Teaching and Examination Regulations (TER) 2023-2024

(ex Artikel 7.13, WHW)

BSc Computer Science & Engineering

Faculty Electrical Engineering, Mathematics and Computer Science

BACHELOR'S DEGREE PROGRAMME

Computer Science & Engineering

Translated from Dutch to English. By law (WhW), the Dutch version is legally binding.

Most important changes to Teaching and Examination Regulations faculty EEMCS 2023 – 2024

- **Article 3 a through c [admission to bachelor's programme].**
  These provisions are deleted. They were an addendum in related to the COVID-19 pandemic.
- **Article 13, Subsection 1**
  Adjustment of the article related to problems with the registration deadline for examinations taken in Q5. The registration deadline was changed in the past from 6 to 14 calendar days. That change resulted in students failing to meet the registration deadline for Q5 or registering en masse for exams they passed in the regular session. The registration deadline for Q5 will be restored to 6 calendar days with this amendment.
- **Article 16 added Subsection**
  Rules and Regulations of the Board of Examiners (RRoBE) - Article 15, Subsection 5 was originally in the model OER (Teaching and Examination Regulations). This paragraph has been moved back from the RRoBE to the faculty OER and TER 2023-2024. In this way, the model OER and the faculty OER correspond again.
- **Article 17A, Subsection 1**
  Adjustment of "examinations" in the second sentence to "assessment" to emphasize exam methods such as projects and practicals are included. Furthermore, the possibility of offering an alternative option for exam methods such as projects and practicals (which in practice cannot always be offered twice per academic year) has been brought forward more emphatically. It is also indicated that -within the limits of proportionality- additional requirements can be set for this. The amendment of Article 17A has important consequences for the implementation of education. Additional rules have been added to Article 5 of the Implementation Regulations.
- **Article 19, Subsection 5**.
  The article has been amended by adding an unambiguous deadline, in relation to the application deadline.

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Paragraph 1 – General

The basis for this document is the Dutch 'Onderwijs en Examenregeling (OER) 2023-2024'. By Higher Education and Scientific Research Act (Wet op het Hoger Onderwijs en Wetenschappelijk Onderzoek WHW), the Dutch version is binding. Considering the international scope of the Bachelor's programme in Computer Science and Engineering, the Dutch version is translated into this English version.

Article 1 – Areas to which the regulations apply

1. These regulations apply to teaching and examinations of the Bachelor's degree programme in Computer Science & Engineering, hereafter referred to as the programme.
2. These regulations also apply to the teaching and examinations of the minors. Unless specified otherwise each article applies to each of the minors.
3. This programme is conducted under the responsibility of the Faculty of Electrical Engineering, Mathematics and Computer Science at Delft University of Technology (EEMCS), hereafter referred to as the faculty.
4. The Implementation Regulations (Appendix I) apply to the programme and constitute part of these Teaching and Examination Regulations.
5. The Teaching and Examination Regulations and the Implementation Regulations are laid down by the dean.

Article 2 – Definitions

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

1. The following terms are to be defined as follows:

1	Act	The Higher Education And Scientific Research Act, in the Dutch bulletin of Acts, Orders and Decrees, number 593 and as amended since.
2	programme	The Bachelor's degree programme as denoted in Article 7.3a section 1, subsection a of the Act.
3	student	Anyone enrolled at Delft University of Technology for the purpose of benefiting from education and/or for the purpose of sitting the examinations and undergoing the final examination which form part of the programme.
4	cohort	The group of students who have registered for a degree programme for the first time in a given academic year.
5	first academic year	The first part of the programme with a study load of 60 credits, as denoted in Article 7.8 of the Act.
6	quarter	Half of a semester, a 10-week period of education as set in the academic year calendar.

7	exam period	The period in which examinations and resits are held, as laid down in the academic year planning. In week 5.3 only resits will be taken. See also MyTimetable.tudelft.nl.
8	course	A teaching unit within the programme as intended in article 7.3, section 2 and 3 of the act, to which an examination is associated.
9	practical exercise	Course or component of a course aimed at the acquisition of particular skills. The following can be understood as practical exercises: ▪ writing a thesis or paper; ▪ conducting a project or experimental design; ▪ completing a design or research assignment; ▪ completing a project; ▪ conducting a literature study; ▪ completing an internship; ▪ participating in fieldwork or an excursion; ▪ conducting tests and experiments; ▪ participating in other educational activities aimed at enabling participants to attain certain skills.
10	examination	Assessment of the student's knowledge, insight and skills with regard to a course, by at least one examiner, appointed for that purpose by the Board of Examiners, for example in a written examination. An examination can consist of several components.
11	component examination	An assessment of the knowledge, insight and skills of a student in relation to a component within a course, as well as the marking of that assessment by at least one examiner, appointed for that purpose by the Board of Examiners.
12	degree audit	An assessment by which the Board of Examiners, in accordance with Article 7.10 of the Act, establishes whether all examinations in the various courses that constitute the Bachelor programme have been successfully completed.
13	Board of Examiners	The (sub-) Board of Examiners for the programme, which has been installed in accordance with Article 7.12 of the Act.
14	examiner	The individual who, in line with Article 7.12, section c of the Act, has been appointed to administer the examinations.
15	Implementation Regulations	The Implementation Regulations which form part of these Teaching and Examination Regulations.
16	credit/EC	a credit awarded in line with the European Credit Transfer System (ECTS); one credit denotes a study load of 28 hours.

17	working day	Monday to Friday with the exception of recognised national public holidays and the collective closure days.
18	study guide	the digital guide to the programme containing specific information pertaining to the various courses (http://www.studiegids.tudelft.nlTU Delft).
19	institute	Technische Universiteit Delft
20	electronic learning environment	An electronic system designed for the exchange of teaching information e.g. Brightspace.
21	student registry system	An electronic system designed for the registration of study progress (Osiris, MyTUDelft)
22	Functional disability	All conditions which are (at least for the specified period) chronic or lasting in nature and which form a structural limitation for the student in receiving education and/or sitting examinations or taking part in practical exercises.
23	recommendation for the continuation of studies in first year of enrolment / Binding Study Advice (BSA)	The recommendation on the continuation of studies, as specified in Art. 7.8b, section 1 of the Act, that every student is issued no later than the end of the first year of enrolment.
24	negative binding recommendation for the continuation of studies / Binding Study Advice (BSA)	The rejection linked to the recommendation on the continuation of studies at the end of the first year of enrolment as specified in Article 7.8b section 3, first sentence of the Act.
25	academic year	The period from 1 September until 31 August of the following calendar year.
26	bridging programme	A deficiency programme aimed at progressing to a Master's degree programme, while enrolled in a Bachelor's degree programme, but without obtaining a Bachelor's degree (as stipulated in Article 7.30e or 7.57i of the Act).
27	programme duration	The duration starting from the enrolment of the student until the last examination.

2. The other terms in these regulations are used in the sense as they appear in the Act.

3. Where these Regulations refer to examinations, they also refer to interim examinations, with the exception of the first two sentences of Article 19 Subsection 2 and Article 22A Subsection 1.

4. A written or oral examination can also be administered digitally and/or online. Where these Regulations refer to examinations, this also refers to digital and/or online examinations.

5. In these regulations, unforeseen circumstances are defined as large-scale force majeure situations such as a (new) pandemic. This allows TU Delft to anticipate quickly and efficiently to adapt education and facilities when necessary.

Paragraph 2 – Admission and prior education

Article 3 – Admission Bachelor's degree programme Computer Science & Engineering (Art. 7.13 section 3, 7.25 and 7.28 WHW)

BoS advisory powers

[Admission to de Bachelor degree programme Computer Science & Engineering (Appendix I, Article 10)](#)

Article 4 – University entrance examination (Art. 7.29 section 2 WHW)

BoS advisory powers

1. The process of conducting the admissions examination, as specified in Article 7.29 Sections 2 and 3 of the WHW, is assigned to the TU Delft University Entrance Examination Committee established for the joint programmes.

2. Individuals who have reached the age of 21 years and who would like to be eligible for a university entrance examination must possess the following:

    a. a partial pre-university education (VWO) certificate for the courses Mathematics B and physics, or a certificate from a continuing education course or a test administered by the institute, and

    b. satisfactory communication skills in the Dutch language. This is also a requirement for degree programmes taught in English.

3. The TU Delft University Entrance Examination Committee assesses whether the candidate possesses the certifications (or partial certifications) mentioned in Section 2. If this is the case, the committee will conduct an interview with the candidate, in which they further assess the candidate and determine whether the candidate has satisfactory communication skills in Dutch.

4. Candidates must meet the language requirements as stated in the [Implementation Regulations Art 10, Subsection 2](#).

Paragraph 3 – Content and composition of the programme

Article 5 – Goal and final attainment levels of the Bachelor's degree programme Computer Science & Engineering (Art. 7.13 section 2 sub c WHW)

BoS right of approval

[Goal and final attainment levels of the Bachelor's degree programme Computer Science & Engineering (Appendix I, Article 11)](#)

Article 6 – Track (Art. 7.13 section 2 sub b WHW)

BoS right of approval

Tracks of the Bachelor's degree programme Computer Science & Engineering (Appendix I, Article 12)

Article 7A – Composition of the degree programme and degree audit

Art. 7.13 section 2 subsection a, e en g WHW; BoS advisory powers a; right of approval e en g

Art. 7.13 section 2 subsection x WHW; FSC right of approval, BoS advisory powers

1. The composition of the degree programme and the relevant transitional regulations are laid down in the Implementation Regulations (Appendix I).

2. The programme includes the Bachelor's degree audit with a study load of 180 credits. This includes the first academic year with a study load of 60 credits, which is concluded with a binding recommendation on the continuation of studies. The second and third academic years have a combined study load of 120 credits. This phase includes a minor with a study load of 30 credits.

3. The Bachelor's degree audit is concluded with a final test or assignment as described in the Digital Study Guide. This test or assignment demonstrates that the student possesses and is able to apply the knowledge, insight and skills acquired in the degree programme.

4. The degree programme with the courses, and per course the study load, the number of courses, the examination format, the examination programming and the language is described in the Implementation Regulations (Appendix I).

5. The actual design of the education is elaborated in greater detail in the Digital Study Guide.

Artikel 7B – Minors

The composition of the EEMCS minors are laid down in the Implementation Regulations (Appendix I, Article 20).

Article 7C – Flexible exam programme

1. According to Higher Education and Scientific Research Act, Article 7.3h, students can draw up a flexible exam programme that will lead to an examination. The programme requires approval of the Board of Examiners prior to the start of the flexible exam programme. The programme must consist entirely or mainly of courses that are offered by the study programme but may be supplemented with courses that are offered by or on behalf of other study programmes.

2. Prior to the start of the flexible study programme, students are required to seek advice from an academic counsellor and the relevant Director of Studies. The academic counsellor shall recommend the feasibility of the proposed flexible study programme. The Director of Studies advises on the content of the intended programme.

3. The prior approval mentioned in Subsection 1 is requested from the Board of Examiners by the student, with a motivated request including the advice of the academic counsellor and Director of Studies.

Article 8 – Form of the programme (art. 7.13 section 2 subsection i WHW)

FSC right of approval, BoS advisory powers

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

Article 9 - Language (art. 7.2 WHW)

FSC right of approval, BoS advisory powers

1. The Bachelor's programme in Computer Science & Engineering offers education and examinations in English. In the bilingual track of the Computer Science & Engineering bachelor's programme, study components may be offered in Dutch.
2. When education is in English, the Board of Examiners may allow a student to take examinations in Dutch if it is verifiably to the student's advantage.

Artikel 10 – Honours Programme

FSC right of approval, BoS advisory powers

1. Students who have successfully completed the first academic year in a single year with an average grade of 8.0 or higher and have met the criteria mentioned under section 2 will be invited to register for the Bachelor's Honours Programme (BHP) for outstanding Bachelor's students.
2. Students will be selected and admitted by the Director of Studies or an Honours Coordinator or Honours Committee established by the Director of Studies, based on a motivated Honours request, a CV and a grade list.
3. The BHP will comprise at least 20 credits:
   a. At least 5 credits must be completed in the Delft University of Technology-wide component of the BHP, which consists of:
      - social awareness,
      - entrepreneurship,
      - leadership,
      - development of specific skills.
   b. At least 15 credits must be completed in the faculty component of the BHP, which consists of a research project with a research group inside or outside the EEMCS faculty.
4. The student who has been selected and admitted to the BHP submits the course selection for approval to the Director of Studies via the BHP coordinator or BHP committee.
5. The Board of Examiners will be responsible for assessing whether all the requirements of the BHP have been met.
6. Any student who has successfully completed the BHP will be awarded a certificate signed by the chair of the Board of Examiners and the Rector Magnificus.

Article 11 – (Compulsory) participation in the study programme (Art. 7.13 Section 2, Sub t WHW)

FSC right of approval, BoS advisory powers

1. All students are expected to participate actively in the programme for which they are registered.
2. Where appropriate, there will be an obligation to participate in practical exercises as a condition to participate in the (final) exam. The Board of Examiners has the authority to grant an exemption from this obligation, with or without imposing a substitute requirement.
3. Any supplementary obligations are described by component in the course description in the digital study guide.

Article 12 - Evaluation of the study programme (Art. 7.13 Section 2, Sub a1 WHW)

BoS right of approval

1. The Director of Studies ensures the implementation of the evaluation of the education.
2. The way in which the education in the programme is evaluated is documented in the faculty's Quality Assurance Manual, which is submitted to the Faculty Student Council and the Board of Studies.
3. The Director of Studies informs the Board of Studies concerning the outcomes of the evaluation, the intended adjustments based on these outcomes and the effects of the actual adjustments.

Paragraph 4 – Registering and withdrawing

Article 13 – Registration for written examinations

FSC right of approval; BoS advisory powers

1. Registration to participate in a written examination, including a written examination that is taken online remotely from the university, is compulsory and is done by entering the requested data into Osiris no later than fourteen calendar days before the examination. In deviation from this, a registration period of six calendar days applies to resits in the summer resit period. Students receive examination tickets by email as confirmation of their registration in both cases.
2. Students may submit a request to register for an examination after the deadline mentioned in subsection 1 has passed but no later than 6 calendar days before the examination in question, in Osiris by being placed on a waiting list. The request will be honoured provided that places are available in the room or rooms where the examination is scheduled to take place. The student will receive an exam ticket by email as confirmation.
3. In case of force majeure, whereby the student is unable to register for the examination, the Board of Examiners can still allow the student to participate in the examination.
4. A student who has not registered for an on-campus examination and is therefore not included on the list of participants, may report to the invigilator on the day of the examination 15 minutes before until the start of the examination. In so far that there are seats available, they will be admitted to the examination room 30 minutes after the start of the examination in the order they reported to the invigilator. The lack of 30 minutes examination time cannot be compensated. Students who have thus gained access to the exam will be added to the list of participants. The student takes the examination subject to the reservation that it will be investigated whether the student is entitled to participate in the examination.
5. In case the investigation leads to the conclusion that the student was not entitled to participate in the examination, then the examination is invalid, and cannot lead to a result. The student can submit a motivated request to the Board of Examiners to have the examination that is considered to be invalid, to be declared valid and to have it assessed.The Board of Examiners will only agree to the request in exceptional circumstances.
6. Subsections 2 and 4 of this Article do not apply to a written examination administered online remotely from the university.
7. If unforeseen circumstances or measures make it necessary to change the form or manner of taking the examination, the Board of Examiners may determine a different registration period in favour of the student.

Article 14 – Registration for other examinations and practical exercises

FSC right of approval; BoS advisory powers

1. Registration for participation in an examination other than a written examination or registration for a practical exercise is possible up to fourteen calendar days before the examination, unless otherwise stated in the study guide, and will take place in the manner indicated in the study guide for the examination or practical exercise in question. If, due to unforeseen circumstances or measures the form or manner of taking the examination changes, what is stated in the study guide will apply in full, unless the dean decides to deviate from the manner or term for registration prescribed in the study guide.

2. In special cases the Board of Examiners may deviate from the period of registration referred to in section 1, however only in favour of the student.

3. Students who have not registered on time will not be allowed to participate in the examination or practical exercise. In exceptional circumstances the Board of Examiners may allow the student to participate in the examination or practical exercise.

4. If a student participates in an examination or practical exercise for which the student was not properly registered, the Board of Examiners can declare the results of the examination or practical exercise to be invalid.

Article 15 – Withdrawal written examinations

FSC right of approval; BoS advisory powers

1. It is possible to withdraw from a written examination via the student registry system up to 3 working days before the written examination takes place.

2. If a student has withdrawn from an examination, the student has to re-register for a next opportunity in accordance with the provisions of Article 13. As long as the registration period for an examination is open, a student can re-register for an examination.

Paragraph 5 – Examinations

Article 16 – The form of examinations and method of assessment in general (Art. 7.13 Section 2, Sub h and l WHW)

FSC right of approval, BoS advisory powers

1. Examinations are set in the manner described in the Implementation Regulations (Appendix I) and in the digital Study Guide, i.e. orally, in writing or in any other way. Practical skills are tested during the hours allocated for practical training. In case of unforeseen circumstances or measures, the Board of Examiners may decide to deviate from the prescribed form. If the form of the examination is changed, students will be informed no later than 3 days before the examination. If an examination is held by means of online proctoring, this takes place in accordance with the TU Delft Online Proctored Examination Regulation.

2. The form of the examinations is specified in the digital Study Guide before the start of the academic year.

3. In the Implementation Regulations (Appendix I) and/or in the digital Study Guide, it is described at what times and the number of times the examinations can be taken, as well as their sequence, without prejudice to the provisions in these regulations regarding written and oral examinations.

4. A student may participate in an examination for a subject no more than twice in one academic year, with the understanding that registration for an examination without timely withdrawal, as described in Article 15 - Subsection 1, counts as participation.

5. The Board of Examiners may deviate from the provisions of this article in favour of the student in special cases.

6. Well before a written examination, the examiner will give the students the opportunity to familiarise themselves with representative sample questions and the general criteria by which they will be assessed. The teacher or examiner will provide (guidelines on how to) answers to the sample questions.

Article 17A – Periods and number of examinations (Art. 7.13 Section 2, Sub j WHW)

FSC right of approval, BoS advisory powers

1. Two opportunities to take written examinations will be offered each academic year. The previous provision applies equally to assessments other than written examinations, unless this cannot be reasonably demanded of the programme. In those cases, a different option will be provided, if at all possible. Participation in this may -within the limits of proportionality- be subject to additional requirements. The times in which the examinations can be taken are:

   a. At the end of the period in which the course is offered ,

   b. the second opportunity is at a later point in the same academic year.

2. The examinations referred to under Subsection 1 are administered as indicated in the Implementation Regulations (Appendix I) for the relevant course and in the digital Study Guide of the relevant course of the current academic year. The opportunity to take written examinations is scheduled annually and announced before the start of a semester.

3. If absolutely necessary, changes can be made to this examinations' timetable but only with the approval of the Board of Examiners and if the changes are communicated to students through the official means of communication (the electronic learning environment) at least 4 weeks in advance. In case of force majeure, deviation from this period is allowed, only by decision of the Board of Examiners.

4. If, with regard to an examination, it is not indicated how many times per academic year it can be taken because it concerns a course that is not provided by the EEMCS faculty itself, the relevant provisions in the Teaching and Examination Regulations of the other programme concerned apply. The Board of Examiners reserves the right to make decisions that deviate from the norm with regard to this matter.

5. Notwithstanding the provisions of Subsection 1, there will be at least one chance in a year to sit examinations relating to courses not taught in a given academic year.

6. In exceptional cases, the Board of Examiners may allow more than two opportunities in a year for certain examinations.

Article 17B – Sequence and entry requirements for examinations and practical exercises

FSC right of approval, BoS advisory powers

1. The Implementation Regulations (Appendix I) specify for each program the order in which examinations must be taken and practical exercises must be performed.

2. The [Implementation Regulations (Appendix I)](#) establish the entry requirements for participation in an examination and practical exercise.

Article 18 – Oral examinations (Art. 7.13 Section 2, Sub n WHW)

FSC right of approval, BoS advisory powers

1. Only one student at a time will sit an oral examination, unless the Board of Examiners specifies otherwise. In case of group work, the examiner can decide to have more than one student sit the oral examination.

2. Oral examinations and group presentations shall not be public unless the Board of Examiners has decided otherwise.

3. In deviation from Subsection 2 a final presentation is given publicly except in special cases in which the Board of Examiners has decided otherwise, whether or not at the request of the student.[1]

4. An oral examination is preferably carried out by two examiners, and in any case if a student requests it. In case of unforeseen circumstances or measures, the Board of Examiners may determine that the oral examination will be conducted by one examiner. An oral examination with one examiner must have at least an audio recording. An online oral exam with one examiner must have a video recording with audio.[2]

5. The student must be able to provide proof of identity prior to an oral examination.

Article 19 – Determining and announcing the results (Art. 7.13 Section 2, Sub o WHW)

FSC right of approval, BoS advisory powers

1. The examiner determines the result of a written examination as quickly as possible but by no later than 15 working days after the examination. The results of written partial examinations shall be announced no later than five working days before the next written partial examination.

2. The examiner determines the result of an oral examination and publishes the result. This will take place no later than 15 working days after the oral examination, and no later than 5 working days after the last examination of a group that takes the same examination.

3. The examiner ensures that the results are registered and communicated in Osiris (if applicable) within the time frame mentioned under Subsection 2, taking due account of the student's right to privacy.

4. In case of a practical exercise, the examiner is required to determine the result as soon as possible after the last due date on which (the last part of) the practical exercise was to be handed in, but within 15 working days at most. The examiner ensures that the results are registered and communicated in Osiris (if applicable) within this time frame, taking due account of the student's right to privacy.

5. Contrary to the previous provisions, results for examinations administered in the last regular examination period shall be determined, registered and published by no later than the Friday following the final week of this examination period. Education and exam periods are indicated in the [academic calendar](#).

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[1] Final presentations are defined as: BSc Final Project and MSc thesis project.

[2] More information https://www.tudelft.nl/en/privacy-security/privacy/doelgroepen/student

6. If the examiner is not able to meet the previously mentioned requirements due to exceptional circumstances, the examiner must inform the Board of Examiners, stating the reasons for the delay and inform the students as soon as possible.

7. Regarding examinations that are not taken orally, in writing or as a practical exercise, the Board of Examiners shall determine beforehand precisely how and within which period of time the student will be notified of the results.

8. When receiving the result of an examination, the student will be made aware of the right to inspect the results as referred to in Article 20, as well as the possibility to lodge an appeal to the Examination Appeals Board.

Article 20 – The right to inspect the results (Art. 7.13 Section 2, Sub p WHW)

FSC right of approval, BoS advisory powers

1. For a period of at least 20 working days after notification of the results of any written examination, the student has the right to inspect the assessed work. During the inspection of the assessed work, it is not permitted to copy the underlying examination questions in any way, unless the examiner gives permission. On request students will be supplied with a copy of the assessed work.

2. During the period referred to in Subsection 1, all students who have sat the examination may acquaint themselves with the questions and assignments set in the examination, as well as with the criteria used for marking.

3. The examiner may determine that the right to inspection or perusal referred to in Subsections 1 and 2 will take place at a location specified beforehand and at a time also specified beforehand.

4. If the student can prove that he/she is or was unable to be present at the location at the set time due to circumstances beyond his or her control, then another opportunity will be provided, if possible within the period stated in Subsection 1. The location and times mentioned in the first sentence will be announced well in advance.

Article 21 – Debriefing of the examination results (Art. 7.13 Section 2, Sub q WHW)

FSC right of approval, BoS advisory powers

1. For a period of 20 working days after the results have been announced, students who have taken a written examination may submit a request to discuss the results with the relevant examiner. This discussion will take place within a reasonable time span and at a place and time determined by the examiner.

2. As soon as possible after the results of an oral examination have been announced, an opportunity is arranged to discuss the results, either at the student's request or at the instigation of the examiner. At this meeting, the reasons behind the marks awarded will be explained. During the discussion of the assessed work, it is not permitted to record and/or copy the underlying examination questions in any way.

3. In cases where a collective debrief is organised by or on the instructions of the examiner, a student may only submit a request, as referred to in Subsection 1, if the student was present at the collective debrief and also provides a good reason for the request or if, the student was unable to attend the collective review due to personal circumstances.

4. The Board of Examiners may allow deviation from the provisions of Subsection 2 and 3.

Article 22A – Validity period of examinations (Art. 7.13 Section 2, Sub k, Art. 7.10, Section 4 WHW)

FSC right of approval, BoS advisory powers

1. The result of a final grade[3] is valid for an unlimited period. The dean can restrict the period of validity of a successfully completed examination only if the knowledge or insight that was examined has become outdated or if the skills that were examined have become outdated.

2. In cases involving a limited period of validity based on the first section, the period of validity shall be extended at least by the duration of the acknowledged delay in studies, based on the TU Delft Profiling Fund Scheme.

3. In individual cases involving special circumstances, the Board of Examiners can extend the period of validity that have been limited (based on the first section) or further extend a period of validity that has been extended (based on the second section).

4. If a course consists of partial exams, the period of validity of the partial exams for which no credits are assigned shall be restricted to that academic year.

Article 22B – Invalidation of an examination or part thereof (Art. 7.12 and 7.12b WHW)

FSC right of approval, BoS advisory powers

The Board of Examiners is entitled to invalidate an examination or part thereof, if it has not been reasonably possible to properly assess the knowledge, insight and/or skill of the student on the examination or part thereof.

Paragraph 6 – Exemptions

Article 23 – Exemption from examinations or obligation to participate in a practical exercise (Art. 7.13 Section 2, Sub r WHW)

FSC right of approval, BoS advisory powers

1. After having been advised by the relevant examiner, the Board of Examiners may decide to exempt students from an examination on the grounds of:
   a. an examination involving a unit of study that, in terms of content and study load, was equivalent to a comparable university course in the Netherlands or abroad, or
   b. an examination, or final exam completed within the Dutch higher education system or elsewhere which, in terms of content and study load corresponds with the examination for which exemption is requested, or
   c. proof of knowledge and/or skills acquired outside the higher education system.
2. After having obtained recommendations from the relevant examiner, the Board of Examiners may grant exemption from the requirement to participate in a practical exercise with a view to admission to the related examination, with or without the imposition of alternative requirements.

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[3] Meaning a result or several partial results which has or have been registered in the student registry system in such a way that credits are allocated for the course.

Paragraph 7 – Degree audits

Article 24 – Periods and frequency of degree audits (Art, 7.13 section 2 sub j WHW)

FSC right of approval, BoS advisory powers

In principle, the opportunity to take the Bachelor's degree audit will be offered once a month. In the monthly meetings of the Board of Examiners, the members declare students as having passed the Bachelor's programme. The dates set by the Board of Examiners are published before the start of the academic year on the faculty website.

Paragraph 8 – Studying with a request for support

Article 25 – Adjustments to the benefit of students with a request for support or chronic illnesses (Art. 7.13 Section 2, Sub m WHW)

FSC right of approval, BoS advisory powers

1. Students with a need for support are defined as: students who experience obstacles due to a functional disability, handicap, chronic illness, psychological complaints, pregnancy, young parenthood, gender transition or special family circumstances like informal care (e.g. Mantelzorg). Students with these requests for support may be eligible for adjustments in teaching and examinations, upon written request. These changes will be geared as much as possible to a student's individual needs, but they must not affect the quality or the degree of difficulty of a course or an examination programme. The facilities provided to this end may involve adapting the form or duration of examinations and/or practical exercises to the student's individual situation or making practical aids available.[4]
2. The application referred to in the preceding section has to be submitted by the student within five weeks after the start of studies or within five weeks after the discovery of the disability.
3. The request referred to in section 1 should be accompanied by a recent medical certificate from a doctor or a psychologist. If there is evidence of dyslexia, the request should be accompanied by a document issued by a recognised dyslexia-testing bureau (i.e. registered with BIG, NIP, or NVO). If possible, this certificate should also estimate the extent to which the disability forms an obstacle to study progress.
4. Requests for the adaptation of teaching facilities will be decided upon by the dean or by the director of studies acting on the dean's behalf. The Board of Examiners will decide on requests for adaptations to examinations or mandate the academic counsellor on a case by case basis.

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[4] More information and examples of adjustments to examinations can be found here: www.tudelft.nl/en/student/counselling/studying-with-a-disability/characteristics-of-disabilities

Paragraph 9 – Study guidance and (binding) study recommendation

Article 26 - Study guidance and monitoring of student progress (Art. 7.13 Section 2, Sub u WHW)

FSC right of approval, BoS advisory powers

1. The dean is responsible for providing study supervision to students registered for the degree programme, partly for their orientation towards potential study options within and outside the degree programme. The dean will also ensure that effective support and supervision is provided to students in making choices related to their studies.

2. The examination and study programme applying to each student is documented in Osiris.

3. The Student Programme Administration is responsible for ensuring that all students are able to review and check their results in the Osiris student-information system.

4. The dean offers several study guidance moments in the first academic year. These can include:

    a. Meetings in which the following topics are discussed: lectures, seminars and practical exercises;

    b. The mentorship meetings that are part of the first academic year of the programme;

    c. The quarterly meetings of the programme. The dean expects students participate in these study guidance meetings.

5. Apart from the study guidance moments mentioned in the previous section, the dean offers students the possibility to consult academic counsellors. These counsellors can provide advice to students regarding personal problems, study skills and study planning, and, if needed, can refer to the Career & Counselling Services of the TU Delft.

Article 27 – (negative) Binding study recommendation for the continuation of studies[5] (Art. 7.13 lid 2 sub f, 7.8b WHW)

BoS advisory powers

1. No later than at the end of the first year of enrolment for the degree programme, all students who have not terminated their enrolment before 1 February of that academic year will be issued a recommendation by the dean concerning the continuation of their studies within or outside the Bachelor degree programme. The dean will issue for every student enrolled for the first time in the first study year of the degree programme with the following:

    a. a preliminary recommendation (also with a possible warning) in March;

    b. a proposed binding study recommendation on the continuation of studies in early August[6] or a definitive positive recommendation on the continuation of studies;

    c. a definitive (positive or negative) binding recommendation on the continuation of studies no later than 31 August.

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[5] More information https://www.tudelft.nl/en/student/legal-position/binding-recommendation-on-continuation-of-studies .

[6] If the dean is able to announce the results of the re-examinations to students earlier than 31 August of the first academic year, he may issue a binding study advice earlier. In that case, the study advice may be cancelled at the beginning of August.

2. Any student who has secured fewer than 45 credits by the end of the first year of study (date of final results: 31 August) will be issued with a negative binding study recommendation on the continuation of studies. This student's enrolment will be terminated with effect from the first of the month following the date of the decision in which the recommendation was included, but no earlier than 1 September of the year following the first year of study.

3. Students who have been granted exemptions for more than 15 credits in their first academic year that do not apply to the standard of 45 credits, based on Section 7 of this Article are required to have completed the entire first academic year.

4. For programmes offered jointly with another institution, the required standard will be determined in consultation with the institution in question.

5. Termination of enrolment, as stipulated in the second section, leads to exclusion from the programme for four academic years after the academic year for which the recommendation was issued.

6. The 45 credits originate from the programme for the first year of study in the degree programme in which the student is enrolled.

7. If the student has been awarded exemptions, they may be counted towards the required standard of 45 credits if the activity based on which the exemption was awarded took place in the same academic year as the year for which the binding study recommendation on the continuation of studies was issued. The exemptions may not be counted if the activity, based on which the exemption was awarded, took place prior to the academic year for which the binding study recommendation on the continuation of studies was issued.

8. If the dean judges that a student was unable to achieve the required standard of 45 credits as a result of personal circumstances, the dean will permit the student either to achieve the standard of 45 credits from the programme for the first year of study in the degree programme in which the student is enrolled in the following academic year, with credits secured in the first year of study not counting towards this, or to complete the first year of study in its entirety.

9. If the dean judges that enrolment after 1 October has had such an influence that a student was unable to achieve the required standard of 45 credits, the dean will permit the student either to achieve the standard of 45 credits from the programme for the first year of study in the degree programme in which the student is enrolled in the following academic year, with credits secured in the first year of study not counting towards this, or to complete the first year of study in its entirety.

Paragraph 10 – Final provisions

Article 28 – Contravening the regulations

If the digital study guide and/or any other regulations relating to the exam programme and/or the examination programme prove to contravene these Teaching and Examination Regulations and the accompanying Implementation Regulations, precedence will be given to the provisions of these Teaching and Examination Regulations in combination with the Implementation Regulations (Appendix I).

Article 29 – Changes to the regulations

1. Any changes made to these regulations will be made by special resolution of the dean.
2. No changes made will affect the current academic year unless it is reasonable to suppose that the interests of students will not be adversely affected.

3. Changes to these regulations cannot lead to a change in a decision already taken with regards to the student that is detrimental to the student.

4. As a result of unforeseen circumstances or measures, the dean may decide to deviate from these regulations, including the actual design of the education and any compulsory attendance requirements. This also means that it is possible to deviate from the provisions of the Study Guide.

Article 30 – Transitional regulations

1. If the composition of the exam programme undergoes intrinsic changes or if these regulations are amended, the dean will draw up transitional regulations that will be incorporated into the Implementation Regulations (Appendix I).

2. Such transitional regulations are required to include:
   a. a regulation concerning the course exemptions that can be obtained on the basis of examinations already passed;
   b. a provision specifying the period of validity of the transitional regulations.

3. Students shall follow the degree programme as it applied or applies during the first academic year of their enrolment, unless components of the programme are no longer offered. In such cases, students must transfer according to the applicable transitional measures. Deviations require the approval of the Board of Examiners. Before submitting a request to this end, the student must have first obtained recommendations from an academic counsellor.

4. If a course is cancelled in a degree programme, e.g. due to a new programme, four opportunities to sit an examination in this course will be granted after the last classes have been taught: an examination in the last teaching period of the course, a resit in the same academic year, and two resits in the subsequent academic year.

5. Courses with the same code in different programs are interchangeable.

Article 31 – Publication of the regulations

1. The dean is responsible for finding a suitable way of publicising these regulations and the relevant Implementation Regulations (Appendix I), as well as any changes to the regulations.

2. The Teaching and Examination Regulations (TER), together with the accompanying Implementation Regulations (Appendix I), will always be published on the programme's website.

Article 32 – Entry into force

These Regulations and the Implementation Regulations will come into effect on September 1, 2023.

Issued by the dean of the Faculty in August 2023, after the approval and recommendations of the Faculty Student Council and the Board of Studies for Applied Mathematics, Computer and Embedded Systems Engineering, Computer Science, Electrical Engineering, Sustainable Energy Technology.

Name   : Prof.dr.ir. L.J. (Lucas) van Vliet

APPENDIX 1: IMPLEMENTATION REGULATIONS

Introduction

The numbering of the Paragraphs and Articles in the Implementation Regulations are copied from the legally binding Dutch Onderwijs en Examenregeling 2023-2024. This has been done to facilitate readability and to enable easy comparison between this English translation and the Dutch version. This means that the numbering of the Paragraphs and Articles are the same as in the Onderwijs en Examenregeling 2023-2024 and therefore may not be sequential in this English version.

Paragraph 1 – Composition of the degree programme and requirements degree audit

Article 1 - Programme structure

1. The Bachelor's programme in Computer Science & Engineering comprises a study load of 180 EC and is organised based on the major/minor structure.
2. Within the programme, the major comprises a study load of 150 EC and the minor comprises a study load of 30 EC.
3. The minor is a cohesive combination of courses or other study components offered with the aim of broadening or deepening the student's knowledge or for enabling the student to connect to a Master's programme that does not follow on directly from the relevant Bachelor's programme but which can be followed in the fifth semester of the Bachelor's programme.
4. For students who wish to combine two EEMCS Bachelor's programmes, a personal study programme can be set up. This programme indicates the courses that form the first academic year. The Binding Study Advice (BSA) standard for the programme is also determined. The request for such a programme must be submitted before 1 June, prior to the start of the first academic year in which this programme will be followed. Approval of the request is subject to additional requirements. Before the start of the programme, it must be submitted for approval to the Board of Examiners of both Bachelor's programmes.

Article 2 – Degree audit requirements

1. From the Rules and Guidelines of the Board of Examiners (Article 7.12 of the WHW), Delft University of Technology, Faculty of Electrical Engineering, Mathematics and Computer Science, the student is considered to have passed the Bachelor's degree audit if the following requirements are met:
   a. A result has been obtained in all courses: a mark, a pass (V) or an exemption (VR);
   b. None of the marks are lower than a 'satisfactory' mark (6.0).
2. The method of assessment is sufficiently transparent, so that the student can ascertain how the result was reached.
3. In special cases, the Board of Examiners may deviate from the provisions of paragraph 1. It will stipulate additional requirements, if necessary.
4. Paragraph 1 – General, Article 17A, Subsection 1, states that all assessment other than written examinations have two opportunities per academic year. For assessment other than written examinations, the two opportunities consist of a regular examination opportunity and a repair

opportunity (no resit) per academic year, unless this cannot be reasonably required of the programme[7].

The conditions for offering a repair opportunity are:

a. An examiner will offer a student a repair opportunity when the obtained result of an assessment other than a written examination leads to a partial grade in the range of 4.0 up to 6,0 (excluding 6.0). This sub concerns the regular examination opportunity.

b. The maximum obtainable result for the repair option is a 6.0.

c. The repair opportunity takes place no later than the quarter following the regular examination opportunity in the same academic year.

d. In case of a pass/fail assessment, the examiner determines the extent to which the fail is equivalent to the grade range defined in Subsection 4a.

Article 3 – Completion of bridging programme prior to the degree programme

1. A student who is enrolled in a Bachelor's degree programme for a bridging programme with the aim of being admitted to the Master's degree programme at TU Delft, must complete this bridging programme within two academic years,

2. After the above mentioned period of enrolment the enrolment of the student is terminated. Under exceptional personal circumstances the student can submit a well-founded request for an extension of the course duration for a period of at most one year.

3. The Executive Board will set the fee to be charged, as denoted in Article 7.57i of the Act, for the enrolment as student in a bridging programme and for the extension thereof, as denoted in section 2 of this article.

Article 4 – Abbreviations used in the Implementing Regulations

Abbreviation	Assessment	Description
W	Written exam	Written assessment in one or more parts
C	Computer exam	Computer assessment (on campus)
O	Oral exam	Oral assessment
a	Assignments	Course work that is focused on the acquisition of certain skills.
p	Projects	Several forms of assessment can be applied: assignment, report, presentation, oral, mid-term review (of progress, product, method or work process), peer-assessment

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[7] Practical implementation determines whether a repair opportunity can reasonably be offered. It is not reasonable to ask a programme to offer a repair opportunity for an entire process, but it is reasonable to offer a repair opportunity for a deliverable. For example, in case of a group project where a student did not participate in the project group, then it is not reasonable to ask the examiner to offer a repair opportunity. If it concerns a fail for a deliverable (e.g. the report of the group work) then an examiner can reasonably be expected to offer a repair opportunity.

g	Gamification	Multiple forms of assessments to collect points towards the final grade, including a/multiple written exam(s).

Paragraph 2B – The major part of the programme Computer Science & Engineering

Article 10 – Admission Bachelor degree programme Computer Science & Engineering (Art. 7.13 section 3, 7.25 and 7.28 WHW)

1. Access to education in the Bachelor's degree programme in Computer Science & Engineering is open to individuals possessing a certificate as stipulated in the law and corresponding ministerial regulations with the proper profile or subject, or on the condition that all of the stated requirements have been met.

    In addition, the programme is accessible only to individuals possessing a notice of admission, as stipulated in the TU Delft Selection and Placement Regulations, after having completed the matching and selection procedure, as described in the Regulation Matching & Selection Criteria and Procedure BSc CSE.

    The prior education requirements are elaborated below, by type of certificate

    a. Certificate of pre-university education (VWO; as stipulated in Article 7.24.1 a or b of the WHW) or a Surinam diploma for pre-university education (VWO).

    - profile S&E (N&T) [directly admissible]
    - profile S&H (N&G) [with Mathematics B]
    - profile E&S (E&M) [with Mathematics B]
    - profile C&S (C&M) [with Mathematics B]

    The following applies as well:

    1) individuals possessing a pre-university (VWO) certificate with the S&H (N&G) profile from before 2007 are admissible;

    2) individuals possessing an 'old style' pre-university (VWO) certificate with Mathematics B in the combination of modules are admissible;

    3) individuals with certificates that do not include the aforementioned modules must rectify these deficiencies before they can be registered and admitted (no later than 31 August).

    b. Bachelor's or Master's degree or Doctoral degree, a certificate of first-year degree audit for higher professional education, or an associate degree obtained at a Dutch institution.

    The following applies to this category:

    1) individuals possessing a pre-university (VWO) certificate, as mentioned in section a, are subject to the conditions of the table in section a;

    2) individuals possessing certificates from senior general secondary education (HAVO) or senior secondary vocational education (MBO) must rectify the deficiencies relative to the pre-university (VWO) level [Mathematics-B] before they can register and be admitted (no later than 31 August).

    c. Foreign degree

Individuals holding a foreign degree (regardless of whether they were earned abroad) or diplomas based on a European or International Baccalaureate programme must rectify the deficiencies relative to the pre-university (VWO) level [Mathematics-B] before they can register and be admitted (no later than 31 August). This equivalence is determined by the Executive Board.

Individuals in this category must also meet the requirements of satisfactory linguistic mastery of English, as stated in Article 27 of the Implementation Regulations. They must rectify any language mastery deficiencies before they can register and be admitted (no later than August 31).

2. Students with a diploma as specified in 1a and 1b are admissible to the Bilingual (Dutch-English) track or English track. Students with a diploma as specified in 1c are only admissible to the English track, unless they can proof their proficiency of the Dutch language with a Dutch language certificate as described in Article 27, Subsection 1 of the Implementation Regulations.

3. In all non-standard cases, the admissions committee of the Bachelor's degree programme will assess whether their qualifications reflect an adequate level of Mathematics and linguistic mastery.

Article 11 – Goal and final attainment levels of the Bachelor degree programme Computer Science & Engineering (Art. 7.13 section 2 subsection c WHW)

1. The programme aims to:
    - educate students so that they can obtain a Bachelor of Science degree in Computer Science & Engineering, for which the final attainment levels described in Subsection 2 of this Article must be achieved,
    - enable students to gain admission to one of the Master's programmes following on directly from the Bachelor's programme, including the Master's programmes in Computer Science, Computer and Embedded Systems Engineering en Science Education and Communication.

2. The graduate
    a. is familiar with existing scientific knowledge in the field of computer science and has the competence to increase and develop this through study:
        - has knowledge of the core concepts and basic methods of the field of computer science such as programming, software engineering, logic, fundamental computer science, databases, web technology, computer systems and networks, information systems and artificial intelligence;
        - has the necessary mathematical knowledge, such as a knowledge of calculus, linear algebra, probability theory and statistics;
        - is aware of the role of computer science in its application fields;
        - can apply the above-mentioned knowledge to problems of limited complexity in the field of computer science and its application fields.
    b. is competent in carrying out research in the field of computer science under supervision:
        - has been introduced to research and in particular to modelling in the field of computer science, i.e.
            - can analyse problems in order to produce a research plan;
            - can use scientific literature to find solutions to studied problems;
            - can adapt and implement these solutions.
    c. has a systematic approach in designing software and software systems:

- can formulate the requirements to be fulfilled by software and software systems;
- can take and substantiate design decisions, taking into account technical, ethical preconditions and socio-economic consequences;
- can effectively model the aspects involved;
- can choose and apply a suitable software engineering method in order to implement and test that system.

d. has a scientific attitude and approach to computer science:

- is inquisitive and has an attitude of lifelong learning;
- has a systematic approach, e.g. in hypothesis driven problem solving or engineering software;
- has the knowledge and the skills to use, justify and assess concepts and theories in computer science as to their value for research and can adapt these for his or her own use;
- has insight into the scientific practice in computer science (research system, relation with clients, publication system, importance of integrity, etc.);
- knows the methods and techniques used in the scientific practice of computer science and can apply them under supervision;
- is aware of the limitations of science.

e. has the basic skills to critically reflect on the field of computer science:

- can adopt a critical approach towards and deliberate on his or her own arguments as well as those of others in order to subsequently arrive at a well-founded position;
- can recognise and use reasoning methods, ask the right questions, and make and understand qualitative and quantitative statements in the field of computer science.

f. is competent in co-operating and communicating:

- can work in a professional manner within an international team to solve complex software design problems with fellow computer scientists or others;
- can present the results of the work both orally and in writing to fellow computer scientists or others.

g. takes account of the ethical, temporal and social context:

- can analyse and discuss the socio-economic, ethical and legal consequences that ill-considered, incorrect or poorly designed systems can have;
- can account for a developed computer science artefact (software, algorithm, database, system, etc.) with respect to the responsible use of data and algorithms and the software development process followed.

Article 12 – Composition of the programme

1. The bachelor's program in Computer Science & Engineering consists of two tracks: the Bilingual track and the English track.
2. The Bilingual track and the English track have the same program structure, as described in Article 12, Subsection 3. In addition, study components in Dutch may be offered in the Bilingual track. Furthermore, students in the Bilingual track master the learning outcomes in Article 11 f point 2 and Article 11 g point 1 in both the English and Dutch languages after completing the programme.
3. The program includes the following courses listed in the table below. For each course the study load (EC) is indicated, as well as the language, the period in which the course is offered, the time period

and the form of assessment. In addition, entrance requirements are indicated, if applicable. The education of year 3 will be determined per year via the Onderwijs en Examenregeling of the concerning year.

Year 1

Course Code	Course Name	Course Type**	EC	Language	Course Period	Exam period	Assessment*	Entry Requirements
CSE1000	Mentorate	Compulsory	0	English	Q1 +Q2	Q2	Atten-dance	
CSE1100	OOP	Compulsory	5	English	Q1	Q1/Q2	w, c	
CSE1300	Reasoning & Logic	Compulsory	5	English	Q1	Q1/Q2	w	
CSE1400	Computer Organisation	Compulsory	5	English	Q1	Q1/Q2	w, a	
CSE1200	Calculus	Compulsory	5	English	Q2	Q2/Q3	w	
CSE1305	Algorithms and Datastructures	Compulsory	5	English	Q2	Q2/Q3	w, c	
CSE1500	Web & Database Technology	Compulsory	5	English	Q2	Q2/Q3	w, a	
CSE1205	Linear Algebra	Compulsory	5	English	Q3	Q3/Q4	w, a	
CSE1105	OOP Project	Compulsory	5	English	Q3	Q3	p	
CSE1505	Information and Data Management	Compulsory	5	English	Q3	Q3/Q4	w, a	
CSE1210	Probability Theory and Statistics	Compulsory	5	English	Q4	Q4/Q5	w, a	
CSE1110	Software Quality and Testing	Compulsory	5	English	Q4	Q4/Q5	w, a	
CSE1405	Computer Networks	Compulsory	5	English	Q4	Q4/Q5	w, a	

Year 2

Course Code	Course Name	Course Type**	EC	Language	Course Period	Exam Period	Assessment*	Entry Requirements
CSE2215	Computer Graphics	Compulsory	5	English	Q1	Q1/Q2	w, a	
CSE2510	Machine Learning	Compulsory	5	English	Q1	Q1/Q2	w	
CSE2220	Signal Processing	Variant M	5	English	Q1	Q1/Q2	w, a	
CSE2410	Digital Systems	Variant S	5	English	Q1	Q1/Q2	w, a	
CSE2515	Big Data Processing	Variant D	5	English	Q1	Q1/Q2	w, a	
CSE2310	Algorithm Design	Compulsory	5	English	Q2	Q2/Q3	w, c	

CSE2115	Software Engineering Methods	Compulsory	5	English	Q2	Q2/Q3	w, a	
CSE2225	Image Processing	Variant M	5	English	Q2	Q2/Q3	w, a	
CSE2415	Embedded Software	Variant S	5	English	Q2	Q2/Q3	w, a	
CSE2520	Data Mining	Variant D	5	English	Q2	Q2/Q3	w, a	
CSE2120	Concept of Programming Languages	Compulsory	5	English	Q3	Q3/Q4	w, a	
CSE2315	Automata, Computability and Complexity	Compulsory	5	English	Q3	Q3/Q4	w, a	
CSE2230	Multimedia Analysis	Variant M	5	English	Q3	Q3/Q4	w, a	
CSE2420	Operating Systems	Variant S	5	English	Q3	Q3/Q4	w, a	
CSE2525	Computational Intelligence	Variant D	5	English	Q3	Q3/Q4	w, a	
CSE2000	Software Project	Compulsory	15	English	Q4	Q4	p	Yes, see Article 13.4

Year 3								
Course Code	**Course Name**	**Course Type****	**EC**	**Language**	**Course Period**	**Exam Period**	**Assessment***	**Entry Requirements**
CSE3220	Computer Security	Elective	5	English	Q3	Q3/Q4	W	
CSE3130	Introduction to Quantum Computer Science	Elective	5	English	Q3	Q3/Q4	W	
CSE3500	Human Computer Interaction	Elective	5	English	Q3	Q3/Q4	W	
CSE3100	Functional Programming	Elective	5	English	Q3	Q3/Q4	W	
CSE3210	Collaborative Artificial Intelligence	Elective	5	English	Q3	Q3/Q4	W	
CSE3300	Algorithms for NP-hard problems	Elective	5	English	Q3	Q3/Q4	W	
CSE3000	Research project	Compulsory	15	English	Q4	Q4	P	Yes, see Article 13.5

Minor	See Paragraph 3 – Minors for EEMCS students	Minor	30	English/ Dutch	Q1/Q2		See Paragraph 3 – Minors for EEMCS students	Different per minor

* The information provided with regard to the individual courses in this table applies for the academic year 2023-2024. In future years this information can change, as a result of both unforeseen and practical circumstances. If this will be the case, changes will be formulated in the TER (BSc) of the year when said changes will be implemented.

** Type of course depicts if a course is a Compulsory part of the exam programme, a year 2 variant course where there is choice between Variant M (Multimedia), Variant S (Systems) and Variant D (Data), or a year 3 Elective course.

4. The courses mentioned in section 1 can consist of multiple components. The components needed to successfully complete the course will be published in the digital study guide before the start of the academic year in which the education is provided, including:
   - The minimum result of the components,
   - The weighting of the components relative to each other,
   - The validity of the components[8],
   - And, if applicable, whether there is a compulsory attendance for components within a course.

   The final grade of each course consists of a mark (1-10), with the exception of CSE1000, which has a Pass/Fail grade.

Article 13 – Entry requirements

1. Students will only be permitted to participate in the courses of the bachelor's programme of CSE if they have a valid enrolment for this programme or have a valid enrolment for an EEMCS bridging programme in which the course is included.

2. In the Teaching and Examination Regulations (Article 17B) it is stated that certain conditions/entry requirements can be asked, that need to be obtained with a view to admission to an examination and/or practical exercise (so-called sequence requirements). In this article this is implemented by formulating a number of these entry requirements (sequence requirements).

3. Students that do not meet the stated entry requirements of a course and feel this results in unreasonable study delay, can request the Director of Studies to allow them access to the course. The request needs to be accompanied by an advice of an academic counsellor.

4. Students are only allowed entry to CSE2000 Software Project if the following courses are successfully completed:
   - CSE1100 OOP
   - CSE1305 Algorithms & Datastructures
   - CSE1105 OOP Project

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[8] The general rule is described in the OER, Article 22A: 'If a course consists of partial examinations, the validity of the partial examination for which no credits are awarded is limited to that academic year.'

- CSE1110 Software Quality and Testing
- CSE2215 Software Engineering Methods

5. Students are only allowed entry to CSE3000 Research project if the following courses are successfully completed:
   - CSE1100 OOP
   - CSE1300 Reasoning & Logic
   - CSE1400 Computer Organisation
   - CSE1200 Calculus
   - CSE1305 Algorithms & Datastructures
   - CSE1500 Web & Database Technology
   - CSE1205 Linear Algebra
   - CSE1105 OOP Project
   - CSE1505 Information and Data Management
   - CSE1210 Probability Theory and Statistics
   - CSE1110 Software Quality and Testing
   - CSE1405 Computer Networks
   - CSE2215 Computer Graphics
   - CSE2510 Machine Learning
   - CSE2310 Algorithm Design
   - CSE2215 Software Engineering Methods
   - CSE2000 Software Project

   And one of the combinations of the following courses:
   - CSE2220 Signal Processing + CSE2225 Image Processing
   - CSE2420 Digital Systems + CSE2425 Embedded Software
   - CSE2520 Big Data Processing + CSE2525 Data Mining

6. Students with an examination programme of cohort 2017 or older will be allowed to participate in the CSE3000 Research Project provided they have completed the first two years of their examination programme.
7. Unconditional access shall be granted to the other parts of the programme provided that sub 1 of this article is complied with.
8. Students are informed via Brightspace about the deadlines, procedure and measuring moment for applying for courses with entry requirements.

Paragraph 3 – Minors for EEMCS students (Article 7.13 section 2 sub a WHW)

Article 20 - Minor

1. A minor is a cohesive combination of courses with a study load of at least 30 EC that must be in line with the academic level of the third year. The aim of a minor is to help students broaden and deepen their knowledge, gain industrial/practical experience in their own discipline or connect to a Master's programme other than that which follows on directly from the relevant Bachelor's programme.
2. A distinction is made between Thematic minors and Individual minors.
3. A minor may only be taken if there is no overlap with the major programme followed by the student. In the event of a possible overlap, Computer Science & Engineering students must request approval from the CSE minor coordinator before the student starts the minor.
4. For minors at other faculties or universities, the relevant regulations of that faculty or university shall apply. In case of deviating pass criteria, the student may submit a request to the Board of Examiners to be awarded a 'pass'.

NOTE. Whether or not a minor is offered depends on the number of enrolments. If fewer than 30 students are enrolled, it is possible that a minor will not be offered.

Article 21A - Thematic minors

The Thematic minor is a fixed, coherent package of subjects from which it is not possible to deviate. Students of the EEMCS faculty may choose from the programme of minors offered by the Delft University of Technology as well as from that offered by Leiden University and Erasmus University Rotterdam (LDE cooperation). Minors from other Dutch or foreign universities must be submitted to the Board of Examiners for approval. For the list of thematic minors offered by EEMCS, see Article 22.

Article 21B - Individual minors

An individual minor consists of a cohesive combination of courses that may be followed at the Delft University of Technology, another Dutch university or at a foreign university. The combination of courses of the individual minor must be submitted for coherence and level verification to the Director of Studies of the Bachelor's programme being followed by the student and must be approved by the Board of Examiners of that programme.

Article 22 - Thematic minors

Computational Science and Engineering (TW-Mi-195)		
Course Code	**Course Name**	**EC**
TW3710TU	Scientific Programming	3
TW3720TU	Object Oriented Scientific Programming with C++	3
TW3730TU	Numerical Methods for Differential Equations	6
TW3740TU	Parallel Computing	4
TW3750TU	Numerical Methods for Stochastic Differential Equations	6
TW3715TU	Final Minor Project-part A	2
TW3725TU	Final Minor Project-part B	6

Electronics for Robotics (EE-Mi-201)		
Course Code	**Course Name**	**EC**
ET3033TU	Circuit Analysis	3
ET3604LR	Electronic Circuits	3
ET3604LRP	Electronic Circuits	0
EE3115TU	Digital Communication Systems	4
CSE2420	Digital Systems (BSc CSE students that followed the Systems variant have to replace this course with CSE2220 Signal Processing)	5
EE3120TU	Guided and Wireless EM Transfer	5
EE3125TU	Advanced Electronics for Robotics	5
EE3130TU	Marsrover project	5

Electrical Sustainable Energy Systems (ET-Mi-190)		
For BSc Electrical Engineering students		
Course Code	**Course Code**	**EC**
Compulsory Courses (12 EC):		
ET3034TU	Solar Energy	3
EE3400TU	Sustainable Electrical Distribution Networks	3
EE3065TU	Reliability of Sustainable Power Systems	3
AE3516A	Fundamentals of Wind Energy I	3
Elective Courses (6 EC):		
EE3060TU	Agent-based energy markets	3
EE3110TU	Energy Efficiency	3
EE3105TU	Sustainable Energy Technologies	3
EE3390TU	Introduction to Cyber Security for Power Grids	3
Compulsory projects (12 EC):		
ET3036TU	Project Design of sustainable energy supply	6
ET3037TU	Project Integrating Renewable Energy	6
Electrical Sustainable Energy Systems (ET-Mi-190)		
For non-EE students		
Course Code	**Course Name**	**EC**
Compulsory Courses (12 EC):		
EE3395TU	Introduction to Electrical Power Engineering	6
ET3034TU	Solar Energy	3
EE3400TU	Sustainable Electrical Distribution Networks	3
Elective Courses(6 EC):		

EE3110TU	Energy Efficiency	3
AE3516A	Fundamentals of Wind Energy I	3
EE3065TU	Reliability of Sustainable Power Systems	3
EE3105TU	Sustainable Energy Technologies	3
EE3060TU	Agent-based energy markets	3
EE3390TU	Introduction to Cyber Security for Power Grids	3
Compulsory Projects (12 EC):		
ET3036TU	Project Design of sustainable energy supply	6
ET3037TU	Project Integrating Renewable Energy	6

Finance (TW-Mi-097)		
Course Code	**Course Name**	**EC**
WI3405TU	Option Valuation Methods	6
WI3411TU	Time Series	4
WI3435TU	Data Science for Finance	3
WI3417TU	Introduction to Mathematical Finance	6
WI3418TU	Principles of Asset Trading	6
WI3430TU	Current Issues in Finance	2
WI3421TU	Risk Management	3
WI3420TU	Clinic	0

Article 23A – Individual minors: bridging minors

Not applicable.

Article 23B – Individual minors

1. Individual minors should meet the following conditions:
   a. The proposed courses should comprise at least 30 EC.
   b. The proposed courses should form a coherent whole and should not have overlap with the major programme.
   c. The proposed courses should be offered by a university.
   d. The minor, as a whole, should reach third year BSc level.
   e. Courses can only be part of an individual minor if these have been taken during the time of registry for the current study programme.13
   f. No MSc level courses are allowed to be part of the individual minor. An exception, to be decided by the Board of Examiners, can be made for minors composed of courses offered abroad, but only in case of an insufficient offer of English language BSc courses.
   g. A request for an individual minor containing courses from an existing thematic minor may be denied by the Board of Examiners. Participation in thematic minors is only possible via the regular, central application procedure.
   h. Students of the Computer Science & Engineering programme are not permitted to do an internship as part of the individual minor.

i. Students of the Computer Science & Engineering programme are not permitted to perform a individual composed minor, with the exception of the minor abroad, a thematic minor at a Dutch university outside the LDE context, a minor consisting of a thematic minor of 15 EC with additional subjects, and the bridging minor.

j. Students from outside the Computer Science & Engineering programme are not permitted to include Computer Science & Engineering subjects (including subjects from the Computer Science thematic minor) in their individual minor. Students may, however, take the full Computer Science thematic minor (see above).

2. EWI Study Abroad (EWI-Mi-134)

The EEMCS faculty offers her own students the Study Abroad minor. As part of this minor students can gain experience abroad. To apply for this minor a student needs to at least have completed all courses of the first academic year. Before the start of the minor a student needs to have completed all courses of the first academic year and also have obtained at least 30 EC worth of courses from the second or third academic year. Additionally, participation in this minor must not result in (extra) study delay. Additional requirements may apply.

Article 24 - Completion Minor

A minor of the EEMCS faculty is successfully completed if all of the components of the minor have a final grade of 6 or higher, or a V (pass).

Paragraph 5 – Language requirements

Article 27 – Language requirement

Language level holders foreign diploma (c)

1. Dutch-language Bachelor's programmes only and the Bilingual track within the English-language Bachelor's program in Computer Science and Engineering.
    a. By successfully passing a Dutch examination at the following level:

    - GCE A Level
    - Algemeen Secundair Onderwijs (ASO)
    - European Baccalaureate (EB)
    - Suriname VWO
    - International baccalaureate (IB)
    - Baccalaureate Series S

By successfully completing:
    - The complete Dutch course from the TU Delft Centre for Languages and Academic Skills; or
    - The NT2-II certificate and the professional language course of the TU Delft Centre for Languages and Academic Skills.

    b. The English language: By successfully completing one of the following tests:
    - TOEFL iBT with an overall band score of 70
    - IELTS (academic version) with an overall band score of 5.5
    - Cambridge Assessment English:
        o B2 First (formerly known as Cambridge English)
Certificates more than two years old will not be accepted.

    c. The following candidates are exempted from the English language test requirement:

- Students who hold the nationality of one of the following countries: USA, UK, Ireland, Australia, New Zealand or Canada;
- Students who hold a secondary school diploma from one of the above countries;
- Students who possess an International Baccalaureate or European Baccalaureate diploma
- Students who possess a Suriname VWO diploma or European secondary school diploma (pre-university certificate) equivalent to Dutch VWO level, with English as a final school-leaving examination subject. A pass must have been achieved for English on the school-leaving diploma;

2. English-only Bachelor's degree. English language, by passing one of the following tests By successfully passing one of the following tests:
   - TOEFL iBT with an overall band score of 90
   - IELTS (academic version) with an overall band score of 6.5
   - Cambridge Assessment English:
     - C1 Advanced (Certificate of Advanced English) with an overall score of at least 176.
     - C2 Proficiency (Certificate of Proficiency in English) with an overall score of at least 180.

   Certificates more than two years old will not be accepted.

3. The following candidates are exempted from the English language test requirement:
   - Students who hold the nationality of one of the following countries: USA, UK, Ireland, Australia, New Zealand or Canada;
   - Students who hold a secondary school diploma from one of the above countries;
   - Students who possess an International Baccalaureate or European Baccalaureate diploma
   - Students who possess a Suriname VWO diploma or European secondary school diploma (pre-university certificate) equivalent to Dutch VWO level, with English as a final school-leaving examination subject. A pass must have been achieved for English on the school-leaving diploma;

APPENDIX II. EQUIVALENTIES (2022 and older)

Appendix to Article 25B - course equivalencies Bachelor Computer Science and Engineering.

Replacement table programme 2018 vs. programme 2014

The table below indicates all course replacements regarding programme 2014 towards programme 2018.

Programme 2014				Programme 2018		
Course Code	Course Name	EC		Course Code	Course Name	EC
TI1106M	Calculus	5		CSE1200	Calculus	5
TI1206M	Lineaire Algebra	5		CSE1205	Linear Algebra	5
TI1406	Computerorganisatie	5		CSE1400	Computer Organisation	5
TI1306	Redeneren & Logica	5		CSE1300	Reasoning & Logic	5
TI1706	Softwarekwaliteit & Testen	5		CSE1110	Software Quality & Testing	5
TI1206	OOP	5		CSE1100	OOP	5
TI1506	Web- en Databasetechnologie	5		CSE1500	Web & Database Technology	5
TI1316	Algoritmen & Datastructuren	5		CSE1305	Algorithms & Data Structures	5
TI1206	OOP Project	5		CSE1105	OOP Project	5
TI1906	Logic based AI	5		CSE3230	Algebra and Cryptography	5
TI1606	Project Multi-Agent Systemen	5		CSE2510	Machine Learning	5
TI1806	Computer Graphics	5		CSE2215	Computer Graphics	5
TI2606	Concepten van Programmeertalen	5		CSE2120	Concepts of Programming Languages	5
TI2406	Computernetwerken	5		CSE1405	Computer Networks	5
TI2306	Algoritmiek	5		CSE2310	Algorithm Design	5
TI2506	Informatie- & Datamodellering	5		CSE1505	Information & Data Management	5
TI2216M	Kansrekening & Statistiek	5		CSE1210	Probability Theory and Statistics	5
TI2206	Software Engineering Methods	5		CSE2115	Software Engineering Methods	5
TI2316	Automaten, Talen & Berekenbaarheid	5		CSE2315	Automata, Languages and Computability	5
TI2716-A	Signaalverwerking	5		CSE2220	Signal Processing	5
TI2716-B	Beeldverwerking	5	A	CSE2225	Image Processing	5
TI2716-C	Multimedia Analyse	5		CSE2230	Multimedia Analysis	5
TI2726-A	Digitale Systemen	5		CSE2420	Digital Systems	5
TI2726-B	Embedded Software	5	B	CSE2425	Embedded Software	5
TI2726-C	Operating Systems	5		CSE2430	Operating Systems	5

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TI2736-A	Computational Intelligence	5		CSE2530	Computational Intelligence	5
TI2736-B	Big Data Processing	5	C	CSE2520	Big Data Processing	5
TI2736-C	Datamining	5		CSE2525	Data Mining	5
TI2806	Contextproject	10		CSE2000	Software Project	15
	Minor	30			Minor	30
TI3306	Complexiteitstheorie	5		CSE3230	Algebra and Cyptography*	5
WM0388TI	IT & Values	5		CSE3500	Human Computer Interaction	5
TI3706	Bachelorseminarium	5		CSE3130	Introduction to Quantum Computer Science	5
TI3806	Bachelorproject	15		CSE3000	Research Project	15

*Students who are replacing TI1906 with Algebra and Cryptography need to request an individual replacement for TI3306 in their exam programme.

APPENDIX III. TRANSITIONAL REGULATIONS (2022 and older).

Appendix to Article 26B - Transitional Regulations Bachelor of Computer Science and Engineering

Transitional arrangement for 2014 programme to current programme 2018

1. Students from the 2017 cohort or earlier, who have not completed all the components of programme 2014 and no longer have the opportunity to retake them may replace the components not yet completed with the substitute course in the new program as shown in the replacement table (Appendix to Article 25B).
2. If students wish to deviate from the replacements, they should consult the academic counsellor. In that case, they may submit a request to the Board of Examiners for a change in their individual study programme.
3. The transitional arrangement shall apply until academic year 2021-2022. After this academic year, all students with the 2014 study programme can be transferred to the 2018 programme.
4. The study load of the total programme after the transfer will comprise at least 180 EC.