TEACHING AND EXAMINATION REGULATIONS

(TER)

2021-2022

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

MASTER'S DEGREE PROGRAMME

MECHANICAL ENGINEERING

DELFT UNIVERSITY OF TECHNOLOGY

Table of contents

Paragraph 1 - General

Article 1 – Applicability of the regulations

1. These regulations apply to the teaching and examinations of the Master's programme Mechanical Engineering, 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 of 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: 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;

f. examination: investigation of the student's knowledge, insight and skills with regard to a course, along with the assessment of that investigation;

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 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;

p. 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 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 Mechanical Engineering on the condition that all of the stated requirements have been met.

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

b. Other 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 Civil Engineering, Electrical Engineering, Industrial design, Marine Technology, Molecular Sciences and Technology, Clinical Technology, Applied Physics.
Bridging programme to be followed:

COURSE CODE	COURSE NAME	ECTS
For Bachelors Civil Engineering		
WB2542 T2 S	Warmteoverdracht	3
WB2543	Process Engineering and Thermodynamics	6
WB3240	Systeem- en Regeltechniek	6
For Bachelors Electrical Engineering		
WB2630	Advanced Mechanics	6
WB2632	Mechanica Project	6
WB2542	Stroming en Warmte	6
WB2543	Process Engineering and Thermodynamics	6
WB2330	Materiaalkunde	6
For Bachelors Industrial Design		
WB2630	Advanced Mechanics	6
WB2631 T2 S	FEM	1
IFEEMCS010400	Lin. Algebra	5
WBMT2048	Wiskunde 3 - Analyse en Differentiaalvergelijkingen	6
WB2542	Stroming en Warmte	6
WB2543	Process Engineering and Thermodynamics	6
WB3240	Systeem- en Regeltechniek	6
WI2032TH	Numerieke Wiskunde + practicum	3
For Bachelors Marine Technology		
WB2632 T1 S	Advanced Engineering Design	3
WB2542 T2 S	Warmteoverdracht	3
WB2543 T1 S	Process Engineering and Thermodynamics - theory	3
WB3240	Systeem- en Regeltechniek	6

A bridging programme is completed when all courses are passed with a minimum final mark 6.0.

c. 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 Mechanical Engineering, Mechatronics.

Bridging programme to be followed:

COURSE CODE		COURSE NAME	ECTS
IFEEMCS012100		Calculus for Engineering, deel 1	**3**
IFEEMCS012200		Calculus for Engineering, deel 2	**3**
IFEEMCS012300		Calculus for Engineering, deel 3	**3**
IFEEMCS010400	T1	Lineaire Algebra	**5**
WI1909TH	T1	Differentiaalvergelijkingen TH	**3**
WI2032TH	T1	Numerieke Wiskunde + practicum	**3**
WB2630	T1	Advanced Mechanics - Rigid-Body Dynamics	**3**
WB2630	T2	Advanced Mechanics - Continuum Mechanics	**3**
WB2542	T1	Stroming & Warmte - Stromingsleer	**3**
WB2542	T2	Stroming & Warmte - Warmte-overdracht	**3**
WB3240	T1	Systeem- en Regeltechniek	**6**
WB2631	T2 S	FEM (alleen voor schakelaars)	**1**
WB2543	T1	PET - Tentamen	**3**

A bridging programme is completed when all courses are passed with a minimum final mark 6.0.

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's degree programme in Mechanical Engineering 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 2021-2022 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 2020-2021 academic year may be conditionally admitted provided that, on 31 August 2021, they:

   - have a deficit not exceeding 15 ECTS for the Bachelor's degree audit of the Bachelor's programme referred to in this article, or
   - have a deficit not exceeding 15 ECTS for completion of the bridging programme referred to in this article, but
   - have in any event successfully completed at least the following components:
     Bachelor Eindproject (Bachelor End Project / BEP)

If, on 31 August 2022, students have not met the admission requirements referred to in Section 1 of this article, they will be unenrolled from the degree programme.

The foregoing does not apply to the student who used the regulation applicable in the academic year 2020/2021 in connection with the Covid-19 outbreak for conditional admission in the event of a deficit not exceeding 15 ECTS.

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 Mechanical Engineering, providing them with such a level of knowledge, insight and skills in the area of Mechanical Engineering, 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, 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 the following tracks:

- Biomechanical Design
- Energy and Process Technology
- High-Tech Engineering
- Opto-Mechatronics
- Multi-Machine Engineering

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.

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
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/related/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: the course 'Critical Reflection on Technology', UD2010, or the course " Business Leadership for Engineers", UD2012 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 the faculty component 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 six calendar days before the examination. Students receive examination tickets by email as confirmation of their registration.
2. 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.
3. 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.
4. 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.
5. Section 3 of this article does not apply to a written examination that is taken online, remotely from the university.
6. If unforeseen circumstances or measures make it necessary to change the form or manner of taking the examination, the Dean 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 six 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 l 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 examinations other than written examinations, unless this cannot be reasonably demanded of the programme. 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.

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, or if the student has filed an objection to the publicity of the final presentation.

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 educational period, as well as for resits from the first academic year taken during the summer resit period, shall be determined, registered and published within five working days of the week following the week in which the examination was taken.

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 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.

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.

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 [Bachelor's/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 disabilities or chronic illnesses
(Art. 7.13 Section 2, Subsection m WHW)
FSC right of approval, BoS advisory powers

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, 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
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 2021. These regulations shall remain in force until they are replaced by other regulations.

Adopted by the Dean of the faculty on 25 August 2021.

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

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 Mechanical Engineering

3TU-criteria
1. Competent in the scientific discipline Mechanical Engineering A graduate in Mechanical Engineering is able to… 1A. …apply advanced physics and measurement methods in mechanical systems. 1B. …design, carry out and evaluate experiments. 1C. …identify, design and control mechanical systems in an interactive and noisy environment. 1D. …relate scientific knowledge to mechanical systems considering their interaction with the environment.
2. Competent in doing research A graduate in Mechanical Engineering is able to… 2A. …study a topic by critically selecting relevant scientific literature. 2B. …write a scientific report about own research. 2C. …analyse mechanical systems at various levels of abstraction. 2D. …generate knowledge within the discipline of Mechanical Engineering.
3. Competent in designing A graduate in Mechanical Engineering is able to… 3A. …systematically design complex mechanical systems. 3B. …generate innovative contributions to the discipline of Mechanical Engineering.
4. A scientific approach A graduate in Mechanical Engineering is able to… 4A. …apply paradigms, methods and tools to (re)design a mechanical system. 4B. …manage own scientific research independently. 4C. …analyse problems and use modelling, simulation, design and integration towards solutions.
5. Basic intellectual skills A graduate in Mechanical Engineering is able to… 5A. …analyse and solve technological problems in a systematic way. 5B. …plan and execute research and design in changing circumstances. 5C. …integrate knowledge in an R&D project, considering ambiguity, incompleteness and limitations. 5D. …identify and acquire lacking expertise. 5E. …critically reflect on own knowledge, skills and attitude. 5F. …remain professionally competent. 5G. …take a standpoint with regard to a scientific argument within the research area.
6. Competent in operating and communicating A graduate in Mechanical Engineering is able to… 6A. …work both independently and in multidisciplinary teams. 6B. …present and report in good English. 6C. …explain and defend outcomes from the research area to academia and industry, to specialists and laymen.
7. Considering the temporal and social context A graduate in Mechanical Engineering is able to… 7A. …evaluate and assess the technological, ethical and societal impact of own work. 7B. …act responsibly with regard to sustainability, economy and social welfare.

APPENDIX to Articles 7 and 16 of the Model Teaching and Examination Regulations

Course code	Course name (EN)	ECTS	Language	Education periods	Form of education and contact hours	Period of examination(s)	Type of Test
Toelichting of suggestie voor invullen	Always provide an English name, even when the course is taught in Dutch. Only the English name will be visable on the Diploma Supplement and gradelists. (Please do check the spelling as we copy-paste directly into Osiris)		[NL/EN]	Only provide valid periods according to AY (1,2,3,4,5 [A,B]);	Provide contact hours per form; - Lecture (HC) - Design (D) - PC- Pract (PCP) - Project (PJ) - Seminar (S) - Pract (PT) - Excursion (E) - Presentation (PS) - Workshop (W) *these are the official used terms	Only provide valid periods according to AY (1,2,3,4,5 [A,B]); - 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) Start with H when it concerns a resit. TX = tussentoets	Provide per test the following:; - Form [Written, Digital, Oral, other ...) - compulsary or choice - gradingscale (P/F or 1-dec] - min.grade - weight (0-100%)
YEAR 1 (ALL STUDENTS ME)							
ME Obligatory courses (11 ECTS)							
ME46000	Nonlinear Mechanics	4	EN	2	0.4.0.0	2,3 [TD]	W
ME46006	Physics for Mechanical Engineers	4	EN	1	4.0.0.0	1,2 [T, HT]	W
ME46007	Measurement Technology	3	EN	3	0.0.4.0	3,4 [T, HT]	W
ME Recommended courses (Select at least 5 ECTS)							
SC42001	Control Systems Design	5	EN	1	4.0.0.0	1,2 [T, HT]	W
ME41106	Intelligent Vehicles 3ME	5	EN	2	0.6.0.0	2,3 [T, HT]	W
ME44210	Drive & Energy Systems	3	EN	1	3.0.0.0	1,2 [T, HT]	W
ME45001	Advanced Heat Transfer	4	EN	1	4.0.0.0	1,2 [T, HT]	W
ME45042	Advanced Fluid Dynamics	5	EN	1,2	4.4.0.0	1, 2, 3 [T, T+HT, T+HT]	W
ME Social courses (Select min 3 ECTS, max. 6 ECTS)							
ID4185	Strategic & Sustainable Design	3	EN	4			A, W
ID4235	Reflection on Designing	3	EN	1	2.0.0.0	1	R
RO47008	Robot & Society	5	EN	3	0.0.x.0	3,4 [XX+T, HT]	A, W, R
TPM024a	Methods for Risk Analysis and Management	5	EN	3	0.0.0.4	3, 4	W
TPM013A	Environmental Ethics + essay	5	EN	4	0.0.0.2	4, 5	A, W, R
TPM404A	Technology Entrepreneurship and Global Development	4	EN	1, 2	2.0.0.0	1,2	W
TPM416A	Turning Technology into Business	6	EN	3	0.4.0.0	2	R
TPM420A	Ready to startup	6	EN	1, 2, 3, 4	x.x.x.x	1,3	A, R
WM0320TU	Ethics and Engineering	3	EN	1, 3	4.0.4.0	1,3	A, W
WM0329TU	Ethics and Engineering	6	EN	1, 3	4.0.4.0	1,3	A, W, R
WM0349WB	Philosophy of engineering science and design	3	EN	4	0.0.0.4	4,5	W
WM0353TU	Climate Ethics	3	EN	2	0.3.0.0	2, 3	W
WM0801TU	Introduction to Safety Science	3	EN	2	0.3.0.0	2, 3	W
WM1301TU	Ethics of Transportation	3	EN	3	0.0.2.0	3, 4	A, W
WM1302TU	Ethics of Transportation + essay	5	EN	3	0.0.2.0	3, 4	A, W, R
WM1401TU	Ethics of Healthcare Technologies	3	EN	1	2.0.0.0	1,2	A, W
WM1402TU	Ethics of Healthcare Technologies + essay	5	EN	1	2.0.0.0	1,2	A, W, R
TRACK A. BIOMECHANICAL DESIGN (BMD) - coordinator Bob van Vliet			EN				
YEAR 1 (ME-BMD)			EN				
ME-BMD Obligatory Courses			EN				
BM41040	Neuromechanics & Motor Control	5	EN	3, 4	0.0.4.4	4,5 [XX+T, HT]	A, W
SC42001	Control Systems Design	5	EN	1	4.0.0.0	1,2 [T, HT]	W
ME41005	Musculoskeletal Modelling and Simulation	3	EN	4	0.0.0.6	4,5 [XX+T, HT]	A, W, R
ME41055	Multibody Dynamics B	4	EN	3, 4	0.0.2.2	3, 4	A, W
RO47006	Human Robot Interaction	5	EN	2	0.6.0.0	2, 3 [XX+T, HT]	A, W

ME-BMD Design Project Courses: Select at least 2							
BM41070	Medical Device Prototyping	6	EN	3, 4	0.0.2.2	4 [XX]	R
ME41085	Biomechatronics	4	EN	3, 4	0.0.2.2	4 [XX]	R
ME41096	Bio Inspired Design	5	EN	1, 2	4.4.0.0	2	R
ME46015	Precision Mechanism Design	4	EN	3, 4	0.0.2.2	3, 4 [XX+T, HT]	W, R
ME46115	Compliant mechanisms	4	EN	1, 2	2.2.0.0	2 [XX]	R
ME-BMD Electives							
AE4ASM103	Functional Coatings	3	EN	2	0.4.0.0	2,3	
AE4ASM104	Smart Materials & Sensors	3	EN	3	0.0.2.0	3,4	
BM41055	Anatomy and Physiology	4	EN	1	2.2.0.0	2, 3	
BM41155	3D Printing	4	EN	3	0.0.4.0	3, 4	
IN4010(-12)	Artificial Intelligence Techniques	6	EN	1,2	3.3.0.0	1,2,3	
ME41035	Special Topics in Sports Engineering	3	EN	4	0.0.0.5	4	
ME41050	Multibody Dynamics A	3	EN	2	0.4.0.0	2, 3	
ME41060	Matlab in Engineering Mechanics	2	EN	2	0.2.0.0	2, 3	
ME41065	System Identification and Parameter Estimation	7	EN	1, 2	4.4.0.0	2, 3	
ME41120	Freehand Sketching of Products and Mechanisms	3	EN	3	0.0.4.0		
ME41125	Introduction to Engineering Research	3	EN	4	0.0.0.4	4	
ME46041	Experimental Dynamics	4	EN	3, 4	0.0.2.2	4	
ME46050	Advanced Finite Element Methods	4	EN	3, 4	0.0.4.0	4	
ME46055	Engineering Dynamics	4	EN	1	4.0.0.0	1,2	
ME46060	Engineering Optimization: Concepts and Applications	3	EN	4	0.0.0.4	4	
ME46070	Fundamentals of Mechanical Analysis	4	EN	3	0.0.4.0	3, 4	
RO47003	Robot Software Practicals	5	EN	1	6.0.0.0	1, 2	
RO47004	Machine Perception	5	EN	2	0.6.0.0	2, 3	
RO47005	Planning & Decision Making	5	EN	2	0.6.0.0	2, 3	
RO47015	Applied Experimental Methods: Human Factors	5	EN	4		4	
SC42045	Control Systems Lab	4	EN	3	0.0.4.0	3	
SC42050	Knowledge Based Control Systems	4	EN	3	0.0.4.0	3, 4	
SC42056	Optimization in Systems and Control	3	EN	1	4.0.0.0	1, 2	
TW3720TU	Object Oriented Scientific Programming C++	3	EN		0.6.0.0		
YEAR 2 (ME-BMD)							
ME-BMD Second Year Project: Select 1							
ME51015	ME-BMD Internship / Research Assignment	15	EN	1	0.0.x.0		
TUD4040	Joint Interdisciplinary Project	15	EN	1	x.0.0.0		R
ME-BMD Graduation Project							
ME51010-20	ME-BMD Literature Research	10	EN	1	0.x.0.0		
T1	Literature Research Report	(10)	EN	2	0.x.0.0		
T2	Colloquium Presentation	(0)	EN	2	0.x.0.0		
T3	Colloquium Attendance	(0)	EN	1	2.2.2.2		
ME51035	ME-BMD MSc Thesis	35	EN	3	0.x.x.x		
TRACK B. ENERGY, FLOW AND PROCESS TECHNOLOGY (EFPT) - coordinator Brian Tighe							
YEAR 1 (ME-EFPT)							
ME-EFPT Obligatory courses (10 ECTS)			EN				
ME45160	Advanced Applied Thermodynamics	5	EN	2	0.4.0.0	2, 3 [T, HT]	W
ME45165	Equipment for Heat & Mass Transfer	5	EN	3	0.0.8.0	3, 4 [XX+T, HT]	W + A
ME-EFPT Select at least 10 ECTS			EN				
ME45030	Turbulence	5	EN	3, 4	0.0.4.4	4,5 [T, HT]	W
ME45070	Advanced Reaction & Separation Systems	5	EN	3	0.0.4.0	3, 4 [XX+T, HT]	W + R
ME45135	Process Plant Design	5	EN	4	0.0.0.4	4 [XX]	O + R
ME45155	Modelling of Thermo- & Hydrodynamic Systems	5	EN	3	0.0.4.4	4, 5 [T, HT]	W + R
ME-EFPT Elective courses							
AE4117	Fluid-Structure Interaction	4	EN		0.0.2.0		
AE4140	Gas Dynamics	3	EN		4.0.0.0		

CH3043a	Process Dynamics & Control (PD&C)	3	EN		0.8.0.0		
CH3061	Multiphase Reactor Engineering	4	EN		0.0.4.0		
CH3142	Molecular Thermodynamics (MTD)	5	EN		12.0.0.0		
CH3672	Computational Materials Science	3	EN		0.0.4.0		
CH3804	Product & Process Design	5	EN		0.0.8.4		
ME41005	Musculoskeletal Modelling and Simulation	3	EN	4	0.0.0.6	4,5 [XX +T, HT]	A + W
ME41125	Introduction to Engineering Research	3	EN	4	0.0.0.4	4 [XX]	
ME45025	Introduction to Multiphase Flow	5	EN	3	0.0.4.4	4, 5 [XX +T, HT]	W + A
ME45075	Refrigeration & Heat Pumps Fundamentals	4	EN	1	4.0.0.0	1, 2 [T, HT]	W
ME45111	Buildings as Energy and Indoor Climate Systems'	5	EN	1	4.0.0.0	1, 2 [XX +T, HT]	W + A
ME45170	Turbomachinery	4	EN	2	0.2.0.0	2,3 [XX +T, HT]	W + A
ME45190	Chaos in Dynamical Systems	3	EN	2	0.2.0.0	2 [XX]	A
ME45201	Electrochemical Energy Storage 1: Fundamentals	3	EN	3	0.0.4.0	3,4 [XX +T, HT]	W + R
ME45203	Electrochemical Energy Storage 2: Analytical Modelling	4	EN	4	0.0.0.4	4,5 [T, HT]	W
ME45211	Introduction to Molecular Simulation	5	EN	4	0.0.0.4	4, 5 [XX +T, HT]	W + A
MT44100	Internal Combustion Engines A	5	EN	3	0.0.4.0	3, 4 [XX +T, HT]	W + A
SET3070	Thermochemistry of Biomass Conversion	4	EN	2	0.4.0.0	2,XX	Other, assignments and presentation
WI4014TU	Numerical Analysis	6	EN		2.2.0.0		
WI4019	Non-linear Differential Equations	6	EN		0.0.2.2		
YEAR 2 (ME-EFPT)							
ME-EFPT Graduation Project Obligatory (45 ECTS)							
ME55010-20	ME-EFPT Literature Research	10	EN	2	x.x.x.x		
T1	Literature Research	(10)	EN	2	0.x.0.0		
T2	Colloquium Presentation	(0)	EN	2	0.x.0.0		
T3	Colloquium Attendance	(0)	EN	1	1.1.1.0		
ME55035	ME-EPT MSc Thesis	35	EN	3	0.x.x.x		
ME-EFPT Electives: Select 1 out of 2 (15 ECTS)			EN				
ME55015	ME-EPT Research Assignment	15	EN		x.x.0.0		
TUD4040	Joint Interdisciplinary Project	15	EN	1	x.0.0.0		R
			EN				
TRACK C. HIGH-TECH ENGINEERING (HTE) - coordinator Ron van Ostayen & Eveline Matroos							
YEAR 1 (ME-HTE)			EN				
ME-HTE Obligatory I			EN				
ME46110	Intro lab PME	2	EN	1	12.12.0.0	1 [XX]	A
ME-HTE Obligatory II (choose 5 out of 7)			EN				
ME46015	Precision Mechanism Design	4	EN	3	0.0.2.2	4, 5 [T, HT]	W
ME46020	Micro- & Nanosystems Design & Fabrication, incl. MEMS Lab.	4	EN	3	0.0.5.0	3 [XX]	R
ME46055	Engineering dynamics	4	EN	1	4.0.0.0	1, 2 [XX +T, HT]	W + A
ME46060	Engineering Optimization: Concept and Applications	3	EN	4	0.0.0.4	4 [XX]	A + R
ME46070	Fundamentals of Mechanical Analysis	4	EN	3	0.0.4.0	3, 4 [T, HT]	W
ME46085	Mechatronic System Design	4	EN	2	0.4.0.0	2, 3 [XX +T, HT]	A + W
ME46300	Optics	4	EN	1	4.0.0.0	1,2 [XX +T, HT]	W + R
ME-HTE Elective Courses							
AE4117	Fluid-structures interaction	4	EN		0.0.2.0		
AE4880	Space Instrumentation	4	EN		0.0.4.0		
AE4ASM104	Smart Materials & Sensors	3	EN		0.0.2.0		
AE4ASM516	Material Selection in Mechanical Design	3	EN		0.0.0.2		
AE4S12	Space Systems Engineering	3	EN		2.2.0.0		
AE4S20	Satelite Thermal Control	3	EN		0.2.0.0		
AP3122	Advanced Optical Imaging	6	EN		4.4.0.0		
AP3391	Geometrical Optics	3	EN		?		
AP3401	Introduction to Charged Particle Optics	6	EN		0.0.2.2		
BM41155	3D Printing	4	EN		0.0.4.0		
CH4011MS	Polymer Science	4	EN		?		
CIE4140	Structural Dynamics	4	EN		0.0.6.0		
CIE5123	Introdcution to the Finite Element Method	4	EN		0.0.6.0		
CIE5145	Random vibrations	4	EN		0.0.0.4		
ET4117	Electrical Machines and Drives	4	EN		0.4.0.0		
ET4257	Sensors and Actuators	4	EN		0.3.0.0		
ET4260	Microsystem Integration	4	EN		0.0.0.3		
ET4277	Microelectronics Reliability	4	EN		0.0.3.0		
ET4289	Integrated Circuits aand MEMS technology	4	EN		0.0.3.0		
ET4391	Advanced Microelectronics packaging	3	EN		0.0.2.0		
ME41005	Musculoskeletal Modelling and Simulation	3	EN	4	0.0.0.6	4,5 [XX +T, HT]	A + W
ME41055	Multibody Dynamics B	4	EN	3	0.0.2.2	3,4 [XX]	A + D
ME41060	Matlab in Engineering Mechanics	2	EN	2	0.2.0.0	2 [XX]	R
ME41096	Bio Inspired Design	5	EN	1, 2	4.4.0.0	2 [XX]	R
ME41125	Introduction to Engineering Research		EN	4	0.0.0.4	4 [XX]	O
ME46010	Intro to Nanoscience and Technology	3	EN	3	0.0.4.0	3, 4 [XX +T, HT]	W

ME46025	Manufacturing for the Micro and Nano Scale	3	EN	4	0.0.0.2	4 [XX]	O + R
ME46035	Stability of Thin-Walled Structures 1	4	EN	4	0.0.0.4	4 [XX]	O + R
ME46041	Experimental Dynamics	4	EN	3	0.0.2.2	4 [XX]	A
ME46050	Advanced Finite Element Methods	4	EN	3	0.0.4.0	4 [XX]	R
ME46065	Thin Film Materials	3	EN	3	0.0.4.0	3 [XX]	R + O
ME46072	Nonlinear Dynamics	4	EN	4	0.0.0.4	4 [XX]	D + A
ME46080	Enriched Finite Element Methods	4	EN	4	0.0.0.2	4 [XX]	R
ME46095	Multiphysics Modelling using COMSOL	4	EN	3	0.0.2.0	3 [XX]	R
ME46115	Compliant Mechanisms	4	EN	1	2.2.0.0	2 [XX]	R
ME46120	Predictive Modelling	4	EN	4	0.0.0.4	4 [XX]	A
ME46125	Micro and Nanofabrication for Cell Biology and Tissue Engineering	3	EN	4	0.0.0.4	4 [XX]	R + O
ME46310	*Vak wordt niet gegeven in 21-22* Opto-Mechatronics	4	EN	1,2	2.4.0.0	1,2 [XX +T, HT]	W + O + A
ME46315	Technical & Micro Optical Systems	4	EN	3	0.0.2.2	4 [XX]	A + R + O
ME46320	Light propagation in Diffuse and Biological media	6	EN	3,4	0.0.4.4.	4 [XX]	A
MS43100	Science of Failure	3	EN	3	0.0.4.0	3, 4 [T, HT]	W
MS43210	Advanced Characterisation	4	EN	4	0.0.0.4	4,5 [XX +T, HT]	W + A
MS43325	Application of Materials in High Tech Engineering	3	EN	3		3, H4	Written
SC42025	Filtering & Identification	6	EN	2	0.4.0.0	2,3 [XX +T, HT]	W + A
SC42030	Control for High Resolution Imaging	3	EN	4	0.0.0.4	4 [XX]	A + O
SC42061	Nonlinear Systems Theory	3	EN	1	6.0.0.0		W
SC42065	Adaptive Optics Design Project	3	EN	4	0.0.0.4		O + R
SC42145	Robust Control	3	EN	2	0.4.0.0	2, 3 [T, HT]	S
WI4014TU	Numerical Analysis	6	EN		2.2.0.0		
WI4019	Non-linear Differential Equations	6	EN		0.0.2.2		
YEAR 2 (ME-HTE)							
ME-HTE Graduation Project (45 ECTS)							
ME56010-20	ME-HTE/OM Literature Research & Project definition	10	EN	1	x.0.0.0		R + O
T1	literature review and project definition	(10)	EN	2	x.0.0.0		R
T2	Project proposal presentation	(0)	EN	2	x.0.0.0		O
T3	Colloquium Attendance	(0)	EN	1	x.0.0.0		
ME56035	ME-HTE/OM MSc Thesis	35	EN	3	0.0.x.x		R + O
ME-HTE Electives: Select 1 out of 3 (15 ECTS)							
ME56015P	ME-HTE/OM Midterm Review	15	EN	1	x.x.x.x		
ME56015S	ME-HTE/OM Internship	15	EN	1	x.x.x.x		
TUD4040	Joint Interdisciplinary Project	15	EN	1	x.0.0.0		
			EN				
TRACK D. MULTI-MACHINE ENGINEERING (MME) - coordinator Mark Duinkerken							
YEAR 1 (ME-MME)							
ME-MME Obligatory Courses (29 ECTS)							
ME44101	Dynamics and Interaction of Material and Equipment	4	EN	1		1,2	A + W
ME44101 T1	Practicum - 25%		EN	1	x.0.0.0	1	R
ME44101 T2	Tentamen - 75%		EN	1	4.0.0.0	1, 2 [T, HT]	W
ME44106	Structural Design with FEM	4	EN	2	0.6.0.0	2,3 [XX +T, HT]	A + W
T1	Practicum - 75%					2	R
T2	Tentamen - 25%					2, 3	W
ME44110	Integrated Design Project for Multi-Machine Systems	5	EN	3	0.0.2.2	4 [XX]	R
ME44200	Operations & Maintenance	3	EN	3	0.0.2.0	3 [XX]	R
ME44206	Quantitative Methods for Logistics	5	EN	1	2.2.0.0	2,3 [XX +T, HT]	R + W
ME44206 T1	Practicum - 25%		EN	1	x.0.0.0	1 [XX]	R
ME44206 T2	Practicum - 25%		EN	2	0.x.0.0	2 [XX]	R
ME44206 T3	Tentamen - 50%		EN	1, 2	2.2.0.0	2, 3 [T, HT]	W
ME44300	Multi-Machine Coordination for Logistics	3	EN	4	0.0.0.2	4, 5 [T, HT]	W
ME44305	System Analysis and Simulation	5	EN	3, 4	0.0.2.2	4 [XX]	R
ME-MME Elective Courses							
ME44115	Discrete Element Method (DEM) Simulation	4	EN	3	0.0.4.0	3 [XX]	O + R
ME44125	Reliability and Maintenance of Transport Equipment	3	EN	3	0.0.4.0	3 [XX]	A + R + O
ME44311	Advanced Operations and Production Management	5	EN	3	0.0.2.2	4 [XX]	R
ME44312	Machine Learning for Transport and Multi-Machine Systems	3	EN	4	0.0.0.2	4 [XX]	R
MT44000	Mechatronics in MT		EN				
YEAR 2 (ME-MME)							
ME-MME Graduation Project Obligatory (45 ECTS)							
ME54010-20	ME-MME Literature Research	10	EN	1	x.0.0.0	R + O	
T1	Literature Research	(10)	EN	1	x.0.0.0	R	
T2	Colloquium Presentation	(0)	EN	1	x.0.0.0	O	
T3	Colloquium Attendance	(0)	EN	1	x.0.0.0		
ME54035	ME-MME MSc Thesis	35	EN	3	0.0.x.x	R + O	

ME-MME Electives: Select 1 out of 2 (15 ECTS)						
ME54015	ME-MME Research Assignment	15	EN	2	0.x.0.0	R
TUD4040	Joint Interdisciplinary Project	15	EN	1	x.0.0.0	

TRACK E. OPTO-MECHANTRONICS (OM) - coordinator Ron van Ostayen & Eveline Matroos

Track blijft nog bestaan in de studiegids, maar zonder ingevulde boomstructuur. Deze is hetzelfde als voor ME-HTE, vandaar dat we in de beschrijving zullen hebben staan: '*The track OM is currently offered as a focus area OfE (Optics for Engineers) within the Track HTE. This has no consequence on the content or formalities but gives students more flexibility in choosing electives and liaising with a larger student population.*

**** Type of test subject to changes due to changing corona guidelines**