TEACHING AND EXAMINATION REGULATIONS (TER)

2019-2020

In accordance with article 7.13 of the [Dutch] Higher Education and Research Act [WHW]

INTERFACULTY MASTER DEGREE PROGRAMME TRANSPORT, INFRASTRUCTURE and LOGISTICS

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Paragraph 1 - General

Article 1 – Applicability of the regulations[1]

1. These regulations including the annex, apply to the teaching and the examinations of the interfaculty Master degree programme in Transport, Infrastructure and Logistics (TIL), hereinafter referred to as 'the programme'.

2. The programme is provided under the responsibility of the faculty Civil Engineering and Geosciences, the faculty Mechanical, Maritime and Materials Engineering and the faculty Technology, Policy and Management of Delft University of Technology, and hereinafter referred to as the 'programme'.

Article 2 – Definitions of terms used

The following concepts apply in this Regulation:

a. Act:	the Higher Education and Scientific Research Act (in Dutch, the WHW), Dutch Bulletin of Acts, Orders and Decrees, number 593 and as amended since;
b. academic year	the period from 1 September till 31 August of the following calendar year;
c. annex (former: IR)	the appendix which forms part of these Teaching and Examination Regulations;
d. Board of Examiners:	the programme's Board of Examiners, which has been installed in accordance with Article 7.12 of the Act;
e. bridging programme:	a deficiency rectifying programme aimed at moving up to a Master's degree programme, while enrolled in a Bachelor's degree programme, but without obtaining a Bachelor's degree, as stipulated in Article 7.30e or Article 7.57i of the Act;
f. cohort:	the group of students who have registered for a degree programme for the first time in a given academic year;
g. credit:	a European Credit (EC) awarded in line with the European Credit Transfer System (ECTS); one credit denotes a study load of 28 hours;
h. (component) partial examination:	an assessment of the knowledge, insight and skills of a student in relation to a component within a subject, as well as the marking of that assessment by at least one examiner, appointed for that purpose by the Board of Examiners;
i. degree:	an academic title conferred by universities and colleges as an indication of the completion of a course of study, or as an honorary recognition of achievement (here: MSc in Civil Engineering);
j. degree audit:	the evaluation, in which, in accordance with Article 7.10 of the Act, the Board of Examiners determines whether all examinations in the subjects of the degree programme have been successfully completed;
k. disability:	all conditions which are (at least for the specified period) chronic or lasting in nature and which form a structural limitation for the student in receiving education and/or sitting examinations or taking part in practicals;
l. education registration system:	the current education registration system is Osiris;
m. examination:	an assessment of the knowledge, insight and skills of a student in relation to a subject, as well as the marking of that assessment by at least one examiner, appointed for that purpose by the Board of Examiners;
n. examiner:	the individual who, in line with Article 7.12, Subsection 3 of the Act, has been appointed by the Board of Examiners to set the examinations;
o. institute:	Delft University of Technology;
p. interim examination:	the assessment of the examinee's knowledge, insight and skills and the results of the assessment as referred to in Section 7.10, first subsection of the WHW;
q. learning management platform	the current learning management platform is Brightspace;
r. practical exercise:	subject or component of a subject aimed at the acquisition of particular skills. The following can be understood as practical exercises: • writing a thesis, • conducting a project or experimental design, • carrying out a project or a design/research assignment, • conducting a literature review,

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[1] These Teaching and Examination Regulations (TER) are drafted per academic year and are valid as of the first day of the relevant academic year. This TER replaces all previous versions of the TER.

		• completing an internship,
		• participating in fieldwork or an excursion,
		• conducting tests and experiments, or
		• participating in other educational activities that are considered essential and that are aimed at enabling participants to attain certain skills;
s.	programme:	the Master's degree courses (Transport, Infrastructure and Logistics) as stipulated in Article 7.3a Paragraph 1, Subsection b of the Act;
t.	programme duration:	the duration starting from the enrolment of the student up and to including the last examination;
u.	student:	a person enrolled at Delft University of Technology in order to receive education and take the examinations and the degree audit in the degree programme;
v.	study guide:	a digital guide to the programme containing specific information pertaining to the various subjects;
w.	course (or 'subject'):	a teaching unit within the programme as intended in Article 7.3, sections 2 and 3 of the Act; a course can consist of a number of components;
x.	teaching period:	half a semester;
y.	track	major, as stipulated in Article 7.13, Paragraph 2, Subsection b of the Act;
z.	virtual learning environment:	the electronic system designed for the exchanging of teaching information;
aa.	working day:	Monday to Friday with the exception of recognised national public holidays and the collective closure days.

2. The other concepts in these regulations are used in the sense in which they appear in the Act.

3. In these regulations, the term 'examination' also refers to 'interim examination', with the exception of Articles 19, section 1, first complete sentence and 22.

Paragraph 2 - Admission and prior education

Article 3 – Admissions to the Master degree programme

1. Individuals holding one of the following degrees have access to the education of the Master degree programme in Transport, Infrastructure & Logistics on the condition that the stated requirements have been met.

a. Specific university Bachelor degree
A university Bachelor degree at Delft University of Technology (or equivalent at another mentioned university) in:
- "Civiele Techniek" (also at University of Twente)
- "Electrical Engineering" (also at Eindhoven University of Technology and University of Twente)
- "Luchtvaart- en Ruimtevaarttechniek"
- "Maritieme Techniek"
- "Technische Bestuurskunde"
- "Technische Informatica" (also at Eindhoven University of Technology and University of Twente)
- "Technische Natuurkunde" (also at Eindhoven University of Technology, University of Twente and University of Groningen)
- "Technische Wiskunde" (also at Eindhoven University of Technology, University of Twente and University of Groningen)
- "Werktuigbouwkunde" (also at Eindhoven University of Technology and University of Twente)

or a university Bachelor degree at another mentioned university in:
- "Econometrie en Operationele Research" at Erasmus University Rotterdam, University of Amsterdam, VU University Amsterdam, University of Groningen, University of Tilburg or Maastricht University
- "Technische Bedrijfskunde" at Eindhoven University of Technology, University of Twente or University of Groningen

or a university Bachelor degree as mentioned in section b in which a dedicated bridging minor programme stated in the annex is included, gives admission to the Master degree programme.

b.   Other university Bachelor degree (not including those listed in Subsection a)

A university Bachelor degree at Delft University of Technology (or equivalent at another mentioned university) in:
-       "Bouwkunde" (also at Eindhoven University of Technology)
-       "Industrieel Ontwerpen" (also at University of Twente)

or a university Bachelor degree at another mentioned university in:
-       "Landschapsarchitectuur en Ruimtelijke Planning" at Wageningen University
-       "Technische Planologie" at University of Groningen
-       "Sociale Geografie en Planologie" at University of Amsterdam, Utrecht University or University of Groningen

gives admission to the Master degree programme, in which a convergence programme has to be completed. This convergence programme will be part of the Master degree programme in Transport, Infrastructure and Logistics and consists of convergence subjects stated in the annex to this TER.

c.   Higher professional education degree
A relevant higher professional education degree

gives admission to the programme only after successful completion of the bridging programme stated in the annex and, if applicable, the language requirement.

d.   Foreign degree
A foreign degree is subject to the general selection requirements of Delft University of Technology with regard to prior foreign education, based on a Cumulative Grade Point Average of at least 75% of the maximum number of points that could be earned, included in the table of countries (see website) and meeting the requirements for satisfactory linguistic mastery of English, as stated in the annex.

2.   Access to the education of the Master degree programme in Transport, Infrastructure & Logistics is open to individuals who have demonstrated to the admissions committee that they possess knowledge, insight and skills at the level of the Bachelor's degree mentioned Subsections 1a, or of a university Bachelor's degree, in addition to the further requirements mentioned in Subsections 1b and 1c.

Article 4 – Not applicable

Paragraph 3 - Content and composition of the programme

Article 5 – Goal of the programme

1. The programme is intended to educate students to earn a Master of Science degree in Transport, Infrastructure and Logistic, whereby the final attainment levels described below must be achieved, providing them with such a level of knowledge, insight and skills in the area of Transport, Infrastructure and Logistic, that graduates can fulfil positions on the labour market at the Master's level.

2. Graduates must also meet the specific final attainment levels for the degree programme, as listed below.
   1. be capable of being analytical in their work, on the basis of a broad and deep scientific knowledge;
   2. be able to synthesise knowledge and to solve problems in a creative way when dealing with complex issues;
   3. possess the qualities needed for employment in circumstances requiring sound judgement, personal responsibility and initiative, in complex and unpredictable professional environments;
   4. be able to assume leading roles, including management roles, in companies and research organisations, and be able to contribute to innovation;
   5. be able to work in an international environment, helped by their social and cultural sensitivity and language and communication abilities, partly acquired through experience of team work and any study periods abroad;
   6. possess an awareness of possible ethical, social, environmental, aesthetic and economic implications of their work and the insight to act accordingly;
   7. possess an awareness of the need to update their knowledge and skills.

In addition, Master of Science graduates should possess the following kinds of competence:
1. required core knowledge and understanding in their field of study;
2. knowledge of methods and technical practice in their field of study;
3. training in theoretical knowledge and methods, including modelling;
4. advanced knowledge of specific areas in their field of study;
5. specific attitude and way of thinking expected in a particular subject;
6. awareness of connections with other disciplines and ability to engage in interdisciplinary work.

The programme's final attainment levels are to prepare successful participants for an active role in society that is related in some way to the transportation field.

MSc TIL-domain specific final-qualifications for MSc-TIL students are:

1. Knowledge and Understanding of the TIL-domain
1. Scientific Disciplines:
   Has a profound understanding of the TIL-domain. Has demonstrated broad understanding of the scientific disciplines that relate to the TIL-domain. Has systematic knowledge about the socio- technical context of TIL-systems. Has a broad understanding of the required knowledge in respect of research and design related to the TIL-domain.
2. Inter-disciplinary:
   Understands insightfully how to act in an interdisciplinary manner and how to bridge and integrate the knowledge between several disciplines and the temporal and techno-social context of TIL-systems.
3. Contribute:
   Is able to make considerable research and/or design contributions to the TIL-domain through original research and/or design that extends the traditional frontiers of knowledge towards integrative TIL-knowledge by means of developing a substantial body of work, corresponding with the level of national and international refereed publications.

2. Application of knowledge and understanding within the TIL-domain
1. Scientific Approach:
   Has a critical attitude and is able to apply a systematic scientific approach characterised by the development and application of theories, methods, models and coherent interpretations (both in doing research and designing) in the TIL-domain.
2. Problem Solving:
   Is competent in applying problem solving abilities in new or unfamiliar environments within broader, multi-disciplinary and/or inter-disciplinary contexts related to the TIL-domain.
3. Doing Research:
   Has demonstrated the ability to acquire new scientific knowledge in respect of the TIL-domain through a substantial process of research by means of the development of new knowledge and new insights in a purposeful and methodological way.
4. Designing:
   Has largely demonstrated the ability to apply a substantial design process by means of applying synthesising activities aimed at the realisation of new or modified artefacts, processes and/or systems within the TIL-domain, with the intention of creating value in accordance with predefined TIL- domain-related requirements and desires.

3. Judgmental skills
Has the ability to gather, integrate and interpret relevant, incomplete or limited data, information and knowledge, and understands the complexities in the TIL-domain to reason about and reflect on possible social, scientific and ethical responsibilities linked to the application of this data, information and knowledge to form judgements.

4. Communicational and co-operational skills
1. Communication:
   Has the competence to clearly and unambiguously communicate information, ideas, problems, problem solving approaches, their origins and possible solutions to both audiences of specialists (peers within the TIL-domain, the larger scholarly population) and non-specialists (society in general).
2. Co-operation:
   Has the competence of effectively working with and for others on complex problems of the TIL- domain in inter-disciplinary teams (colleagues and non-colleagues) and arenas (several organisations that have influence on the outcome "together") by judging the background, positions, desires, cultural habits, and the political and strategic behaviour of the members of these teams and arenas.

5. Learning skills
  1. General Learning:
     Has developed considerable learning skills necessary to undertake further study autonomously.
  2. Relational Learning:
     Has developed broad appreciations to judge, gather and apply relevant and "new" knowledge to its existing body of knowledge as a result of interdisciplinary teamwork working on complex problems to reach feasible solutions.

Article 6 – Annotations

The annotations within the Master's degree programme are stipulated in the annex.

Article 7 – Composition of the programme and degree audits

1. The programme includes the Master degree audit, with a study load of 120 credits.

2. Following approval from the two Boards of Examiners concerned, a student may take an individual double degree programme in which two Master's programmes are combined simultaneously to create a programme of at least 180 credits. Upon completion the student is awarded two Master's diplomas. The student must earn at least 60 unique credits for each Master's degree programme.

3. Subjects that were part of the Bachelor's degree programme that qualified a student for admission to the Master's degree programme may not be included in the Master's degree programme. If a compulsory component has already been completed in the aforementioned Bachelor's degree programme, the Board of Examiners will designate an alternative subject. If an elective subject of the degree programme has already been completed in the aforementioned Bachelor's degree programme, the student will select an alternative elective subject. Subsection a

4. The Master degree audit is concluded with a MSc thesis. The MSc thesis demonstrates that the student possesses and is able to apply the knowledge, insight and skills acquired in the degree programme.

5. The degree programme is described in the annex, along with the courses, including the study load, number of contact hours and form of examination of each course, as well as the programming of the examination and the language.

6. The actual design of the education is elaborated in greater detail in the annex and study guide.

Article 8 – Form of the programme

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

Article 9 – Language

1. The teaching is in English, and the examinations are administered in English.

2. Should a student request permission to complete one or more parts of the examination or the degree audit in a language other than English, this will be subject to the stipulations of the Board of Examiners, as laid down in the Rules and Guidelines of the Board of Examiners.

Article 10 – Honours Programme

1. Based on the criteria referred to in the Master's Honours Programme, students will be selected and admitted to the Master's Honours Programme by the Director of Studies/an Honours Coordinator or an Honours Committee established by the Director of Studies.

2. The Master's Honours Programme comprises at least 20 credits.
   a. At least five credits must be completed in the institution-wide component of the Master's Honours Programme: the course UD2010 'Critical Reflection on Technology',

b. At least 15 credits must be completed in the programme specific component of the Master's Honours Programme, the composition of which (including its content and options) is described in the annex.

3. All students selected for participation in the Honours Programme must submit their options for the programme component to the director of studies, the Honours coordinator or Honours committee for approval.

4. The Board of Examiners will be responsible for assessing whether all the requirements of the Master's Honours Programme have been met.

5. Any student who has successfully completed the Master's Honours Programme will be awarded a certificate signed by the chair of the Board of Examiners and the Rector Magnificus.

Article 11 – (Compulsory) participation in the programme

1. All students are expected to participate actively in the courses for which they are examined.

2. If necessary, there will be an obligation to participate in practical exercises, with a view to admission to the related examination. The Board of Examiners has the authority to grant an exemption from this obligation, and can require a substitute requirement.

3. Any supplementary obligations are described by component in the study guide.

Article 12 – Programme evaluation

- The Director of Studies is responsible for the evaluation of the education.

- The manner in which the education in the programme is evaluated is documented in a separate document, that is presented to the Faculty Student Council and the Board of Studies.

- The Director of Studies informs the Board of Studies concerning the outcomes of the evaluation, the intended adjustments based on these outcomes and the effects of the actual adjustments.

Paragraph 4 – Registration for courses and examinations

Article 12a – Compulsory registration for courses

1. All students must register each semester for every course that they wish to or are obliged to take, subject to the further provisions of this article. Students must register for each course in the education registration system (Osiris).
1. Students who have not registered for a course according to the prescribed procedure are excluded from participation in that course.

2. Students who are participating for the first time in the first year of a Bachelor's, Master's or Bridging programme will be registered by the faculty for all compulsory courses in the first semester of the first academic year of the programme. The procedure for registering for electives for these students who are registering for the first-time is described in the study guide

3. Registration for courses takes place each semester during the registration period described below. Note that the registration period for a course with limited capacity as referred to in Section 6 of this article is one week shorter.

   1. The registration period for courses in the first semester is
      - from Monday (9:00) of teaching week 4.6 up to and including Sunday (23:59) of teaching week 4.7, and
      - from Monday (9:00) up to and including Sunday (23:59) of teaching week 4.2 for a course as referred to in Section 6 of this article.

2. The registration period for all courses in the second semester is
   - from Monday (9:00) of teaching week 2.3 up to and including Sunday (23:59) of teaching week 2.4, and
   - from Monday (9:00) up to and including Sunday (23:59) of teaching week 2.1 for a course as referred to in Section 6 of this article.

Two weeks after the closing of the registration period a first check will take place based on the entry requirements described in the study guide. The registration for students who fulfil the entry requirements at the time of the check is finalised. If students do not meet the entry requirements at that time, they will be given the opportunity to meet the entry requirements if possible.

One week before the start of the semester, a second and final check will take place. The registration for students who fulfil the admission requirements at the time of this check is finalised. Students who do not fulfil the admission requirements at the time of this check will not be permitted to participate in the course.

4. Students may register for courses with a total maximum study load of 40 credits per semester. A student who wishes to take more courses must submit a written request for this, giving their reasons, to the Director of Studies of the faculty before the registration period as referred to in Subsection a or b in Section 4 of this Article, after first seeking advice from the academic counsellor. If permission for this is granted, the programme will arrange the registration for the extra course(s).

5. Before the start of the registration period the study guide will show which courses or parts of courses are a compulsory part of the programme. The Director of Studies may restrict participation in a course within a programme in the following cases:

   1. for a course with a maximum number of participants, admission is based on the criteria stated in the study guide, on the understanding that priority will be given to students for whom the course is a compulsory part of their programme.
   2. for a course with an admission requirement, registration for the course is seen as a pre-admission which will be checked against the admission requirements stated in the prospectus before being finalised.
   3. if participation in an elective is subject to further requirements as stated in the course description in the study guide.

6. Students who wish to register for a course outside of the official registration period on the grounds of exceptional personal circumstances may send a written request to Director of Studies up to two weeks before the start of the semester, giving their reasons for this.

7. If a student has taken a course (or part of a course) for which an assessment will be given, without having registered for this course correctly or on time, any given assessment is invalid. The student may submit a written request to the Board of Examiners asking for a valid assessment and explaining their reasons. The Board of Examiners will only honour such a request in the event of exceptional circumstances.

8. Registration for a course does not count as registration for an examination. Students must register for examinations separately in accordance with the relevant provisions.

Article 12b – Withdrawal from a course

1. Students may withdraw from a course at any time, via the education registration system (Osiris). Such a withdrawal is final.

2. A student who has withdrawn from a course and wishes to take it at a following opportunity must re-register for the course in accordance with the provisions of Article 12a.

Article 13 – Registration for written examinations

1. Registration to participate in a written examination is compulsory and is done by entering the requested data into the education registration system (Osiris) no later than 14 calendar days before the examination. Students receive examination tickets by email as confirmation of their registration.

2. Students who have not registered within the term specified in Section 1 may request registration for that examination after this term until no later than three calendar days before the examination by entering the requested data into the education registration system (Osiris). The request will be honoured providing that

places are available in the room or rooms where the examination is scheduled to take place. Students receive examination tickets by email as confirmation of their registration.

3. In the event of circumstances beyond a student's control resulting in the student being unable to register for an examination, the Board of Examiners may nevertheless permit the student to participate in the examination.

4. Students who have not registered for the examination and are therefore not included on the list of examinees can report on the day of the examination to the invigilator beginning 15 minutes before the start of the examination until the actual start. They will be admitted to the examination room, in the order that they reported to the invigilator, 30 minutes after the start of the examination, if sufficient places are available. The loss of 30 minutes of examination time cannot be compensated. Students who have been granted late access to the examination will be added to the list of examinees. The student participates in the examination subject to the validation of entitlement to participate in the examination.

5. In the situation described in the previous section, if it is found that a student was not entitled to participate in the examination, the examination work will be deemed invalid, it will not be marked and it will not count towards a result. The student may subsequently submit an appeal to the Board of Examiners, accompanied by reasons, requesting that the examination work that has been deemed invalid be declared valid and to have it assessed. The Board of Examiners will approve the request only in case of extenuating circumstances.

Article 14 – Registering for other examinations and practicals

1. Registration for participation in an examination other than a written examination and/or practicals is compulsory, and will take place in the manner and by the deadline indicated in the study guide or for additional information on the virtual learning environment (Brightspace).

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

2. Students who have not registered on time will not be allowed to participate in the examination and/or practicals. In exceptional circumstances the Board of Examiners may allow the student to participate in the examination and/or practicals.

3. In the event of unauthorised participation in an examination and/or practicals, the Board of Examiners may declare the result invalid.

Article 15 – Withdrawal from examinations

1. Students can withdraw from an examination through the education registration system (Osiris) up to three calendar days before the examination.

2. Any student who has withdrawn from an examination should re-register on a subsequent occasion, in accordance with the provisions of Articles 13 and 14.

Paragraph 5 – Examinations

Article 16 – Form of the examinations and the manner of testing in general

1. Examinations are taken in the manner (oral, written or otherwise) described in the study guide.

2. The study guide contains a description of the moments at which and the numbers of times that examinations can be taken, along with their frequency, without prejudice to the provisions of these regulations concerning written and oral examinations.

3. A student may participate in an examination for a course no more than twice in one academic year.

4. In special cases, the Board of Examiners may deviate from the provisions of the above sections in favour of the student.

5. Ultimately two weeks before a written examination, the examiner will give the students the opportunity to familiarise themselves with examples of examination questions and answers.

Article 17 – Times and number of written examinations

1. Two opportunities to take written examinations will be offered each academic year:
   1. the first opportunity is during or at the end of the teaching period in which the subject is taught,
   2. the second opportunity is during or at the end of the teaching period after the teaching period in which the subject was taught or during the resit period in the months of July and August, unless otherwise stated in the study guide.

2. A timetable of all the opportunities for sitting written examinations is drawn up on an annual basis and distributed before the start of the relevant semester.

3. If there is no indication as to the number of times a particular examination can be taken in any one academic year because it relates to a subject not taught by the programme itself, the relevant stipulations in the Teaching and Examination Regulations of the other programme will apply. The Board of Examiners reserves the right to make decisions that deviate from the norm regarding this matter.

4. Contrary to the provisions of section 1, there will be at least one chance in a year to sit examinations relating to courses not taught anymore.

Article 18 – Oral examinations

1. For oral examinations, no more than one student shall be tested at a time, unless determined otherwise by the examiner.

2. Oral examinations shall be public, except in special cases in which the Board of Examiners has decided otherwise, or if the student has filed an objection to the public nature of the examination.

3. The oral examination is administered by at least two examiners.

4. Prior to an oral examination, the examiner must ask the student to provide proof of identity.

Article 19 – Determination and announcement of results

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

2. The examiner determines the result of an oral examination immediately after it is administered and issues the student with a written statement of this result.

3. The examiner records the results of the assessment of a practical exercise as quickly as possible, but in principle no later than 15 working days after the completion of the practical exercise at the designated time. In the education registration system (Osiris), the result will be dated on the date of completion of the practical exercise. With regard to a series of practical exercises in which the knowledge acquired in a previous practical exercise is important to the subsequent practical exercise, the result of the previous practical exercise shall be announced before the subsequent practical exercise. If this is not possible, the examiner shall schedule a timely discussion of the previous practical exercise.

4. The examiner is responsible for the registration and publication of the results in the education registration system (Osiris), with observance of the student's privacy. When the result of an examination is announced, the student is informed about the right of perusal as stipulated in Article 20 as well as about the possibility of appealing to the Examinations Appeals Board.

5. Contrary to the previous provisions, results achieved in the resit period in August shall be registered and published no later than the last working day of the week following the examination week in August.

6. If special circumstances prevent the examiner from registering the results on time, the examiner will report this to the Board of Examiners, accompanied by reasons, and notify the students and student administration

as quickly as possible.

Article 20 – Right to inspect the results

1. Upon request, students will have the right to inspect their assessed work during a period of at least 20 working days after the announcement of the results of a written examination or the assessment of a practical exercise. Students intending to appeal against the assessment of their work will be issued with a copy of the assessed work.

2. During the period mentioned in section 1, all students who have participated in the examination can become acquainted with the questions and assignments of the relevant examination, as well as with the standards that form the basis of the assessment.

3. The examiner can determine that the inspection intended in sections 1 and 2 will take place at a pre-established place and at a pre-established time.

4. Students proving that they were unable to appear at such an established place and time because of circumstances outside of their control will be offered another possibility, if possible within the period mentioned in section 1. The place and times mentioned in the first sentence will be made known in good time.

Article 21 – Discussion of the results of examinations

-   Students who have taken a written examination or who have received the assessment of a practical exercise can ask the relevant examiner for a discussion of the results during a period of 20 working days after the announcement of the results. The discussion will take place within a reasonable period, at a place and time to be determined by the examiner.

-   At the request of the student or at the initiative of the examiner, a discussion justifying the assessment will take place between the examiner and the student as soon as possible after the announcement of the result of an oral examination.

3. If a collective discussion is organised by the examiner, students may submit requests as referred to in the last section only if they have been present at the collective discussion and have motivated their requests, or if they were unable to be present at the collective discussion because of circumstances outside their control.

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

Article 22 – Period of validity of examinations

1. The period of validity of the results of an examination is indefinite. The dean can restrict the period of validity of a successfully completed examination only if the knowledge or insight that was examined has become outdated or if the skills that were examined have become outdated.

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

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

4. The provisions of section 1 likewise apply to component examinations, unless the validity of the component examination is linked to a time period stated in the study guide.

Article 23 – Exemption from an examination or obligation to participate in a practical exercise

1. After having obtained recommendations from the relevant examiner, the Board of Examiners may grant exemptions to students:
    a. who have successfully completed an examination or degree audit in a system of higher education within or outside the Netherlands that corresponds to the examination for which the exemption has been requested in terms of content and level, or

b. who demonstrate that they possess sufficient knowledge and skills that have been acquired outside the system of higher education.

2. After having obtained recommendations from the relevant examiner, the Board of Examiners may grant exemption from the requirement to participate in a practical exercise with a view to admission to the related examination, possibly subject to alternative requirements.

Article 24a – Periods and frequency of degree audits

In principle, the opportunity to take the Master degree audit will be offered once each month. The dates for the meetings of the Board of Examiners shall be published before the beginning of the academic year.

Article 24b – invalidation of examinations

The Board of Examiners is authorised to declare invalid an examination or an examination component, if a correct assessment of the knowledge, insight and skills of the student has been proved reasonably impossible, based on the examination or that component. The Board of Examiners may draw up further rules for this.

Paragraph 6 - Studying with a disability

Article 25 – Adjustments to the benefit of students with disabilities or chronic illnesses

1. Upon a written and substantiated request to that effect, students with disabilities or chronic illnesses may be eligible for adjustments in teaching and examinations. These adjustments are coordinated to the situations of the students as much as possible, but they may not alter the quality or level of difficulty of a subject or the study programme. Facilities to be provided may include modifications to the form or duration of examinations and/or practical exercises to suit individual situations or the provision of practical aids.

2. Requests as mentioned in section 1 must be accompanied by a recent statement from a physician or psychologist or, in cases involving dyslexia, from a testing office registered with BIG, NIP or NVO. If possible, this statement should include an estimate of the extent to which the condition is impeding the student's academic progress.

3. Decisions concerning requests for adjustments relating to educational facilities are taken by the dean or by the Director of Studies on the dean's behalf. Decisions concerning adjustments relating to examinations are taken by the Board of Examiners.

4. Adjustments to examinations can involve the following or other matters:
   - form (e.g. replacing a written test with an oral test or vice versa, testing the required material in the form of interim examinations or granting exemptions to the attendance requirement);
   - timing (e.g. additional time for an examination, or a change to the distribution of examinations across the examination period, granting exemptions to admission requirements or extending the period within which a component must be completed);
   - aids permitted during testing (e.g. English-Dutch dictionaries for students with dyslexia);
   - location (taking the examination in a separate, low-stimulus space).

5. Adjustments in educational facilities could include:
   1. providing modified furniture in teaching and examination spaces;
   2. providing special equipment (e.g. magnification or Braille equipment for students with visual impairments and blindness or loop systems and individual equipment for students with hearing impairments and deafness);
   3. providing more accessible course material;
   4. providing special computer facilities (e.g. speech-recognition or speech-synthesising software);
   5. providing a rest area.

Paragraph 7 – Study support and (binding) recommendation on the continuation of studies

Article 26 – Study support and Monitoring of student progress

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

2. The examination and study programme applying to each student is documented in the education registration system (Osiris).

3. The Student Administration is responsible for ensuring that all students are able to review and check their results in the education registration system (Osiris).

Article 27 – Not applicable.

Paragraph 8 - Final provisions

Article 28 – Conflicts with the regulations

In the case of conflict between provisions in the study guide or other document concerning the relevant teaching and examination education and study programme and these regulations, the provisions of these regulations shall take precedence.

Article 29 – Amendments to the regulations

1. Amendments to these regulations are adopted separately by the dean.

2. Amendments that are applicable to the current academic year will be made only if they would not reasonably damage the interests of students.

3. Amendments to these regulations may not lead to disadvantageous changes to any decisions that have been made with regard to individual students.

Article 30 – Transitional regulations

2. If the composition of the degree programme undergoes substantive changes, transitional measures will be established and published through the dean.
   Transitional measures can be found in the TER of the cohort involved.

2. These transitional measures shall include at least the following:
   a. an arrangement regarding exemptions that may be obtained based on examinations that have already been passed;
   b. the period during which the transitional arrangement shall be valid.

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

4. If a subject within a degree programme is cancelled, four opportunities for taking the examination in this subject shall be offered after it has been taught for the last time: the examination at the end of the teaching of the subject, a resit in the same academic year and two resits in the following academic year.

Article 31 – Announcement

1. The dean is responsible for ensuring a suitable announcement of these regulations and any amendments to them.

2. In any case, the Teaching and Examination Regulations are to be posted on the programme's website.

Article 32 – Entry into force

These Regulations shall enter into force on 1 September 2019.

Adopted by the dean of the faculty CiTG on 27 June 2019.

ANNEX to Article 3 of the TER

Language level for individuals holding a higher professional education degree (c)

The English language, through the successful completion of one of the following tests:
- A TOEFL iBT (Test of English as a Foreign Language internet-Based Test) with an overall band score of at least 90 or
- an IELTS (academic version) with an overall Band score of at least 6.5 or
- a proof of completion of the 'Certificate of Proficiency in English' (CPE) or the 'Certificate in Advanced English' (CAE), both of the University of Cambridge. Only the following certificates are accepted:
    - C1 Advanced (Certificate of Advanced English) with an overall minimum score of 176.
    - C2 Proficiency (Certificate of Proficiency in English) with an overall minimum score of 180.
  Certificates that are older than two years on the day you have uploaded the document and completed your application are not accepted.

Certificates must have been completed successfully before the start of the bridging programme.

The following candidates shall be exempted from the requirement to pass an English language test:
- Nationals from the USA, UK, Ireland, Australia, New Zealand or Canada
- Applicants with a Dutch Pre-university (VWO) certificate
- Applicants who have obtained a higher professional education degree in the USA, U.K., Ireland, Australia, New Zealand and Canada.

Language level for individuals holding a foreign degree (d)

The English language, through the successful completion of one of the following tests:
- A TOEFL iBT (Test of English as a Foreign Language internet-Based Test) with an overall band score of at least 90 and a minimum score of 21 for each section, or
- an IELTS (academic version) with an overall Band score of at least 6.5 and a minimum score of 6.0 for each section, or
- a proof of completion of the 'Certificate of Proficiency in English' (CPE) or the 'Certificate in Advanced English' (CAE), both of the University of Cambridge. Only the following certificates are accepted:
    - C1 Advanced (Certificate of Advanced English) with an overall score of 176 and a minimum of 169 for each section.
    - C2 Proficiency (Certificate of Proficiency in English) with an overall score of 180 and a minimum of 169 for each section

Certificates older than two years on the day you have uploaded the document and completed your application are not accepted.

The following candidates shall be exempted from the requirement to pass an English language test:
- Nationals from the USA, UK, Ireland, Australia, New Zealand or Canada.
- Applicants who have obtained a Bachelor's degree in one of the countries mentioned.

ANNEX

2019-2020

INTERFACULTY MASTER DEGREE PROGRAMME TRANSPORT, INFRASTRUCTURE and LOGISTICS

Table of contents

Chapter 1 – Compiling the study programme

Article 1 – The study load

The study load for the master's degree programme is 120 credits, excluding subjects or equivalent subjects students completed as part of their bachelor's degree programme.

Article 2 – The composition

1. The examination programme of 120 credits comprises the following components:
   Courses, 75 credits
   a. Fundamentals, 23 credits as laid down in Article 3
   b. Specialisations, 27 credits as laid down in Article 4
   c. Electives, 25 credits as laid down in Article 5
   Projects and thesis, 45 credits
   d. Projects, 15 credits as laid down in Article 6
   e. Thesis, 30 credits as laid down in Article 7

2. The student may opt for the following annotation programmes of 15 credits:
   - Technology in Sustainable Development, as laid down in Article 8
   - Entrepreneurship, as laid down in Article 9
   - Infrastructure and Environment, as laid down in Article 10
   - Integral Design and Management, as laid down in article 11
   - Railway Systems, as laid down in article 12
   Apart from the programmes of 15 credits, there are additional requirements.
   Parts of the annotation programme may become extracurricular.

3. The student may be eligible for a special programme of 20 credits on top of the master's degree programme:
   - Honours Programme Master, an individual programme as laid down in Article 13
   - Honours Programme Master Infrastructures and Environment, as laid down in Article 13, section 7.

4. As soon as possible, but at the latest before starting with the thesis as stipulated in Article 7, the student must draw up his entire examination programme and present it to the board of examiners for approval after consultation with the programme coordinator.

Article 3 – Fundamentals

1. The examination programme includes a set of basic compulsory subjects, the so-called fundamentals, amounting to 23 credits in total.

2. The compulsory subjects mentioned in section 1 are:

code	subject	credits
CIE4801-18	Transport modelling	6
ME44206	Quantitative methods for logistics	5
SEN1221	Statistical analysis of choice behaviour	5
TIL4030-16	TIL research and design methods	7

Article 4 – Specialisations

1. The examination programme includes one subject specialisation, amounting to 27 credits in total. The student chooses one out of four subject specialisations available in the degree programme. The subject specialisations are specified in section 2.

2. The degree programme comprises four subject specialisations. Within a subject specialisation all subjects are compulsory. These subject specialisations are:

- Specialisation P – Policy: infrastructure, planning and environment, as laid down under 3
- Specialisation D – Design: transport systems and networks, as laid down under 4
- Specialisation O – Operations: traffic, technology and control, as laid down under 5
- Specialisation E – Engineering: transport, logistics and supply chains, as laid down under 6.

3. *Specialisation P – Policy: infrastructure, planning and environment*

In this subject specialisation all subjects, amounting to 27 credits in total, are compulsory. The composition of this subject specialisation is as given below.

code	subject	credits
AR0093	Infrastructure and environment method module	3
AR0191	Urban sustainability	3
AR0551	People, movement and public space	3
CIE5816	Urban regions, transport and economics	4
CIE5817	Assessment of transport infrastructure and systems	4
SEN171A	Advanced evaluation methods for transport decision-making	5
SEN1741	Innovations in transport and logistics	5

4. *Specialisation D – Design: transport systems and networks*

In this subject specialisation all subjects, amounting to 27 credits in total, are compulsory. The composition of this subject specialisation is as given below.

code	subject	credits
AE4423-19	Airline planning & optimization	3
AE4446	Airport operations	4
CIE4811-18	Planning and operations of public transport systems	6
CIE5802-18	Advanced transportation modelling	4
CIE5826	Railway operations and control	4
SEN1721	Travel behaviour research	5
TIL6015	TIL programming assignment	1

5. *Specialisation O – Operations: traffic, technology and control*

In this subject specialisation all subjects, amounting to 27 credits in total, are compulsory. The composition of this subject specialisation is as given below.

code	subject	credits
CIE4825	Traffic flow modelling and control part 1	6
CIE5805-18	Intelligent vehicles for safe and efficient traffic: design and assessment	4
CIE5821	Traffic flow modelling and control part 2	4
ME41000	Automated driving human factors	3
ME44305	System analysis and simulation	5
SEN9110	Simulation master class	5

6. *Specialisation E – Engineering: transport, logistics and supply chains*

In this subject specialisation all subjects, amounting to 27 credits in total, are compulsory. The composition of this subject specialisation is as given below.

code	subject	credits
CIE5830	Freight transportation systems: analysis and modelling	5
ME44101	Dynamics of material and equipment interaction	4
ME44300	Multi-machine coordination for logistics	3
ME44311	Advanced Operations and Production Management	5
SEN9710	Decision making in multimodal transport systems	5
SEN9720	Logistics and supply chain innovations	5

Article 5 – Electives

1. The examination programme includes elective subjects, amounting to 25 credits in total. The student chooses elective subjects from several lists of elective subjects available in the degree programme. The elective lists are specified under 2.

2. The degree programme comprises several lists of elective subjects. From every list of elective subjects at least one subject must be chosen. These lists of elective subjects are:
   - Electives T&P – Transport and Planning, at least 1 subject, as laid down under 3
   - Electives T&L – Transport and Logistics, at least 1 subject, as laid down under 4
   - Electives TEL – Transport Engineering and Logistics, at least 1 subject, as laid down under 5
   - External electives, at least 1 subject, as laid down under 6

3. *Electives T&P – Transport and Planning*

   At least one subject, not already taken as part of the chosen subject specialisation as stipulated in Article 4, must be chosen from the elective subject list as given below.

code	subject	credits
CIE4811-18	Planning and operations of public transport systems	6
CIE4825	Traffic flow modelling and control part 1	6
CIE4831-18	Empirical analysis for transport and planning	6
CIE4845	Emerging topics for transport & planning	4
CIE5802-18	Advanced transport modelling	4
CIE5803-18	Railway traffic management	4
CIE5805-18	Intelligent vehicles for safe and efficient traffic: design and assessment	4
CIE5810-19	Traffic safety	4
CIE5815	Resilient transport systems	4
CIE5816	Urban regions, transport and economics	4
CIE5817	Assessment of transport infrastructure and systems	4
CIE5821	Traffic flow modelling and control part 2	4
CIE5822	Active modes: traffic and transport	4
CIE5825	Advanced public transport modelling and operations	4
CIE5826	Railway operations and control	4
CIE5830	Freight transportation systems: analysis and modelling	5

4. *Electives T&L – Transport and Logistics*

   At least one subject, not already taken as part of the chosen subject specialisation as stipulated in Article 4, must be chosen from the elective subject list as given below.

code	subject	credits
SEN1131	Institutional economics for designing in socio-technical systems	3
SEN1151	Law and institutions	5
SEN171A	Advanced evaluation methods for transport decision-making	5
SEN1721	Travel behaviour research	5
SEN1741	Innovations in transport and logistics	5
SEN9110	Simulation master class	5
SEN9710	Decision making in multimodal transport systems	5
SEN9720	Logistics and supply chain innovations	5
SEN9725	Supply chain gaming	5
TPM004a	Transport safety	4

5. *Electives TEL – Transport Engineering and Logistics*

   At least one subject, not already taken as part of the chosen subject specialisation as stipulated in Article 4, must be chosen from the elective subject list as given below.

code	subject	credits
ME44101	Dynamics of material and equipment interaction	4
ME44105	Structural design with FEM	4
ME44110	Integration project large-scale equipment	5
ME44115	Discrete element method (DEM) simulation	4
ME44125	Reliability and maintenance of transport equipment	3
ME44200	Operations and maintenance	3
ME44210	Drive and energy systems	3
ME44300	Multi-machine coordination for logistics	3
ME44305	System analysis and simulation	5
ME44311	Advanced operations and production management	5

6. *External electives*

At least one subject, not already taken as part of the chosen subject specialisation as stipulated in Article 4, must be chosen from the external elective subject lists. The student can make a choice of subjects from several external elective lists. These lists of external electives are:
1.   Electives C&O – Control & Operations, as laid down under a
2.   Electives U – Urbanism, as laid down under b
3.   Electives TIL – Other TIL fields, as laid down under c.

a.   *Electives C&O – Control and Operations*

code	subject	credits
AE4321-15	Air traffic management	4
AE4423-19	Airline planning & optimization	3
AE4427	Airline scheduling exercise	2
AE4446	Airport operations	4

b.   *Electives U – Urbanism*

code	subject	credits
AR0093	Infrastructure and environment method module	3
AR0191	Urban sustainability	3
AR0551	People, movement and public space	3
AR3CS010	Workshop cross domain city of the future	3
AR3CS020	Seminar cross domain city of the future	6
AR8003TU	Legal and governance	5

c.   *Electives TIL – Other TIL fields*

code	subject	credits
CIE4330	Ports and waterways 1	4
CIE5306	Ports and waterways 2	4
ME41000	Automotive Human Factors	3
ME41105	Intelligent vehicles	4
MT44070	Shipping Management	5
WI4138	Decision theory / Expert judgement	6
WI4052	Risk analysis	6
WM1301TU	Ethics of transportation	3

7. *Free electives*

If the elective subjects selected according to section 2 from the lists under 3 to 6 add up to an amount of credits that is smaller than 26, the student is required to select additional elective subjects. The student can make a choice from the free elective subjects, as mentioned below.

a. As free elective subjects the student may choose:
-    Subject from the list as given below:

code	subject	credits
TIL6010	TIL programming / matlab	2
TIL6015	TIL programming assignment	1
TIL6020	TIL scientific assignment	7

-    subjects that are part of an annotation and explicitly mentioned in Articles 8 to 12
-    all subjects offered at master level at Delft University of Technology
-    all subjects offered at master level at another Dutch university.

b.   As free elective subjects the student may not choose:
-    all subjects that have significant overlap with any other subject in the examination programme
-    subjects focusing on the development of skills *
-    language courses *
-    Massive Open Online Courses * (MOOCs).
-    *skills related, language courses and Massive Open Online Courses may, however, be chosen as extra courses. In that case they will be considered extracurricular.*

c. The student can get approval for his free electives by presenting his examination programme to the board of examiners as stipulated in Article 2, section 4. The approval is only valid on the condition that the selected free elective subjects meet the criteria as mentioned under a and b.

8. All elective subjects that are not part of the elective lists as stated in sections 3 to 6, but that were part of an elective subject list in the annex (Implementation Rules) 2018-2019 or earlier or that will be part of an elective subject list in the annex (Implementation Rules) 2020-2021 or its replacement or later are in the examination programme considered as free elective subjects as stipulated in section 7.

Article 6 – Projects

1. The examination programme includes a set of compulsory projects, amounting to 15 credits in total.

2. The compulsory projects mentioned in section 1 are:

code	subject	credits
TIL4020-20	TIL research project	5
TIL5050-20	TIL design project	10

3. The student is allowed to start the projects mentioned in section 2 only, once he has successfully completed the subject as given below:

code	subject	credits
TIL4030-16	TIL research and design methods	7

4. The student is allowed to start the second project mentioned in section 2 only, once he has successfully completed subjects amounting to a total of at least 45 credits four weeks before the first day of the educational period in which the project will commence.

5. Further stipulations regarding to projects are given in the study guide.

Article 7 – Thesis

1. The final subject included in the examination programme is a master thesis:

code	subject	credits
TIL5060	TIL thesis	30

2. For supervision and assessment of the master thesis an assessment committee will be established.

3. The student is allowed to start the thesis project mentioned in section 1, once:
   - all the obligations mentioned in Articles 3, 6 and 16 have been met;
   - all the obligations mentioned in Articles 4 and 5 have been met, with the understanding that a total of not more than 10 credits may not have been completed yet.

4. If the student does not meet the criteria as indicated in section 3, the chairperson of the assessment committee as indicated in section 2 may give exceptional access to the project mentioned in section 1.
   If parties fail to reach agreement, the board of examiners decides.

5. The content of the thesis has a relationship to the fields of at least two of the faculties involved in the programme: the faculty of Civil Engineering and Geosciences, the faculty of Technology, Policy and Management and the faculty of Mechanical, Maritime and Materials Engineering. This is reflected in the composition of the assessment committee for the thesis project.

6 The assessment committee will consist of at least three members: a chair who is a (full) professor and two daily supervisors. The members of the assessment committee will originate from at least two of the faculties mentioned in paragraph 5.

7. Before embarking on the thesis project the student must present the composition of the assessment committee for approval to the board of examiners.

8. Any changes made to the composition of the approved assessment committee should be presented to the board of examiners.

9. The project is subject to a strict planning and timetable; specific dates and deadlines need to be set for the kick off, midterm and green light evaluations as well as for the final assessment and presentation of the project.

10. The graduation work consists of a thesis project, a thesis report and a thesis presentation. The thesis report includes a scientific paper.

11. The assessment committee motivates the outcome of the assessment.

12. After the student has received the assessment committee's approval as mentioned in article 24 section 1a of the Rules and Guidelines of the Board of Examiners, the student must arrange a presentation date.

13. Each time the assessment committee evaluates matters, the student must compile an official report and post or email it to the assessment committee for approval. If after a week no reaction has been received, the student can assume that the agreements detailed in the report have been accepted.

14. At least two members of the assessment committee, but preferable all members, one of whom must be the chairperson, ought to be present at the time of the presentation.
Should a member of the examination committee unexpectedly not be able to be present at the time of assessment should react in writing, possibly by email, to the material received from the student beforehand. The reaction has to be addressed to the chairperson.

15. The chairperson is responsible for the final grade but the assessment committee as a whole deliberates the outcome of the assessment, eventually after consultation with external advisors. The student will not be notified of the procedure that led to the determination of the final mark.

16. The assessment committee in conjunction with the coordinator, is responsible for ensuring that the relevant Teaching and Examination Regulations and the Rules and Guidelines laid down by the Board of Examiners are adhered to, in particular whether the commencement stipulations are observed, the subsequent procedures are followed, and the Master Thesis Project is assessed according to uniform norms.

17. The programme must keep a record of how long the student has worked on the Master Thesis Project. If this has not been completed within a year, then the coordinator will ask the student and the assessment committee's chairperson why that is so. If the student subsequently does not progress fast enough, the coordinator will notify the Board of Examiners.

18. Further stipulations regarding the final thesis are included in the Rules and Guidelines as laid down by the board of examiners.

Chapter 2 – Annotations and Honours Programme

Article 8 – The Technology in Sustainable Development annotation

1. The examination programme for students who have opted for the annotation Technology in Sustainable Development must at least include the following:

   a.   A sustainable development colloquium:

code	subject	credits
WM0939TU	Engineering for sustainable development	5

   4.   Subjects within or outside the realm of the degree programme adding up to a total of at least 10 credits to be selected from the two clusters:
   -    design, analysis and tools
   -    organisation and society.
   At least 3 credits should derive from each of both clusters.
   Further information on the subjects to be selected and on the clusters is available from the programme coordinator, from the manual and from website of Delft University of Technology.

5. A thesis carrying 30 credits in line with what is stipulated in Article 7. The thesis must focus on the topic of sustainable development. The Sustainable Development (SD) referent of the degree programme will test the hypothesis of the thesis project and the way in which it has been tackled against the extent to which sustainable development issues have been integrated into the project.

2. For obtaining the annotation within the examination programme of 120 credits the student may use the free elective space, mentioned in Article 5, under 7, to accommodate the annotation subjects mentioned under 1 under a and b. However, if the amount of credits in the free elective space, mentioned in Article 5, under 7, is not sufficient to accommodate the annotation subjects mentioned under 1 a and b that are not already part of the components of the degree programme mentioned in the Articles 3 and 4 and in Article 5, under 3 to 6, the surplus of credits of the annotation subjects will be extracurricular.

3. The examination programme for the Technology in Sustainable Development annotation needs prior approval by the Sustainable Development (SD) referent of the degree programme and the board of examiners.

4. Students who complete the annotation successfully, receive an annotation Technology in Sustainable Development with their degree certificate.

Article 9 – The Entrepreneurship annotation

1. The examination programme for students who have opted for the annotation Entrepreneurship must at least include the following:

   a. Subjects related to entrepreneurship adding up to at least 15 credits.

   b. Graduation work carrying 30 credits in line with what is stipulated in Article 7, partly focusing on the topic of entrepreneurship.

2. For obtaining the annotation within the examination programme of 120 credits the student may use the free elective space, mentioned in Article 5, under 7, to accommodate the annotation subjects mentioned in under 1 a and b. However, if the amount of credits in the free elective space, mentioned in Article 5, under 7, is not sufficient to accommodate the annotation subjects mentioned under 1 a and b that are not already part of the components of the degree programme mentioned in the Articles 3 and 4 and in Article 5, under 3 to 6, the surplus of credits of the annotation subjects will be extracurricular.

3. The examination programme for the Entrepreneurship annotation needs prior approval by a coordinator of Delft Centre for Entrepreneurship and the board of examiners.

4. Students who complete the annotation successfully, receive an annotation Entrepreneurship with their degree certificate.

Article 10 – The Infrastructure and Environment Design annotation

1. The examination programme for students who have opted for the annotation Infrastructure and Environment Design must at least include the following:

   a. The Infrastructure and Environment Design annotation course, a choice of one subject out of:

code	subject	credits
AR0086	Infrastructure and environment design	12
AR0093	Infrastructure and environment method module	3

   b. Subjects together with the subject chosen in subsection a adding up to at least 15 credits relating to one or more of the following fields:
   - water
   - transport
   - spatial development

   c. A thesis carrying 30 credits in line with what is stipulated in Article 7, partly focusing on the topic of at least one of the under b mentioned fields.

2. For obtaining the annotation within the examination programme of 120 credits the student may use the free elective space, mentioned in Article 5, section 7, to accommodate the annotation subjects mentioned in section 1 under a and b. However, if the amount of credits in the free elective space, mentioned in Article 5, section 7, is not sufficient to accommodate the annotation subjects mentioned in section 1 under a and b that are not already part of the components of the degree programme mentioned in the Articles 3 and 4 and in Article 5, sections 3 to 6, the surplus of credits of the annotation subjects will be extracurricular.

3. The examination programme for the Infrastructure and Environment Design annotation needs prior approval by the annotation coordinator and the board of examiners.

4. Students who complete the annotation successfully, receive an annotation Infrastructure and Environment Design with their degree certificate.

Article 11 – The Integral Design and Management annotation

1. The examination programme for students who have opted for the annotation Integral Design and Management must at least include the following:

   a.   Subjects adding up to a total of 8 credits:

code	subject	credits
CIE4120	Information systems for the construction industry	4
CIE4381	Engineering asset management	4

   b.   Subjects from the list below adding up to a total of at least 7 credits:

code	subject	credits
CIE4100	Materials and ecological engineering	4
CIE4130	Probabilistic design and risk management	4
CIE4170	Construction technology for civil engineering projects	4
CIE4391	Quantitative asset modelling	4
CIE4395	Risk and variability in geo-engineering	4
CIE4491	Urban drainage and water management	4
CIE5830	Freight transport systems: analysis and modelling	5
CIE5981	Forms of Collaboration in Civil Engineering	4
CME2210	Open design & construction management	4

   c.   A project carrying at least 7 credits as mentioned in Article 5, section 7 or Article 6.
   The project must focus on the topic of integral design management. The annotation coordinator will test the hypothesis of the project and the way in which it has been tackled against the extent to which integral design management issues have been integrated into the project.

   d.   A thesis carrying 30 credits in line with what is stipulated in Article 7, partly focusing on the topic of integral design management. The annotation coordinator will test the hypothesis of the project and the way in which it has been tackled against the extent to which integral design management issues have been integrated into the project.

2. For obtaining the annotation within the examination programme of 120 credits the student may use the free elective space, mentioned in Article 5, section 7, to accommodate the annotation subjects mentioned in section 1 under a and b. However, if the amount of credits in the free elective space, mentioned in Article 5, section 7, is not sufficient to accommodate the annotation subjects mentioned in section 1 under a and b that are not already part of the components of the degree programme mentioned in the Articles 3 and 4 and in Article 5, sections 3 to 6, the surplus of credits of the annotation subjects will be extracurricular.

3. The examination programme for the Integral Design and Management annotation needs prior approval by the board of examiners.

4. Students who complete the annotation successfully, receive an annotation Integral Design Management with their degree certificate.

Article 12 – The Railway Systems annotation

1. The examination programme for students who have opted for the annotation Rail must at least include the following:

   a. Compulsory subjects adding up to a total of 8 credits:

code	subject	credits
CIE4874	Elements of railway engineering	4
CIE5826	Railway operations and control	4

   b. Elective subjects from the list below adding up to a total of at least 7 credits:

code	subject	credits
CIE4811-18	Planning and operations of public transport systems	6
CIE4870	Structural design of railway track	4
CIE4871	Design and maintenance of railway vehicles	4
CIE4873	Wheel-rail interface	4
CIE5803-18	Railway traffic management	4
CIE5871	Capita selecta railway and road structures	4
CIE5874	Life-cycle performance by design of railway assets	4
CIE5875	Railway asset management	4
TPM004a	Transport safety	4

   c. A project carrying at least 7 credits as mentioned in Article 5, section 7 or Article 6.
   The project must focus on at the topics of railways operation and/or railway engineering. The annotation coordinator will test the hypothesis of the project and the way in which it has been tackled against the extent to which railways operation and/or railway engineering issues have been integrated into the project.
   As an alternative for this project requirement, the student may opt for choosing additional subjects from the list mentioned under b, adding up to at least 7 credits extra. In this case subjects chosen from the list mentioned under b, add up to at least 14 credits in total.

   d. A thesis carrying 30 credits in line with what is stipulated in Article 7, partly focusing on the topics of railway operations and/or railway engineering. The annotation coordinator will test the hypothesis of the project and the way in which it has been tackled against the extent to which railway operations and/or railway engineering issues have been integrated into the project.

2. For obtaining the annotation within the examination programme of 120 credits the student may use the free elective space, mentioned in Article 5, section 7, to accommodate the annotation subjects mentioned in section 1 under a and b. However, if the amount of credits in the free elective space, mentioned in Article 5, section 7, is not sufficient to accommodate the annotation subjects mentioned in section 1 under a and b that are not already part of the components of the degree programme mentioned in the Articles 3 and 4 and in Article 5, sections 3 to 6, the surplus of credits of the annotation subjects will be extracurricular.

3. The examination programme for the Rail annotation needs prior approval by the board of examiners.

4. Students who complete the annotation successfully, receive an annotation Rail with their degree certificate.

Article 13 – The Honours Programme Master

1. Motivated students who have finished their bachelor's degree programme with a weighted averaged mark of 7.5 or higher, and students who have excelled during the first semester (no fails and a weighted average of 7.5 or higher) are eligible for a special individual programme of 20 credits on top of the master's degree programme: the Honours Programme Master.

2. The Honours Programme Master has to be completed during the student's master's degree programme.

3. The content of the Honours Programme Master should be thematically consistent.

4. One subject is compulsory for all Delft University of Technology Honours Programme Master students:

code	subject	credits
UD2010	Critical reflection on technology	5

5. One subject is compulsory specific for the degree programme's Honours Programme Master students:

code	subject	credits
TIL6020	TIL scientific assignment	7

6. The student chooses, taking section 3 into account, the remaining subjects, amounting to 8 credits in total, unless he participates in the Honours Programme Master Infrastructures and Environment as specified in section 7.

Chapter 3 – Bridging and other deficiency programmes

Article 14 – Bridging programme for students with a Dutch higher vocational bachelor's degree

1. Students with a relevant Dutch higher vocational institute bachelor's degree have to complete a bridging pre-master programme before they will be admitted to the master's degree programme.

2. The bridging programme as referred to section 1, comprises the following deficiency subjects amounting to 31 credits in total:

code	subject	credits
CTB1420-17	Transport & planning	5
TB111b	Probleemanalyse	5
WI1708TH1	Analyse 1	3
WI1708TH2	Analyse 2	3
WI1708TH3	Analyse 3	3
WI1807TH1	Lineaire algebra 1	3
WI1807TH2	Lineaire algebra 2	3
WI1909TH	Differentiaalvergelijkingen	3
WI2031TH	Kansrekening en statistiek voor hbo-instromers	3

Article 15 – Bridging minor programme for students with a Dutch university bachelor's degree

1. Students with a relevant bachelor of science degree of a Dutch university that does not standard give direct admission to the master's degree programme may be eligible for a special bridging minor programme. Degrees qualifying for the transitional minor programme are mentioned in the Teaching and Examination Regulations in Article 3, section 1b.

2. Students eligible for the bridging minor programme mentioned section 1 have to complete this programme before they will be admitted to the master's degree programme.

3. Students admitted to the bridging minor programme mentioned section 1 must include the subjects of this minor programme in their bachelor's degree programme, amounting to 30 credits in total:

code	programme	credits
CT-Mi-184	Schakelminor transport, infrastructuur en logistiek voor BK en IO	30

4. The subjects as mentioned section 3 can be obtained within the in the bachelor's degree programme of 180 credits if the student includes them as chosen minor programme.

Article 16 – Convergence programme for students with a Dutch university bachelor's degree

1. Students with a relevant bachelor of science degree of a Dutch university that does not give direct admission to the master's degree programme may be eligible for a special deficiency programme of convergence subjects. Degrees qualifying for the deficiency programme are mentioned in the Teaching and Examination Regulations in Article 3, section 1b.

2. Students admitted to the deficiency programme mentioned section 1 must include convergence subjects in their master's degree programme, amounting to 9 credits in total.
The student is required to select one subject from each of the three lists as given below:

Analyse, 1 subject

code	subject		credits
CTB1001-16 Toets 1	Analyse	analyse module 1	3
WBMT1050 Toets 1	wiskunde 1	analyse 1 – deeltentamen	3
WI1708TH1	analyse 1		3

Lineaire algebra, 1 subject

code	subject		credits
CTB1002 Toets 1	Lineaire algebra toets 1		3
WBMT1051 Toets 1	Wiskunde 2	lineaire algebra 1 – deeltentamen	3
WI1807TH1	Lineaire algebra 1		3

Kansrekening en statistiek, 1 subject

code	subject		credits
CTB2200	Kansrekening en statistiek		3
WBMT2049 Toets 1	Wiskunde 4	kansrekening en statistiek – deeltentamen	3
WI2031TH	Kansrekening en statistiek voor hbo-instromers		3

3. The convergence subjects as mentioned section 2 can be obtained within the examination programme of 120 credits if the student includes them as free elective subjects, mentioned in Article 5, section 7.

4. Students admitted to the deficiency programme mentioned section 1 have to comply with additional admission rules. These rules are given below.

   a. The student must have successfully completed his chosen subjects 'Analyse' and 'Lineaire algebra', as mentioned in section 2, before he gets permission to take:

code	subject	credits
CIE4801-18	Transport modelling	6

   b. The student must have successfully completed his chosen subject 'Kansrekening en statistiek', as mentioned in section 2, before he gets permission to take:

code	subject	credits
SEN1221	Statistical analysis of choice behaviour	5

5. The student may request the board of examiners to be exempted from the obligation to include in his examination programme a subject mentioned in section 4 when he has successfully completed an equivalent subject in his Bachelor's degree programme.

Chapter 4 – Deviate from examination programme

Article 17 – The free study programme

1. Students are free to compile examination programmes that are rounded off with a final degree audit. Such a programme needs prior approval by the board of examiners and must consist entirely or mainly of subjects given in conjunction with the degree programme but it can be complemented with other subjects.

2. The preliminary approval referred to section 1 must be presented to the board of examiners by the student in the form of a justified request.

Article 18 – Deviate from the examination programme

The board of examiners may allow students to deviate from the examination programme.

Chapter 5 – Transitional rules

Article 19 – Transitional rules as of 1 September 2019

1. A number of subjects belonging to the programme 2018-2019 are no longer available in their original form from the academic year 2019-2020.

2. Subjects from the programme 2018-2019 or earlier programmes that were available in the academic year 2018-2019, that are no longer available in the academic year 2019-2020 and that are replaced by other subjects are:

Subject available in academic year 2018-2019			Replacement subject in programme 2019-2020		
code	subject	credits	code	subject	credits
AE4424	Network scheduling	3	AE4427	Airline scheduling exercise	2
AR8002TU	Legal and governance	7	AR8003TU	Legal and governance	5
ME44205	Quantitative methods for logistics	5	ME44206	Quantitative methods for logistics	5
ME44100	Dynamics of material and equipment interaction	3	ME44101	Dynamics of material and equipment interaction	4
ME44310	Advanced operations and production management	6	ME44311	Advanced operations and production management	5

3. Subjects from the programme 2018-2019 or earlier programmes that were available in the academic year 2018-2019, that are no longer available in the academic year 2019-2020 and that are replaced by a group of subjects are:

Subject in programme 2018-2019			Replacement group of subjects in 2019-2020		
code	subject	credits	code	subject	credits
AE4423	Airline planning and optimization	4	TIL6015	TIL programming assignment	1
			AE4423-19	Airline planning and optimization	3

4. Subjects from the programme 2018-2019 that are renamed only, are:

Subject in programme 2018-2019			Renamed subject in programme 2019-2020		
code	subject	credits	code	subject	credits
ME41000	Automotive human factors	3	ME41000	Automated driving human factors	3
ME44110	Design of transport equipment	5	ME44110	Integration project multi-machine systems	5
ME44125	Structural integrity assessment for transport equipment	3	ME44125	Reliability and maintenance of transport equipment	3
ME44200	Intelligent control for transport technology	3	ME44200	Operations and maintenance	3
ME44300	Coordination for real-time logistics	3	ME44300	Multi-machine coordination for logistics	3
SEN9710	Multi-modal freight transport policy	5	SEN9710	Decision making in multi-modal transport systems	5

5. Subjects from the programme 2018-2019 that are recoded only, are:

Subject in programme 2018-2019			Recoded subject in programme 2019-2020		
code	subject	credits	code	subject	credits
CIE5810-18	Traffic safety	4	CIE5810-19	Traffic safety	4

6. Subjects from the programme 2018-2019 that are not replaced in the degree programme and that are not allowed in the degree programme are:

code	subject	credits
CIE4835	Transport engineering and optimisation	4
ME44000	Introduction transport engineering and logistics	3
TIL4010-16	TIL seminars	

7. Subjects from the programme 2018-2019 that are not replaced in the degree programme are:

AE4454-16	Life cycle analysis and production	3
AE4465	Maintenance modelling & analysis	3
AE4468	Airline maintenance operations	3

8. The examination programme must in any case encompass at least 120 credits. Any inconsistencies arising as a result of transitional measures will be compensated for with free elective subjects as mentioned in Article 5, under 7.

Article 20 – Transitional rules as of 1 September 2020

1. Subjects from the programme 2018-2019 or earlier programmes that are available in the academic year 2019-2020, that will no longer available in the academic year 2020-2021 and that are replaced by other subjects are:

Subject available in academic year 2019-2019				Replacement subject in programme 2019-2020		
code	subject	credits	code	subject		credits
TIL4020-16	TIL research project	3	TIL4020-20	TIL research project		5
TIL5050-12	TIL design project	7	TIL5050-20	TIL design project		10

2. Subjects from the programme 2018-2019 that are available in the academic year 2019-2020, but that are no longer available from the academic year 2020-2021, are:

code	subject	credits
SEN9715	Designing transport policies	5

3. The examination programme must in any case encompass at least 120 credits. Any inconsistencies arising as a result of transitional measures will be compensated for with free elective subjects as mentioned in Article 5, under 7.

Chapter 6 – Final provision

Article 21 – When the rules do not provide

Insofar as these Implementations Regulations do not provide for specific circumstances, the board of examiners will make a decision that is in line with the Annex (Implementation Regulations) to every extent possible and the board of examiners will also take Article 6 of the Rules & Guidelines into account.