Education and Examination Regulations for the Master's Programmes Civil Engineering and Management (CEM) & Construction Management and Engineering (CME)

Introduction

This document is the Students' Charter CEM / CME, hereinafter referred to as SC-CEM/CME, and consists of the following:

- Study Guide CEM / CME
- Master version of the UT Education and Examination Guideline (OER: articles 1 to 8)
- Programme-specific appendix for the master's programmes Civil Engineering and Management, and Construction Management and Engineering
    - Programme-specific appendix to the Education and Examination Regulations
    - Rules and Guidelines of the examination board

Rights can be derived from the SC-CEM/CME by the faculty as well as by the students of the programme for which the student has enrolled. This does not apply with respect to all other written and electronic publications, such as:

- The information on the websites of the programmes: **www.utwente.nl/cem and www.utwente.nl/cme** (except SC-CEM/CME)
- The study catalogue of the UT: **http://osiris.utwente.nl/student/OnderwijsCatalogus.do**
- Brochures and manuals

The SC-CEM/CME is published on the website of the programme. A printed version will be made available free of charge upon request.

In situations not covered by the SC-CEM/CME a decision will be made by the dean or by the examination board, depending on the responsibilities defined by law. The same applies in the event of (alleged) ambiguity, inconsistencies, differences in interpretation and/or (apparently) conflicting texts. The dean or the examination board will inform the involved examiner(s) and/or the student(s) of the decision.

In cases in which strict application of the SC-CEM/CME would cause clearly unintended or unreasonable situations, the examination board, the dean or the programme director can deviate from the regulations, provided that this does not have any negative effects for the student. This decision must be motivated in writing and must be communicated to the student, the examination board, the dean, the programme director and Bureau of Educational Affairs (BOZ).

Articles in this regulation refer to this SC-CEM/CME. If an article refers to legislation, the reference is to the Higher Education and Research Act, unless stated otherwise.

Reference: ET-BOO-21
Enschede, ---- 2018

Prof. dr. G.P.M.R. Dewulf
Dean of the Faculty of Engineering Technology

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Dean of the Faculty	*Prof. dr.* G.P.M.R. Dewulf
Programme director	*Dr.* S.R. Miller
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Education Committee (OLC)

The Education Committee is responsible for monitoring and approving of the content as mentioned in WHW art. 9.18, and quality of the programmes of Civil Engineering. In the Education Committee both scientific staff and students are equally represented.

President:	*Prof. dr.ir.* K.T. Geurs

Bureau of Educational Affairs (BOZ) acts as register for the Education Committee

Study Association ConcepT (www.concept.utwente.nl)

Facilities

1. For all communication connected to the programme as well as in all administrative procedures internet or intranet will be used. The University of Twente is using an electronic learning environment. In the organization of the programmes CEM and CME the assumption is that students are in possession of a laptop. Engineering Technology students can use the offer of the Notebook Service centre (NSC) for this purpose. Via their laptop, students can use the network of the university, which provides access to the internet and intranet.
2. Use of computer and network facilities for other purposes than study may be regarded as misuse.
3. When they first enrol with the University of Twente, each student will be provided with an individual student email account.
4. The programme Civil Engineering employs a site on the electronic learning environment. All electronic communications by the programme will be executed via this site. All students are requested to enrol for this programme site from the start of their study.
5. The university has lecture rooms and tutorial rooms, accommodations for guided and independent self-study, a library, and research facilities for educational purposes. The university offers limited facilities for free computer access.
6. The programme will provide accommodation to the study association for their activities.
7. Misuse of or damage to facilities of the University of Twente, or misconduct can, in addition to leading to claims for compensation, lead to a decision by the dean to temporarily exclude the student from participation in the programme, tests, exams and examinations.

8. Books and journals relevant to CEM and CME can be found in the Central Library of the UT. Regulations concerning the quantity of books on loan, the lending period and fines are determined by the University Library
9. If excursions, work visits, field work, etc. are a part of the programme (either compulsory of optional) that students are expected to take part in, the maximum contribution to the costs per student per excursion will be 10 euro, for a maximum of 4 excursions per year. Any costs exceeding this will be for the account of the university. If the above activities take more than one day, the programme will take care of proper accommodation.

Education Systems

- The University of Twente uses an electronic learning environment (Canvas http://canvas.utwente.nl).Canvas is filled per course and contains detailed course information, assignments etc.
- The University of Twente uses a student information system (Osiris, http://osiris.utwente.nl/student). Osiris contains information on the programme and global course information. It is used for exam registration and for the registration of grades.

Quality Assurance

Quality Assurance involves carrying out the following activities on an annual basis:

- Digital questionnaires (Inquiries) at the end of every quarter
  These inquiries are taken by the partaking students at the end of every quarter for every course.
- Comprehensive course evaluation
  Upon the request of the OLC, the programme coordinator performs (or gives instruction for) comprehensive evaluations of courses.
- Panel discussion
  Panel discussions can be held each quarter with a selection of students who participated in the courses of that quarter.
- Yearly analysis of the results of the NSE (national student survey) and the NAE (national alumni survey)
- Performance Reviews
  Results of activities stated in the first three items are brought to the attention of chair holders, to allow them to address these issues in their annual performance appraisals with all employees.
- Educational professionalization
  Members of the scientific staff must have a teaching qualification (Basis Kwalificatie Onderwijs) or given the opportunity to acquire/maintain this qualification.
- Occasional activities
  If necessary, in addition to the activities mentioned above, further assessments are carried out (such as assessment of facilities, how time is spent, exit evaluations, surveys among alumni, etc.)

Student counselling during the master's programme

Student counselling is available during the master's programme. Students will be appointed to a track coordinator. The track coordinator is a staff member of the department of the preferred specialization or profile of the student.

The track coordinator can be consulted for content related questions and in case of study related problems.

The student counsellor of Civil Engineering (Judith Roos-Krabbenbos, BH-103) will support, if and when necessary, the track coordinators and can be consulted by master students as well.

Procedure for intake, planning and registration of the master's programme

- The student is responsible for setting up his/her own master's programme. The track coordinator (MSc-track coordinator) is available for consulting, e.g. in case of specific questions or exceptions.
- At the start of the master, the student can plan a meeting with the track coordinator for discussing the programme individually. The track coordinator can give advice on the content and suitability of courses within a profile, but does not actively check whether the intended programme satisfies the conditions of one of the profiles. The intended programme is not yet processed formally by the Bureau of Educational Affairs (BOZ).
- During the master, the student is free to change one or more courses of the programme, provided that it still matches the requirements of one of the defined profiles.
- Around the start of the Preparation MSc-thesis course (i.e. 3 months prior to the start of the course preparation MSc thesis), the final master programme will be checked by the Office of Educational Affairs. In case the profile requirements are satisfied, the courses are recorded in the student's examination programme in Osiris.

a. Complaints

Complaints about the (organization of the) programme can be sent to the programme director, the programme coordinator or study association ConcepT. Appeals, complaints and objections are possible via the Complaints Desk at Student Services (building Vrijhof).

Complaints about the (organization of) exams can be sent to the examination Board. Appeal against decisions of the examination Board is possible via the Complaints Desk at Student Services (building Vrijhof).

Programme Information

b. Master's programmes in short

The master's programmes consist of the following:

- Courses of 5 EC with a study workload of in total 80-85 EC.
- The course 'Master thesis preparation' of 5-10 EC and the Master thesis of 30 EC (together 35-40 EC).

c. Course schedule (nominal programming)

<table>
<tr><td></td><td>Quarter 1</td><td>Quarter 2</td><td>Quarter 3</td><td>Quarter 4</td></tr>
<tr><td>Year 1</td><td>Courses
(15 EC)</td><td>Courses
(15 EC)</td><td>Courses
(15 EC)</td><td>Courses
(15 EC)</td></tr>
<tr><td rowspan="2">Year 2</td><td rowspan="2">Courses
(15 EC)</td><td>Course
(5/7.5/10 EC)</td><td>Master thesis</td><td>Master thesis</td></tr>
<tr><td>“Master thesis preparation”
5/7.5/10*</td><td colspan="2">Master thesis
(30 EC)</td></tr>
</table>

*The amount of ECs is determined in consultation with the track coordinator.

In the figure above the outline of a regular master’s programme is given. The programmes and time tables will be published on the websites:

http://www.utwente.nl/cem

http://www.utwente.nl/cme

https://rooster.utwente.nl

Course information can be found via:
https://osiris.utwente.nl/student/OnderwijsCatalogus.do

Explanation:

In each study period - called a quartile (kwartiel in Dutch) - several courses are offered. The regular study load for a quarter is 15 EC in a period of 10 weeks, in which an EC equals a time spent of about 28 hours.

EDUCATION AND EXAMINATION REGULATIONS FOR MASTER'S PROGRAMMES

(except UCT ATLAS)

The dean of the faculty,

in view of articles 9.5, 9.15, first section, item a, 7.13, first and second section, 9.38, item b, and 9.18, first section, item a, and 7.59 of the Higher Education and Research Act,

having heard the advice of the programme committee and the approval or the advice of the Faculty Council with respect to the programme-specific appendix for the relevant programme,[1]

has decided to define the education and examination regulations for the following programme: ……

This section contains the master version of the Guidelines OER bachelor's programmes, hereinafter referred to as OER2018.

[1] In line with article 7.13 of the Higher Education and Research Act, the advisory rights apply to sections a to g of that article. The remaining sections require the approval of the Faculty Council.

1. GENERAL PROVISIONS

Art 1.1. **Applicability of these regulations**

1) The education and examinations regulations apply to all students who have enrolled for the relevant programme.
2) For students who are enrolled with one of the programmes of the University of Twente or with one or more other programmes of the University of Twente education units or parts thereof that do not belong to the own programme, the provisions of the regulations for non-funded education apply to the programme units or parts thereof.
3) There is a programme-specific appendix for each programme.
4) For each programme, the common part and the programme-specific appendix together constitute the education and examination regulations for the relevant bachelor's programme.
5) The common part and the programme-specific appendix of the education and examination regulations are established by the dean.
6) The examination board of a programme draws up the rules for the realisation of its duties and responsibilities in line with article 7.12b of the Higher Education and Research Act.
7) The legal responsibilities of the examination board of a programme apply to all courses that are part of the student's programme.
8) Requests for exemption from the provisions of the education and examination regulations can be addressed to the examinations board or to the programme board, as defined in these education and examination regulations.

Art 1.2. **Definition of Terms**

The following terms used in these regulations are defined as follows:

Compulsory holiday:	Compulsory day off.
CPO:	Committee Personal Circumstances. A committee assigned by the institutional administration that advises the institutional administration on individual cases regarding the validity, duration and severity of the student's personal circumstances.
CvB:	The Executive Board of the University of Twente.
Dean:	Head of the faculty.
EC:	A unit of 28 hours of study workload. In accordance with the European Credit Transfer System a full-time year of study consists of 60 EC or 1680 hours (art. 7.4 Higher Education and Research Act).
Examination:	A programme is concluded with an examination. The examination has been passed when the courses that belong to a programme have been completed successfully. An additional evaluation by the Board of Examiners can be part of the examination.

Examination board:	The examination board is the body that objectively and expertly establishes whether a student meets the conditions defined in the education and examination regulations with respect to the knowledge, insight and skills required for acquiring a degree.
Examiner:	The person who, in line with Article 7.12c of the Higher Education and Research Act (WHW), is appointed by the examination board for holding the exams and tests, and establishing their results.
Authorised certificate:	A list or other document signed by or in name of an examiner or a result communicated via the applicable Student Information System (SIS).
Honours programme:	Master Honours programme applicable throughout the institution.
Institution:	University of Twente.
Institutional administration:	Executive Board, unless stated otherwise.
Course:	A part of a programme in the sense of Article 7.3 sections 2 and 3 of the Higher Education and Research Act WHW). Each course is completed by an exam.
Study programme:	The total of the mandatory and optional courses that belong to a programme, as defined in the programme-specific appendix.
Educational programme:	The master's programme in the sense of the programme-specific appendix to these education and examination regulations.
Programme board:	The body that has been assigned with the management of the programme by the dean.
Programme committee:	The programme committee in the sense of article 10.3c of the Higher Education and Research Act (WHW).
Practical exercise:	A practical exercise in the sense of article 7.13 section 2d of the Higher Education and Research Act (WHW), is a course or part thereof, in which the focus is on the student's own activity, such as: 1. Studying literature, making an assignment or test design, writing a thesis, article or 'position paper' or giving a public presentation 2. Conducting a design or research assignment, performing tests and experiments, taking part in practicals, practising skills 3. Internships, participating in field work or excursions aimed at acquiring the intended skills, such as practising clinical skills at a lab that offers the required facilities 4. Participating in other educational activities deemed necessary

Student:	A person enrolled as such for a programme in accordance with articles 7.34 and 7.37 of the Higher Education and Research Act WHW).
Student Information System (SIS):	The system indicated by the institutional administration for the registration of and information on all relevant data on students and programmes, in the sense of the Higher Education and Research Act.
Study adviser:	A person assigned by the dean of the faculty to act as liaison between the student and the faculty, representing the interests of the student in an advisory capacity.
Academic year:	A period that starts on 1 September and ends on 31 August of the subsequent year.
Study speed:	The number of ECs acquired in a particular period divided by the nominal number of ECs that can be acquired in that period,
Exam:	An assessment of the student's knowledge, insight and skills, as well as an evaluation of the results of that assessment (Art. 7.10 WHW); an exam may consist of multiple tests.
Test:	Part of an exam. If the exam of a course consists of a single test, the result of that test is treated as the result of the exam.
Test result:	A result that contributes to the final result for a course.
Test schedule:	A schedule that defines the manner in which a course is tested.
UT:	University of Twente.
Working day:	A day of the week from Monday to Friday, with the exception of official holidays and defined bridge days when employees have a day off.
WHW:	The Wet op het Hoger onderwijs en Wetenschappelijk onderzoek (Higher Education and Research Act - WHW), published in Staatsblad 1992, 593 and later amendments.

For terms not defined here the definition in the legislation applies.

2. ADMISSION

Art 2.1. **Requirements for previous education**

Admission to the programme is granted to students:

1. In possession of a university BSc certificate in Civil Engineering at the UT or the TUD
2. Who meet the previous education requirements for enrolment for university education as defined in WHW art. 7.30b

More specific provisions for admission can be found in article R.

Art 2.2. **Language requirement for students with a non-Dutch qualification**

Students in possession of a non-Dutch qualification can enrol:

1. If the programme is offered in English: After having demonstrated to have sufficient command of the English language at the level of the Dutch pre-university education exam. Command of this level can also be demonstrated by means of one of the following tests:
    a) IELTS (International English Language Testing System), academic module. The required minimum IELTS score (overall band) must be: 6.5
    b) TOEFL (Test Of English as a Foreign Language). The required minimum TOEFL score is 90 (internet-based test).
    c) Cambridge EFL (English as a Foreign Language) Examinations, with one of the following certificates:
        - Cambridge Certificate in Advanced English
        - Cambridge Certificate of Proficiency in English

2. CONTENT AND ORGANIZATION OF THE PROGRAMME

Art 3.1. **Objectives of the programme**

The objectives and final terms (art. 7.13 section 2c, WHW) for each programme have been included in the programme-specific appendix.

Art 3.2. **Organization of the programme**

1. The programme has a volume of 120 EC.
2. A description of the programme is provided in the programme-specific appendix to these education and examination regulations, in line with article 7.13, section 2, a to j, l, s, t, v of the WHW.
3. The programme has an honours programme.

Art 3.3. **Language in which the programme is provided**

1. The language of instruction for this programme is defined in the programme-specific appendix.
2. If a different language is used in some parts of the programme, this is done in conformity with the Language of Instruction Code of Conduct for the UT and art.7.2 of the WHW.

Art 3.4. **Exemption**

1. Upon the student's request, the examination board may grant exemption for one or more full courses. The student must provide proof of having passed a course of comparable content, scope and level of a university or higher vocational programme, or to have sufficient knowledge and skills in the relevant course from their work or professional experience.
2. The examination board is authorised to make exceptions to the provision in section 1 and to grant a student exemption for parts of a course.
3. Exemption from the obligation to take part in practical exercises may be granted to a student who can make a plausible case that fulfilling a requirement of this part would cause a conflict of conscience. In such cases the examination board determines whether the part can be replaced in a manner to be determined by the board.

Art 3.5. **Free programme**

The examination board of the programme decides on requests to follow a free programme in the sense of article 7.3d of the WHW. The examination board will assess whether the programme is suitable within the domain of the department, is consistent, and has sufficient merit in terms of the final education targets of the department.

4. EDUCATION AND TESTING

Art 4.1. **General**

2. A course is completed by an exam.
3. An exam may consist of multiple tests.
4. A test may be taken in parts that are distributed in time. The results for these parts will not be included in the SIS, but are communicated to the students via Canvas.
    a) The student is entitled to consult recent model test questions or trial tests or representative old tests and the related elaborations as well as the standard for their assessment.
    b) The maximum duration of a test is 3 hours.
5. Test grades are expressed in a grade from 1 to 10, with one decimal.
6. The results of exams are expressed in whole grades from 1 to 10.
7. Exam grades are rounded to the nearest whole number.
8. After successful completion of an exam the EC for that course is assigned. No EC is given for parts of courses and/or passed tests.
9. If a student has multiple valid grades for the same course, the highest grade will be used.
10. The examiner will communicate the following aspects of the programme via the SIS (the study catalogue in Osiris): volume, objectives and content of the course, language, required prior knowledge, compulsory and recommended study material, manner of teaching (method), and testing.

Art 4.2. **Enrolment for courses and testing**

1. Participation in a course requires enrolment via SIS prior to the start of the course.
2. Enrolment for a course automatically enrols the student for the normal test events that belong to that course.
3. For a resit, the student is required to enrol separately before the test or exam.

Art 4.3. **Test schedule**

1. The manner in which the exam results are established on the basis of the test is defined for each course in a test schedule.
2. The test schedule must be published on Blackboard no later than two weeks before the start of the course.
3. The test schedule must at least state the following:
    a) The learning objectives;
    b) The time and manner of testing;
    c) The language of testing;

d) The weight of each test;

e) Any required minimum grades per test;

4. The programme board has the right to make intermediate changes to the test schedule for a course.

   a) The test schedule can only be changed in consultation with the examiner and after requesting the advice of the examination board. The students will be informed of the change immediately.

   b) If the change only concerns the moving of tests or parts of tests to another date than indicated in the schedule, consultation between the programme board and the examiner will, initially, be sufficient. The students will be informed of the change immediately. The programme board will then inform the examination board during the next exams meeting after the decision was made.

   c) Changes in the test schedule must not be reasonably expected to have any negative impact on the students.

Art 4.4. **Test events and additional test events**

1. Two opportunities per year will be given for taking a written or oral test.
2. For courses consisting only of a practical exercise, testing is possible at least once per year.
3. Contrary to the provisions in section 1 of this article, at least once every academic year, students will be given the opportunity to take a test for a course that is part of the programme although no teaching is offered for that course in the current academic year.
4. In special situations, the examination board may offer individual students additional opportunities to take a test. If necessary, the exam result may be delayed in such situations.

Art 4.5. **Oral testing**

1. Oral testing is open to the public, unless the examination board decides otherwise in a particular case, whether or not upon the request of the examiner or the student.
2. If the student or the examiner allows others to be present during the taking of an oral test, permission from the examination board must be requested no later than 10 working days prior to the oral test. Graduation colloquia are excluded from this provision.
3. If the examination board has determined that members of the examination board, or an observer on their behalf, will be present during the oral test, the examiner and the student will be informed of this by the examination board at least one working day prior to the test.

Art 4.6. **Assessment term**

1. The examiner will communicate the result to the student no later than 1 working day after the oral test.
2. The provision in section 1 does not apply if the oral test is part of a series of oral tests for the same course that extends over a period longer than one

working day. In that event, the examiner must communicate the result within one working day after the series of oral tests.

3. The term for determining and communicating the result of a written test, or of a test taken in another manner is included in the test schedule.
4. Within15 working days after completion of the course, the exam result, or postponement of the result on the basis of the provisions in article 4.5, section 4, is communicated to the student.
5. If the assessment of a test is obtained by doing one or more assignments, writing a report, or writing a thesis, the deadline for handing in the last part is treated as the date of the test.
6. If a second opportunity to take a test is scheduled a short time after the first test opportunity, the test results will be available at a time which allows the student at least 5 working days to prepare for the second test opportunity.
7. If, due to special circumstances, an examiner is unable to abide by the period referred to in sections 1, 2, 4 and 6, he/she must report this to the programme board and to the examination board, stating the reason. The students concerned will be notified of the delay immediately, stating the term within which the result will be communicated. If, according to the examination board, the examiner fails in his or her duty, the examination board may request another examiner to establish the result on behalf of the programme board.

Art 4.7. **Period of validity**

1. The period of validity of a passed exam is six years. In individual cases, the examination board may extend the validity upon the student's request.
2. Test results are only valid in the academic year in which they are achieved. In individual cases, the examination board may extend the validity upon the student's request.

Art 4.8. **Right to subsequent discussion and access**

1. The student has the right to discuss a test with the examiner, during which the examiner motivates the grading of the test.
2. If there is no collective discussion of the results, the student must submit a request for an individual discussion with the examiner within 10 working days after the publication of the results.
3. The discussion of the result must take place no later than five weeks after communication of the test result, in the presence of the examiner or a mandated delegate.
4. Students have the right to access their assessed exams during a period of 2 years.

Art 4.9. **Retention period for tests**

1. The retention period of assignments, elaborations and the assessed work of written tests is 2 years.
2. The retention period for final assignments of the Master’s programme is 7 years.

5. EXAMINATION

Art 5.1. **Examination board**

1. The dean:
    a) Appoints the members of the examination board on the basis of their expertise in the field of the relevant programme or programme group (WHW article 7.12a section 1);
    b) Consults the members of the relevant examination board before assigning a member (WHW article 7.12a section 4);
    c) Ensures that the independence of the examination board is sufficiently guaranteed (WHW article 7.12a section 2);
2. During appointment of the members of the examination board, the dean ensures that:
    a) At least one member is connected as a teacher to the relevant programme or one of the programmes in the programme group (WHW article 7.12a section 3);
    b) At least one member is not connected to the relevant programme or one of the programmes in the programme group;
    c) That no members of the programme board, or persons in any other manner financially responsible with the organization are appointed.
3. In addition to the duties and rights defined in articles 7.11 and 7.12, second section of the WHW, the examination board has the following duties and responsibilities:
    a) Ensuring the quality of the exams and examinations (WHW art. 7.12c);
    b) Establishing the directives and instructions within the framework of the education and examination regulations, referred to in article 7.13 of the WHW, for assessment of the exams and examinations and establishing the results. The rules and regulations of the examination board are laid down in a separate document;
    c) The granting of permission by the most appropriate examination board to a student to follow a programme composed by the student, in accordance with article 7.3d of the WHW, the examination of which leads to the acquisition of a degree. The examination board also indicates to which department of the organization this programme will belong in the context of this law;
    d) The granting of exemptions for the taking of one or more exams.
    e) Drawing up of the annual report on its activities. The examination board submits this report to the dean (WHW art. 7.12b section 5).
    f) Guaranteeing the quality of the organization and the procedures in connection with exams and examinations.
4. If a student submits a request or complaint to the examination board involving an examiner who is a member of the examination board, the examiner concerned will not be involved in dealing with the request or complaint.
5. The guidelines, instructions and rules are laid down in a separate document 'Rules of the examination board'.

Art 5.2. **Examination**

1. In accordance with article 7.10 section 2 of the WHW, the master examination has been taken when the courses of the master's programme have been completed successfully.
2. The examination board issues a certificate as proof that the examination was passed successfully, after the programme board has declared that the procedural requirements have been met. The examination board will add a supplement to the certificate of successful completion of the final examination. The date that will be included on the certificate - the examination date - is the date on which the student completed the last outstanding course.
3. A student can submit a motivated written request to the examination board to postpone the official passing of the examination and handing out of the certificate. In his/her request, the student must at least indicate the duration of the requested postponement.
4. The examination board will include the further details for the provision in section 3 in the guidelines and rules of the examination board.
5. If a student has requested postponement in line with section 3, the date used as examination date will be the date after the postponement on which the examination board determined that the student has passed the examination.

Art 5.3. **Degree**

1. The degree of "Master of Science" will be given to the person who successfully passed the master examination.
2. The degree is stated on the examination certificate. The supplement to the certificate also states the average grade (GPA). The calculation method for this average grade is included in a supplement.

Art 5.4. **Certificate**

1. The examination board issues a certificate as proof that the examination was passed successfully. The certificate is signed by the president of the examination board. In absence of the president, the certificate may also be signed by one of the members of the examination board.
2. The certificate contains the following (WHW art.7.11):
    a) The student's name and date of birth;
    b) The name of the institution and programme as stated in the register referred to in article 6.3 of the WHW;
    c) The parts included in the examination;
    d) If the student has successfully completed an honours programme during their master's programme, this is stated in the degree supplement as an extracurricular programme.
    e) The date on which the examination was taken;
    f) The degree that is granted (WHW art. 7.10a);
    g) Any qualifications that may be attached to the degree (in line with WHW art. 7.6, section 1);
    h) The most recent accreditation of the programme or when the programme passed the test for new programmes, referred to in article 5a.11, section 2.

3. The International Diploma Supplement (WHW art.7.11, section 4) is added to the examination certificate. The objective of this supplement is to provide insight into the content of the completed programme for the purpose of international identification of the programme. The supplement contains at least the following information:
    a) The name of the programme and the name of the university;
    b) The fact that it concerns a scientific education;
    c) A description of the content of the programme, including, if applicable, the specialization and/or attended minor;
    d) The study load of the programme;
    e) The parts of the examination and the grades;
    f) Exams passed by the student that are not part of the examination.
4. If the examination board has granted a special designation (such as with distinction) to the student, this is stated on the certificate.
5. A student who has successfully passed more than one exam and to whom no certificate as referred to in paragraph 1 of this article can be awarded, will upon request receive a statement to be drawn up by the examination board, specifying at least the successfully passed exams (WHW art. 7.11 section 5).

6. STUDENT GUIDANCE

Art 6.1. **Study Progress Overview**

1. Students can request a certified study progress overview at the Student Services desk.

Art 6.2. **Study Guidance**

1. The dean is responsible for student guidance for the purposes of orientation within or outside of the programme.
2. Each student is assigned a study adviser.
3. The study adviser provides guidance to the student and offers advice regarding their education and, if necessary, personal issues that might affect their study.
4. If a student wishes to make use of the right to specific guidance or special facilities, he/she must contact the study adviser. The study adviser documents agreements made with the student. The department and the student can both derive rights from these documented agreements.
5. The following applies to the entitlement to special facilities:
    a) Proven cases of force majeure or personal circumstances;
    b) If necessary and possible, dispensation for participation in exams or tests and/or availability of alternative facilities for examination. The granting of the above-mentioned dispensation and the granting of additional test opportunities is reserved for the examination board.

7. STUDENTS WITH DISABILITIES

Art 7.1. **Students with disabilities**

1. A disability is defined as a physical, sensory or other function disorder which may restrict the student in their study progress.
2. Based on an interview between the student and the study adviser, an assessment is made of the most effective adjustments for this student, in line with article 2 of the Law on Equal Treatment on the grounds of Disability / Chronic Illness (WGB h/cz).
3. Adjustments are aimed at the elimination of specific obstacles for attending the programme and/or taking examinations. This may concern facilities for the accessibility of the infrastructure (buildings, education areas and facilities) and study material, adjustments to testing, alternative learning routes or a personalized study plan. When adjustments need to be made, achievement of the attainment targets must be guaranteed.
4. On the basis of the interview referred to in section 2, the student draws up a request for adjustments. If possible, this request is submitted to the dean of the faculty three months before the student starts participating in the programme, the exams and the tests for which the adjustments are intended.
5. The request is accompanied by documents (including a statement from a BIG-registered medical practitioner or a BIG-registered psychologist or, in the case of dyslexia, a BIG-registered GZ-psychologist or remedial education expert) reasonably necessary for the assessment.
6. The dean of the faculty decides within a period of 20 working days after receipt, or as early as necessary due to the urgency of the application, on the feasibility of the application referred to in section 4, and will inform the student and the study adviser of the decision.
7. The study adviser will ensure that all relevant stakeholders are informed in time about the adjustments that have been granted to a student with disabilities.
8. If the dean of the faculty does not (fully) honour the request, the dean informs the student of the underlying motives and informs the student of the possibility of making an appeal. An appeal must be submitted in writing to the appeals (and complaints) desk of Student Services within six weeks after communication of the decision to the student.
9. With any adjustments granted, the applicable period is indicated. Before the end of the period, an evaluation will be carried out by the applicant and relevant study adviser. The effectiveness of the adjustments as well as the necessity of continuing the adjustments will be discussed.
10. Students with dyslexia will be granted 15 minutes of additional time for every hour during testing.

8. CHANGES, TRANSITION REGULATION, APPEAL

Art 8.1. **Conflicts in regulations**

If other additional regulations and/or provisions regarding the education and/or examinations are in conflict with these education and examination regulations, these education and examinations regulations shall prevail.

Art 8.2. **Errors or omissions in the administration**

In the event of an error in the exam results, a list of grades, or in the study progress summary for a student, the institute and the student are both obliged to report this to the other party as soon as the error is discovered and to cooperate in correcting the error.

Art 8.3. **Changes to the regulations**

1. Changes to the content of these education and examination regulations are determined by the dean in a separate decision.
2. In principle, changes to the content of these regulations do not apply to the current academic year. Changes to the content may be applicable to the current academic year if, in reasonable terms, the interests of the students are not harmed by it, or in the event of force majeure.
3. Changes to these regulations do not affect any earlier decisions by the examination board.

Art 8.4. **Transition regulation**

1. If necessary, the dean will make transitional arrangements in the event of change to the education and examination regulations.
2. The transition regulation will be published on the website of the department.
3. The guiding principles for the transition regulation, in the event the education programme is amended, are:
    a) Changes in the education programme will be published prior to the start of the academic year in which the changes will be introduced.
    b) There can be no guarantee that all courses that existed at the time a student enrolled for the programme will be part of their education programme. The education programme as defined most recently by the dean is the starting point for determining the result of the Master examination.
4. The transition regulation contains at least the following:
    a) The discontinued courses, which are equivalent to courses or parts of courses from the current programme, included in de programme-specific appendix. If a course without any practical exercises is removed from the programme, an opportunity to take a written or oral exam or another method of assessment will be offered at least twice in the subsequent academic year.
    b) If a course with practical exercises is removed from the programme and there is no opportunity in the subsequent academic year to do these practical exercises, at least one course will be assigned which can be taken as a replacement for the course that has been discontinued.
    c) Duration of validity of the transition regulation.

5. The transition regulation requires the approval of the examination board, in line with the provisions in section 4.
6. In special cases, the examination board may decide to allow a positive exception for a student with respect to the number of exam opportunities or the manner of testing for courses that are no longer available.

Art 8.5. **Assessment of the education and examination regulations**

1. The dean ensures regular assessment of the education and examination regulations, with special attention to monitoring and, if necessary, adjustment of the study load the student is required to invest.
2. According to article 9.18 of the WHW it is the duty of the programme board to offer advice on the education and examination regulations and to annually assess the realization of the education and examination regulations.

Art 8.6. **Appeal**

An appeal against decisions by the examination board or by an examiner and an appeal against a decision by the dean on the basis of these regulations must be submitted in writing to the appeals (and complaints) desk of Student Services within six weeks after communication of the decision to the student.

Art 8.7. **Hardship clause**

In situations that are demonstrably unreasonable and unfair, the examination board may decide to allow the programme board to deviate from the provisions in these regulations.

Art 8.8. **Publication**

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

Art 8.9. **Effectuation**

These regulations will come into effect on 1 September 2018 and replace the regulations dated 1 September 2017.

PROGRAMME-SPECIFIC APPENDIX TO THE EDUCATION AND EXAMINATION REGULATIONS FOR THE MASTER'S PROGRAMMES:

CIVIL ENGINEERING AND MANAGEMENT & CONSTRUCTION MANAGEMENT AND ENGINEERING

The rules set out in this appendix are part of the programme-specific part of the Students' Charter, including the education and examination regulations, of the master's programmes Civil Engineering and Management (CEM), CROHO number 60026 and Construction Management and Engineering (CME), CROHO number 60337 of the Faculty of Engineering Technology of the University of Twente, hereinafter referred to as "programme-specific appendix".

a. Content of the programme and the associated examination

Objective of the programmes

The programmes CEM and CME both aim to offer such knowledge, skills and understanding in the area of Civil Engineering, as well as the subareas Business Administration and Public Administration, that graduates are qualified to enter into an independent profession at the master level.

Teaching methods

- **Lecture**:
  A plenary meeting for students intended for the transfer of information.
- **Tutorial**:
  A meeting (for a subgroup of the population) intended to enable students to process the course matter (also known as self-study).
- **Assignment**:
  The execution of a design or research assignment.
- **Practical:**
  A practical training in the sense of art. 7.13, section 2 item d of the law. This concerns the participation in an educational activity aimed at the acquisition of skills, such as making an assignment or a test design, carrying out tests and experiments, and taking part in field work or an excursion.
- **Project**:
  Executing a design or research assignment as a team.

Examinations

The programmes CEM and CME both require the following examination:

- The final master examination.

Refer to Appendix b for the rules concerning the composition of the programme.

The following abbreviations are used in the tables:

W = written exam

T = partial tests

GA = group assignment and/or oral presentation

IA = individual assignment and/or oral presentation

O = oral exam

For each part of an examination a description, the manner of testing, the composition of the final grade (including weighting factors), and the structure and exact schedule of the programme must be announced in advance. If it is not possible to publish this information on the website or to include it in lecturer notes, this information must be handed out as a summary at the start of the programme, or communicated via the ELO.

Master Courses

Course code	Course	Quarter	EC	Assessment
201800016	Advanced Research Skills in R&CE	2	5	GA+IA
201800057	Advanced Soil Mechanics	4	5	O+GA
201800050	Building Information Modelling and 5D planning	2	5	GA+IA
201800039	Building with Nature	4	5	W+GA/IA
201800058	Choice Modelling	2	5	W+GA+IA
201800047	Construction Industry Dynamics	2	5	O
201800029	Construction Process Management	2	5	W+GA
201800045	Construction Supply Chain and Digitization	1	5	W+GA/IA
201800031	Data Analysis in Water Eng. & Management	2	5	W+GA
201800044	Digital Technologies in Construction	3	5	O+IA
201800073	Experiments in Water Infrastructure	5	5	GA
201800036	Geo Risk Assessment	3	5	GA+IA
201800038	Hydraulic Engineering	3	5	GA+IA
201800019	Hydrological Modelling and Forecasting	2	5	W+GA
201800018	Hydrology	1	5	GA+IA
201800034	Infrastructure and Asset Management	4	5	W+GA
201800168	Infrastructure Maintenance Machines	4	5	W+GA
201800061	Land Use and Transport Interaction	3	5	GA
201800028	Legal & Governance Aspects	1	5	W+GA+IA
201800024	Long Waves and Tidal (morpho)dynamics	1	5	W+GA
201800027	Mathematical Physics of Water Systems	3	5	GA+IA
201800059	Modelling Consumer Behaviour	1	5	W+GA/IA
201800026	Morphology	2	5	GA+IA
201800054	Network Equilibrium Analysis	4	5	GA/IA

201800068	Network Modelling and Forecasting	2	5	O+GA/IA
201800048	Procurement Strategies and Tendering	3	5	W+GA
201800070	Public Transport Modelling	3	5	W+GA
201800069	Rail Transport	2	5	W+GA
201800020	Regional Flood Management	3	5	GA
201800040	Research Methodology and Academic Skills	3	5	O
201800035	River Morphodynamics	4	5	W+GA/IA
201800037	River Flow & Sediment Transport	1	5	W+GA/IA
201800025	Short Waves and Coastal Dynamics	1	5	O+GA
201800051	Simulation & Optimization of Construction Proc.	3	5	GA+IA
201800053	Subsurface Infrastructure Engineering	4	5	GA+IA
201800043	Sustainability & Circularity in Civil Engineering	1	5	GA+IA
201800060	Sustainable Transport	4	5	GA+IA
201800032	Systems Engineering in Construction	3	5	W+GA
201800052	Technology and Innovation in Road Construction	4	5	W+GA/IA
201800063	Traffic Forecasting and Analysis	2	5	W+GA
201800065	Traffic Management	4	5	O+GA
201800064	Traffic Operations	1	5	W
201800055	Transport Research Project	any	5	IA
201800022	Urban Water Management	4	5	GA/IA
201800046	Value Management	4	5	W+GA/IA
201800033	Water and Climate	4	5	W+GA
201800017	Water Footprint Assessment	1	5	W+GA/IA
201800021	Water Management & Governance	3	5	W+GA
201800023	Water Quality	1	5	W+GA
201800030	Water and Energy	2	5	W+GA

b. Content of the specializations

1. The CEM programme offers 4 profiles. . Students specialize in one of the following directions by selecting a profile:
   - Construction Management and Engineering with profiles:
     - Markets & Organization of Construction
     - Digital Technologies in Construction
   - Transport Engineering and Management with profiles
     - Transport Planning and Modelling
     - Transport and Logistics
   - Water Engineering and Management with profiles
     - Integrated Water Management
     - River and Coastal Engineering
   - Integrated Civil Engineering Systems

- Civil Engineering Structures
- Modelling and Forecasting
- Sustainability
- Smart Cities

2. Formally, the CME programme has no specializations. Students can select one of the following profiles:
   - Design Management in Construction
   - Markets and Organization in Construction
3. A master's programme consists at least of:
   - Courses with a study workload of in total 80-85 EC
   - The course Preparation Master Thesis of 5/7,5/10 EC
   - A final master's assignment of 30 EC.

   Depending on the selected profile or the specialization, the student attends 30 EC in compulsory courses (profile courses, see appendix b4). In addition, the student chooses profile electives, for which all CEM/CME courses can be selected, as well as courses from other programmes that are suitable for the chosen profile. Furthermore, students can freely choose a maximum of 15 EC consisting of any course taught at the UT or at another Dutch university, or recognized foreign partner university (free electives). A list of partner universities can be found on the website: https://www.utwente.nl/en/et/student-mobility/partners/

   If a student exceeds the maximum of 15 EC for free electives, e.g. for an exchange semester, permission of the examination board must be requested.

   Detailed information on the master's programme is available on the websites of CEM and CME.

4. The following table specifies the compulsory profile courses for each profile:

CONSTRUCTION MANAGEMENT AND ENGINEERING	
Profile: **Markets & Organization of Construction**	**Profile:** **Digital Technologies in Construction**
At least 30 EC - Planning and Process Management - Legal & Governance Aspects - Construction Industry Dynamics - Research Methodology & Academic Skills (obligatory) - Construction Process Management - Infrastructure Asset Management - Sustainability and Circularity in Civil Engineering	At least 30 EC - Planning and Process Management - Legal & Governance Aspects - Construction Industry Dynamics - Research Methodology & Academic Skills (obligatory) - Construction Process Management - Digital Technologies for Civil Engineering

	- Sustainability and Circularity in Civil Engineering

TRANSPORT ENGINEERING AND MANAGEMENT	
Profile: **Transport Planning and Modelling**	**Profile:** **Transport and Logistics**
At least 30 EC - Transport Research Project (mandatory) - Planning and Process Management - Modelling Consumer Behaviour - Rail Transport - Land Use and Transport Interactions - Public Transport Modelling - Sustainable Transport	At least 30 EC - Transport Research Project (mandatory) - Simulation (IEM) - Traffic Operations - Mathematical Optimization - Public Transport Modelling - Traffic Management - Network Equilibrium Analysis

WATER ENGINEERING AND MANAGEMENT	
Profile: **Integrated Water Management**	**Profile:** **River and Coastal Engineering**
At least 30 EC - Hydrology - Water Footprint Assessment - Water and Energy - Hydrological Modelling and Forecasting - Regional Flood Management - Water Governance - Urban Water Management - Water and Climate	At least 30 EC - River Flow - Long Waves and Tidal Dynamics - Short Waves and Coastal Dynamics - Advanced Research Skills in River and Coastal Engineering - Morphology - Mathematical Physics of Water Systems - River & Sediment Dynamics

INTEGRATED CIVIL ENGINEERING SYSTEMS	
Profile: **Civil Engineering Structures**	**Profile:** **Sustainability**
At least 30 EC - Legal Aspects in Construction Management - Morphology - Research Methodology & Academic Skills - Geo-risk Management - Hydraulic Engineering	At least 30 EC - Water Footprint Assessment - Planning & Process Management - Research Methodology & Academic Skills - Water and Energy - Land Use and Transport Interactions

- Sustainability and Circularity in Civil Engineering - Advanced Soil Mechanics	- Water Governance - Sustainable Transport - Sustainability and Circularity in Civil Engineering - Urban Governance and Resilience for Smarter Cities (2019-2020)
Profile: **Modelling and Forecasting**	**Profile:** **Smart Cities**
At least 30 EC - Statistics and Probability (IEM) - Simulation - Research Methodology & Academic Skills - Data Science (CSC) - Data Analysis in Water Engineering & Management - Hydrological Modelling & Forecasting - Mathematical Optimization - Network Equilibrium Analysis	At least 30 EC - Planning & Process Management - Research Methodology & Academic Skills - Land Use and Transport Interactions - Water Governance - Sustainable Transport - Sustainability and Circularity in Civil Engineering - Urban Water Management - Urban Governance and Resilience for Smart Cities (2019-2020)

5. Students with another academic higher education than bachelor Civil Engineering can, depending on their individual bachelor programme, replace a maximum of three 5 EC courses from the profile electives or from the free electives by courses to compensate deficiencies.
6. Students starting with the master, select their programme in advance, for which they can make use of consultation with the track coordinator of the relevant specialization. This programme must comply with the requirements of one of the master profiles, as described under b. See also the Procedure for intake, planning and registration of the master's programme in the study guide section.

   Changes to the personal master's programme are allowed, provided that the conditions of one of the profiles are met. If the student intends to deviate from the conditions of a profile, the deviations must be approved in writing by the track coordinator. The track coordinator can request the advice of the examination board or study adviser on this decision. If the track coordinator determines that the intended deviations to the profile are beyond their field of expertise, the track coordinator can impose a request from the student to the examination board.

c. Attainment targets of the master's programmes

1. CEM

3TU Academic criteria (Meijers' Criteria)	***Description of the Learning Outcomes MSc programme CEM***

1) Competent in one or more scientific disciplines	▪ The graduate has expert knowledge on at least one of the subareas of Civil Engineering and Management mentioned below, is able to apply this knowledge and is able to maintain and expand his or her expertise in the field of Civil Engineering and Management: - Construction Management and Engineering; - Transport Engineering and Management; - Water Engineering and Management. This includes necessary knowledge of related fields, such as Mathematics, Physics, Business Administration and Public Administration. ▪ The graduate is able to combine appropriate theories from Business and/or Public Administration with technical knowledge and apply this in an integral way within civil engineering systems, projects or processes in one of the subareas above.
2) Competent in doing research	a) The graduate is able to identify gaps in scientific knowledge within a subfield of Civil Engineering and Management. b) The graduate is able to formulate research problems and is able to produce and carry out a research plan by applying an appropriate research methodology, analysing and discussing the results and drawing conclusions from the results. c) The graduate is able to contribute to acquiring scientific knowledge. d) The graduate understands the potential benefits of research and is able to understand and incorporate the results of research into his or her own work. e) The graduate is able to assess research within a subfield of Civil Engineering and Management on its scientific value.
3) Competent in designing	▪ The graduate is able to: i. Contribute to a functional design of complex constructions; or ii. Design management processes in the field of Civil Engineering; or iii. Make a functional design of measures to intervene in Civil Engineering Systems. This means that: ▪ The graduate has creativity and synthetic skills with respect to design projects. ▪ The graduate is application-oriented towards civil engineering practice when designing. ▪ The graduate is able to find a balance between possible solutions of complex requirements, technical possibilities and genuine interests of the parties involved.
4) A scientific approach	a) The graduate has the habit of reflecting upon his or her own work and continuously uses relevant information to improve his or her capabilities. b) The graduate has the attitude to endorse his or her personal development and enhancing his or her expertise. c) The graduate is able to judge the value of information for decision making, makes effective use of this information for decisions and is able to evaluate these decisions. d) The graduate is able to judge if available tools and techniques are satisfactory for the problem at hand, is able to apply satisfactory tools and techniques and is able to invent his or her own tools, theories and techniques if these are not available. e) The graduate is able to develop a model to describe/schematize reality, i.e. the graduate is able to describe qualitatively civil engineering processes and objects in terms of basic principles and, where necessary and possible, is able to quantify this description in terms of mathematical relationships. f) The graduate knows that models only approximate reality and is able to use them appropriately whenever this is beneficial. g) The graduate's scientific attitude is not restricted to the boundaries of Civil Engineering and Management, and he or she is able to cross these whenever necessary.
5) Basic intellectual skills	a) The graduate is able to work independently. b) The graduate is able to work systematically and methodically. c) The graduate is able to analyse complex problems and complex information thoroughly and systematically, is aware of analogies between problems and is able to determine connections between different aspects of the problem or information. d) The graduate is competent in numeracy and is aware of orders of magnitudes. e) The graduate is able to reflect on the complete scope of one of the subfields of Civil Engineering and Management and is able to generate novel ideas in this subfield.

6) Competent in cooperating and communicating	a) The graduate is able to work effectively in the context of a multidisciplinary environment, is able to manage complex assignments and can act in different roles depending on the situation, i.e. can take responsibility as a member and/or as a project leader. b) The graduate knows the importance of oral and written communication, and can make effective use of them, which means that: i. The graduate is capable of collecting and selecting relevant scientific information. ii. The graduate is skilled in properly documenting and presenting results of scientific and design work, including the underlying knowledge, choices and considerations, to colleagues and to a broader public. iii. The graduate is competent in scientific reasoning. iv. The graduate adheres to existing academic conventions, such as giving proper credit and referencing.
7) Takes account of the temporal and societal context	a) The graduate is able to position the (scientific research of) at least one of the subfields in the scientific and societal context. b) The graduate is able to form an opinion or judgement and contribute to discussions about complex matters related to Civil Engineering and Management. c) The graduate knows that compromises are unavoidable and is able to deal with them effectively. d) The graduate is aware of the disadvantages for society of certain decisions and knows how to communicate them to the relevant parties (stakeholders).

2. CME

3TU Academic Criteria	***Description of the Learning Outcomes MSc Programme CME***
1. Competent in one or more scientific disciplines	▪ The graduate has knowledge on the following sub-areas of Construction Management and Engineering, is an expert in at least one of them and is able to maintain and expand his expertise in the field of Construction Management and Engineering (for instance, by consulting relevant literature but also look for connections). o Project and Process management in the field of Construction Engineering (i.e. complex constructions, large-scale infrastructure, urban developments) o Legal and Governance aspects in the field of Construction Engineering o Markets and organisations in the field of Construction Engineering o Innovations and Integral Design in Construction Engineering ▪ The graduate is able to combine management theory and technical knowledge. This ability covers the knowledge and application of technical process management and innovation regarding construction and engineering processes in the subareas above.
2. Competent in doing research	▪ The graduate has the competence to acquire new scientific knowledge through research or systematic reflection. ▪ He understands the potential benefits of research and is able to understand and incorporate the results of research into his own work.
3. Competent in designing	▪ The graduate is able to o Contribute to a functional design of complex constructions or o Design management processes in the field of Construction Engineering This means that: ▪ The graduate has creativity and synthetic skills with respect to design projects ▪ The graduate is application-oriented towards the construction industry when designing constructions or management processes ▪ The graduate is able to translate technological concepts and developments into appropriate process innovations for construction. ▪ The graduate is able to find a balance between possible solutions of complex requirements, technical possibilities, genuine interests of the parties involved and justified value creation on scientific and operational levels
4. A scientific approach	▪ The graduate has the habit of reflecting upon his own work and continuously uses relevant information to improve his capabilities. ▪ The graduate has the attitude to endorse his personal development and enhancing his expertise.

	▪ The graduate knows that models only approximate reality and is able to develop and use them adequately whenever this is beneficial ▪ The graduate makes decisions based on calculated risks, costs, time, quality, stakeholders' participation, value creation, legislation and is able to evaluate these decisions ▪ The graduate's scientific attitude is not restricted to the boundaries of Construction Management and Engineering, and he is able to cross these where and whenever necessary
5. Basic intellectual skills	▪ The graduate is able to work independently ▪ The graduate is able to work systematically and methodically ▪ The graduate is able to reflect on the complete scope of Construction Management and Engineering issues, to critically analyse and to generate novel ideas. ▪ The graduate is able to invent his own tools, theories and techniques if these are not available
6. Competent in cooperating and communicating.	▪ The graduate is able to work effectively in the context of a multidisciplinary environment, is able to manage complex assignments and can act in different roles depending on the situation, i.e. can take up responsibility as a member and/or as a project leader. ▪ The graduate knows the importance of oral and written communication, in particular in English, and can make effective use of these, this means that: o The graduate is skilled in properly documenting and presenting results of scientific and design work, including the underlying knowledge, choices and considerations, to colleagues and to a broader public. o The graduate is competent in reasoning o The graduate adheres to existing academic conventions, such as giving proper credit and referencing.
7. Takes account of the temporal and societal context	▪ The graduate is able to form an opinion or judgement and contribute to discussions about complex matters related to Construction Management and Engineering ▪ The graduate knows that compromises are unavoidable and is able to effectively deal with these. ▪ The graduate is aware of the disadvantages for society of certain decisions and can communicate these to the relevant parties (stakeholders). He can take the purpose of the design and its context into consideration.

d. Organization of practical exercises

The programmes contain a number of practical exercises in the form of design projects. Practical exercises can also be part of courses that are (also) concluded with a written exam. More information about these practical exercises can be found in programme-specific appendix a of this document and in the relevant course descriptions.

A manual is available on the practical realization of the graduation assignment. Appendix q contains further regulations for this practical exercise.

Practical exercises or projects can generally only be done once per academic year. If a student, for reasons outside their control, is or has been unable to do the practical exercises or projects at the time indicated for them, the examination board will attempt to give the student another opportunity to do the assignments or the project.

e. Study load of the programme and each of its courses

1. The study load of the programmes CEM and CME is 120 EC.

2. The study load of each of the courses is listed in the programme-specific appendix a.

f. Number and order of the exams and practical exercises

For the number of exams and periods, see OER2018 articles 4.3, 4.4, 4.5 and programme-specific appendix a.

The following applies in addition to/deviation from these rules:

- For the scheduling of the written exams in appendix a: One opportunity in the last two weeks of the quarter in which the relevant part was offered, and a second opportunity in the subsequent quarter or the examination period in the summer.
- For each examination part not being a written exam, the examiner assigned by the examination board for that part of the examination, will, prior to the start of the teaching of the relevant part, establish a time when the examination for that part can be taken. This may mean that such examination parts can only be taken once in an academic year.

With respect to the order of the exams and practical exercises, the programme uses the following types of prior knowledge:

- **Desired prior knowledge**
  The student is deemed to be familiar with the conceptual framework and the course matter or a comparable course.
- **Necessary prior knowledge**
  The student is deemed to have passed a particular course or a comparable course. The teacher assumes that the student is familiar with the course matter of the course.
- **Compulsory prior knowledge**
  The student must have passed a particular course or a comparable course (for the assessment of the examination board) before the teaching for the course commences. The examination board will check this (or will have it checked).

More information regarding the order of exams can be found in appendix m.

g. Organization of the programme

The programme is a full-time programme.

h. Periods + exam frequency

See programme-specific appendix a.

i. Period of validity of passed examinations

See OER2018 article 4.8.

j. Exams method

See programme-specific Appendix, part a.

k. Order requirements

1. A part of an examination with which (among other things) practical exercise or projects are associated, is only deemed passed after completion of the practical exercises or projects.
2. The final examination or parts thereof cannot be taken before the bachelor examination or any premaster's programme has been completed (in Dutch referred to as "harde knip").

l. Requirements for the elective space of the programme and choices to be made

The requirements for the composition of the programme can be found in appendixes a and b.

In consultation with a teacher, students may select and specify a capita selecta as free elective course. The composition, volume and assessment type is determined for each individual case. The course code can be requested at the key user for Osiris.

If a student replaces more than 15 EC by a course or courses offered outside the faculty, their programme is treated as a free programme (see OER2017 art. 3.5).

m. Transition regulations

1. For students of the generation 2010-2018 the programmes described in SC-CEM/CME from 2010 through SC-CEM/CME 2017 apply, including any applicable transition regulations.
2. In the event of changes to the rules for the composition of an exam that consists of multiple results, the calculation of the final result, the minimum grade for successful completion of a unit and/or the validity of the result for the units, a student who passed a unit in the year preceding the year of the change is entitled to application of the rules of the year in which the unit was passed.
3. In the event of a significant change to an existing course (more than 50% of the course matter), a student who has at least once taken part in an exam for the relevant unit prior to the change, is entitled to two scheduled opportunities to re-sit the exam for the unit in its old form in the subsequent academic year. In such cases, the student must inform the teacher at least 20 working days before the date of the re-sit of their intention to exercise this right. In the event of such a change in the course matter, the students must be informed of this fact and of this regulation.
4. Master Courses Replacement Table:

Courses for the tracks Water Engineering & Management

Water Engineering & Management				
New Course	**Previously Known as**	**EC**	**Q**	**Lecturer**
Hydrology	Hydrology (7,5 EC)	5	1	M.J. Booij
Long Waves and Tidal Morphodynamics	Combination of parts of Water Systems and Marine Dynamics	5	1	B.W. Borsje
River Flow & Sediment Transport	Combination of parts of Water Systems and River Dynamics	5	1	B. Vermeulen

Short Waves and Coastal Dynamics	Combination of parts of Water Systems and Marine Dynamics	5	1	B.W. Borsje
Water Footprint Assessment	Water Footprint Assessment	5	1	A.Y. Hoekstra
Water Quality	Part of Water systems	5	1	D.C.M. Augustijn
Advanced Research Skills in River & Coastal Engineering	Part of Morphology	5	2	S.J.M.H. Hulscher
Data Analysis in Water Engineering & Management	Data Analysis in Water Eng. & Mgmt (7,5 EC)	5	2	K.M. Wijnberg
Hydrological Modelling and Forecasting	*New (based partially on parts of Hydrology)*	5	2	M.J. Booij/J.C.J. Kwadijk
Morphology	Morphology	5	2	S.J.M.H. Hulscher
Water and Energy	*New*	5	2	R. Wang
Hydraulic Engineering	Hydraulic Engineering	5	3	J.J. Warmink
Mathematical Physics of Water Systems	Mathematical Physics of Water Systems	5	3	P.C. Roos
Regional Flood Management	*New (partially based on Design Project Water II)*	5	3	M.S. Krol
Water Management and Governance for Engineering	Integrated Water Management	5	3	M.F. Brugnach
Building with Nature	*New*	5	4	E.M. Horstman
River Morphodynamics	Combination of parts of Water Systems and River Dynamics	5	4	B. Vermeulen
Urban Water Management	New (partially based on Integrated Water Management)	5	4	M.F. Brugnach
Water and Climate	*New (partially based on Tools for Water Policy analysis)*	5	4	J.C.J. Kwadijk
Pre-thesis	Pre-thesis	5	any	-
MSc thesis	MSc thesis	30	any	-

Courses for the tracks of Transport Engineering and Management:

Transport Engineering & Management				
New Course	**Previously Known as**	**EC**	**Q**	**Lecturer**
Modeling Consumer Behaviour	Transport Modeling	5	1	L.C. La Paix Puello
Operations Research Techniques	*NEW*	5	1	*IEM*
Planning and Process Management	Planning and Process Management	5	1	K.T. Geurs
Simulation	*NEW*	5	1	*IEM*
Choice Modelling	Transport Modeling	5	2	L.C. La Paix Puello

Data Science I	Data Science I	5	2	*CSC*
Geospatial Modelling	Land Use and Transport Interactions	5	2	*ITC*
Network Modelling	*NEW*	5	2	E.C. van Berkum
Rail Transport	Public Transport in Urban Areas	5	2	K.M. van Zuilekom
Traffic Forecasting & Analysis	Traffic Operations	5	2	T. Thomas
Data science II	Data science II	5	3	*CSC*
Land Use and Transport Interactions	Land Use and Transport Interactions (7,5 EC)	5	3	L.C. La Paix Puello
Mathematical Optimization	*NEW*	5	3	*DMMP*
Public Transport Modeling	Public Transport	5	3	K.M. van Zuilekom
Infrastructure Asset Management	Infrastructure Management	5	4	A. Hartmann
Network Equilibrium Analysis	Mathematical Optimization in Transport	5	4	E.C. van Berkum
Sustainable Transport	Sustainable Transport (7,5 EC)	5	4	K.T. Geurs
Traffic Management	Traffic Management (7,5 EC)	5	4	E.C. van Berkum
Traffic Operations	Traffic Operations (7,5 EC)	5	4	E.C. van Berkum
Transport Research Project	Transport Research Project	5	any	K.T. Geurs
Pre-thesis	Pre-thesis	5	any	-
MSc thesis	MSc thesis	30	any	-

Courses for the tracks of Construction Management & Engineering

Construction Management & Engineering				
New Course	**Previously Known as**	**EC**	**Q**	**Lecturer**
Construction Supply Chains & Digitalization	Supply Chain Management & ICT	5	1	J.T. Voordijk
Legal & Governance Aspects	Legal & Governance (7,5 EC)	7,5	1	P.J. Klok
Planning and Process Management	Planning and Process Management (7,5 EC)	5	1	K.T. Geurs/M. van Buiten
Sustainability & Circularity in Civil Engineering	Sustainable Building	5	1	J. Oliveira dos Santos
BIM & 5D planning	Building Information Modelling and 5D-planning	5	2	F. Vahdatikhaki
Construction Industry Dynamics	Markets, Organisation & Innovation in the CI	5	2	A.G. Dorée
Construction Process Management	Project management	5	2	W. Tijhuis
Experiments in Water Infrastructure	*New*	5	2	J. Vink de Kruijf
Digital Technologies for Civil Engineering	*New*	5	3	A.M. Adriaanse
Procurement Strategies and Tendering	Procurement Strategies & Tendering (7,5 EC)	5	3	J. Boes
Simulation and Optimization of Construction Processes	*New*	5	3	F. Vahdatikhaki

Subsurface Infrastructure Engineering	*New*	5	3	L.L Olde Scholtenhuis
Systems Engineering in Construction	Collaborative Design & Management	5	3	R.S. De Graaf
Instrastructure Maintenance Machines	*New*	5	4	A. Martinetti
Infrastructure Asset Management	Infrastructure management	5	4	A. Hartmann
Technology and Innovation in Road Construction	*New*	5	4	S.R. Miller
Value Management in Construction	Systems Engineering	5	4	R.S. De Graaf
Advanced Soil Mechanics	*New*	5	4	V. Magnanimo
Research Methodology & Academic Skills	Research Methodology & Academic Skills	5	any	A. Hartmann
Pre-thesis		5	any	Daily supervisor
MSc-thesis		30	any	Supervisors

5. If a student's programme, due to terminations and transition regulations, consists of a total number of ECs that does not exactly match the formal volume of the programmes and programme components mentioned in this programme-specific appendix, the programme is nevertheless assumed to have the volume of the formal programme (component).
6. The requirements for the composition of the programme apply for students enrolled for the master's programme as from 01-07-2015. For students already enrolled as master students prior to 01-07-2015 the examination programme must at least meet the requirements of the education and examination regulations of 2014 or the requirements of the present education and examination regulations.

n. Language

1. The language of instruction of the master's programmes CEM and CME is English.
2. Reports must be written in the language of instruction.
3. In special cases (for the assessment of the examination board) deviation from the provisions in section 1-2 is possible.

Further regulations master thesis

A. General regulations

1. Definitions and terms

1.1 The **graduation period** comprises a total of 35-40 EC and consists of the **preparation master thesis** (5-10 EC) and the **master thesis** (30 EC)

1.2 The **graduation lecturer** is a professor, a senior lecturer (UHD), or a lecturer who is a member of the scientific staff of CE, assigned by the examination board, or an assigned professor of the department associated with the selected profile, who is responsible for providing guidance during the graduation period.

The **graduation supervisor** is a staff member or research assistant of the UT who acts as the daily supervisor for the graduation assignment if this is not done by the graduation lecturer. If the graduation supervisor is a research assistant, the research proposal must be approved by the Civil Engineering Disciplinary Council. If a graduation lecturer from another department is assigned, the graduation supervisor or research assistant must be a staff member of the Civil Engineering department.

1.3 Professors from other programmes can be assigned by the examination board as graduation lecturer in Civil Engineering. In each case, a request must be submitted to the examination board. The examination board will decide whether they honour the request, based on, among other things, the relationship between the graduation assignment and the professor's area of expertise.

2. Requirements for the preparation phase and the thesis

2.1 The purpose of the master thesis preparation course is to prepare the student for the realisation of the master thesis. The preparation phase results in a more detailed problem definition and a plan of approach for the master thesis.

2.2 The preparation phase consists of optional courses and/or independent literature study in relation to the master thesis.

2.3 The master thesis must be within the territory of one of the directions of the programme and can be taken at one of the chairs of the CE, or at an external organization.

2.4 The student is the only author.

2.5 The master thesis report is written in the language of the programme (English). In consultation with the graduation lecturer or at the request of the external organization, a comprehensive summary and/or report appendices may be written in Dutch. In all cases, however, the main text of the report must be in English.

2.6 The master thesis report can be drawn up as a scientific article if, at the moment of assessment, the student is the only author of the (draft) article as specified in 2.4. Contributions in writing of the graduation lecturer and/or graduation supervisor to the master thesis report are not allowed.

3. Guidance/assessment

3.1 At the start of the graduation period and in consultation with the graduation coordinator of the department, the student selects a graduation lecturer. The graduation lecturer is responsible for the content of the master thesis

preparation course, the quality of the assignment, for adequate guidance and for the monitoring progress, and for a proper assessment of the final report. He is also responsible for the selection of the graduation commission referred to in 3.2 and 3.3.

The graduation lecturer assigns the supervisor for the master thesis. The graduation lecturer is responsible for coaching during the preparation master thesis course.

If the master thesis project is carried out externally, the graduation lecturer is also responsible for ensuring that a named person at that external company or organization is responsible for the guidance of the graduate on location.

3.2 The graduation commission - chaired by the graduation lecturer - is responsible for the final assessment of the master thesis. External members can only have an advisory role.

3.3. The graduation commission consists of:

a. The graduation lecturer,

b. The graduation supervisor mentioned in 1.2, or

c. A second staff member of the UT if the graduation lecturer also acts as graduation supervisor,

d. In case of an external assignment, the person within the external company or organization who is responsible for the guidance of the graduate. This person has an advisory role in the final assessment.

If the nature of the project warrants this, the graduation lecturer can extend the commission with eligible experts.

At the request of the responsible chair, the examination board can make an exception to the requirements for the composition of the graduation commission.

4. When can the student start the graduation period?

4.1 The student can start with the preparation master thesis course when all other parts of the master's programme except for a maximum of 5 EC have been completed.

4.2 The student can only start the master thesis after completion of the preparation course.

4.3 The graduation lecturer may, after consultation with the study adviser, deviate from the restriction in 4.1 if this restriction causes considerable loss of time for the student.

5. Monitoring the duration of the graduation period

5.1 The planned end date is established during the master thesis preparation course.

At the beginning of the graduation, agreements are made about, at least, the nature of the assignment, the planned start date of the master thesis, the

manner of guidance, and the date on which the final report must be handed in;

5.2. The duration of the preparation master thesis course corresponds to the applicable study load of 5-10 EC for the course.

The duration of the master thesis corresponds to the applicable study load of 30 EC for the master thesis.

5.3 The agreements made in 5.1 and 5.2 are recorded in writing prior to or on the start date of the graduation period;

5.4 In the course of the period leading up to desired adjustments to the description of the master thesis, in particular the problem definition, and the resulting extension of the student's activities, will only be implemented in consultation with the student, taking into consideration the possible (financial) consequences this may have for the student in the framework of the total duration and the limited funding resources available via student grants.

5.5 The graduation lecturer and the graduation supervisor share the responsibility for explicit monitoring of progress during the graduation period.

5.6 On the date agreed in art. 5.1, the graduation report is submitted to the graduation committee for review.

If the graduation report is approved, the graduation committee issues a statement that can be used by the student to apply for the final examination.

If the graduation report is not (yet) approved, the graduation committee indicates clearly what additions and/or changes to the master thesis or the graduation report are required. A new date is set on which the revised graduation report must be handed in.

If necessary, this procedure is repeated.

5.7 If the graduation committee is of the opinion that the work done by the student is insufficient, the committee may decide, in consultation with the graduation coordinator of the department, that the student has to do another graduation assignment. The same applies if the student fails to hand in the reports or hands them in far too late.

6. Joint graduation

In principle, a master thesis is done individually and independently. However, joint graduation is possible. In that case, independent realization of the project is defined as follows:

a The student studies on an individual basis: each student has their own (sub)project with a separate research question and responsibility;

b The graduation results in an individual report and an individual presentation;

If an (external) client is only interested in a common end product, the supply of this report is the responsibility of the students.

7. Deviation from these regulations

Deviation from these regulations may be possible if the graduation lecturer and the graduate reach agreement on this. This deviation from the rules must be documented in writing. In case of substantial deviation, the approval of the examination board is required.

B. Procedure at the start of and during the graduation period.

1. At the start of the preparation master thesis course, the student registers for the graduation period in Mobility Online. Subsequently, BOZ checks the results achieved by the student and reports, any outstanding courses and if approval for graduation is granted. If the student has more than 5 EC in outstanding courses, the student must make an appointment with the study adviser to discuss the graduation process and how this can be combined with the outstanding courses.
2. The student and the graduation lecturer make detailed agreements about the following:
   - The composition of the master thesis preparation;
   - The nature and description of the graduation assignment;
   - Confidentiality of the graduation report or parts thereof;
   - The phases of the activities, in terms of content and time schedule;
   - The way in which guidance will be provided;
   - The date for the next formal progress review;
   - The date for handing in the graduation report;
   - When relevant: With respect to progress of the master thesis during the summer months and completion before 1 September, the student must take into account that members of the graduation committee may be on holiday for some weeks - particularly in July and August.

   These agreements are documented in the registration system Mobility Online.
3. After completion of the master thesis preparation, approval for the start of the master thesis is confirmed by the graduation lecturer and registered in Mobility Online.
4. Bureau of Educational Affairs (BOZ) informs the examination board about the content of the graduation assignment and the composition of the graduation committee.

   If the examination board does not inform the student to the contrary within three weeks, the board is deemed to have approved the nature of the project and the composition of the graduation committee.
6. For the formal progress reviews, the student and graduation lecturer or graduation supervisor are deemed to have frequent contact via mail or via progress meetings. If a progress review results in substantial adjustments for the description of the graduation assignment, these adjustments should be recorded in Mobility Online.
7. As soon as the graduation committee has approved the graduation report and a request for the colloquium has been made, this is indicated in Mobility

Online, along with a prove of approval by the graduation lecturer or their substitute.

C. Procedure for the final examination.

Starting point is the normal situation, in which the graduation presentation and the graduation ceremony coincide and the designation "cum laude" (with distinction) does not apply.

1. The student and the graduation lecturer arrange a date for the graduation presentation and graduation ceremony.

   The following must be taken into account:

   - An application for the final examination must be submitted to Bureau of Educational Affairs (BOZ) at least three weeks prior to the planned graduation date;
   - At least three weeks prior to the graduation date, the grades for all parts of the examination (except the master thesis) must be handed in to Bureau of Educational Affairs (BOZ);
   - At least one week prior to the graduation date, the graduation report must be handed in to Bureau of Educational Affairs (BOZ).

2. At least three weeks before the planned graduation date, the student submits an application for the final examination to Bureau of Educational Affairs (BOZ) using Mobility Online.
3. Bureau of Educational Affairs (BOZ) will arrange the room and the publication of the graduation presentation.
4. Bureau of Educational Affairs (BOZ) will send an overview of the student's grades to the student as soon as possible.
5. The student checks this information. Corrections based on original written documents can be submitted until one week before the scheduled graduation date.
6. Bureau of Educational Affairs (BOZ) prepares the certificate and makes it available to the president of the graduation committee prior to the graduation presentation.
7. After the graduation presentation, the graduation committee establishes the final grade for the master thesis and passes the grade to Bureau of Educational Affairs (BOZ). If the final grade is a 6 or higher, the president of the graduation committee hands out the certificate for the final examination. Bureau of Educational Affairs (BOZ) then ensures that the student receives a list of grades (including the final grade for the master thesis).

Note:

1. Applications for the final examination in the second half of August must be submitted to Bureau of Educational Affairs (BOZ) 5 weeks prior to the date of the final examination.

2. All time periods in the appendix exclude the holiday periods on the academic calendar.

Further provision for admission

- Persons within the meaning of OER2018 art. 2.1a are admitted directly to the CEM and CME programmes.
- All other persons can be admitted subject to a positive decision by the admission board after a request for admission.

The admission board will make a positive decision:

a. If the identified deficiencies of a student in possession of a university bachelor degree do not exceed 15 EC. The volume of the deficiencies is determined on an individual basis.
b. For students in possession of a bachelor degree from a university of applied sciences (HBO) who have successfully passed the pre-master's programme. The pre-master's programme has a volume of 30 EC. The detailed realization of the regulations of the pre-master's programme is set out in appendix s.
c. For students in possession of a non-Dutch bachelor degree, who also meet the requirement of having sufficient command of the English language (see OER2018 art.2.2).

- There are two intake moments per year, when students can enter a CEM or CME programme that they can complete in two years, without suffering any delay caused by timetable issues.
- Each year, the dean, who mandated the admission committee, defines for each UT bachelor degree if it gives access to the CEM and CME programmes. Admission may be subject to further requirements or restrictions. This list is included in article t.

Admission procedure

- Potential students must submit an admission request to the admission board. Students not yet enrolled as a student at the UT must use the preliminary enrolment forms which can be found on the UT graduate site: **Http://*master.utwente.nl***. Students who are enrolled with the UT, but not with B-CE must submit an admission request to the CEM/CME admission board. Students who are enrolled with B-CE do not need to submit an admission request if they are in possession of the B-CE certificate at the start of their CEM/CME programme.
- The admission board assesses whether the candidate can be admitted and informs them of their decision in writing. If the admission board admits a student, the student is assigned a track coordinator. The track coordinator can be consulted for information on the content and structure of the master's programme.
- An appeal against the decision of the admission board is possible in accordance with OER2018 art.8.6.

Organization of the pre-master's programmes

Intake of students from a university of applied sciences (HBO)

1 For intake in Civil Engineering of students with a degree from a university of applied sciences (HBO) in Civil Engineering and comparable programmes, the pre-master's programme consists of:

Quarter 1	**Quarter 2**
Calculus A (4 EC)	Calculus B (3 EC)
Academic Research Skills (3 EC)	Probability Theory and Statistics (3 EC)
Design Project Urban Development (6 EC)	Academic Research Skills (continued) (4,5 EC)
Matlab (2 EC)	Water & Fluid Mechanics (4,5 EC)

2 Students can only be admitted after completion of the full pre-master's programme within a maximum of 1 year.

3 Students that would like to enter the 4TU CME programme after completion of the pre-master's programme, have to do the complete pre-master's programme (from start to finish) at one location

Intake of students with a university education

1 Students with a university education and a deficiency of no more than 15 EC are admitted directly to the master's programme and can compensate their deficiencies within the programme.

2 Students with a university education and a deficiency exceeding 15 EC are not admitted to the programme directly.

Admission List UT Bachelor's Programmes Civil Engineering and Management and Construction Management Engineering

The following BSc degrees of the University of Twente or other Dutch universities give access to the CEM and CME master's programmes up to and including the academic year 2018-2019.

Advanced Technology	restriction (1)
Civil Engineering	no restrictions
Industrial Design	restriction (1)
Chemical Engineering	restriction (1)
Industrial Engineering and Management	restriction (1)
Applied Physics	restriction (1)
Mathematics	restriction (1)
Mechanical Engineering	no restrictions
UCT ATLAS	restriction (1)
Technische Planologie (RUG)	restriction (2)

Restriction:

1. A maximum of 15 EC deficiencies to be compensated (depending on the exact BSc programme) can be incorporated in either the minor of the BSc programme or the first year of the MSc programme.

   The following table gives an overview of the deficiency modules, regarding the preferred specialization within the CEM and CME programmes:

Specialization	**Deficiency module***
CEM - Water Engineering and Management	Module 5: Safety and Risks in Deltas
CEM - Traffic Engineering and Management	Module 3: Traffic and Transport
CEM - Construction Management and Engineering / CME (4TU)	Module 4: Design of Constructions, or Module 6: Sustainable Civil Engineering (previous knowledge of mechanics required)
CEM - Integrated Civil Engineering Systems (Modeling and Forecasting profile)	Module 5: Safety and Risks in Deltas, or Module 3: Traffic and Transport
CEM - Integrated Civil Engineering Systems (Civil Engineering Structures profile)	Module 5: Safety and Risks in Deltas, or Module 6: Sustainable Civil Engineering (previous knowledge of mechanics required)
CEM - Integrated Civil Engineering Systems (Sustainability profile)	Module 5: Safety and Risks in Deltas, or Module 6: Sustainable Civil Engineering, or Module 7: Area Development
CEM - Integrated Civil Engineering Systems (Smart Cities profile)	Module 6: Sustainable Civil Engineering, or Module 7: Area Development

* Depending on the exact BSc programme and personal planning of a student, the admission committee may decide to deviate from the modules specified in this table.

(2) For all specializations: deficiency courses are Matlab, Calculus A and B.

Definition of terms for Civil Engineering and Management

BOZ-CE	Bureau of Educational Affairs Civil Engineering
CE:	Civil Engineering department of the Faculty of Engineering Technology
Deficiency:	Shortcomings in the previous education as established by the examination board, that need to be corrected in order to allow the student to successfully complete the programme in 2 years
ELO:	The electronic learning environment website that supports the programme for a specific examination or course (generally Blackboard)
Faculty:	The Faculty of Engineering Technology of the University of Twente
Programme director:	The programme director of the programmes CEM and CME.
Pre-master's programme:	Programme to be completed by students with a degree from universities of applied sciences before they are admitted to the CEM or CME master's programme
Admission board:	Board consisting of the programme director, the master programme coordinator, the track coordinators and the pre-master coordinator. The board is responsible for handling requests for admission by a. Students from universities of applied sciences (HBO) or students with another Dutch degree than the UT B-CE programme. In daily practice, the responsibility of this task of the admission board is with the pre-master coordinator. b. Students with a bachelor's degree from universities abroad. In daily practice, the responsibility of this task of the admission board is with the master programme coordinator
Track coordinator:	Member of the scientific staff responsible for providing advice on, and establishing the master's programme, including any deficiencies.
Website:	The websites www.utwente.nl/cem or www.utwente.nl/cme

RULES AND REGULATIONS CIVIL ENGINEERING AND MANAGEMENT AND CONSTRUCTION MANAGEMENT AND ENGINEERING

Rules of conduct and rules applicable to the exams and examinations of the examination board for the Civil Engineering and Management master's programme.

R1 The examination board

R1.1 The composition of the board can be found in appendix RB2.

R1.2 The responsibilities of the examination board of a programme apply to all courses that are part of the student's programme.

R1.3 The examination board consists of at least three members, including two professors.

R1.4 The executive board of the examination board consists of the president and the secretary of the examination board.

R1.5 The examination board may be assisted by programme staff, e.g. the programme director, the programme coordinator, the study adviser, and supervisors. These parties attend the meeting in an advisory capacity. The examination board may decide to delegate authorities to the president or the secretary and to delegate the realization to the programme board, in so far as this is not in conflict with legislation or these rules.

R1.6 The meetings of the examination board and of the executive board of the examination board are not open to the public.

R1.7 Where it concerns the implementation of the decisions taken by the examination board, the ''examination board'' refers to the: ''executive board of the examination board''.

R1.8 If a member of the examination board is unable to attend a meeting of the examination board, he or she can assign a substitute. The substitute must report as such to the president before the start of the meeting. The substitute has the same voting rights as the member they replace, with the limitation that a substitute has only one vote.

R1.9 The dean shall appoint a president for a period of two years. The examination board can appoint a vice-president from its midst, who can replace the president at any time.

R1.10 In cases that concern the examinations or the assessment of parts of examinations not covered by these regulations, a decision will be made by the examination board. In urgent situations a decision will be made by the executive board of the examination board.

R2 Authority to hold examinations

R2.1 In general, the person who is primarily responsible for the course is also primarily responsible for the assessment of the results. The examination board uses the following criteria:

a Examinations can be held by permanent or temporary members of staff (lecturer/UD, senior lecturer/UHD, professor) of the UT who meet the teaching requirements and who are involved in the programme;

b The authority is limited to the domain in which the staff member is recognized as an expert;

c Staff members of partner universities can also hold examinations, if they meet the stated requirements;

d In all other situations the examination board will decide whether a person is granted the authority to hold examinations. This decision specifies a period of validity and the field of expertise.

R2.2 For the purpose of holding the exams, the examination board appoints one or more examiners for each part of the examination. If there are multiple examiners for a course, responsibility is assigned to one of the examiners.

R2.3 If the examination board does not explicitly assign another lecturer, the lecturer who is responsible for a course is deemed to have been assigned as the examiner.

R2.4 A graduation committee is appointed for the assessment of the master thesis or final course. The composition requires the approval by the examination board. The rules governing the composition of the graduation committee can be found in appendix q.

R3 Starting point of the examination board

R3.1 All organizational issues in connection with the programme are governed by the nominal programming. The examination rules stimulate study as a cohort, and try to prevent delays that disrupt the order in which the programme is offered.

R3.2 In particular situations, explicitly defined in the education and examination regulations, the examination board has the authority to deviate from the education and examination regulations.

The examination board will request the advice of the study advisers on decisions that affect individual students. Any information provided by the student shall be treated as confidential. The student's study plan and the known causes of study delay will be taken into consideration.

R3.3 In such situations, the following applies with respect to section 2:

a If a student is regarded as promising (study speed at least 0.8), the examination board will consider whether a decision will contribute to completion of the master’s programme within 2.5 years;

b When the student's education is regarded as being severely delayed (study speed between 0.6 and 0.8), the examination board will consider whether there are sufficient grounds to believe that - on the basis of a study plan and the most recent results - a decision would contribute to preventing further delay.

R4 Organization and form of exams and manner of testing

R4.1 Each exam is an assessment of the student's knowledge, insight and skills, as well as an evaluation of the results of that assessment.

R4.2 The questions and tasks of an exam will not exceed the programme objectives. These overall learning objectives will be outlined at the beginning of the programme, in preparation of the relevant exam. Before the start of teaching for the relevant part of the examination, the final volume and content of the course matter must be communicated in writing, and written study material for the relevant exam must be available to the student.

R4.3 Before the start of the exam, the examiner submits a copy of the exam and standard that will be used to the programme director.

R4.4 The description in programme-specific appendix A defines the manner of assessment for each course.

R4.5 The student can ask the examination board for another testing method than the method determined in the first section of this article.

R4.6 If the evaluation results warrant this, the examination board will review the quality of the exam.

R4.7 If no mock and/or old exams are available, the lecturer must make a representative set of practice questions and a standard available.

R4.8 If a course is assessed in parts, this must be announced no later than at the start of the course. The examiner indicates the weight in the final grade for each part, and how the final grade is calculated.

R5 Written and oral exams

R5.1 A written exam has a maximum duration of 3 hours; the maximum for an individual oral exam is 1.5 hours. An oral exam taken as a group has a maximum duration of 4 hours.

R5.2 Written exams are assessed on the basis of pre-defined standards for the various tasks or partial tasks of the exam.

R5.3 The student is informed of the maximum score for a task in a written exam by adding this information to the task in the exam.

R5.4 If it turns out, when the exam is held, that the exam cannot be completed within the available time or that questions are ambiguous or too difficult, the examiner will report this immediately to the examination board. The examination board then has the authority to impose an adjusted standard. This new standard must not have an effect that is demonstrably to the detriment of the students.

R5.5 Oral exams and other parts of the examinations that are not on the academic calendar, are held at a time to be determined jointly by the examiner(s) and the student, and, if the student so wishes, within one month after the end of the teaching for the relevant exam.

R5.6 In addition to OER2018 art.4.6,

a During an oral test in which more than two students are assessed at the same time, at least two examiners must be present.

b Oral tests which are held for a series or group of students are not open to the public.

R5.7 Oral exams which are held for a series or group of students are not open to the public.

R5.8 Members of the examination board can at any time attend an exam session, or delegate someone else as an observer.

R5.9 The position of an observer is explained to the participants of the test.

R5.10 The examiner submits the result of the exam to BOZ CE no later than 15 working days after the date of the exam.

R5a Enrolling for exams

In addition to OER2018 article 4.3:

R5a.1 The student must enrol for written exams ultimately on the date stated on the academic calendar. Enrolment is via Osiris, unless Bureau of Educational Affairs (BOZ) has defined another method of enrolment via a communication.

R5a.2 If the student fails to enrol for a written exam in time, they are no longer entitled to take part in that session. If the student nevertheless shows up for the written exam, the examiner has the right to refuse to assess their work.

R5a.3 In situations beyond the student's control, the executive board of the examination board decides whether a student who was unable to enrol for the exam in time, will be allowed to take part in the session.

R6 Order during exams

R6.1 For each exam, the examiner assigns one or more examination supervisors who will ensure that the test session takes place in an orderly fashion. Student assistants cannot act as supervisor. BOZ CE will draw up a schedule of who will be supervising at the various exams.

R6.2 If the responsible examiner cannot be present in the room during an exam, he or she - or another specialist who can take on the role of examiner - must be reachable for the duration of the exam.

R6.3 During an exam, students must be able to identify themselves upon request by means of a proof of enrolment (student ID card).

R6.4 Students are deemed to take part in a written exam as soon as they receive the exam paper.

R6.5 Students are not allowed to have a mobile phone within reach in the exam room.

R6.6 The decision whether a student who arrives late is admitted to the exam is made by the supervisor. Students will not be admitted 30 minutes after the start of the exam.

R6.7 If a student arrives late, they cannot take part in the test if students have already left the test session.

R6.8 Students are not allowed to leave the exam room

a without the consent of the supervisor

b within the period during which delayed students may still be admitted (section 6).

R6.9 If a student arrives late or does not comply with the rules in sections 3 to 5, the examiner or the supervisor can immediately revoke the student's right to participate in the exam.

R6.10 In the case of fraud, the work of the student will not be assessed and the examination board is informed. The examination board can exclude the student from participation in the relevant exam for a maximum period of 1 year. In the case of preconceived fraud, the examination board can exclude the student from participation in (any) exams for a maximum period of 1 year.

Fraud is defined in the general UT Students' Charter 2018-2019

Appendix RB1 specifies in further detail which practices during the making of written assignments are regarded as fraud.

R6a Access to, discussion of, and retention of exams

R6a.1 In addition to the provisions of OER2018 Article 4.9, the student is entitled to make copies of their assessed work at their own expense.

R6a.2 With respect to practical reports and assignments the rules for access to the student's own work (see OER2018 article 4.9) apply. The person in charge of the practical or the tutorial group, or the examiner determines:

a. Whether the reports can be returned to the relevant students after the term of two years

b. Whether copies may be made of the assessed reports.

R7 Rules in the event of an emergency

R7.1 In the event of an emergency or an expected emergency during or immediately before an exam, the exam is immediately postponed or interrupted. The examiner, in consultation with the programme director, determines the date for a new exam and whether and how the work already done will be assessed.

R8 Regulation for failing or passing a test

R8.1 In addition to OER2018 art. 4.1, the examination board uses the following regulation for passing or failing a test:

a If the non-rounded grade ends in .50 or higher, the grade is rounded to the next higher full number.

b Grades between 0 and 1.49 are rounded to 1.

c Assessments of parts of courses are expressed in a grade of 1 to 10, with the possible addition of one decimal. Unless indicated otherwise by the examiner, a part of a course has been completed successfully if the rounded grade is at least 5.5.

d If not all parts of the assessment for a course have been completed successfully in the quarter(s) in which teaching in the relevant unit is offered, the final grade matches the lowest partial grade. If a partial grade is missing, the final grade is 'NVD' (see R8.3).

e A student has officially passed the final CEM / CME examination when he/she has received a grade >5 for all parts of the examination.

f With respect to the valid result, the examination board may deviate from the provisions in article 4.7 section 7 of the OER2018.

R8.2 If (part of) a course is assessed by more than one examiner, the responsible examiner/coordinator makes sure that they all use the same standards. The examiner keeps a record of the results of parts of an exam (tests, partial assignments) in their own administration.

R8.3 Assessment grades are normally expressed as a number between 1 and 10. These grades have the following meaning:

1	Very bad	**5**	Nearly sufficient	**9**	Very good
2	Bad	**6**	Sufficient	**10**	Excellent
3	Definitely insufficient	**7**	More than adequate		
4	Insufficient	**8**	Good		

Exam units may also be graded alphanumerically in the following manner:

C4	Compensated 4	**O**	Insufficient
C5	Compensated 5	**V**	Sufficient
NV	No show	**VR**	Exemption
NVD	No pass	**HNTD**	Not required[2]

R8.4 Results from other institutions included in the student's exams programme by permission of the examination board will not be translated into the evaluation system of the UT. When a different assessment system was used (i.e. no grade 1-10 as in the table in article R8.3), sufficient results are registered with 'V' and insufficient results with 'O'. The volume of the course is converted to EC.

R8.5 The result of the final examination has not been established until all parts of the final examination have been passed and the graduation presentation of the master thesis - as the last part of the final examination - has been held.

R8.6 If the student meets the requirements for officially passing the examination, the graduation committee is authorised to declare that the candidate has passed the examination and to perform the resulting proceedings (or to have them performed).

R8.7 In deviation from the provisions in R8.5, the executive board of the examination board may, in special cases, upon a reasoned written request by the student, allow deviation from the requirement in article R8.5 that the graduation presentation must be the last part of the final examination. As soon as the student has passed all parts of the final examination and meets all official requirements for graduation, the executive board of the examination board can perform all the resulting proceedings (or have them performed).

R8.8 The examination board or the examiner determines if the candidate meets all requirements for taking (a part of) the examination. This authority may also be delegated to the study adviser or to Bureau of Educational Affairs (BOZ).

[2] This occurs when another course has been assigned as a replacement for a part of the examination

R8.9 A student who does not meet the criteria to officially pass the examination can submit a reasoned request to the examination board to establish whether he/she has passed the examination.

R8.10 The examination board will communicate its decision concerning the request referred to in R8.9 and the reasons for its decision to the student, in writing, no later than two months after receipt of the request.

R8.11 In the case mentioned in R8.9 the decision by the examination board is made by majority of votes.

R8.12 If the required majority, as referred to in R8.11, has not been achieved, the student has been rejected.

R8.13 Decisions as referred to in R8.11 can only be made when all members of the examination board or their substitutes are present.

R8.14 In the event of a resit or addition to an assignment that counts as a test or part of a test, the highest possible grade is a 6. A resit or addition to an assignment is only possible in the academic year in which the course is offered.

R9 Cum Laude (with distinction)

R9.1 The examination board draws up a with distinction scheme for the CEM and CME master's programmes.

R9.2 The scheme comprises the following criteria:

a If a student demonstrates exceptional ability during the master examination, the words "Cum Laude" may be included on their degree certificate.

b The following conditions must be met to qualify for this:

i The weighted average of the grades for the parts of the final examination, excluding the final grade for the master thesis, is at least 8.0. Parts for which no assessments in the form of a grade are given or for which the student was exempted are disregarded for this calculation;

ii The minimum grade for all parts of the examination is 7;

iii The number of exemptions in the sense of OER2018 article 3.4 does not exceed one-third of the volume of the programme.

iv The final grade for the master thesis is at least 8.0;

v The master's programme was completed within 2.5 years, unless special circumstances, for the assessment of the examination board, justify a longer delay. Special circumstances are, in any case, circumstances recognized as a condition for the granting of graduation support.

vi The examination board thinks that the student has shown exceptional ability.

When there are special circumstances, the examination board has the right to let the student graduate with distinction if he or she does not fully meet requirements i to v under R9.2b.

c If the nominal duration of the programme has been exceeded by more than 6 months, the president of the graduation committee or the

programme director can make a reasoned request to the examination board to award the predicate 'cum laude'. The predicate 'cum laude' is granted when all members of the examination board express their consent.

d "Cum Laude" shall not be awarded if the student has previously been found to have committed fraud or plagiarism during the completion of the pre-master or master programmes.

R10 Certificates and registration

R10.1. The examination board issues a certificate as proof that the final examination was passed successfully. In deviation from OER2017 art. 5.4 section 1, the following applies to the signing of the degree certificate:

a. If the student passed the examination in the manner indicated in R8, the certificate is signed by at least two members of the graduation committee mentioned in the programme-specific appendix q 3.3, who established the result of the final examination. If no two members of the graduation committee are present at the graduation presentation to sign the certificate, a member of the examination board must also sign the certificate

b. In all other situations the degree certificate is signed in accordance with OER2018 art. 5.4 section 1

R10.2. The parts of the examination and their assessment are listed in an appendix that is part of the degree certificate. Also listed are any units that are not part of the examination, that were tested before a decision was made concerning the result of the examination, provided that the student successfully passed these units.

R10.3. The appendix to the master degree is included in a degree supplement. The objective of this supplement is to provide insight into the content of the completed programme for the purpose of international identification of the programme.

R10.4. If the examination board has granted the special designation 'cum laude' (see R9) to the student, this is stated on the certificate.

R10.5. A student to whom no degree certificate as referred to in R10.1 can be awarded, will upon request receive a statement to be issued by the examination board, specifying at least the successfully passed exams (WHW art. 7.11 section 4).

R10.6. Bureau of Educational Affairs (BOZ) is responsible for the registration of assessments and of the results of examinations and parts of examinations.

R10.7. Bureau of Educational Affairs (BOZ) registers which certificates have been issued to a candidate. No registered data on the candidate, with the exception of information on the issued certificates, will be provided to other persons than the candidates themselves, except to:

a. The participants in exam meetings;

b. The members of the examination board;

c. The student counsellors;

d. The board of appeal for examinations;

e. The persons to whom the faculty has entrusted activities relating to applications for financial support from the graduation fund;

f. The study adviser;

g. The programme director;

h. The programme coordinator;

i. The Dienst Uitvoering Onderwijs (DUO).

R11 Exemptions

In addition to OER2018 art. 3.4, the following applies:

R11.1. A request for exemption from the obligation to take parts of examinations or to participate in practical exercises must be submitted to the examination board via email.

R11.2. The student will be given the opportunity to be heard before a decision is made whether a request for (partial) exemption is rejected.

R11.3. The examination board may grant standard exemptions to specific groups of students.

R11.4. Exemptions are documented in an official decision, signed by or on behalf of the executive board of the examination board.

R11.5. Courses that were part of a bachelor's programme cannot be a reason for exemption from parts of the master's programme.

R11.6. The examination programme can exist for up to a maximum of 50% of courses (excluding the Preparation MSc thesis and the MSc thesis project) that were also part of another examination programme (at the University of Twente or elsewhere). In all situations the student must meet the attainment goals of the programme.

Appendix RB1

In addition to the information in the Students' Charter, the following further defines the concept of "fraud" in the context of written assignments. Since there are various types of individual assignments and group assignments, further definition of "fraud" is necessary.

In the context of assignments, the following additional rules apply:

1. **Individual assignments**
   A single author is responsible for the assignment. This author receives an individual assessment on the basis of the assignment. Unless explicitly defined otherwise by the lecturer in the assignment description, it is not allowed to hand in a jointly drawn up or written assignment as an individual assignment.
2. **"Individual" group assignments**
   The members of the group are responsible for parts of the report. The responsibility for each part of the report is clearly indicated. Unless explicitly defined otherwise by the lecturer in the assignment description, it is not allowed to use (parts of) work by other groups or persons.
3. **"Joint" group assignments**
   The group as a whole is responsible for the complete content of the report, even though each member of the group has written a particular part of the report. Unless explicitly defined otherwise by the lecturer in the assignment description, it is not allowed to use (parts of) work by other groups or persons. The following applies to a "joint" group assignment:
   - The contribution by each member of the group does not need to be indicated;
   - Each member of the group is responsible for the prevention of plagiarism and fraud;
   - In the event of fraud, the penalty may be applicable to all members of the group.

In the event of plagiarism/fraud the provisions of article R6.10 will apply.

Appendix RB2

The composition of the examination board for Civil Engineering is as follows:

Prof.dr.ir. J.I.M. Halman,	chair, Construction Management and Engineering department
Ing. K.M. van Zuilekom	secretary, Centre for Transport Studies
Dr.ir. D.C.M. Augustijn,	member, Water Engineering and Management department
Dr. G.A.M. Jeurnink,	member, Faculty EEMCS, department Applied Analysis
Prof.dr.ir. E.C. van Berkum,	member, Centre for Transport Studies
Dr. J.T. Voordijk	member, Construction Management and Engineering department, matters concerning the master's programme CME.
Ir. J. Boutkan	external member, engineer at Gemeente Enschede
Dr. ir. S.R. Miller	adviser, programme director
Drs. E. Ruijgh	registry

The executive board of the examination board consists of the president and the secretary. The examination board can be reached by e-mail at examinationboard-ce@utwente.nl