of the module or for the subsequent module, including a strategy for evaluating the improvements.

SECTION 4 - FINAL DEGREE AUDIT

Article 4.1 Pass/Fail Regulation

Students who meet the following requirements will pass the Bachelor's final degree audit for the TCS programme:

- a. The student has received an assessment for all units of study of the Bachelor's final degree audit;
- b. The student's final results are 6.0 or higher for all units of study. An exception to this article is the compensation rule for math (see Section 8, Art 8.1).

Article 4.2 Cum Laude

1. A student may pass the Bachelor's final degree audit with distinction (cum laude) upon meeting the following requirements:
 - a. The student passes the Bachelor's final degree audit within four years of initial enrolment (performance requirement);
 - b. The student's average mark is 8.0 or higher (non-numeric assessments and exemptions not included). This is a weighted average based on the relative number of credits per unit of study. The results for minor modules are taken into account. Results for study units outside the examination programme, are not taken into account;
 - c. No more than one unit of study may have a final result of 6.0;
 - d. The mark for the module part Research Project of the module Research Project (202001050) is 8.0 or higher.
2. At the student's request, the Examination Board may award the distinction of cum laude if the student has met all requirements with the exception of the performance requirement, due to extenuating circumstances. These circumstances may involve delays recognized and provided for by the institution. It should be noted that the distinction of cum laude is never awarded automatically, but only following individual assessment of the student's academic achievements.

SECTION 5 - BINDING RECOMMENDATION (BSA)

Article 5.1 Binding Recommendation (BSA)

A student will receive a positive BSA upon satisfying one of the following conditions (Article 6.3, Guideline EER):

1. Successful completion of three complete modules;
2. Successful completion of 45 credits of study units, including at least three mathematics study units (Introduction to Mathematics & Calculus 1A, Calculus 1B, Linear Algebra, Probability Theory);

SECTION 6 - STUDY MATERIALS

Article 6.1 Notebook

Students are expected to have the personal use of a laptop comparable to the 'high-end notebook' offered by the Notebook Service Centre, and to be able to connect online for teaching activities, using both video and audio."

SECTION 7 - DOUBLE DEGREE TCS-AM

Article 7.1. Double degree TCS-AM

All additional rules concerning the double degree TCS-AM are stipulated in Annex 1.

SECTION 8--COMPENSATION ARRANGEMENT FIRST YEAR MATH

Article 8.1 Compensation first year math study unit:

- 1- From 2020-2021 onward, a B-TCS student may request to designate one first-year math study unit as "compensated" after having received a grade of exactly 5.0;
- 2- The ECs of a compensated math study unit will be counted towards the study progress of the student, also for the purpose of the MOMI and BSA regulations;
- 3- A request to designate a math study unit as compensated has to be made to the bachelor coordinator. The request can be made at any time after the grade has been obtained. When granted, it will be registered in Osiris;
- 4- The choice of compensated math study unit, once registered, cannot be undone or shifted to another study unit. (A student may always take a resit for a compensated study unit, thus possibly raising its grade and nullifying its compensated nature; however, it is not allowed to subsequently designate another math study unit as compensated);
- 5- Transitional arrangement for students before 2020. The option of compensating a first-year math study unit is with one condition also permitted for students before 2020-2021; the condition is that this compensation can only be provided when the other three math components of the first year are passed. In this case passed means that the math grade is part of a module which is passed completely, or if the math grade is 5.5 or higher. Because of the change in grading system in the Academic Year 2020-2021 there are two grade options to qualify: achieving a grade of 5.0 or higher as of AY 2020-2021 or a grade of 4.8 or higher already obtained before the start of AY 2020-2021

SECTION 9--TRANSITIONAL ARRANGEMENTS (Section A, Art 8.4 3&4)

Article 9.1 completion of separated study unit:

For modules that were followed but not yet successfully completed in 2019-2020 or before, a grade of 5.5 or higher registered in Osiris for a subject that has been converted into a separate study unit in 2020-2021 will be registered as a final grade for that study unit after rounding to the nearest grade conforming to section A art 4.1.14, and the corresponding EC will be simultaneously awarded. The table of all study units this applies to, can be found at the Programme's Canvas Page.

Article 9.2 new grading system and Cum Laude:

The grading system changed in the Academic Year 2020-2021. A student who started before Academic Year 2020-2021 can request the Office of Educational Affairs for Technical Computer Science to be eligible for Cum Laude if the student is disadvantaged because of this transition in the grading system. More specifically, this happens when a student's average grade falls below the required Cum Laude threshold of 8.0 in the new system but would have been 8.0 or higher in the old system.

ANNEX 1: DOUBLE DEGREE TECHNICAL COMPUTER SCIENCE - APPLIED MATHEMATICS

This annex contains the following paragraphs:

1. Study programme TCS-AM
2. Elective section
3. Sequence requirements
4. Teaching evaluation
5. Pass/Fail Regulations
6. Cum Laude TCS.
7. Binding Recommendation
8. Transitional arrangements

1. Study programme TCS – AM

The tailored programme for the double degree Bachelor's in Applied Mathematics and Bachelor's in Technical Computer Science can be found in Table 1.

Table 1.1 Study Programme TCS – AM Year 1 (B1)

Course-code	Course name	Q	EC	Division	Prerequisites
B1-phase (Year 1)					
202001325	Linear Structures I	1A	6	AM	
202001190	Intro. to mathematics + Calc. 1A	1A	4	AM/TCS	
202001022	Pearls of Computer Science Core	1A	11	TCS	
201500112	Programming Theory & Project	1B	8	TCS	
202001197	Calculus 1B for CS	1B	3	AM/TCS	
202001329	Analysis I	1B	3	AM	
202001332	Project: Prooflab II	1B	2	AM	
202001330	Linear Structures II	1B	3	AM	20201325
202001026	Network Systems Core	2A	12	TCS	
202001231	Vector Calculus EE	2A	3	AM	
202001339	Presenting a Mathematical Subject	2A	2	AM	
202001343	Signals & Transforms	2B	5	AM	
202001344	Probability Theory AM	2B	5	AM/TCS	
202001028	Data & Information Core	2B	12	TCS	201500112
	Entire academic year 1 (B1)		79		

Table 1.2 Study Programme TCS – AM Year 2 (B2)

B2-phase (Year 2)					
Course-code	Course name	Q	EC	Division	Prerequisites
202001348	Mathematical Statistics	1A	6	AM/TCS	202001344
202001349	Project statistics	1A	2	AM	
202001030	Computer Systems Core for CS	1A	12	TCS	
202001355	Systems Theory	1B	4	AM	
202001354	Ordinary Differential Equations	1B	4	AM	202001197
202001032	Intelligent Interaction Design Core for CS/BIT	1B	12	TCS	
202001383	Introduction Mathematical Modelling	2A	1	AM	
202001360	Algorithmic Discrete Mathematics	2A	5	AM/TCS	
202001361	Languages & Machines	2A	3.5	AM/TCS	
202001362	Algebra	2A	3.5	AM/TCS	
202001363	Implementation Project on Graph Isomorphism	2A	3	AM/TCS	202001030
202001366	Stochastic Models	2B	5	AM	
202001367	Project: Stochastic Models	2B	1.5	AM	
202001368	Markov Chains	2B	2.5	AM	
202001369	Project: Stochastic Simulation	2B	4	AM	
202001370	Multidisciplinary Project	2B	2	AM	
202001345	Project Signals & Uncertainty	2B	5	AM	
	Entire academic year 2 (B2)		76		

Table 1.3 Study Programme TCS – AM Year 3 (B3)

B3-phase (Year 3)					
202001350	Analysis II	1A	5	AM	
201400365	Discrete Mathematics (M5)	1A	3	TCS	
202001373	Reflection on Mathematical Research I	1A	5	AM	
	Minor selection	1B	15	AM/TCS	Entire first year
202001049	Design Project Core	2A	15	TCS	All study units of 8 quartiles, including entire first year
	Elective AM selection	2A	5	AM	
202001384	Bachelor's Assignment AM-TCS Double Degree	2B	15	AM/TCS	
202001380	Reflection on mathematical Research II	2B	2	AM	
201500405	Complex Function Theory	2B	3	AM	
	Entire academic Year 3 (B3)		68		

2. Elective section

1. The elective section consists of one AM elective course in the third quartile of the third year, and one minor module.
2. For the elective course one out of these four must be chosen:
 - 191520751 Graph Theory
 - 201700034 Introduction to the theory of PDE
 - 201500372 Mathematical Optimization
 - 202001377 Simultaneous Statistical Inference
3. Approved minors are listed on the minors site: www.utwente.nl/minor;
4. For an individual minor approval of the AM examination board is needed, before the minor starts;

3. Sequence requirements

1. A student may enrol in the minor through the Minor Bureau once he/she has completed all first year study units upon registration in Osiris;
2. A student may only enrol in the Bachelor's Assignment once he/she has passed at least 8 quartiles of the complete programme. These 8 quartiles include all first year study units

4. Teaching evaluation

1. All study units of the programme are parts of modules. The online Student Experience Questionnaire (SEQ) is used for evaluation purposes at the conclusion of modules;
2. At least once a year there will be a panel discussion with students participating in the double degree;
3. Additionally, there will be an extra panel discussion after the first semester of the first year.

5. Pass/Fail Regulations

1. Students who meet the following requirements will pass the Bachelor's final degree audit for the TCS – and the AM programme:
 - a. The student has received an assessment for all study units of the double degree programme;
 - b. There is no more than one grade of 5.0 for the AM or AM/TCS study units of the first year of the AM-TCS curriculum. The other grades are 6.0 or higher for all study units.
 - c. The grade for the Bachelor's Assignment is 6.0 or higher.
 - d. The average of all grades is 6.0 or higher without taking into account the complete/incomplete grades. This is a weighted average based on the corresponding number of ECs per study unit.
2. In all other cases not specified under (1), the student will not pass the final degree audit for TCS and AM and will not receive the Bachelor's degrees.

6. Cum Laude TCS

1. This article describes the Cum Laude rules for the TCS part of the combined programme, whereas the AM EER will cover the AM Cum Laude rules of the combined programme. In table 1.1. of the double degree study programme under division this are the TCS and the TCS/AM parts. The AM parts are excluded.
2. A student may pass the Bachelor's final degree audit for TCS with distinction (cum laude) upon meeting the following requirements:
 - a. The student passes the Bachelor's final degree audit for TCS within four years of initial enrolment (performance requirement);
 - b. The student's weighted average is 8.0 or higher (non-numeric assessments and exemptions not included). The average is weighted based upon the amount of credits;
 - c. No more than one unit of study may have a final result of 6.0;
 - d. The grade for the bachelor assignment is 8.0 or higher.
3. In exceptional cases and at the student's request, the Examination Board may award the distinction of cum laude if the student has met all requirements with the exception of the performance requirement, due to extenuating circumstances. These circumstances may involve

delays recognized and provided for by the institution. It should be noted that the distinction of cum laude is never awarded automatically, but only following individual assessment of the student's academic achievements.

7. Binding Recommendation (BR/BSA)

1. A student pursuing the double degree programme, as stipulated in Article 1 of this annex, will receive a positive recommendation on continuation of the double degree programme upon satisfying the three following conditions (see table 1 for the specific study units and the three divisions: AM, AM/TCS and TCS):

- a. Successful completion of 45 EC;
- b. A maximum of 15 EC incomplete from the total EC associated with TCS study units of the first year's programme;
- c. A maximum of 15 EC incomplete from the total EC associated with AM or AM/TCS study units of the first year's programme and successful completion of at least two of the following study units: Linear Structures I, Linear Structures II, and Analysis I

2. If bullet 7.1. leads to a negative BR for the double degree study the student can be allowed to continue one of the separate programmes of AM or TCS.

a. to be able to continue in the TCS programme the student needs to satisfy the three following conditions:

- (1) Successful completion of 45 EC from the first year's study units;
- (2) Successful completion of three of the four TCS study units;
- (3) Successful completion of at least two of the three AM/TCS study units and two other study units from AM or AM/TCS.

b. To be able to continue in the AM programme the student needs to satisfy the three following conditions:

- (1) Successful completion of 45 EC from the first year's study units;
- (2) Successful completion of at least two of the following study units: Linear Structures I, Linear Structures II, and Analysis I;
- (3) A maximum of 15 EC incomplete from the total EC associated with AM or AM/TCS study units of the first year's programme.

3 If the student does not meet the standards mentioned in bullet 7.1 and 7.2 he is not allowed to continue the double degree programme nor one of the other two separate bachelor programmes of AM or TCS for a period of three consecutive academic years.

8. Transitional arrangements

For students who started the programme earlier than September 1st 2020, many study units, or parts thereof, as they existed at the time the student's enrolment, may no longer be offered. The curriculum, as given in Article 1 of this annex, serves as the basis for establishing the results of the bachelor's final examination.

Curricula of previous years and accompanying transitional arrangements are published on the programme's Canvas page.