

# **TEACHING AND EXAMINATION REGULATIONS (TER)**

**2020-2021**

in accordance with article 7.13 of the 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. 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 – Concepts

1. The following concepts apply in this Regulation:
  - a. Act: the Higher Education and Scientific Research Act (abbreviated to WHW), Bulletin of Acts and Decrees 593 and any amendments since its introduction.
  - b. annex: the annex which forms part of these Teaching and Examination Regulations;
  - c. bridging programme: a deficiency programme aimed at moving up to a Master's degree programme, as stipulated in Article 7.30e or Article 7.57i of the Act;
  - d. course: a unit of study within the programme, as stipulated in Article 7.3, Sections 2 and 3 of the Act, with which an examination is associated;
  - e. credit: credit in accordance with the European Credit Transfer System (ECTS); one credit equals a study load of 28 hours;
  - f. Dean: Dean of the faculties mentioned in Article 1, Section 2 or Dean that represents the Deans of the faculties mentioned in Article 1, Section 2;
  - g. degree audit: the test, in which, in accordance with Article 7.10 of the Act, the Board of Examiners determines whether all examinations in the courses of the degree programme have been successfully completed;
  - h. examination: investigation of the student's knowledge, insight and skills with regard to a course, along with the assessment of that investigation;
  - i. first academic year: the first period in the programme with a study load of 60 credits, as specified in Article 7.8b Section 8 of the Act;
  - j. negative binding recommendation on continuation of studies: the rejection linked to the recommendation on the continuation of studies at the end of the first year of enrolment as specified in Article 7.8b Section 3, first sentence;
  - k. Osiris: the education information system;
  - l. practical exercise: course or component of a course aimed at the acquisition of particular skills. The following can be understood as practical exercises:
    - writing a thesis,
    - conducting a project or experimental design,
    - carrying out a project or a design/research assignment,
    - completing an internship,
    - participating in field work or an excursion,
    - conducting tests and experiments, or
    - participating in other educational activities that are considered essential and that are aimed at acquiring particular skills;
  - m. programme: the Master's degree programme, as stipulated in Article 7.3a, Section 1 in the Act;
  - n. 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;
  - o. study guide: the digital guide for the degree programme containing specific information on the courses included in the degree programme ([www.studiegids.tudelft.nl](http://www.studiegids.tudelft.nl));
  - p. track: major, as stipulated in Article 7.13, Section 2, Subsection b of the Act;
  - q. working day: Monday through Friday, with the exception of recognised 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 Article 19, Section 1, first two complete sentences.

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

## **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's degree programme in Transport, Infrastructure and 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

gives admission to the Master's 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's degree programme, in which a convergence programme has to be completed. This convergence programme will be part of the Master's degree programme in Transport, Infrastructure and Logistics and consists of convergence courses stated in Article 10 of 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 Article 9 of the annex to this TER and, if applicable, the language requirement.

- d. Foreign degree

This category 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 appendix.

2. Access to the education of the Master degree programme in Transport, Infrastructure and 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.

3. For the 2020-2021 academic year, in the context of the outbreak of COVID-19, students who were enrolled at a Dutch university or HBO (University of Applied Sciences) in the 2019-2020 academic year may be conditionally admitted provided that, on 31 August 2020, they:
- have a deficit not exceeding 15 credits for the Bachelor's degree audit of the Bachelor's programme referred to in this article, or
  - have a deficit not exceeding 15 credits for completion of the bridging programme referred to in this article.
- If, on 31 August 2021, students have not met the admission requirements referred to in Section 1 of this article, they will be unenrolled from the degree programme.

#### **Article 4 – University entrance examination**

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 Logistics, 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 Logistics, 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*

- 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.
- 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.

- 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*

- 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.
- 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.
- 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.
- 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.

### *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.

### *Communicational and co-operational skills*

- 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).
- 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.

### *Learning skills*

- General Learning:  
Has developed considerable learning skills necessary to undertake further study autonomously.
- 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 – Track**

Not applicable.

## **Article 7 – Composition of the programme and degree audits**

1. The programme includes the Master's 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. A course that was 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 course. If an elective course of the degree programme has already been completed in the aforementioned Bachelor's degree programme, the student will select an alternative elective course.
4. The Master's 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 and their study load.
6. The actual design of the education is elaborated in greater detail in the study guide, 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.

#### **Article 8 – Form of the programme**

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

#### **Article 9 – Language**

1. The education 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 programme 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 Honours Programme Coordinator TIL 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', and
  - 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 Article 8 of the annex to this TER.
3. All students selected for participation in the Honours Programme must submit their options for the programme component to the Honours Programme Coordinator TIL.
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 programme for which they are registered.
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 may grant an exemption from this obligation, with or without imposing a substitute requirement.
3. Any supplementary obligations are described by component in the course description in the study guide.

## **Article 12 – Programme evaluation**

1. The Director of Studies is responsible for the evaluation of the education.
2. The manner in which the education in the programme is evaluated is documented in a separate document, which is submitted to the Faculty Student Council of the faculty Civil Engineering and Geosciences and the Board of Studies.
3. The Director of Studies informs the Board of Studies concerning the outcomes of the evaluation, the intended adjustments based on these outcomes and the effects of the actual adjustments.

## **Paragraph 4 – Registration for courses and examinations**

### **Article 12a – Compulsory registration for courses**

Not applicable.

### **Article 12b – Withdrawal from a course**

Not applicable.

### **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 Osiris no later than 14 calendar days before the examination. Students receive examination tickets by email as confirmation of their registration. Contrary to the first sentence, for a written examination administered online remotely from the university, a registration period of no later than three calendar days before the examination date applies.
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 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.
6. Sections 2 and 4 of this article do not apply to a written examination administered online remotely from the university.
7. If unforeseen circumstances or measures, for example as a result of COVID-19, necessitate a change in the form or manner of taking the examination, the original registration period will remain in full force, unless the Dean decides on a different registration period for the benefit of the student.

#### **Article 14 – Registration for other examinations**

1. Registration for participation in an examination other than a written examination is compulsory, and it is done in the manner and within the term that is stated in the study guide for the relevant examination. If, due to unforeseen circumstances or measures, for example as a result of COVID-19, the form or manner of taking the examination changes, what is stated in the study guide will apply in full, unless the Dean decides to deviate from the manner or term for registration prescribed in the study guide.
2. In special cases, the Board of Examiners may deviate from the registration term stated in Section 1, but only in favour of the student.
3. Students who have not registered on time will not be allowed to participate in the examination. The Board of Examiners can nevertheless admit a student to the examination, but only in case of special circumstances.
4. In the event of unauthorised participation in an examination, the Board of Examiners may declare the result invalid.

#### **Article 15 – Withdrawal from examinations**

1. Students can withdraw from an examination through 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 (oral, written or otherwise) are taken in the manner described in the study guide. Unforeseen circumstances or measures, for example resulting from COVID-19, may require deviation from the prescribed form. If an examination is administered using online proctoring, this must take place in accordance with the TU Delft Online Proctored Examination Regulation.
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 1 to 3 in favour of the student.
5. Well before a written examination, the examiner will give the students the opportunity to familiarise themselves with sample examination questions and answers and the examination standards by which they have or will be assessed.

#### **Article 17 – Times and number of written examinations**

1. Two opportunities to take written examinations will be offered each academic year:
  - at the end of the teaching period in which the course is taught, and
  - in the fifth week or at the end of the next teaching period or during the resit period in the months of July and August.
2. An annual timetable is issued detailing when written examinations may be taken, and it is published before the start of the relevant teaching period.
3. Contrary to the provisions in Section 1, the opportunity to take the written examination for a course that is not taught in a certain academic year must be given at least once in that year.
4. 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 course 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.

### **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 publicity of the examination.
3. The oral examination is administered by at least two examiners. In the event of unforeseen circumstances or measures, for example as a result of COVID-19, the oral examination can be administered by a single examiner, in which case the oral exam is recorded on sound and/or image.

### **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 no later than 15 working days after the completion of the practical exercise at the designated time. In 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 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 or cognizance 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**

1. 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.
2. 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 Section 1 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. If a course consists of interim examinations, the period of validity of the interim examination for which no credits are assigned shall be restricted 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 24 – Periods and frequency of degree audits**

In principle, the opportunity to take the Master's 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 24a – 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 course 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:
  - providing modified furniture in teaching and examination spaces;
  - 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);
  - providing more accessible course material;
  - providing special computer facilities (e.g. speech-recognition or speech-synthesising software);
  - 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. The Dean will also ensure that effective support and supervision is provided to students in making choices related to their studies.
2. The examination and study programme applying to each student is documented in Osiris.
3. The Student Administration is responsible for ensuring that all students are able to review and check their results in the Osiris student-information system.

### **Article 27 – (Negative) binding recommendation on the continuation of studies**

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.
4. As a result of unforeseen circumstances or measures, for example as a result of COVID-19, the Dean may decide to deviate from these regulations, including the actual design of the education and any compulsory attendance requirements. This also means that it is possible to deviate from the provisions of the study guide.

### **Article 30 – Transitional measures**

1. If the composition of the degree programme undergoes substantive changes, transitional measures will be established and published through the Dean.
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 course within a degree programme is cancelled, four opportunities for taking the examination in this course shall be offered after it has been taught for the last time: the examination at the end of the teaching of the course, 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 2020.

**Adopted by the Dean of the faculty CEG on behalf of the Deans on 17 September 2020.**

## **APPENDIX 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, UK, 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**

**2020-2021**

**INTERFACULTY MASTER DEGREE PROGRAMME  
TRANSPORT, INFRASTRUCTURE AND LOGISTICS**

## Paragraph 1 – Compiling the study programme

### Article 1 – The study load

The study load for the master's degree programme is 120 credits.

### 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 5Projects 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 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 8.
3. 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.

### Article 3 – Fundamentals

1. The examination programme includes a set of basic compulsory courses, the so-called fundamentals, amounting to 23 credits in total.
2. The compulsory courses mentioned in Section 1 are:

<u>code</u>	<u>course</u>	<u>credits</u>
CIE4801-18	Transport modelling	6
ME44206	Quantitative methods for logistics	5
SEN1221	Statistical analysis of choice behaviour	5
TIL4030-20	TIL research and design methods	7

### Article 4 – Specialisations

1. The examination programme includes one specialisation, amounting to 27 credits in total. The student chooses one out of four specialisations available in the degree programme. The specialisations are specified in Section 2.
2. The degree programme comprises four specialisations. Within a specialisation all courses are compulsory. These specialisations are:
  - Specialisation P – Policy: infrastructure, planning and environment, as laid down in Section 3
  - Specialisation D – Design: transport systems and networks, as laid down in Section 4
  - Specialisation O – Operations: traffic, technology and control, as laid down in Section 5
  - Specialisation E – Engineering: transport, logistics and supply chains, as laid down in Section 6
3. *Specialisation P – Policy: infrastructure, planning and environment*

In this specialisation all courses are compulsory. The composition of this specialisation is as given below.

<u>code</u>	<u>course</u>	<u>credits</u>
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 policy decision-making	5
SEN1741	Innovations in transport and logistics	5

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

In this specialisation all courses are compulsory. The composition of this specialisation is as given below.

<u>code</u>	<u>course</u>	<u>credits</u>
AE4423-20	Airline planning & optimisation	4
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

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

In this specialisation all courses are compulsory. The composition of this specialisation is as given below.

<u>code</u>	<u>course</u>	<u>credits</u>
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
ME44200	Operations and maintenance	3
ME44305	System analysis and simulation	5
SEN9110	Simulation master class	5

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

In this specialisation all courses are compulsory. The composition of this specialisation is as given below.

<u>code</u>	<u>course</u>	<u>credits</u>
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**

- The examination programme includes elective courses, amounting to 25 credits in total. The student chooses elective courses from several lists of electives available in the degree programme. The elective lists are specified in Section 2.
- The degree programme comprises several lists of elective courses. From every list of elective courses at least one course must be chosen. These lists of electives are:
  - Electives T&P – Transport and Planning, at least 1 course, as laid down in Section 3
  - Electives T&L – Transport and Logistics, at least 1 course, as laid down in Section 4
  - Electives MME – Multi-Machine Engineering, at least 1 course, as laid down Section 5
  - External electives, at least 1 course, as laid down in Section 6
- Electives T&P – Transport and Planning*

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

<u>code</u>	<u>course</u>	<u>credits</u>
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 course, not already taken as part of the chosen specialisation as stipulated in Article 4, must be chosen from the elective list as given below.

<u>code</u>	<u>course</u>	<u>credits</u>
SEN1131	Institutional economics for designing in socio-technical systems	3
SEN1151	Law and institutions	5
SEN171a	Advanced evaluation methods for transport policy 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 MME – Multi-Machine Engineering

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

<u>code</u>	<u>course</u>	<u>credits</u>
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
ME44300	Multi-machine coordination for logistics	3
ME44305	System analysis and simulation	5
ME44311	Advanced operations and production management	5
ME44312	Machine learning for transport and multi-machine systems	3

#### 6. External electives

At least one course, not already taken as part of the chosen specialisation as stipulated in Article 4, must be chosen from the external elective lists. The student can make a choice of courses from several external elective lists. These lists of external electives are:

- Electives C&O – Control & Operations, as laid down under a
- Electives U – Urbanism, as laid down under b
- Electives TIL – Other TIL fields, as laid down under c

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

<u>code</u>	<u>course</u>	<u>credits</u>
AE4321-15	Air traffic management	4
AE4423-20	Airline planning & optimization	4
AE4446	Airport operations	4

##### b. Electives U – Urbanism

<u>code</u>	<u>course</u>	<u>credits</u>
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*

<u>code</u>	<u>course</u>	<u>credits</u>
CIE4330	Ports and waterways 1	4
CIE4874	Elements of railway engineering	4
CIE5306	Ports and waterways 2	4
CME2300	Financial engineering	4
ME41105	Intelligent vehicles	4
MT44070	Shipping management	5
RO47016	Automotive human factors	5
WI4062TU	Transport, routing and scheduling	3
WM1301TU	Ethics of transportation	3

7. *Free electives*

If the elective courses selected according to Section 2 from the lists in Sections 3 to 6 add up to an amount of credits that is smaller than 25, the student is required to select additional elective courses. The student can make a choice from the free elective courses, as mentioned below.

a. As free elective courses the student may choose:

- course from the list as given below:

<u>code</u>	<u>course</u>	<u>credits</u>
TIL6010	TIL programming / matlab	2
TIL6020	TIL scientific assignment	7

- all courses offered at master level at Delft University of Technology
- all courses offered at master level at another Dutch university

b. As free elective courses the student admitted on the basis of TER Article 3, Section 1, under b must choose:

- convergence courses mentioned in Article 10

c. As free elective courses the student may not choose:

- course from the list as given below:

<u>code</u>	<u>course</u>	<u>credits</u>
AE4441-16	Operations optimisation	4
CIE4061-09	Multidisciplinary project, civil engineering consultancy project	10
CIE4835	Transport engineering and optimisation	4
CIEAESM4010	Research project	10
EPA2934	Preparation master thesis	5
ME54015	ME-MME research assignment	15
MOT2004	Preparation for master thesis	5
SEN173a	Analysis and design of freight and logistic systems	5
SEN2321	Master thesis preparation	5
WI4051TU	Introduction to operation research	6

- all courses that have significant overlap with any other course in the examination programme
- courses offered by TU Delft Graduate School
- courses offered by TRAIL Research School
- courses focusing on the development of skills
- language courses
- Massive Open Online Courses (MOOCs).

d. If the student notwithstanding the forgoing mentioned under c chooses:

- courses focussing on the development of skills
- language courses
- Massive Open Online Courses (MOOCs),

these choices will be considered within the examination programme as extracurricular.

- e. 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 3. The approval is only valid on the condition that the selected free elective courses meet the criteria as mentioned under a and b.
8. All elective courses that are not part of the elective lists as stated in Sections 3 to 6, but that were part of an elective list in the annex (or Implementation Rules) 2019-2020 or earlier or that will be part of an elective list in the annex (or its replacement) 2021-2022 or later are in the examination programme considered as free elective courses 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:

<u>code</u>	<u>course</u>	<u>credits</u>
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 course as given below:

<u>code</u>	<u>course</u>	<u>credits</u>
TIL4030-20	TIL research and design methods	7

4. The student is allowed to complete the second project mentioned in Section 2 only, once he has successfully completed courses amounting to a total of at least 45 credits at the first day of the fifth week of the educational period in which the project starts.

### Article 7 – Thesis

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

<u>code</u>	<u>course</u>	<u>credits</u>
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 10 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 chair of the assessment committee as indicated in Section 2 may give exceptional access to the project mentioned in Section 1.
5. The content of the thesis has a relationship to the fields of at least two of the faculties that offer the interfaculty 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 has ius promovendi and two daily supervisors.
7. The members of the assessment committee will originate from at least two of the faculties mentioned in Section 5.
8. Before embarking on the thesis project the student must present the composition of the assessment committee for approval to the Board of Examiners.
9. Any changes made to the composition of the approved assessment committee should be presented to the Board of Examiners.

10. 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.
11. The graduation work consists of a thesis project, a thesis report and a thesis presentation. The thesis report includes a scientific paper.
12. The scientific paper mentioned in Section 11 is used to communicate the results of scientific inquiry. The purpose is twofold: to present information so that it is easy to retrieve, and to present enough information that the reader can duplicate the scientific study. A standard format helps readers to find expected information and analysis. Detailed information will be published in the digital learning environment.
13. The assessment committee motivates the outcome of the assessment.
14. Further stipulations regarding the thesis are included in the Rules and Guidelines as laid down by the Board of Examiners.

## **Paragraph 2 – Honours Programme**

### **Article 8 – 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 course is compulsory for all Delft University of Technology Honours Programme Master students:

<u>code</u>	<u>course</u>	<u>credits</u>
UD2010	Critical reflection on technology	5

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

<u>code</u>	<u>course</u>	<u>credits</u>
TIL6020	TIL scientific assignment	7

6. The student chooses, taking Section 3 into account, the remaining courses, amounting to 8 credits in total.

## **Paragraph 3 – Bridging and other deficiency programmes**

### **Article 9 – 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 courses amounting to 31 credits in total:

<u>code</u>	<u>course</u>	<u>credits</u>
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 10 – 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 courses. Degrees qualifying for the deficiency programme are mentioned in the Teaching and Examination Regulations in Article 3, Section 1, under b.
2. Students admitted to the deficiency programme mentioned Section 1 must include convergence courses in their master’s degree programme, amounting to 9 credits in total.  
The student is required to select one course from each of the three lists as given below:

##### Analyse, 1 course

<u>code</u>	<u>course</u>	<u>credits</u>
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 course

<u>code</u>	<u>course</u>	<u>credits</u>
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 course

<u>code</u>	<u>course</u>	<u>credits</u>
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 courses as mentioned Section 2 can be obtained within the examination programme of 120 credits if the student includes them as free elective courses, 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 courses ‘Analyse’ and ‘Lineaire algebra’, as mentioned in Section 2, before he gets permission to take:

<u>code</u>	<u>course</u>	<u>credits</u>
CIE4801-18	Transport modelling	6

- b. The student must have successfully completed his chosen course ‘Kansrekening en statistiek’, as mentioned in Section 2, before he gets permission to take:

<u>code</u>	<u>course</u>	<u>credits</u>
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 course mentioned in Section 4 when he has successfully completed an equivalent course in his Bachelor’s degree programme.

#### Paragraph 4 – Deviate from examination programme

#### Article 11 – 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 courses given in conjunction with the degree programme but it can be complemented with other courses.

- 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 12 – Deviate from the examination programme

The Board of Examiners may allow students to deviate from the examination programme.

## Paragraph 5 – Transitional rules

### Article 13 – Transitional rules as of 1 September 2020

- A number of courses belonging to the programme 2019-2020 are no longer available in their original form from the academic year 2020-2021.
- Courses from the programme 2019-2020 or earlier programmes that were available in the academic year 2018-2019, that are no longer available in the academic year 2020-2021 and that are replaced by other courses are:

<u>Course available in academic year 2019-2020</u>			<u>Replacement course in programme 2020-2021</u>		
<u>code</u>	<u>course</u>	<u>credits</u>	<u>code</u>	<u>course</u>	<u>credits</u>
ME41000	Automotive human factors	3	RO47016	Automotive human factors	5

- Groups of courses from the programme 2019-2020 or earlier programmes that were available in the academic year 2019-2020, that are no longer available in the academic year 2020-2021 and that are replaced by a single course are:

<u>Group of courses in programme 2019-2020</u>			<u>Replacement course in programme 2020-2021</u>		
<u>code</u>	<u>course</u>	<u>credits</u>	<u>code</u>	<u>course</u>	<u>credits</u>
AE4423-19	Airline planning and optimization	3	AE4423-20	Airline planning and optimization	4
TIL6015	TIL programming assignment	1			

- Courses from the programme 2019-2020 that are recoded only, are:

<u>Course available in academic year 2019-2020</u>			<u>Replacement course in programme 2020-2021</u>		
<u>code</u>	<u>course</u>	<u>credits</u>	<u>code</u>	<u>course</u>	<u>credits</u>
TIL4030-16	TIL research and design methods	7	TIL4030-20	TIL research and design methods	7

- Courses from the programme 2019-2020 that are not replaced in the degree programme are:

<u>code</u>	<u>course</u>	<u>credits</u>
AE4427	Airline scheduling exercise	2

- Courses from the programme 2019-2020 that are available in the academic year 2020-2021 but no longer part the degree programme other than as free elective are:

<u>code</u>	<u>course</u>	<u>credits</u>
ME44210	Drive and energy systems	3
WI4138	Decision theory / expert judgement	6
WI4052	Risk analysis	6

- A number of courses belonging to the programme 2020-2021 were not part of the degree programme in the academic year 2019-2020.

- Courses, new in the academic year 2020-2021, that have no equivalent in earlier programmes are:

<u>code</u>	<u>course</u>	<u>credits</u>
ME44312	Machine learning for transport and multi-machine systems	3

9. Existing courses that are new in the degree programme, are:

<u>code</u>	<u>course</u>	<u>credits</u>
CME2300	Financial engineering	4
WI4062TU	Transport, routing and scheduling	3

#### **Article 14 – Transitional rules as of 1 September 2021**

1. Courses from the programme 2019-2020 that are available in the academic year 2020-2021, but that are no longer available from the academic year 2021-2022, are:

<u>code</u>	<u>course</u>	<u>credits</u>
TIL6015	TIL programming / assignment	1

2. From 1 September 2021 there may be significant changes in the MSc programme Civil Engineering. This may affect the availability of the 'Electives T&P – Transport and Planning' in the academic year 2021-2022, as listed in Article 5, Section 4. A list of replacement subjects will be published in the Annex of the Teaching and Examination Regulations 2021-2022.

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 courses as mentioned in Article 5, Section 7.

#### **Paragraph 6 – Final provision**

#### **Article 15 – When the rules do not provide**

Insofar as these rules do not provide for specific circumstances, the Board of Examiners will make a decision that is in line with the annex to every extent possible.