

# EDUCATION AND EXAMINATION REGULATION BACHELOR PROGRAMMES (EXCEPT FOR ATLAS)

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## *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 programme<sup>1</sup>, 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 facilities<sup>2</sup> 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 year<sup>3</sup>).

**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.

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<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> <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 website<sup>7</sup>.

### 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 cases<sup>8</sup>:

- 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 requirements<sup>9</sup>.
- 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 requirements<sup>7</sup>.
- 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 proficiency<sup>6</sup>. 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 website<sup>7</sup>.

## 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 board<sup>4</sup> 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.

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<sup>4</sup> 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 forms<sup>5</sup>. 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 surveillance<sup>6</sup> or online proctoring<sup>7</sup>, 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 (GDPR<sup>8</sup>), the Data Protection Impact Assessment (DPIA<sup>9</sup>) on proctoring and the EER.

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<sup>5</sup> 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.

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

<sup>7</sup> Surveillance of student(s) using special proctoring software e.g. Proctorio.

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

<sup>9</sup> 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 used<sup>10</sup>.
  - 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 hours<sup>11</sup>.  
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:

<b>In case n≠5</b>	
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
<b>In case n=5:</b>	
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;

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

<sup>11</sup> 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 participating<sup>12</sup>. An exception may be made for practical exercises<sup>13</sup>.
    - 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.

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<sup>12</sup> 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.

<sup>13</sup> 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 cases<sup>14</sup> 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 components<sup>15</sup> 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;

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<sup>14</sup> 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.

<sup>15</sup> '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 completed<sup>16</sup>.
- 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.

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<sup>16</sup> 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***

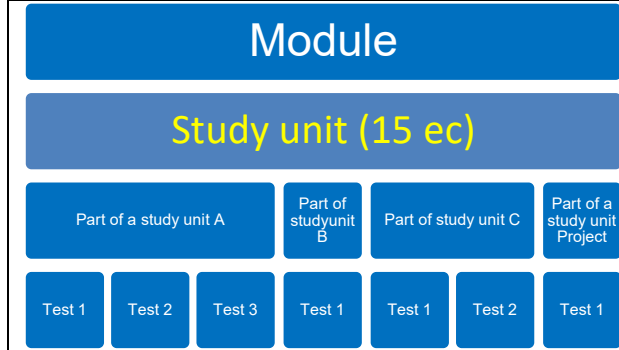
- When we speak of ***integrated*** education, we mean an integrated study unit that consists of different interdependent parts. These parts are assessed in an integrated manner. Integrated education is registered as one study unit, with 1 grade. The parts of an integrated study unit can be listed with “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.***

<b>Terminology in assessment</b>
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

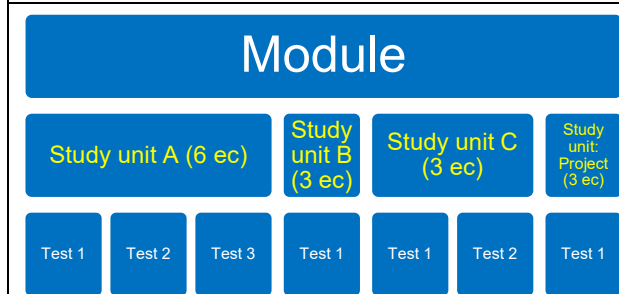


In integrated education, a module is a *study unit*. A study unit is tested with an exam. The exam result is expressed in half grades (see Article 4.1.9). This grade is determined by the *module examiner*. Successfully passed exams remain valid (see Article 4.7.2). A study unit that was not passed, has 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

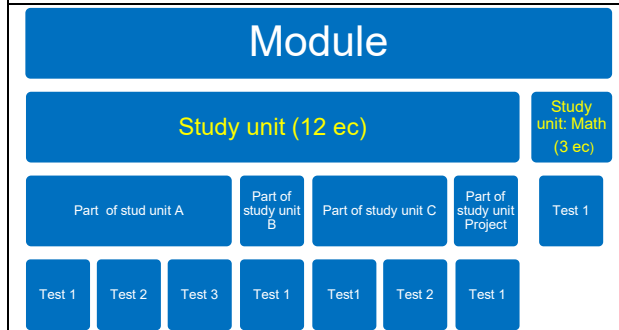


Coherent education consists of *study units* with their own grades. The coherent module itself is not graded. Each study unit is tested with an *exam*. The exam result is expressed in half grades (see Article 4.1.9). The result is determined by the *examiner* of the *study unit*. Successfully passed 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.



## **SECTION B: PROGRAMME-SPECIFIC SECTION**

# **BACHELOR ELECTRICAL ENGINEERING (B-EE)**

### **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 Electrical Engineering.

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## **SECTION B – PROGRAMME-SPECIFIC SECTION ELECTRICAL ENGINEERING**

### **B.A – GENERAL PROVISIONS**

#### Article A1      Applicability

The following regulations form the programme-specific part of the university-wide Education and Examination Regulations as referred to in Article 7.12 of the Higher Education and Research Act (WHW), and apply to the Bachelor's degree programme in Electrical Engineering, from now on referred to as "the programme".

#### Article A2      Programme intended learning outcomes

The intended learning outcomes for graduates of the Bachelor's degree programme in Electrical Engineering are listed below.

##### *1. Domain knowledge & skills*

The student understands and can apply basic theoretical concepts, important methods and techniques in the fields listed below and has skills to reflect on, increase and develop these through study:

- a) elements from the electrical engineering subfields analog and digital electronics, electromagnetism and electrodynamics, control engineering, communication science and signal processing.
- b) mathematics.
- c) programming, including digital logic and computer systems.
- d) one of the elective fields of, device physics (basic quantum mechanics, electronic and optical devices and transducers) or network systems (basic principles and key protocols in communication systems, networks, and networked applications).

##### *2. Research & Design*

The student

- a) is able to handle complex research or development-oriented situations.
- b) is able to carry out studies and draw valid conclusions on a scientific basis.
- c) is able to study another academic field and is able to identify and apply research and/or design in that field.
- d) can work systematically and methodically.
- e) is able to identify sub problems and reformulate research questions and problem definitions.
- f) is able to find, assess and use scientific information.

##### *3. Organize*

The student

- a) can independently function in a disciplinary as well as in an interdisciplinary collaboration with a professional attitude.
- b) is able to define separate subproblems for team members, to assure the interconnection between these subproblems and to implement a timeline.
- c) has knowledge of and can apply planning and management of individual and team-based projects

#### *4 Report & Presentation*

The student is able to communicate academic problems and solutions to both peers and non-specialists, and to stakeholders and users.

#### *5 Personal Development*

The student

- a) can identify own learning needs and structure his or her own learning in different learning environments.
- b) is aware of the temporal and societal context of science and technology and is able to apply this into his or her own scientific work.

Article A3      Structure of the programme

All students must follow the programme full-time.

Article A4      Language of the programme

1. The language used in the units of study of the Electrical Engineering programme is English. This applies to both teaching and examination.
2. The Examination Board can grant permission to the examiner to hold an examination in a different language.

Article A5      Laptop

Students should have access to a notebook (laptop) when they start their studies. The Notebook Service Centre (NSC) of the University of Twente offers a laptop that fulfils the minimum requirements.

Article A6      Binding recommendation on continuation of studies

1. In accordance with article 6.3.3.c of the general section of the Education and Examination Regulations the programme board is allowed to set additional content-related requirements for the binding recommendation. A student can receive a binding recommendation on discontinuation of studies if:
  - a. the student has obtained less than 75% of the first-year study load, counted by the ECs of the study units as mentioned in B1.1;
  - b. the student has obtained more than two insufficient grades in category A, as mentioned in B1.1;
  - c. the student has obtained more than one insufficient grade in category B, as mentioned in B1.1;
  - d. the student has obtained more than two insufficient grades in category C, as mentioned in B1.1.

Article A7      Quality assurance

1. The programme board is responsible for the evaluation of the programme.
2. The programme has installed an independent evaluation committee. On request of the programme committee, the programme director, or via the student organization ETSV Scintilla, this evaluation committee will organize an evaluation, consisting of at least two panel discussions. A panel discussion consists of five to ten students participating in the module that is being evaluated, the module coordinator and / or

lecturers involved in the module that is being evaluated and a chair from the evaluation committee.

3. For the internal quality assurance, the following instruments are used:
  - a. the UT Student Experience Questionnaire (UT-SEQ);
  - b. overview of quantitative results, such as passing rates;
  - c. lecturer panel meetings in which the lecturers; points of discussion are the evaluations mentioned in points a and b, and when applicable the panel discussions.
4. The outcomes of the internal quality assurance are published in the following ways:
  - a. for each module, based on the minutes of the lecturer panel meetings, an evaluation report is set up; this evaluation report is sent to the involved lecturers, the staff of the programme and the programme committee;
  - b. overviews of the quantitative results of the UT Student Experience Questionnaire (UT-SEQ) are published on the learning management system (Canvas) of the University of Twente.
5. The following internal and external evaluations are used to evaluate the curriculum and the entire programme:
  - a. an exit-survey about the entire bachelor's programme;
  - b. the National Student Survey (NSE).

The programme board gives a response to these evaluations, accommodated with a plan for improvement. The evaluations and plan for improvement are submitted to the programme committee.
6. Each year, the programme board sets up a plan for improvement, which is based on internal and external evaluations and new insights.
  - a. The plan for improvement will be discussed in the programme committee;
  - b. The plan for improvement will be included in the faculty's annual plan.

## B.B - Various types of assessment and the degree programme

Article B1 The content of the programme

The teaching methods used are, lectures, tutorials, lab work, assignments, project work, presentations and problem-based learning. Projects and lab work are carried out individually or by groups of students according to the regulations of the individual modules. Module 11 is a mixed module, module 12 is an integrated module; all others are coherent.

Subjects are tested by means of written exams, oral exams, reports, lab journals, presentations and posters.

1. The first year consists of the following units of study, with the indicated study load in credits:

Module	Name /	Study Units	Category *	EC
1	Electronics, Sensors and Actuators	Circuit Analysis 1	A	6
		Calculus 1	B	4
		Sensors & Actuators Project	C	5
2	Electric Circuits	Circuit Analysis 2	A	5
		Calculus 2	B	3
		Power electronics Project	C	4
		Programming in C	C	3
3	Electronics	Low Frequency Electronics	A	4
		Electro- and MagnetoStatics	A	5
		Vector Calculus	B	3
		Electronics Project	C	3
4	Wireless Transmission	High Frequency Electronics	A	4.5
		Electrodynamics	A	3
		Linear Algebra	B	3
		Wireless Transmission Project	C	4.5

\* The categories A, B, C are used in article A6

2. The second year consist of the following units of study, with the indicated study load in credits:

Module	Name	Study Units	EC
5	Computer Systems for EE	Computer Architecture and Organisation	4
		Digital Hardware	6
		Continuous Linear Systems	5
6	Systems & Control	Engineering System Dynamics	5
		Control Engineering	5
		Project System & Control	5
8	Signal Processing and Communications	Communication Systems	6
		Digital Signal Processing	5
		Probability Theory	4

And one of the two elective modules

Module	Name	Study Units	EC
7A	Device Physics	Semiconductor Physics	3
		Semiconductor Devices	3
		Single Electron Transistor	1.5
		Transduction & Mechanical Devices	3
		Optical Devices	1.5
		Project	3
7B	Network Systems for EE	Network Systems	12
		Programming 2	3

The third year consist of the following units of study, with the indicated study load in credits:

Module	Name / Course code	Study Units	EC
9+10		Two elective minors	30
11	Electronic System-Design	Electronic System- Design	10.5
		System Engineering – 25%	
		Philosophy of Technology and Design –25%	
		Prototyping – 50%	
12	Bachelor Thesis Project EE	Embedded Signal Processing	3.5
		Survey Paper	1
12	Bachelor Thesis Project EE	Bachelor Thesis Project EE	15
		Scientific Quality - 50%	
		Communication - 30%	
		Organisation, planning & collaboration - 20%	

Article B2 Simultaneously follow courses from multiple modules

1. Students who have to redo (parts of) a module are not allowed to participate in the project(s) of more than one module simultaneously.
2. The project in the module of the lowest academic year should be prioritised.

Article B3 The procedure for examinations

1. There are two opportunities to take a written test. When the exam of a larger topic is divided over tests, the resit opportunity may be one integral test. The resit opportunity takes place within 10 weeks after the finishing of the module.
2. The Examiner may deviate from the published examination method after approval of the Examination Board. The examiner will inform the students of this change immediately.
3. A report or paper must be written and a presentation must be given on the activities involved in the Bachelor thesis project. The Examiners for these units of study may also require interim presentations to be given.

Article B4 Prior knowledge requirements

1. Students are entitled to start with the two elective modules in the third year after having completed at least all four first year modules.
2. Elective modules may have prior knowledge requirements, which can be found in the Osiris description of these modules.



Students are strongly advised to have the following knowledge prior to starting the subsequent course:

3. Continuous Linear Systems prior to module 6.
4. Continuous Linear Systems prior to Digital Signal Processing.
5. The Electronics module, Continuous Linear Systems and Digital Signal Processing prior to starting the Electronic System Design module (module 11).

#### Article B5 The Minor

1. A student who is enrolled for the Bachelor's degree programme in Electrical Engineering and who meets the admission requirements referred to in Article B4 Paragraph 1, may take a minor offered by the University, allowed by the Examination Board and listed in the 'Minor admission review'.
2. In addition to the provisions of Paragraph 1, a student can make a proposal for a minor by combining his own selection of the units of study offered by any university (also called "free minor"). The course program for a free minor needs to be approved by the Examination Board.

#### Article B6 The Bachelor thesis project

1. When the prior knowledge requirements referred to in Article B4.2 are met, the student may select a research chair at any university as the site where the student will carry out the Bachelor thesis project. In case the assignment is performed outside the department of Electrical Engineering of the University of Twente, the permission of the Programme Director is required prior to starting the thesis project.
2. In any case one of the research chairs of the department of Electrical Engineering or one of the affiliated and approved chairs at the University of Twente is responsible for the assignment. The research groups (chairs) that take part in the Electrical Engineering programme are listed in the table below.

<b><i>Name of the chair</i></b>	<b><i>Abbreviation</i></b>	<b><i>Specialisation</i></b>
Biomedical and Environmental Sensor systems	BIOS	lab-on-a-chip systems
Biomedical Signals and Systems	BSS	neurotechnology and bio-mechatronics
Computer Architecture for Embedded Systems	CAES	dependable integrated systems
Design and Analysis of Communication Systems	DACS	communication networks
Data Management and Biometrics	DMB	computer vision and biometrics
Integrated Circuit Design	ICD	integrated circuit design
Integrated Devices and Systems	IDS	devices for integrated circuits, micro sensors and systems
Nano Electronics	NE	nanoelectronics
Optical Science	OS	integrated optical microsystems
Power Electronics and EMC	PE	power electronics
Robotics & Mechatronics	RAM	robotics and mechatronics
Radio Systems	RS	radio communication

3. The research chair appoints a supervisory committee consisting of at least three persons. The supervisory committee shall include at least two examiners. The third member must be an expert in the field, PhD candidate, postdoc, assistant professor, associate professor or full professor.
4. The Bachelor thesis project has a study load of 15 credits. The project should be finished within the module.
5. The student's performance shall be assessed on the closing date, irrespective of the stage his work has reached.
6. If the grade for the assignment is below a pass grade, the chair may give the student the opportunity to continue working on the assignment so as to meet the requirements for a pass grade. The extra time allowed shall however be limited to a study load equivalent to 3 credits. The grade for the assignment may not exceed a 6 in this case.
7. The Programme director (PD) decides about additional time in cases that a delay is not caused by the student.
8. If the student's performance is still unsatisfactory after extra time has been allowed, the student will have to do a new assignment with another theme and a different supervisory committee or under the authority of a different chair.

#### Article B7 Extracurricular Activities

For those students who are looking for more than the usual academic challenges, extracurricular activities are organised in the Honours programme. The Honours programme is designed for talented, interested and highly motivated students. The student is offered a 30 EC programme. The programme typically starts in the first year.

If the honours programme is completed successfully, this will be stated on the degree supplement as an extracurricular programme.

#### Article B8 Cum Laude

The Bachelor Electrical Engineering examination can be taken with the designation 'cum laude'. This will be mentioned on the diploma. The guidelines for awarding this designation are that each of the following conditions must be fulfilled:

- a. The 180 EC of the bachelor programme is finished within 3.5 years.
- b. The EC weighted average of the grades of the study units (excluding the bachelor thesis project) is 8.0 or higher.
- c. No exemptions were granted.
- d. The assessment of the Bachelor Thesis Project is 8.5 or higher.

### **B.C - Master's programmes following Bachelors in Electrical Engineering**

Article C1 Master's programmes following Bachelors in Electrical Engineering  
Students with a Bachelor's degree in Electrical Engineering from the University of Twente are entitled to take the following Master's degree programmes:

- The Master's degree programmes in Electrical Engineering at the University of Twente, Delft University of Technology and Eindhoven University of Technology
- The Master's degree programme in Systems & Control offered jointly by the University of Twente, Delft University of Technology and Eindhoven University of Technology.
- The Master's degree programme in Embedded Systems offered jointly by the University of Twente, Delft University of Technology and Eindhoven University of Technology.
- The Master's degree programme in Nanotechnology at the University of Twente
- The Master's programme in Interaction Technology at the University of Twente

### **B.D - Flexible Bachelor's degree programme**

#### Article D1 Relevant concepts

The flexible Bachelor's degree programme is a programme as referred to in Article 7.3c of the Higher Education and Research Act (WHW). A student can put such a programme together by selecting from the units of study offered by an institution. The study programme requires permission from the most relevant Examination Board that determines to which degree programme the flexible programme by the students in question shall be deemed to belong to.

#### Article D2 Permission of the Examination Board

The Examination Board shall draw up guidelines for granting the permission referred to in Article D1, with the provision that the flexible-choice degree programme must be coherent, must have a level comparable with that of the Bachelor's programme referred to in Chapter B, and must meet the requirements stated in Article D3.

#### Article D3 Examinations and structure of the flexible-choice Bachelor's degree programme

1. The flexible-choice Bachelor's degree programme has a final assessment for the Bachelor's degree.

2. The flexible-choice Bachelor's degree programme must be followed full-time, and has a study load of 180 credits.

Article D4      The composition of the flexible-choice Bachelor's degree programme  
The free-choice Bachelor's degree programme shall contain at least one component that is comparable with the Bachelor thesis project referred to in Article B6. This component shall have a study load of 15 credits.

Article D5      Validity of arrangements

1. The Education and Examination Regulations applying to the degree programme to which the unit of study in question normally belongs is leading. This concerns the periods during which examinations can be taken, the frequency of the examinations, the prior knowledge requirements for the various units of study, the way in which examinations are held and the form in which the examination results are announced.
2. If the regulations conflict or lead to insuperable problems for students, the Electrical Engineering Examination Board may permit departures from the regulations.
3. Units of study that have to be successfully completed in accordance with the provisions of Paragraph 1 before a student can proceed to units of study that form part of the free-choice degree programme need not necessarily belong to the free-choice degree programme themselves.
4. In exceptional circumstances, the examiner for a unit of study that must be successfully completed before another unit of study is started may decide that this condition may be waived.

Article D6      Sequence of the various parts of the free-choice Bachelor's degree programme

1. A student who has submitted a request for approval of a free-choice Bachelor's degree programme, shall include the sequence in which the various parts of the programme shall be taken.
2. The Examination Board may decide that certain parts of the programme shall be taken in another sequence than that specified by the applicant.
3.
  - a. In particular, the Examination Board may decide that certain named parts of the programme may not be taken until other named parts of the programme have been successfully completed.
  - b. The assignment referred to in Article D4, may not be started until at least 120 EC have been successfully completed.
  - c. The chair under whose authority the unit of study referred to in Article D4 is performed may determine, in addition to the provisions of a. and b. above, that if the content of the assignment demands this, at most two named units of study with a study load of at most 15 credits shall be successfully completed before the assignment may be started.

## B.E - Final and introductory provisions

### Article E1 Hardship clause

If these regulations give rise to evidently unfair or otherwise unintended consequences, the Programme Director or the Examination Board (depending on which is competent to deal with the issue in question) may authorize a departure from these regulations.

### Article E2 Introduction and amendment of these regulations

1. Amendments to these regulations are approved by the Dean in a separate decree and recorded in Article E3 Paragraph 2.
2. Amendments to arrangements and guidelines relating to these regulations but formulated elsewhere are approved by the Dean in a separate decree, and recorded in Article E3 Paragraph 2.
3. No amendment to these regulations will become active during the current academic year, unless they can be reasonably assumed not to have any adverse effect on the interests of students (including external students). Amendments shall if possible be announced six months before they take effect.
4. The replacement of the old regulations and the amendments introduced in these new regulations shall further not adversely influence the interests of students (including external students) as regards:
  - the period of validity of the regulations as determined by the Examination Board,
  - the approval by the Examination Board of a free-choice degree programme or a free-choice minor put together by students (including external students),
  - any other decision concerning students (including external students) taken by the Examination Board pursuant to these regulations or the preceding regulations.
5. When these regulations or arrangements and guidelines relating to these regulations but formulated elsewhere are amended, transitional arrangements shall be approved to determine in any case under what circumstances and/or during which period use can still be made of the original regulations.

### Article E3 Date of commencement

These regulations will be active on 1 September 2021

## For the students that started in the academic year 2020/21

### **Article 1 deals with the general concepts of the transitional arrangements.**

#### Article 1.1 General concepts

1. After a course is terminated in the old curriculum, there will be test-opportunities for one additional year.
2. Students who did not complete all the courses in the old curriculum after one year will be transferred to the most recent curriculum
3. The test opportunities can be written exams, or oral exams may be scheduled if only a few students need to take the resit.
4. Identifiable parts of the old curriculum that were passed (and where applicable additional requirements were met), remain valid in the new curriculum.
5. In case that the weighting factors or compensation rules in the old curriculum are different from the new curriculum, the situation that is the most beneficial for the student is applied.

#### Article 1.2 Special transitional rules

1. Students who failed all parts in module 3 and 4 will be transferred to the new modules 3 and 4
2. Students who in module 3 and 4 passed only Vector Calculus and/or Linear Algebra, will be transferred to the new modules 3 and 4
3. Electronics in the old module 3 can be replaced by LF electronics in module 3 and HF electronics in module 4 combined
4. The Electronics project can be replaced by the new (3EC) electronics project plus an (individual) extension project.
5. EM statics in the old module 4 can be replaced with Electro- and MagnetoStatics in the new module 3
6. Students who have passed the Antenna Project but failed the course "Electrodynamics Theory and Antenna project" can supplement the old course by taking the new Electrodynamics test in module 4
7. Students who have only failed the Antenna project in module 4 will be given an (individual) project to supplement the course Electrodynamics Theory and Antenna
8. Students who have failed Digital Signal Processing in module 8 but passed Embedded Signal Processing in module 11 have to take the old DSP exam
9. Students who have failed both DSP in module 8 and ESP in module 11 have to take the new courses.