

TEACHING AND EXAMINATION REGULATIONS (TER)

**(In accordance with article 7.13 of the Higher
Education and Research Act)**

MASTER'S DEGREE PROGRAMME ROBOTICS

DELFT UNIVERSITY OF TECHNOLOGY

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Paragraph 1 - General

Article 1 – Applicability of the regulations

1. These regulations apply to the teaching and examinations of the Master's programme Robotics, hereinafter referred to as 'the programme'. These regulations also apply to the bridging programmes of the aforementioned programme(s)
2. The programme is provided under the responsibility of the faculty Mechanical, Maritime and Materials Engineering (3mE) of Delft University of Technology, hereinafter referred to as the faculty.

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. 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;
 - c. 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;
 - d. credit: credit in accordance with the European Credit Transfer System (ECTS); one credit equals a nominal study load of 28 hours;
 - e. degree audit: An assessment by the Board of Examiners whereby it is determined, in accordance with Section 7.10 of the Act, whether all examinations in the subjects of the degree programme have been successfully completed;
 - f. examination: investigation of the student's knowledge, insight and skills with regard to a course, along with the assessment of that investigation. An examination can also consist of interim examinations;
 - g. 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;
 - h. 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 of the BSc as specified in Article 7.8b Section 3, first sentence;
 - i. Osiris: the education information system;
 - j. 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, and/or
 - participating in other educational activities that are considered essential and that are aimed at acquiring particular skills;
 - k. programme: the Master's degree programme, as stipulated in Article 7.3a, Section 1 in the Act;
 - l. semester: the term, consisting of two quarters, during which one or several courses are taught
 - m. 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;
 - n. study guide: the digital guide for the degree programme containing specific information on the courses included in the degree programme (www.studiegids.tudelft.nl);
 - o. 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 and Article 22 paragraph 1.

4. A written or oral examination may also be taken digitally and/or online. In these regulations the term examination is also taken to mean a digital and/or online examination, unless stated otherwise in these regulations.

Paragraph 2 - Admission and prior education

Article 3- Admission to the Master's degree programme (Art. 7.30b WHW) BoS advisory powers

1. Individuals holding one of the following degrees have access to the education of the Master's degree programme in Robotics on the condition that all of the stated requirements have been met.

a. Specific Bachelor's degree from TU Delft

Direct admission with a Bachelor's degree in Mechanical Engineering and Aerospace Engineering

b. TU Delft or Other Dutch university Bachelor's degree (not including those listed in Subsection a)

The following applies to this category:

- Successful completion of the stated bridging programme for admission to the Master's degree programme:
- University Bachelor's degree Computer Sciences and Engineering, Civil Engineering, Electrical Engineering, Industrial design, Marine Technology, Molecular Sciences and Technology, Clinical Technology, Nanobiology, Applied Physics.

Bridging programme to be followed can be found in the appendix.

A bridging programme is completed when all courses are passed with a minimum final mark 6.

- individuals who have received foreign education prior to the earned bachelor's degree at a Dutch institution, must meet the requirements of satisfactory linguistic mastery of Dutch, as stated in the appendix, before one can participate in a Dutch-language bridging programme. The foregoing requirement does not apply to pre-switchers who were registered in the academic year 2021-2022, with uninterrupted enrolment for the academic years 2022-2023, 2023-2024 and 2024-2025

c. Dutch Higher professional education degree

The following applies to this category:

- Successful completion of the stated bridging programme for admission to the Master's degree programme and, if applicable, the language requirement
- higher professional education degree in Mechanical Engineering and Mechatronics

Bridging programme to be followed can be found in the appendix.

A bridging programme is completed when all courses are passed with a minimum final mark 6.

- individuals who have received foreign education prior to the earned higher professional education degree, must meet the requirements of satisfactory linguistic mastery of Dutch, as stated in the appendix, before one can participate in a Dutch-language bridging programme.

The foregoing requirement does not apply to pre-switchers who were registered in the academic year 2021-2022, with uninterrupted enrolment for the academic years 2022-2023, 2023-2024 and 2024-2025

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.

The following qualitative admission requirements also apply:

Graduated Recorded Examinations test – GRE revised general test

- GRE test scores in Verbal Reasoning, Quantitative Reasoning and Analytical Writing.

Minimum GRE scores that must be achieved to be eligible for admission are not set, but the Master Robotics looks for applicants who attain a minimum score of 154 for Verbal Reasoning, 163 for Quantitative Reasoning and 4.0 for Analytical Writing.

The faculty reserves the right to reject applicants who do not have these scores.

2. Access to the education of the Master's degree programme in Robotics 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 - University entrance examination (Art. 7.29 Section 2 WHW)
BoS advisory powers

Not applicable.

Paragraph 3 - Content and composition of the programme

Article 5 - Goal of the programme (Art. 7.13 Section 2, Subsection c WHW)
BoS right of approval

1. The programme is intended to educate students to earn a Master of Science degree in Robotics, providing them with such a level of knowledge, insight and skills in the area of Robotics, 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 each degree programme, as defined in the appendix.

Article 6 - Track (Art. 7.13 Section 2, Subsection b WHW)
BoS right of approval

The Master's degree programme has no tracks.

Article 7 - Composition of the programme and degree audits
(Art. 7.13 Section 2, Subsections a, e and g of the WHW); BoS advisory powers (a); right of approval (e and g)
(Art. 7.13 Section 2, Subsection x WHW; FSC right of approval, BoS advisory powers

1. The programme includes the Master's degree audit, with a study load of 120 credits. **Subsection e and g**
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. The Board of Examiners no longer approves individual double degree programmes for this 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. **Subsection a**

4. The Master's degree audit is concluded with a final test or assignment. This test or assignment demonstrates that the student possesses and is able to apply the knowledge, insight and skills acquired in the degree programme. **Subsection a**
5. The degree programme and its courses are described in the appendix, 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. **Subsection e and x**
6. The actual design of the educational programme is elaborated in greater detail in the study guide. **Subsection x**

Article 8 - Form of the programme (Art. (7.13 Section 2, Subsection i WHW)
FSC right of approval, BoS advisory powers

The programme is offered exclusively as full-time.

Article 9 - Language (art. 7.2 WHW)
FSC right of approval, BoS advisory powers

The education is in English, and the examinations are administered in English.

Article 10 – Honours Programme (art. 7.9b WHW)
FSC right of approval, BoS advisory powers

1. Based on the criteria referred to in the Honours Programme (to be found here: <https://www.tudelft.nl/en/student/faculties/3me-student-portal/education/honours-programme>), students will be selected and admitted to the Master's Honours Programme by the Honours Coordinator.
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 and
 - b. At least 15 credits must be completed in the faculty component of the Master's Honours Programme, the composition of which (including its content and options) is described in the Honours Programme.
3. All students selected for participation in the Honours Programme must submit their options for approval to the Honours Coordinator.
4. The Board of Examiners will be responsible for assessing whether all the requirements of the Honours Programme have been met.
5. Any student who has successfully completed the 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 (Art. 7.13 Section 2, Subsection t WHW)
FSC right of approval, BoS advisory powers

1. All students are expected to participate actively in the programme for which they are registered.
2. 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 (Art. 7.13 Section 2, Subsection a1 WHW)
BoS right of approval

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 the Quality Assurance Manual of 3mE, which is submitted for advice to the Faculty Student Council and the Board of Studies.
3. The Director of Studies informs the Board of Studies concerning the outcomes of the evaluation, the intended adjustments based on these outcomes and the effects of the actual adjustments.

Paragraph 4 – Registration for courses and examinations

Article 12a – Compulsory registration for courses
FSC right of approval, BoS advisory powers

Not applicable.

Article 12b – withdrawal from a course

Not applicable.

Article 13 - Registration for written examinations
FSC right of approval; BoS advisory powers

1. Registration to participate in a written examination, including a written examination that is taken online, remotely from the university, is compulsory and is done by entering the requested data into Osiris no later than 14 calendar days before the examination. Students receive examination tickets by email as confirmation of their registration. Contrary to this, a registration period of six calendar days applies to resits in the summer resit period. The student will receive an exam ticket by email as confirmation.
2. Students may submit a request to register for an examination after the deadline mentioned in subsection 1 has passed but no later than 6 calendar days before the examination in question, in Osiris by being placed on a waiting list. The request will be honoured providing that places are available in the room or rooms where the examination is scheduled to take place. The student will receive an exam ticket by email as confirmation.
3. In 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 that is taken online, remotely from the university.

7. If unforeseen circumstances or measures make it necessary to change the form or manner of taking the examination, the Board of Examiners may determine a different registration period in favour of the student.

Article 14 - Registration for other examinations

FSC right of approval; BoS advisory powers

1. Registration for participation in an examination other than a written examination is compulsory, and is possible up to 14 calendar days before the examination take place in the manner that is stated in the study guide for the relevant examination. If unforeseen circumstances or measures make it necessary to change the form or manner of taking the examination, the provisions stated in the study guide apply in full unless the Dean decides to deviate from the manner or term of 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

FSC right of approval; BoS advisory powers

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 (Art. 7.13 Section 2, Subsections h and I WHW)

FSC right of approval, BoS advisory powers

1. Examinations (oral, written or otherwise) are taken in the manner described in the appendix. In the event of unforeseen circumstances or measures, the Board of Examiners may determine that the manner prescribed may be deviated from. If an examination is taken using online proctoring, this takes place in accordance with the TU Delft Online Proctored Examination Regulation.
2. The appendix 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, with the understanding that registration for an examination without timely withdrawal counts as participation
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 representative sample questions and the criteria by which they will be assessed. The teacher or examiner will provide accompanying guidelines for the way in which the sample questions are answered.

Article 17 – Times and number of examinations (Art. 7.13 Section 2, Subsection j WHW)

FSC right of approval, BoS advisory powers

1. Two opportunities to take written examinations will be offered each academic year. The previous provision applies equally to assessments other than written examinations, unless this cannot be reasonably demanded of the programme. In those cases a different option will be provided, if at all possible. Participation in this may -within the limits of proportionality- be subject to additional requirements. The times in which the examinations can be taken are:
 - 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 summer resit period according to the TU Delft academic calendar.
2. An annual timetable is issued detailing when 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 examination for a course that is not taught in a certain academic year must be given at least once in that year.
4. In special cases, the Board of Examiners may allow an exam to be taken more than twice a year.

Article 18 - Oral examinations (Art. 7.13 Section 2, Subsection n WHW)
FSC right of approval, BoS advisory powers

1. For oral examinations, no more than one student shall be tested at a time, unless determined otherwise by the Board of Examiners.
2. Oral examinations shall not be public, unless the Board of Examiners has decided otherwise. In deviation from this first clause, a final presentation is given publicly except in special cases in which the Board of Examiners has decided otherwise, whether or not at the request of the student.
3. The oral examination is administered by at least two examiners. In the event of unforeseen circumstances or measures, the Board of Examiners may determine that the oral examination be administered by a single examiner, in which case an audio and/or video recording of the oral examination will be made.

Article 19 - Determination and announcement of results (Art. 7.13 Section 2, Subsection o WHW)
FSC right of approval, BoS advisory powers

1. The examiner determines the result of a written examination as quickly as possible but by no later than 15 working days after the examination. The results of written 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 as quickly as possible but no later than 15 working days after it is administered. The student is issued 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 for examinations administered in the last regular examination period, as well as for resits from the first year of the BSc taken during the resit period, shall be determined, registered and published by no later than the Friday following the final week of this examination period.
6. If the examiner is not able to register 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 results (Art. 7.13 Section 2, Subsection p WHW)
FSC right of approval, BoS advisory powers

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. During the inspection of the assessed work, it is not permitted to copy the underlying examination questions in any way. 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 (Art. 7.13 Section 2, Subsection q WHW)
FSC right of approval, BoS advisory powers

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. During the discussion of the assessed work it is not permitted to copy the underlying examination questions in any way.
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. During the discussion of the assessed work it is not permitted to copy the underlying examination questions in any way.
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 in Sections 2 and 3.

Article 22 - Period of validity for examinations (Art. 7.13 Section 2, Subsection k, Art. 7.10, Section 4 WHW).
FS Council right of approval, BoS advisory powers

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 the academic year in which the results have been obtained. In individual cases involving special circumstances, the Board of Examiners can extend this period of validity.

Article 23 - Exemption from an examination or obligation to participate in a practical exercise (Art. 7.13 Section 2, Subsection r WHW)
FSC right of approval, BoS advisory powers

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 (Art. 7.13 Section 2 WHW)
FSC right of approval, BoS advisory powers

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 examination (Art. 7.12 and 7.12b WHW)

FSC right of approval, BoS advisory powers

The Board of Examiners is authorised to declare invalid an examination or part thereof if a proper assessment of the knowledge, insight and skills of the student has not proved reasonably possible based on the examination or the part thereof. 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 a support need
(Art. 7.13 Section 2, Subsection m WHW)
FSC right of approval, BoS advisory powers

1. Students with the support need means students who are held back due to a functional limitation, disability, chronic illness, psychological problems, pregnancy, young parenthood, gender transition, or special family circumstances, for example in relation to informal care. Upon a written and substantiated request to that effect, students with a support need 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 or on behalf of the academic counsellor.
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, wider spreading 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

(Art. 7.13 Section 2, Subsection u WHW)

FSC right of approval, BoS advisory powers

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

(Art. 7.13 Section 2 Subsection f, 7.8b WHW)

BoS advisory powers

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. In the event of unforeseen circumstances or measures, the Dean may decide to deviate from these regulations, including the actual form of the education and any compulsory attendance requirements. This also means that the provisions in the study guide may be deviated from.

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 additional 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 2023. These regulations shall remain in force until the new regulations come into effect.

Adopted by the Dean of the faculty on 1 September 2023.

APPENDIX to Art. 3 of the Model TER (for Master's degree programmes)

Language level Dutch-language bridging programmes for individuals holding an other Bachelor's degree university education (b) or a higher professional education degree (c)

The Dutch language:

By successfully passing a Dutch examination at the following level:

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

By successfully completing:

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

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

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

- Students with a Bachelor's degree from a Dutch university
- Students with a VWO diploma or VWO English certificate
- Students with an HBO (University of Applied Sciences) degree from a degree programme taught entirely in English
- Students who hold the nationality of one of the following countries: USA, UK, Ireland, Australia, New Zealand or Canada

Sufficient competence in the English language can be demonstrated by passing one of the following tests:

- TOEFL iBT (Test of English as a Foreign Language internet-Based Test) with an overall band score of at least 90
- IELTS (academic version) with an overall band score of at least 6.5
- Cambridge Assessment English:
 - C1 Advanced (Certificate of Advanced English) with an overall score of at least 176.
 - C2 Proficiency (Certificate of Proficiency in English) with an overall score of at least 180.

If a bridging programme needs to be completed before a candidate can be admitted to a Master's programme, the certificate should be obtained before the start of the bridging programme.

Language level for holders of a non-Dutch diploma (d)

Competence in the English language as demonstrated by passing one of the following tests:

- 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
- IELTS (academic version) with an overall band score of at least 6.5 and a minimum score of 6,0 for each section
- Cambridge Assessment English:
 - C1 Advanced (Certificate of Advanced English) with an overall score of 176 and a minimum score of 169 for each section.

- C2 Proficiency (Certificate of Proficiency in English) with an overall score of 180 and a minimum score of 169 for each section

Certificates more than two years old will not be accepted.

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

- Students who hold the nationality of one of the following countries: USA, UK, Ireland, Australia, New Zealand or Canada;
- Students who hold a Bachelor's degree from one of the above countries;

APPENDIX to Article 5 of the Model TER

Final Qualifications MSc Robotics

4TU-criteria

1. Competent in the scientific discipline Robotics

A graduate in Robotics is able to...

- 1A. ...acquire and apply broad knowledge on Robotics on the multidisciplinary intersection of mechanical engineering, Robotics and artificial intelligence, more particularly in dynamics, system identification, modelling, control, machine learning, machine perception and human-robot interaction.
- 1B. ...model, design and control robotic systems.
- 1C. ...analyse, evaluate and validate robotic systems in complex environments.
- 1D. ...relate scientific knowledge to robotic systems, critically considering their interaction with societal aspects.

2. Competent in doing research

A graduate in Robotics is able to...

- 2A. ...study a topic by critically selecting relevant scientific literature.
- 2B. ...generate innovative contributions in developing intelligent machines.
- 2B. ...write a scientific report about own research.
- 2D. ...measure, model, and explain the interaction between humans and intelligent machines.

3. Competent in designing

A graduate in Robotics is able to...

- 3A. ...develop mathematical and physical systems using state-of-the-art knowledge.
- 3B. ...translate complex multidisciplinary research to working robotic designs.
- 3C. ...design algorithms and software for complex robots.
- 3D. ...design interfaces for human interaction so that a robotic system's functionality can be understood, taught and corrected by users.
- 3E. ...design robotic systems which can move safely and efficiently in human-inhabited environments.

4. A scientific approach

A graduate in Robotics is able to...

- 4A. ...contribute novel techniques on the intersection between mechanical engineering, systems and control, and artificial intelligence.
- 4B. ...analyse and design multidisciplinary solutions using system identification, modelling, and simulation.
- 4C. ...solve technological problems in a changing environment, considering ethics, safety, ambiguity, incompleteness and limitations.
- 4D. ...effectively lead, co-create and collaborate with a research team.
- 4E. ...design and perform experiments to compare, investigate, evaluate and test different robotic solutions across disciplines.

5. Basic intellectual skills

A graduate in Robotics is able to...

- 5A. ...develop a vision for applying robotics to address industrial and societal needs.
- 5B. ...consider the design of robotic systems from economic, social, cultural and ethical perspectives.
- 5C. ...critically reflect on own role in projects, in relationship to that of others.
- 5D. ...remain professionally competent with an eye for the needs in the field.

6. Competent in operating and communicating

A graduate in Robotics is able to...

- 6A. ...work both independently as well as in a multidisciplinary team
- 6B. ...operate and communicate in a responsible, ethical and transparent manner, with an open-minded attitude.
- 6C. ...explain and defend research activities and outcomes to academia and industry, both specialists and non-specialists.
- 6D. ...understand and explain robotic systems in relation to other fields.
- 6E. ...advise on technical steps towards integral robotic solutions in complex environments.

7. Considering the temporal and social context

A graduate in Robotics is able to...

7A.... consider the limitations and possibilities of applying robotics to solving safe technological and societal problems.

7B. ...evaluate and assess the technological, ethical and societal impact of one's work.

7C. ...act with vision in an interconnected and rapidly changing world.

7D. ...act with integrity and responsibility regarding sustainability, safety and privacy, and economic and social wellbeing.

APPENDIX to Articles 7 and 16 of the Model Teaching and Examination Regulations - Programme MSc Robotics

Course code	Course name (EN)	ECTS	Language ¹	Teaching period and contact hours	Examination period ²	Practical exercise ³	Form of examination ⁴
YEAR 1 (60 ECTS)							
RO Obligatory courses (40 ECTS)							
RO47000	Vision and Reflection	0	EN	x.x.x.x*	1, 2		PS
RO47001	Robot Dynamics & Control	5	EN	4.0.0.0	1,2 [TD, HTD]		D
RO47002	Machine Learning for Robotics	5	EN	6.0.0.0	1, 2 [XX+T, HT]		W + A
RO47003	Robot Software Practicals	5	EN	6.0.0.0	1,2 [TD, HTD]		W + A
RO47004	Machine Perception	5	EN	0.6.0.0	2, 3 [XX+T, HT]		W + A
RO47005	Planning & Decision Making	5	EN	0.6.0.0	2, 3 [XX+T, HT]		W + A
RO47006	Human Robot Interaction	5	EN	0.6.0.0	2,3 [XX+T, HT]		W + A
RO47007	Multidisciplinary Project	5	EN	0.0.0.2	4 [XX]		R + O
RO47008	Robot & Society	5	EN	0.0.2.0	3, 4 [TD, HTD]		?
RO Recommended elective courses on Robotics (at least 5 ECTS)							
CS4240	Deep Learning	5	EN				
RO47013	Control in Human-Robot Interaction	5	EN	0.0.6.0	3, 4 [XX+TD, HTD]		W + A + PS + R
RO47014	Knowledge Representation & Symbolic Reasoning	5	EN	0.0.6.0	3, 4 [TX, HTX]		W + A
RO47015	Applied Experimental Methods	5	EN	0.0.0.x	4, 5 [XX]		PS + R
RO47016	Human Factors of Automated Driving	5	EN	0.0.0.4	4, 5 [XX+T, HT]		W + A
RO47017	Vehicle Dynamics and Control	5	EN	0.0.0.4	4, 5 [XX+TD, HTD]		W + A
RO47018	Security and Privacy in Control	3	EN	0.0.0.4	4, 5 [XX+T, HT]		W + A
	T1 Final Exam	1					
	T2 Practical assignments	1				yes	
	T3 Papers	1					
RO Recommended elective courses on Transferable skills (between 3 and 6 ECTS)							
AE4006	Sustainability in Engineering	4	EN				
AE4321-15	Air Traffic Management	4	EN				
EPA143a	Macro-economics for Policy Analysis	5	EN				
EPA131a	Behaviour in transitions	5	EN				
ID4180	Managing Product Innovation	3	EN				
ID4185	Strategic & Sustainable Design	3	EN				
MT44070	Shipping Management	5	EN				
SEN9115	Participatory Systems	5	EN				
TPM027A	Cyber Risk Management	5	EN				
TPM033A	Sustainable Innovation and Transitions	3	EN				
TPM411A	Idea to Start-up – IT & AI	5	EN				
TPM024A	Methods for Risk Analysis and Management	5	EN				
TPM416A	Turning Technology into Business	6	EN				
TPM420A	Ready to Start-up	6	EN				
WI4425	Financial Markets Theory	6	EN				
WM0329TU	Ethics and Engineering	6	EN				
WM0376TU	Ethics of Technological Risks	5	EN				
WM0637SET	Economic Policy for Sustainable Energy	4	EN				
WM0801TU	Introduction to Safety Science	3	EN				
WM1302TU	Ethics of Transportation	5	EN				
RO General elective courses							
AE4301	Automatic Flight Control System Design	3	EN				
AE4316	Aerospace Human-Machine Systems	4	EN				
AE4317	Autonomous Flight of Micro Air Vehicles	4	EN				
BM41040	Neuromechanics and Motor Control	5	EN				
CESE4025	Real-time Systems	5	EN				
CESE4030	Embedded Systems Laboratory	5	EN				
CS4140ES	Embedded Systems Laboratory	5	EN				
CS4205	Evolutionary Algorithms	5	EN				
CS4230	Machine Learning 2	5	EN				
CS4235	Socio-Cognitive Engineering	5	EN				
CS4245	Seminar Computer Vision by Deep Learning	5	EN				
CS4295	Release Engineering for Machine Learning Applications	5	EN				
CS4365	Applied Image Processing	5	EN				
CS4375	Artificial Intelligence Techniques	5	EN				
CS4400	Deep Reinforcement Learning	5	EN				
ET4117	Electrical Machines and Drives	4	EN				
ET4169	Radar I: From Basic Principles to Applications	5	EN				
ET4257	Sensors and Actuators	4	EN				
ME41006	Musculoskeletal modeling and simulation	4	EN				
ME41056	Multibody Dynamics	5	EN				
ME46060	Engineering Optimization: Concepts and Applications	3	EN				
ME41065	System Identification and Parameter Estimation	7	EN				
ME41085	Biomechatronics	4	EN				
ME41096	Bio Inspired Design	5	EN				
ME41125	Introduction to Engineering Research	3	EN				
ME44206	Quantitative Methods for Logistics	5	EN				
ME44312	Machine Learning for Transport and Multi-Machine Systems	3	EN				
ME46041	Experimental Dynamics	4	EN				
ME46055	Engineering Dynamics	4	EN				
RO47019	Intelligent Control Systems	4	EN	0.0.4.0	3,4 [XX+T, HT]		W + A
SC42075	Modelling and Control of Hybrid Systems	3	EN				
SC42101	Networked and Distributed Control Systems	4	EN				
SC42110	Dynamic Programming and Stochastic Control	5	EN				
SC42125	Model Predictive Control	4	EN				
WI4062TU	Transport, Routing and Scheduling Problems	3	EN				
WI4156(TU)	Game Theory	6	EN				
WI4525TU	Monte Carlo Simulation and Stochastic Processes	5	EN				
WI4771TU	Object Oriented Scientific Programming C++	3	EN				
YEAR 2							
RO Graduation Project Obligatory (45 ECTS)							
RO57010-20	RO Literature Research	10	EN	0.x.x.x	2		R
	T1 Literature Research	(10)	EN				
	T2 Presentation	(0)	EN				PS
	T3 Colloquium Attendance	(0)	EN				attendance
RO57035	RO MSc Thesis	35	EN	0.x.x.x	2, 3, 4		R + O
RO Electives (Choose 1 out of 2, or 15 ECTS free electives)							
RO57015	RO Internship / Research Assignment	15	EN	x.x.0.0	1		R
TUD4040	Joint Interdisciplinary Project	15	EN	x.0.0.0			

¹ EN = English, or NL = Dutch

² T = Exam [summative] (with registration), TD = Digital Exam [summative] (with registration), TX = Test [formative] (without registration), TDX = Digital Test [formative] (without registration), XX = other way of testing (without registration).

³ Does the course include a practical exercise (**Art. 7.13 Section 2, Subsection d, WHW**)?

⁴ W = Written, D = Digital, O = Oral, RT = Remote, R = Report, A = Assignment, PT = Practical, PS = Presentation/Defense)

APPENDIX to Article 3 of the Model Teaching and Examination Regulations

Bridging programmes MSc Robotics

BRIDGING PROGRAMME TO MSc ROBOTICS (2023-2024)					HBO	WO [4TU]										
					HBO-WB, Mechtr	WO-CSE	WO-CT	WO-ET	WO-IO	WO-KT	WO-MST	WO-MT	WO-NB	WO-TN		
COURSE CODE	COURSE NAME	EC	PERIOD													
			1	2	3	4										
IFEEMCS012100	Calculus for Engineering, deel 1	3	■				3									
IFEEMCS012200	Calculus for Engineering, deel 2	3		■			3									
IFEEMCS012300	Calculus for Engineering, deel 3	3			■		3									
IFEEMCS010400	Lineaire Algebra	5	■				5			5						
WI1909TH	Differentiaalvergelijkingen TH	3		■			3									
WBMT2048	T1 Wiskunde 3 - Analyse	3	■					3	3		3	3				
WBMT2048	T2 Wiskunde 3 - Differentiaalvergelijkingen	3		■				3			3	3				
WI2032TH	Numerieke Wiskunde + practicum	3				■	3			3	3	3				
WB2630	T1 S Advanced Mechanics - Rigid-Body Dynamics	3	■				3	3		3	3	3	3	3		
WB3240	Systeem- en Regeltechniek	6			■		6		6		6	6	6	6		
WB2235	Signaalanalyse	6			■											
AESB2210-18	Mathematics 5	5		■				5						5		
							29	14	9	3	23	18	12	6	14	9