PROGRAM AND EXAMINATION REGULATIONS 2019-2020

FOR THE MASTER’S PROGRAM IN

MECHANICAL ENGINEERING

ACCORDING TO THE GRADUATE SCHOOL

The Board of the Department Mechanical Engineering of Eindhoven University of Technology ("TU/e"),
in view of Articles 9.5, 9.15, paragraph 1 under a, Article 7.13, paragraphs 1, 2 and 3, Article 9.38 under b, Wet op het hoger onderwijs en wetenschappelijk onderzoek’ (WHW) and Article 9.18, paragraph 1 under a, as well as Article 7.8b WHW,
in view of the approval/the advice of the Joint Program Committee of the Masters room on April 9, 2019,
in view of the approval/the advice by the University Council on April 23, 2019,
in view of the approval/the advice of the Department Council dated June 6 2019,
in view of the approval/the advice of the Program Committee dated June 13 2019,
in view of the advice of the Examination Committee of June 27, 2019,
hereby establishes these Program and Examination Regulations (hereafter OER) for the Master’s program in Mechanical Engineering.
This OER enter into force on September 01, 2019 with exception of Articles 3.7 and 3.8 that enter into force on August 1, 2019 and are applicable to July 31, 2020
read as follows:
H 1 GENERAL PROVISIONS

Art 1.1 Scope

1. These regulations apply to the teaching, examinations and final examinations of the Master’s program in Mechanical Engineering.

2. Stipulations of the Program and Examination Regulations of the Bachelor’s program in question apply if Master’s students takes Bachelor’s program study components.

Art 1.2 Definitions

a. competency
   an individual's ability to acquire, select and use the set of attitudes, skills and knowledge that is required to behave effectively in a specific professional, societal or learning setting.

b. Competency Assessment (CA)
   an assessment (as referred to in Article 7.10, paragraph 1 of the WHW) into the students’ academic and professional competency development. The CA results in a verdict and is based on oral, written, digital and/or physical information and evidence.

c. course catalogue
   the part of OSIRIS in which information about study components is stored and displayed. For a study component mention is made of the teachers involved, the parts of the test and how these are weighed, among other things.

d. Education and Student Affairs (ESA)
   the service within TU/e where students and others can make use of a variety of services in the field of educational support.

e. examiner
   the officer responsible for an individual study component at TU/e who is appointed by the Examination Committee to assess students by means of examinations/CAs about the study component and to determine their results.

f. final examination
   the Master’s examination of the degree program. This examination is successfully completed if all requirements have been met concerning the Master’s degree program as a whole.

g. quarter
   the academic year is divided into four quarters. The start and end dates of these quarters is determined annually in the TU/e annual academic calendar.

h. subject specialist
   a teacher or similar representative with expertise concerning content who is not a student.

i. mentor
   an assistant, associate or full professor appointed by the director of the Graduate Program, who supervises students as they put together their program of examinations/PDP and the related choices that need to be made.
j. **intra-university transfer student**

students who alter their enrollment in a certain degree program or pre-Master’s program in the running academic year into an enrollment in another degree program or pre-Master’s program at the TU/e.

k. **study component**

a component of the degree program aimed at achieving clearly defined goals concerning knowledge, insight, skills, and/or competency development with an associated examination or CA.

l. **OSIRIS**

The educational administration system in which the administration of students is maintained by the Departmental Center of Student Administration during the registration period.

m. **personal development plan (PDP)**

a document aimed at planning and directing the development of students’ competencies on a continuous basis. This is done by setting goals based on learning experiences and reflection.

n. **portfolio**

Not applicable for this program.

o. **practical exercise**

an educational activity in one of the following forms:
- writing a thesis,
- undertaking a project or an experimental design,
- carrying out a design or research assignment/project,
- doing a literature study,
- doing an internship,
- making a (public) presentation,
- taking part in fieldwork or an excursion,
- conducting tests and experiments,
- writing a position paper,
- taking part in other practical educational activities designed to acquire specific skills.

The educational activity in question, is part of a study component that is finalized with an exam or a CA, or a study component.

p. **professional skills**

non-disciplinary skills required in a professional environment by a successful Master’s graduate

q. **response term**

the Examination Committee must decide within four weeks of having received a request, unless the request was made after the Examination Committee meeting held in June. Such requests are processed in the August meeting.

r. **pre-Master’s program**

a program to eliminate deficiencies and after completion grants admission to a particular Master’s program.
s. **pre-Master’s student**
Student who are required to follow a pre-Master’s program to eliminate deficiencies before being admitted to the Master’s program.

t. **written**
where the term ‘written’ is used, digital communication (e-mail) or digital examinations are implied too.

u. **student**
a person taking a degree program at TU/e who is enrolled in the degree program this OER is related to, in accordance with the applicable TU/e Regulations ‘Registration, Study Choice Check, Enrollment and Termination of Enrollment’.

v. **academic year**
the period that starts on September 1 and ends on August 31 of the following year.

w. **study workload**
the expected number of hours of study required to successfully complete a degree program or study component. The study workload is expressed in credits, where 1 credit is equals to 28 hours.

x. **transfer student**
students who, during the academic year prior to the academic year for which they registered, were enrolled at TU/e (internal transfer student) or elsewhere at an institution for higher education or university education (external transfer student)

y. **examination**
connected to a study component and concerns an investigation into the knowledge, insight and skills of students, as well as an assessment of the results of that investigation.

z. **working day**
one of the weekdays, i.e. Monday through Friday, with the exception of public holidays recognized by the Dutch government, and days on which the university is closed.

aa. **WHW**
Higher Education and Scientific Research Act (WHW).

bb. The other terms used within these regulations have the meaning ascribed to them by law.

**Art 1.3** **TU/e Code of Conduct for Scientific Integrity**

During enrollment students are held to the TU/e Code of Conduct for Scientific Integrity. In the first half of the program, the student must sign a statement¹ in the presence of the mentor indicating they shall act in accordance with the TU/e Code of Conduct for Scientific Integrity throughout the Master’s program. This statement must be submitted to the departmental Center of Student Administration (henceforth departmental CSA by the students. An attachment is added at the beginning of the graduation project stating that students will act in accordance with the TU/e Code of Conduct for Scientific Integrity.

When the graduation work is completed, a statement is attached indicating that the work was realized in accordance with the code of conduct.

Violation of this code of conduct may be reported to the Complaints Committee for Scientific Integrity at TU/e. This Complaints Committee decides who shall process the
incident: the Complaints Committee or the Examination Committee of the respective degree program that deals with fraud in accordance with the stipulations of the Regulations for the Examination Committee.

1.4 Honors academy

There is an honors program for students who want an additional challenge. The regulations pertaining to this program are incorporated in the TU/e Honors Academy Regulations for Master’s Honors Tracks.

1.5 The digital learning environments

In various articles the names are used of the digital learning environments presently operative at the TU/e. If the digital learning environments are replaced during the course of the academic year, the new name of the learning environment should be read in the place of the old learning environment.

H 2 ADMISSION TO AND ENROLLMENT IN THE PROGRAM

Art 2.1 Admission and enrollment

1. Enrollment in the Master’s degree program is open only to those who have direct access to this program based on a Bachelor’s degree certificate, as specified in Appendix 1 under m, a proof of admission as referred to in paragraph 2 or who possess a statement issued by the Examination Committee of the Bachelor’s program in question.

2. Proof of admission will be issued by the Department Board on the basis of the applicable TU/e Admission Regulations for Master’s Programs.

3. Students who have followed a TU/e Bachelor’s program or a TU/e pre-Master’s program may be admitted to the Master’s program on the first day of the month, provided they meet the requirements and have been enrolled at the university for a continuous period. TU/e students who have completed a competency-centered Bachelor’s program and students who have completed a Bachelor’s program at a different university are admissible for enrollment in the Master’s program starting on September 1 and February 1 of each academic year, provided they meet the requirements. See also Appendix 1, under k.

Art 2.2 Following Master’s program study components without admission/enrollment

In accordance with Article 5.2 of the Program and Examination Regulations for Bachelor’s programs at TU/e, Bachelor’s students or Pre-Master’s students may participate in some study components of the Master’s program (without actually being enrolled in the Master’s program), provided the requirements have been fulfilled and permission to do so has been obtained from the Examination Committee of the relevant Master’s program. See also Article 4.3, paragraph 2 of these Program and Examination Regulations.

H 3 STRUCTURE AND CONTENT OF THE DEGREE PROGRAM

Art 3.1 Learning outcomes of the degree program

1. General learning outcomes of the degree program

Masters of Science graduates of this degree program:
- are academically qualified to degree level within the domain of ‘science engineering & technology’,
- are competent in the relevant domain-specific discipline(s) at the scientific Master’s degree level, as indicated in paragraph 2,
- are able to conduct research and design independently,
- have the ability and attitude to include other disciplines in their research, where necessary,
- have a scientific approach to complex problems and ideas,
- possess intellectual skills that enable them to reflect critically, reason and form opinions,
- have the ability to communicate the results of their learning, thinking and decision-making processes at an international level,
- are aware of the temporal and social context of science and technology (comprehension and analysis) and can integrate this context in their scientific work,
- in addition to a recognizable domain-specific profile, possess a sufficiently broad basis to be able to work or collaborate in an interdisciplinary and multidisciplinary context. In this context, multidisciplinary means being focused on other relevant disciplines needed to solve the design or research problem in question,
- have the ability and attitude to seek new potential applications, taking the social context into consideration.

2. Domain-specific disciplines as intended by the previous paragraph, second point:
   Mechanical Engineering, i.e.
   - have a profound understanding of at least one of the core disciplines of Mechanical Engineering: Systems, Dynamics & Control, Mechanics & Materials, Energy & Flow,
   - are able to maintain and expand their expertise in this field,
   - have good knowledge of the basic sciences that underlie this field,
   - are able to apply this knowledge and understanding to analyze and synthesize structures, machines, devices, systems or processes that accomplish a desired objective in a safe, ethical and sustainable way.

Art 3.2 Requirements specific to the degree program
1. With reference to the program, Appendix 1 includes the following:
   a. the content of the degree program and the corresponding examinations
   b. the content of the tracks,
   c. the organization of the practical exercises,
   d. the study workload of the program and of each of the accompanying study components,
   e. the number and the prerequisites of the examinations or CAs, and the times at which they can be taken,
   f. whether the program is offered as a full time and/or part time program,
   g. whether examinations or CAs are to be taken orally, in writing or otherwise,
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h. where necessary, that successful participation in examinations or a CA is a condition for admission to other examinations,

i. where necessary, the obligation to take part in practical exercises (as part of a study component) with a view to taking the examination or CA in question,

j. the study components from which the students must choose in order to complete the elective part of the degree program,

k. the number of opportunities to join the Master’s program,

l. the requirements for issuing a certificate of admission,

m. Bachelor’s degree certificates that provide direct access to the Master’s program,

n. the transitional arrangements as referred to in Article 7.1,

o. the way in which education in the degree program is evaluated and the results are made available to the relevant official bodies. The evaluation takes place through periodic course evaluations at the very least and by other degree program evaluations within the agreed TU/e formats.

2. Appendix 2 contains the rules and procedures for pre-Master’s programs.

3. Appendix 3 describes the contents of the pre-Master’s program.

4. Appendix 4 provides information regarding the regulations pertaining to the pre-Master’s program.

Appendix 5 is program specific: the Master Allocation Procedure.

5. The appendices constitute an integral part of these Regulations.

Art 3.3 Language

The program is delivered entirely in English and the examinations, CAs and final examinations are administered in English.

Art 3.4 Structure of the degree program

1. The program is a coherent set of study components designed to achieve the learning outcomes of the program.

2. The program has a study load of 120 credits and is divided into various study components as stated in the applicable Guideline Revision of Master’s Programs Graduate School. Appendix 1 contains details on the degree program (see Article 3.2, paragraph 1, part a, in conjunction with Appendix 1, part a).

3. The program includes a diagnostic test of the students’ professional skills at the start of the program and a subsequent mentoring meeting during the first or second quarter.

Art 3.5 Mentor

1. Students will receive program-related supervision from a mentor from the degree program for the duration of the program. Students will be linked to a mentor no later than five months after the degree program has commenced, unless those students request acknowledgement of special circumstances by the Examination Committee.
2. A mentor:
   - supervises students in their choice of specialized elective study components and gives advice,
   - supervises students as they compose the rest of the program of examinations/PDP,
   - within the framework of developing professional skills, meets with the students to discuss the results of the professional skills diagnostic test (see Article 3.4, paragraph 3) and the professional skills development plan they have developed.

3. If students have not chosen to include a minimum of 15 credits worth of international experience in their program of examinations, they must discuss this with their mentor.

Art 3.6 Program of Examinations

1. A program of examinations is a coherent set of study components that makes up students’ degree programs. In competency-centered programs the program of examinations is operationalized in the PDP of students.

2. Students must choose the specialized study components and free elective study components at Master’s level included in Appendix 1 under j. The specialized elective study components are only added to the program of examinations/PDP after advice from the mentor. Within the free electives, a maximum of 15 credits of Bachelor’s study components may be used to compensate deficiencies (homologation study components).

3. Students must submit all electives and other study components that will make up their program of examinations/PDP to the departmental CSA before they start their graduation project. The graduation project is also included in the program of examinations. At the same time, students must submit their program of examinations including the approval issued by the mentor, to the Examination Committee for approval. The Examination Committee must reach their decision within the response term and must indicate whether students may commence with their graduation project.

4. A decision to deny approval may not be made before students have been given the opportunity to be heard by the Examination Committee.

5. In making those program of examination choices, students must take account of the profile, career prospects and/or the academic emphases or broadening they wish to incorporate in their program.

6. No later than six months after the start of their Master’s program, students must submit their provisional program of examinations, including the approval issued by the mentor, to the Examination Committee for information. When composing this personal program of examinations, students should consult with the mentor to ensure that sufficient coherence is achieved.

7. The Examination Committee checks the program of examinations for coherence and quality as well as to ensure it meets the requirements for a Master’s program.

Art 3.7 Registering for and deregistering for study components
1. A student can register for a maximum of 20 study credits of study components per quarter and take examinations or CAs in those study components. A student who wishes to register for more study components must obtain permission from the Examination Committee.

2. For study components there is a registration deadline of up to five working days before the first quarter and twenty working days before the second, third and fourth quarter. For students who wish to register for study components that are completed by means of a CA, registration must take place no later than June 1 for the first quarter and no later than December 11 for the third quarter through OSIRIS.

3. If students decide not to participate in a study component for which they have registered, they are required to deregister in OSIRIS before the start of a quarter.

Art 3.8 Registering for a study component after the registration term

1. A student who fails to register for a study component within the period specified in Article 3.7 shall not be allowed to participate in the study component, unless the student has paid administration costs totaling €20 per study component no later than 5.00pm on the Thursday prior to the beginning of teaching in the first quarter, or no later than fifteen working days prior to the beginning of teaching in the second, third or fourth quarter. After payment of the administration costs students are immediately registered unless the maximum capacity for a course has been reached.

2. In cases of force majeure, at the discretion of the ESA Director, it may be decided that the student who reports after the terms mentioned in paragraph 1 may nevertheless be registered for a study component. In addition, the ESA Director may waive the administration costs stated in paragraph 1.

3. In the case of a situation as described in Article 3.7, paragraph 3, no supplementary administration costs will be incurred.

4. In the case that (in the end) due to force majeure, the student cannot participate in a study component for which administration costs have already been paid, the fee will be refunded.

Art 3.9 Flexible degree program

1. A student who is enrolled in a degree program may select study components from a university to compose a curriculum that involves a final examination, as referred to in Article 7.3h of the WHW.

2. A substantiated request for permission to take a flexible program must be submitted to the Examination Committee of the program in which the student is enrolled no later than twelve weeks before the relevant teaching begins.

3. The Examination Committee shall decide on the request within the response term. If necessary, at the request of the Examination Committee, the Executive Board can delegate this decision to the Examination Committee of another program.

4. A decision not to grant the approval will only be taken by the Examination Committee after the student in question has been given an opportunity to be heard. The decision must be substantiated with arguments.
5. The decision shall state the degree program to which the flexible curriculum is deemed to belong.

6. The Examination Committee may deviate from the deadline set in paragraph 3 in special cases and must communicate this to the student.

Art 3.10 Exemption

1. Students are eligible for an exemption (VR), if the Examination Committee has determined that a study component does not need to be taken because of the stipulation in paragraph 4. This means the respective credits are allocated without a grade.

2. A written request for an exemption from an examination or a CA, or a practical exercise must be submitted to the Examination Committee.

3. The request must include all documents reasonably needed for an assessment of whether the students in question can be granted an exemption.

4. The grounds on which the Examination Committee can grant an exemption for taking a particular examination, CA or for a practical exercise are exclusively related to the level, the content and the quality of the examinations or CA the students in question have already passed, or to the students’ knowledge, insight, skills or competencies acquired outside higher of education.

5. An exemption cannot be granted for a Master’s study component passed as part of the curriculum of a Bachelor’s program. If this Master’s study component is a compulsory component of a certain track within a Master’s program, the Examination Committee should indicate an alternative component within the track, or to provide permission for a substitute study component chosen by the students.

6. In addition to the above, at the request of the students, study components successfully completed may be transferred to a different TU/e degree program retaining the grade and date of examination, if this refers to transfer students or intra-university transfer students within TU/e Master’s programs.

7. The Examination Committee shall decide on the request for exemption within the response term.

8. A decision not to grant an exemption shall only be taken by the Examination Committee once the students have been given an opportunity to be heard. The decision must be substantiated with arguments.

9. The decision to grant an exemption for taking an examination or a practical exercise shall correspond to the grade ‘sufficient’ and be marked: VR (exemption). A decision to grant exemption from a CA corresponds with the assessment “sufficient competency development” and is indicated as ‘EX’.

10. Conditions that apply to the granting of exemption are set out in the Regulations of the Examination Committee.

H 4 TESTING

Art 4.1 Frequency, structure and sequence of examinations and CA
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1. Annually, before August 15, the Department Board will determine a timetable for written examinations and CAs in the first and second quarter, which will be published no later than August 15.

2. In special cases, the Department Board may deviate from the timetable referred to in the previous paragraph, yet no later than eight weeks before the written examinations or CA take place. The Department Board must inform the students of the change without delay, giving reasons.

3. Examinations to be administered orally or parts of a CA to be performed orally will be administered at a time determined by the examiner, wherever possible in consultation with the students in question.

4. There shall be at least two opportunities per study component in each academic year to take exams or CAs.

5. If a study component is removed from the curriculum, at least two more opportunities shall be given to take the examination in that study component during the first academic year in which the study component is no longer taught.

6. Notwithstanding the provisions of paragraph 4, at least one opportunity will be given in each academic year to take an examination for any study component not taught in that academic year. This does not apply to competency-centered programs.

7. In special cases, the Examination Committee may decide to deviate from the determined number of times an examination or CA may be taken, and from the form and the sequence in which that examination is taken.

Art 4.2 Oral examinations and oral parts of a CA

1. No more than one student shall be given an oral examination or CA component at a time.

2. When an oral examination or CA component is taken, two authorized teachers or an authorized teacher and a subject specialist shall be present.

3. Oral examinations or CAs shall be administered publicly.

4. In special cases, the Examination Committee may deviate from the provisions in the previous paragraphs of this article.

Art 4.3 Participation in and registration for exams

1. Students must be enrolled in a degree program in order to take the examinations or a CA offered by that program, taking into account the sequence specified in Appendix 1 under e, h and i.

2. The Examination Committee may grant permission to Bachelor’s and pre-Master’s students to take specific Master’s components without being enrolled in that program, as long as the requirements have been met as stated in Article 5.2 of the Program and Examination Regulations of the Bachelor Program. The following paragraph shall apply mutatis mutandis to participation in the examination. See also Article 2.2 of these Program and Examination Regulations.
3. For both an exam as well as a CA, registration for the study component in question automatically results in registration for the exam or CA. In all other cases, students wishing to take part in a centrally organized written examination must register through OSIRIS, no later than ten (10) working days before the scheduled date of the relevant examination period. Students can register for examinations from August 15 preceding the start of the academic year for the first and second quarter and December 15 for the third and fourth quarter. The registration and closing dates shall be made known annually by ESA.

4. Students are obliged, before or during the examination or a CA, and at the request of the examiner or the invigilator, to identify themselves by showing their campus card.

5. Students who do not bring a campus card can also identify themselves using a valid means of identification. Students who are unable to do this, will not be permitted to take part in the examination or a CA.

6. Students who have already taken an examination three times, or a CA two times, without passing should consult with the academic advisor before registering for the examination in question again or before automatic enrollment in the case of the CA, to discuss how the problem is to be addressed on the basis of a study plan drawn up by the students.

7. For implementation of paragraph 6 of this article, students who register for an examination or a CA but fail to turn up, or who do not hand in the completed examination work/CA deliverables before the deadline, will be deemed to have failed the examination or a CA.

8. The work of students who take part in an examination or a CA without having registered for it will not be assessed. In such cases, the students shall be deemed not to have taken the examination or a CA.

9. If there are extenuating personal circumstances that prevented the students from registering for the examination or CA in time, the Examination Committee can decide that the examiner must assess the students’ work after all.

10. The Examination Committee determines whether students fulfil the conditions for admission to the examination or a CA.

11. In exceptional circumstances, the Examination Committee can permit students to take an alternative examination to the centrally organized examination or a CA.

Art 4.4 Registering for exams after the registration period has passed

1. Students who fail to register for an exam within the period specified in Article 4.3 paragraph 3 shall not be allowed to participate in the exam, unless the students have paid administration costs totalling €20 per study component no later than five working days before the examination period. After payment of the administration costs the students are immediately registered.

2. In cases of force majeure, at the discretion of the ESA Director, it may be decided that students who register after the terms mentioned in paragraph 1 may nevertheless be registered for an exam. In addition, the ESA Director may waive the administration costs stated in paragraph 1.
3. In the case that students cannot participate (after all) in a study component, due to force majeure, for which they have already paid administration costs, the fee will be refunded.

Art 4.5 Withdrawal
1. After registering for an examination, students can withdraw no later than five working days before the examination period, by notifying ESA through OSIRIS.
2. With reference to Article 4.3, paragraph 6, students who withdraw within five working days before the examination period shall be deemed to have failed this examination.

Art 4.6 Assessment of examinations and CA
1. The assessment of examinations and practical exercises and CAs is carried out by one or more examiners.
2. The results of examination, practical exercises and CA will be determined for individual students, and may be divided into a number of components.
   a. The assessment of an examination, as well as the investigation mentioned in Article 5.1, paragraph 2, shall be expressed in whole numbers on a scale of 0 to 10 or with “exemption” (EX) or Not met requirements (NMR).
   b. The assessment of practical exercises is expressed in tenths, in half numbers, or using the designations Failed (FL), Sufficient (PA), Good (GO), Very Good (VG), Completed (GN), or No Show (NS).
   c. The results of a CA are expressed in one of the following statements:
      - Hold (H): insufficient and not promoted.
      - Conditional Hold (C): insufficient and not promoted unless conditions for the promotion, as stated by the examiner are met.
      - Promotion (P): sufficient and promoted.
      - Promotion with excellence (E): excellent performance and promoted with excellence.
   d. If the exam is divided into a number of components, the subject description in the course catalogue shall describe those components and indicate how they count with respect to the final grade.
   e. The assessment of the graduation project shall be rounded to the nearest half grade on a scale of 0 to 10. The graduation project is considered successfully completed if it is assessed with a final grade of 6 or more (an assessment with a grade of 5.5 or lower means not successfully completed). The assessment of professional skills that are completed during graduation are part of the assessment of the graduation project. The course catalogue indicates if and when interim evaluations of the Master’s thesis take place.
   f. Meeting the requirements of professional skills as well as having passed all study components belonging to the program of examinations is a formal requirement for admission to assessment of the graduation project.
3a. Students pass an examination by scoring a 6 or higher on the examination or with a grade or VR (exemption).
b. Students pass a practical exercise as a study component if the grade is 6.0 or higher, or with an assessment of PA, GO, VG or DN or, in the case of an exemption, EX.

c. Students complete a CA successfully if the verdict is P-verdict, or respectively an E-verdict or an EX has been awarded.

4. If students register for an examination or a CA but fail to appear, fail to submit the CA deliverables before the deadline, have not withdrawn in time and/or did not show up at the CA related activities, they will be deemed to have failed the examination or a CA under the provisions of paragraph 5 of Article 4.3, paragraph 7, and the examination result and CA outcomes will be marked as a "No Show" (NS). The final grade is then 'Not met requirements' (NMR).

5. If students have committed fraud, the examination result, in accordance with Article 4.3, paragraph 6, will be deemed "failed" (FL) and CA outcomes as not promoted (H).

6. The assessment standards are announced no later than immediately before the start of the examinations, CAs or the practical exercises as a study component. The weight of the individual questions will be announced immediately before the start of a written test or an examination. In exceptional cases, the examiner may decide to adjust the weight of the questions after the examination.

7. The method of assessment should enable students to ascertain how the results of the examinations, CAs or the practical exercises as a study component were determined.

8. The Examination Committee has the authority to declare an examination null and void for individual students or for all students who took the exam at that time in case of serious irregularities.

Art 4.7 Determining results/marking periods

1. The examiners shall determine the result of a written examination as soon as possible but no later than 15 working days after the examination has taken place such that the final grade is specified in OSIRIS.

2. The examiners shall determine the results of an oral examination no more than one day later and will communicate these immediately to the students. The examiners will determine the final CA verdict within five working days of the presentation and will communicate the verdict to the students.

3. In the case of examinations or CA taken in other than oral or written form, the Examination Committee shall determine beforehand how and within what period the students will receive a written statement giving the result.

4. The examiners will determine the result of a practical exercise that serves as a study component as soon as possible, but no later than fifteen working days after it has been submitted or, if a deadline has been agreed, fifteen working days after this deadline, and they will communicate the mark (or final mark) to the students.

If a term or date has been determined for the submission of a practical exercise and if the students have not submitted the practical exercise on time due to extenuating personal circumstances, the Examination Committee can, on the students’ requests, decide to have the practical exercise assessed anyway.
5. If the examiners in question are unable to meet the requirements in the previous paragraphs due to special circumstances, they shall notify the Examination Committee, stating the reasons. The students involved will immediately be informed of the delay by the Examination Committee, and of the term within which the results will be made known.

6. Students shall be informed of the result of the examination or a CA by or on behalf of the Examination Committee, in written or electronic form.

7. When they receive their results or a CA outcome, students will be informed of their rights of inspection, as referred to in Article 4.8, the opportunity to evaluate the examination, as referred to in Article 4.9, and the opportunity to submit an objection to the Examination Appeals Board.

8. In the case of exceptional circumstances, the examiner may alter the grade of an examination previously determined within four weeks of its initial announcement both to the advantage or disadvantage of the students.

   If the alteration to the final grade has consequences for the completion of the Master’s program or for a certificate already issued, the examiner must consult the Examination Committee before taking a decision.

9. The examination or a CA will be dated in accordance with the date on which the written or oral examination is administered or the CA is completed. An examination in the form of a practical exercise shall be dated in accordance with the date on which the final report is submitted or the date of the presentation, or, if there is no report or final presentation, the day on which the practical exercise is completed.

Art 4.8 Right of inspection for written examinations

1. Students shall be given the opportunity, on request, to inspect their assessed work up to at least 20 working days after the announcement of the result of a written examination. At the students’ request, a copy of the assessed work will be provided.

2. During the term mentioned in paragraph 1, any interested person may, on request, inspect the questions and assignments of a given examination, as well as the standards on which the assessment was based.

3. Within five working days after the request for inspection has been received, the examiner shall announce the venue and the time of the inspection referred to in paragraphs 1 and 2.

4. If students or interested persons can prove that they were prevented from appearing at the fixed place and time through no fault of their own, they shall be offered another opportunity, if possible within the term mentioned in paragraph 1 of this article.

Art 4.9 Evaluation

As soon as possible after the announcement of the result of an oral examination, or the CA outcomes, at the request of the students concerned or on the initiative of the examiner, an evaluation will take place between the examiner and the student. In such cases, the assessments given shall be substantiated. An examiner can organize a collective evaluation.
Art 4.10 Term of validity and retention periods

1. In principle, examination results and a CA outcome are valid for an unlimited period.

2. If an examination result or a CA outcome is older than six years and the examined knowledge or examined insight is demonstrably dated, or if examined skills are demonstrably dated, however, the Examination Committee may require that the students take a supplementary or alternative examination or a CA.

3. Written examinations must be retained for at least two years following determination of the grade, with the exception of homework assignments.

4. (Three-dimensional) projects must be retained for at least six weeks after the grade has been determined but, in any event, for the duration of any objection and appeal procedures.

5. Internship reports, graduation reports, portfolios CA deliverables and theses produced in completion of the Master’s program must be retained for at least seven years.

H 5 FINAL EXAMINATIONS

Art 5.1 Final examinations

1. The Examination Committee determines the results of the exam and issues the certificate as referred to in Article 5.3 as soon as the students have met the requirements of the examination program. The Examination Committee invites the students for a meeting to issue the degree certificate unless, on the grounds of paragraph 5, the student has asked the Examination Committee to delay awarding the certificate. The result of the final examination shall be “passed” or “withdrawn and the results attained shall be retained”. If students have taken an examination or a CA more than once, the Examination Committee shall take into account the highest grade obtained in determining the result of the final examination.

2. Assessment of the examination dossier is part of the final examination. The date of the final examination shall be the date on which the students carried out the final program activity (see Article 4.7, paragraph 9).

3. In order to pass the final examination, the students must obtain the ‘sufficient’ grade and/or Promotion- (P) or Promotion with excellence (E) for all components, in compliance with the exemptions granted and the compensation arrangement from Article 4.2 of the Regulations of the Examination Committee. The Examination Committee can determine, under conditions established by the Committee itself, that not every examination has to be passed in order for students to pass the final examination (see Article 4.3 of the Regulations of the Examination Committee).

4. A further condition for passing the examination and receiving the degree certificate is that the students were enrolled for the TU/e degree program in question at the time the examinations were taken.

5. Students who have passed the final examination, and are eligible for the award of a degree certificate, can ask the Examination Committee to delay awarding it. This request must be submitted no later than two weeks after the students have been informed of the
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final examination result. The request must specify when the students wish to receive the degree certificate. The Examination Committee shall in any event comply with the request if the following situations apply:

- the students are planning to take an extra study component that will be included in the diploma transcript, and/or
- the students want to try to graduate with the cum laude classification and want to re-take examinations for certain study components to this end

Art 5.2 Frequency of final examinations

There shall be monthly opportunities to take the examination with the exception of July. Competency-centered programs offer two opportunities per year to take the final examination. The dates of the Examination Committee sessions shall be announced by the Examination Committee before the beginning of the academic year.

Art 5.3 Certificate and transcript

1. The degree certificates for each program shall be awarded in public unless, in exceptional cases, the Examination Committee decides otherwise.

2. The degree certificate shall, in any event, contain the information specified in Article 7.11, paragraph 2, of the WHW, together with the qualifications specified in Article 5.4 of these regulations. If applicable, the degree certificate should also state that the students have met the competency requirements as referred to in Article 36 of the Secondary Education Act.

3. When the degree certificate is awarded, the student shall also receive a transcript. One degree certificate is awarded per student for each degree program.

4. The transcript shall contain the information specified in Article 7.11, paragraph 3, of the WHW, as well as the grades obtained for parts of the final examination and, if required, for other study components that are not part of the examination, if the students in question have passed the examinations for those study components before the Examination Committee determines the final examination result. If applicable the transcript shall state for which school subjects and for which level of secondary education the holder is authorized to teach (Article 33 and 36 of the Secondary Education Act).

Art 5.4 Special qualifications for the Master’s program

1. The Examination Committee may award the classification “cum laude” to certificates of students who started their degree programs before September 1, 2019 under the following conditions:
   - they achieve a mathematical average of 8.0 or higher for the assessments of study components that belong to their programs of examinations, and
   - a grade of 9.0 or higher for the graduation project, and
   - none of the study components belonging to their programs of examinations may have a grade lower than a 6.0.

2. The Examination Committee may award the classification “with great appreciation” to students who started their degree programs before September 1, 2019 if they achieve a
mathematical average of 7.50 or higher for the assessments of study components that belong to their program of examinations, with the additional requirement that the graduation project must have a grade of 8.0 or higher. In addition, none of the study components that are part of the program of examinations may have a grade lower than a 6.0.

3. The Examination Committee may award the classification “cum laude” to students who started their degree programs on or after September 1, 2019 under the following conditions:
   - they achieve a weighted mathematical average (based on credits) that is an unrounded 8.0 or higher in relation to the study components taken by students that belong to their programs of examinations, with exception of the graduation project,
   - they have a grade of 9.0 or higher for the graduation project, and
   - none of their study components belonging to their programs of examinations has a final grade lower than a 6.0 and
   - they must finish the final examination within 32 months of the commencement of the degree program.

   The examination committee may deviate from this latter requirement in special cases. To assess the student’s request, the Examination Committee can take into account the extenuating personal circumstances as referred to in Appendix 2, Article 5 of these regulations.

H 6 STUDY COUNSELING AND STUDY PROGRESS

Art 6.1 Study counseling
1. The Department Board shall provide counseling to students for several matters, including orientation on specializations and other options inside or outside the degree program, including appointing one or more academic advisors.

2. The academic advisor will advise students, either on request or on the advisor’s own initiative, on all the aspects of the degree program, and will ensure, partly based on the students’ study progress and whenever necessary, adequate referral to the qualified bodies of TU/e, to ESA student advisors and/or student counsellors or TU/e confidential counselors.

Art 6.2 Monitoring study progress
1. The Department Board will ensure that the examination results and CA outcomes of the individual students are registered and made known in good time in OSIRIS.

2. Where appropriate, the Department Board will organize a discussion of the results between the students and their academic advisor of the degree program the students are taking.

3. The academic advisor will inform students who fall far behind in their studies of the opportunities to receive extra support or ways to limit the delay as much as possible.

Art 6.3 Studying with a functional impairment
1. Students wishing to request an adjustment to the way of teaching or examinations or CAs, or for special facilities because of a permanent or temporary functional impairment, should submit such a request to ESA in writing before they are scheduled to take part in the program or the exams or CAs. The request should be submitted twelve weeks in advance if possible, but in any event no later than five weeks in advance.

2. The request should be accompanied by any documents reasonably required to assess the request. These should include at least a recent statement from a physician or psychologist or from a remedial educationalist registered with BIG (Individual Health Care Professions), NIP (Dutch professional association of psychologists) or NVO (Association of Educationalists in the Netherlands). If possible, the statement should provide an estimation of the extent and likely duration of the functional impairment.

3. ESA will send students’ requests accompanied by the recommendations of the student counselor to the Department Board in so far as the request relates to facilities. In the event that the request relates to granting adaptations to enable the students to take an examination or CAs, ESA will send the students’ request and the related recommendations to the Examination Committee.

4. The decision regarding adaptations or the granting of facilities shall be taken by the Department Board or the Examination Committee, respectively, no later than twenty working days after the request has been received. The Department Board shall care for the quality and level of the teaching and examinations.

5. Any adaptations shall be attuned as much as possible to the individual’s functional impairment. Facilities provided may consist of adjustments to the individual situation of the form or duration of the teaching and/or examinations, or CAs, or of the provision of practical aids.

### H 7 TRANSITIONAL ARRANGEMENTS AND FINAL PROVISIONS

#### Art 7.1 Transitional arrangements

1. If these regulations, including the Annex, are amended, the Department Board shall, if necessary, make a transitional arrangement. The transitional arrangement shall be incorporated in the Appendix to these Regulations.

2. The transitional arrangement shall always include:
   - regulations regarding exemptions that may be obtained based on examinations already passed, and
   - the term of validity of the transitional arrangement.

#### Art 7.2 Amendments

1. Amendments made to these regulations shall not apply in the current academic year if they unduly harm the interests of students.

2. An amendment of these regulations may not backdate any decision already taken in regard to students.
APPENDICES

Appendix 1  to Article 3.2, paragraph 1 of the Program and Examination Regulations for the Master’s Degree Program in Mechanical engineering including the special master track Manufacturing Systems Engineering

a. Content of the degree program and related final examination

The degree program comprises the following examination components with corresponding credits:

<table>
<thead>
<tr>
<th>Examination component</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compulsory study components</td>
<td>20</td>
</tr>
<tr>
<td>Specialized elective study components</td>
<td>20</td>
</tr>
<tr>
<td>Free elective study components</td>
<td>15</td>
</tr>
<tr>
<td>Internship</td>
<td>15</td>
</tr>
<tr>
<td>Graduation project</td>
<td>45</td>
</tr>
<tr>
<td>Professional skills</td>
<td>5</td>
</tr>
</tbody>
</table>

b. Content of the tracks

The degree program(s) contains the following tracks with the corresponding study components, course code and credits:

b1 Mechanical Engineering

<table>
<thead>
<tr>
<th>Study component</th>
<th>Code</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microfabrication methods</td>
<td>4UM00</td>
<td>5</td>
</tr>
<tr>
<td>Control Engineering</td>
<td>4CM00</td>
<td>5</td>
</tr>
<tr>
<td>Interfacial Transport Phenomena in engineering flows</td>
<td>4BM60</td>
<td>5</td>
</tr>
<tr>
<td>Advanced Engineering Mathematics</td>
<td>4BM00</td>
<td>5</td>
</tr>
<tr>
<td>Advanced Computational Continuum Mechanics</td>
<td>4MM10</td>
<td>5</td>
</tr>
<tr>
<td>Multibody and Non-linear Dynamics</td>
<td>4DM10</td>
<td>5</td>
</tr>
<tr>
<td>Experimentation for Mechanical Engineering</td>
<td>4BM20</td>
<td>5</td>
</tr>
</tbody>
</table>
Specialized Elective Study Components

<table>
<thead>
<tr>
<th>Study Component</th>
<th>Code</th>
<th>Group</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Energy Sources</td>
<td>4EM70</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Engineering Optimization</td>
<td>4DM20</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Scientific Computing for Mechanical Engineering</td>
<td>4EM30</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Applications of Design Principles</td>
<td>4CM50</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Fracture Mechanics</td>
<td>4MM50</td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study Component</th>
<th>Code</th>
<th>Group</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Dynamics and Vibro-Acoustics</td>
<td>4DM00</td>
<td>DC</td>
<td>5</td>
</tr>
<tr>
<td>Composite and Light-weight Materials</td>
<td>4MM00</td>
<td>MoM</td>
<td>5</td>
</tr>
<tr>
<td>System Theory for Control</td>
<td>4CM10</td>
<td>CST</td>
<td>5</td>
</tr>
<tr>
<td>Introduction to Computational Fluid Dynamics</td>
<td>4RM00</td>
<td>PF</td>
<td>5</td>
</tr>
<tr>
<td>Structural performance of polymers and polymer composites</td>
<td>4LM60</td>
<td>PT</td>
<td>5</td>
</tr>
<tr>
<td>Gasdynamics</td>
<td>4EM10</td>
<td>ET</td>
<td>5</td>
</tr>
<tr>
<td>Polymer Processing</td>
<td>4LM20</td>
<td>PT</td>
<td>5</td>
</tr>
<tr>
<td>Heat and Flow in Microsystems</td>
<td>4EM40</td>
<td>ET/MS</td>
<td>5</td>
</tr>
<tr>
<td>Modelling Combustion</td>
<td>4BM30</td>
<td>PF</td>
<td>5</td>
</tr>
<tr>
<td>Computational and Experimental Micro-mechanics</td>
<td>4MM20</td>
<td>MoM</td>
<td>5</td>
</tr>
<tr>
<td>Integrated Systems Design</td>
<td>4CM70</td>
<td>CST</td>
<td>5</td>
</tr>
<tr>
<td>Advanced Motion Control</td>
<td>4CM60</td>
<td>CST</td>
<td>5</td>
</tr>
<tr>
<td>Optimal Control and Dynamic Programming</td>
<td>4SC00</td>
<td>CST</td>
<td>5</td>
</tr>
<tr>
<td>Non-linear Control</td>
<td>4DM30</td>
<td>DC</td>
<td>5</td>
</tr>
<tr>
<td>Microfluidics put-to-work</td>
<td>4UM10</td>
<td>MS</td>
<td>5</td>
</tr>
<tr>
<td>Multiscale Modelling for Polymer Mechanics</td>
<td>4LM30</td>
<td>PT</td>
<td>5</td>
</tr>
<tr>
<td>Supervisory Control</td>
<td>4CM30</td>
<td>CST</td>
<td>5</td>
</tr>
<tr>
<td>Thermal Energy Storage</td>
<td>4EM50</td>
<td>ET</td>
<td>2.5</td>
</tr>
<tr>
<td>Hydraulic Turbomachines</td>
<td>4BM10</td>
<td>PF</td>
<td>5</td>
</tr>
<tr>
<td>Control of Distributed Parameter Systems</td>
<td>4DM60</td>
<td>DC</td>
<td>2.5</td>
</tr>
<tr>
<td>Modelling and Control of Manufacturing Systems</td>
<td>4DM40</td>
<td>DC</td>
<td>5</td>
</tr>
<tr>
<td>Optical Diagnostics for Combustion and Fluid Flow</td>
<td>4BM40</td>
<td>PF</td>
<td>5</td>
</tr>
<tr>
<td>Advanced Discretization Techniques</td>
<td>4EM60</td>
<td>ET</td>
<td>5</td>
</tr>
<tr>
<td>Dynamics and Control of Cooperation</td>
<td>4DM50</td>
<td>DC</td>
<td>5</td>
</tr>
<tr>
<td>Hybrid Systems and Control</td>
<td>4CM20</td>
<td>CST</td>
<td>5</td>
</tr>
<tr>
<td>Introduction to Petroleum Production</td>
<td>4BM50</td>
<td>PF</td>
<td>2.5</td>
</tr>
<tr>
<td>Rheology</td>
<td>4LM50</td>
<td>PT/MS</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: additional core courses above the mandatory 20 credits may be part of the specialisation.
free elective study components 15 credits
The list of study components that can be part of the elective program is too extensive to be listed here. In the online education guide http://educationguide.tue.nl a list of recommended courses offered by other TU/e departments can be found.

Internship 15 credits
It is allowed to use 5 credits from the individual space to extend the internship. The student needs to apply for this extension before the start of the project on the “Internship contract”.
The internship needs to be finished within the period, which is recorded on the internship contract, according to the rules in the table below.

<table>
<thead>
<tr>
<th>Credits</th>
<th>Internship period</th>
<th>Expiration after</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>11 weeks</td>
<td>15 weeks</td>
</tr>
<tr>
<td>15+5</td>
<td>14 weeks</td>
<td>18 weeks</td>
</tr>
</tbody>
</table>

Should the student fail to finish the project in time, the student must contact the study advisor. In consultation with the mentor, a short (maximum 2 week) extension period may be allowed.

Should the student fail to finish the project within the recorded or extended period, the project will be graded with a “Failed”. In the latter case, the student must do a new (and different) project.

For students with a Bachelor’s degree at Higher Vocational Education (HBO) level, an academic research internship is mandatory, to be carried out at the TU/e or another university in the Netherlands or abroad. This regulation applies to students who followed the pre-master program in 2016-2017 or later. Students who have already passed a “pre-master end project” (SEP) are exempted from the previous regulation.

graduation project 45 credits
The graduation project consists of two phases (details of content and examination can be found on TU/e’s education information system):

- the preparation phase
- the project phase

The preparation phase of the project takes typically 2-6 full working weeks. During the preparation, the student formulates a project goal (based on literature and/or previous work), writes a project plan and a project planning (deliverables and timeline). The preparation phase is concluded with a small report containing:

- The background and already obtained results in the topic (at least 2 pages)
- The project goal
- Research plan (means, steps, results)
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- Project planning (of at least 6 and at most 8 months)
- End date

This report is to be graded with “VO”/“ON” by the thesis supervisor. The preparation report has to be uploaded in the Sharepoint archive.

At delivery of the “ON/VO” grade as indicated on the registration form for the project phase, the OWB checks whether the report has been uploaded and whether the student has fulfilled all project entry requirements (has enough EC and filled in all necessary forms). Only then, the grade for the preparation phase is accepted and the student may start the project phase. Note that, from this allowed start, the project may not be finished within 6 months.

At the start of the project phase, so at delivery of the preparation report and the preparation grade, the student must have successfully passed at least 70EC of his/her formally approved curriculum

A crucial element of the preparation report is the projected end-date of the project phase. This end date must be within the period of 6 to 8 months after the end of the preparation phase and marked by the submission of the registration form for the project phase. The start- and end-date of the project phase are marked on this registration form.

The end of the project phase includes the presentation, defense and grading by the graduation committee. The graduation committees are chaired by (associate) professors.

If the project phase result is not delivered in time, the student contacts the study advisor. Based on the student’s situation and in consultation with the thesis supervisor a short (maximum 4 week) period of extension may be fixed. The study advisor has the mandate to execute this procedure. Should the student fail to finish the project within this extended period, a request for continuation of the project including a binding and substantiated proposal regarding the time limit and supported by the thesis supervisor needs to be approved by the examination committee. The end result of the graduation project is then limited to a “7”- grade. If the student does not deliver the project result within the new time frame approved by the examination committee, the student receives a “Failed” grade (issued by the Graduate Program Director director of education). After this, a proposal to start a new project (filed by the student and in consultation with the Graduate Program Director) needs to be approved by the examinations committee. The examinations committee may deviate based on specific circumstances.

Students receiving a “Failed” grade by the graduation committee can file a motivated request for a retake of the graduation project, to be judged by the examination committee. This retake can either be a new project or an extension of the ‘failed’ project. The request must be formulated in consultation with the Graduate Program Director and it must be approved by the intended thesis supervisor. The Examination Committee may deviate based on specific circumstances.
Professional skills

There are two mandatory courses on professional skills:

- Coaching & Tutoring (4WM00)
- Career Development (4WM10)

For students without experience in Design Based Learning (OGO), a compulsory alternative is offered for 4WM00:

- Group work and academic writing (4WM50)

These courses are offered several times during the academic year. The number of available places, in each quartile and slot in which these courses are offered, is limited. Details of content, scheduling and examination can be found on TU/e’s education information system.

Special master track Manufacturing Systems Engineering

compulsory study components

<table>
<thead>
<tr>
<th>Study component</th>
<th>Code</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated System Design</td>
<td>4CM70</td>
<td>5</td>
</tr>
<tr>
<td>Manufacturing Technology</td>
<td>1CM160</td>
<td>5</td>
</tr>
</tbody>
</table>

and

One course from each of the following pillars (in total 20 credits):

Machine design and control:
- Control Engineering 4CM00
- Micro Fabrication 4UM00

Factory design and control:
- Modelling and Control of Manufacturing Networks 4DM40
- Modelling and analysis of manufacturing systems 1CM10

Maintenance design and control:
- Advanced Maintenance and Service Logistics 1CM120
- Fracture Mechanics – Theory and Application 4MM50

Supply network design and control:
- Multi-Echelon Inventory Management 1CM100
- Design of Operations Planning and Control Systems 1CM140

Specialization elective study components

<table>
<thead>
<tr>
<th>Course</th>
<th>Code</th>
<th>Group</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>System theory for control</td>
<td>4CM10</td>
<td>CST</td>
<td>5</td>
</tr>
<tr>
<td>Structural Dynamics and vibro-acoustics</td>
<td>4DM00</td>
<td>DC</td>
<td>5</td>
</tr>
<tr>
<td>Composite and Light-weight materials: Design &amp; Analysis</td>
<td>4MM00</td>
<td>MoM</td>
<td>5</td>
</tr>
<tr>
<td>Advanced Engineering Mathematics</td>
<td>4BM00</td>
<td>PF</td>
<td>5</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Code</th>
<th>Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimentation for Mechanical Engineering</td>
<td>4BM20</td>
<td>PF/ET</td>
<td>5</td>
</tr>
<tr>
<td>Advanced motion control</td>
<td>4CM60</td>
<td>CST</td>
<td>5</td>
</tr>
<tr>
<td>Multibody and Non-linear Dynamics</td>
<td>4DM10</td>
<td>DC</td>
<td>5</td>
</tr>
<tr>
<td>Heat and Flow in Microsystems</td>
<td>4EM40</td>
<td>ET</td>
<td>5</td>
</tr>
<tr>
<td>Polymer processing</td>
<td>4LM20</td>
<td>PT</td>
<td>5</td>
</tr>
<tr>
<td>Supervisory control</td>
<td>4CM30</td>
<td>CST</td>
<td>5</td>
</tr>
<tr>
<td>Engineering optimization</td>
<td>4DM20</td>
<td>CST</td>
<td>5</td>
</tr>
<tr>
<td>Non-linear control</td>
<td>4DM30</td>
<td>DC</td>
<td>5</td>
</tr>
<tr>
<td>Control of distributed parameter systems</td>
<td>4DM60</td>
<td>DC</td>
<td>2.5</td>
</tr>
<tr>
<td>Scientific Computing for Mechanical Engineering</td>
<td>4EM30</td>
<td>ET</td>
<td>5</td>
</tr>
<tr>
<td>Microfluidics-put-to-work</td>
<td>4UM10</td>
<td>MS</td>
<td>5</td>
</tr>
<tr>
<td>Introduction to Petroleum Production</td>
<td>4BM50</td>
<td>PF</td>
<td>2.5</td>
</tr>
<tr>
<td>Hybrid systems and control</td>
<td>4CM20</td>
<td>CST</td>
<td>5</td>
</tr>
<tr>
<td>Modelling and control of manufacturing systems</td>
<td>4DM40</td>
<td>DC</td>
<td>5</td>
</tr>
<tr>
<td>Dynamics and control of cooperation</td>
<td>4DM50</td>
<td>DC</td>
<td>2.5</td>
</tr>
<tr>
<td>Fracture mechanics</td>
<td>4MM50</td>
<td>MM</td>
<td>5</td>
</tr>
<tr>
<td>Career development</td>
<td>4WM10</td>
<td>STU</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Note:** The minimum number of ECTS devoted to ME courses in the first year is 25 ECTS (10 ECTS in the core and 15 ECTS in the specialization electives).

### free elective study components 15 credits

The total list of study components that can be part of the elective program is too extensive to be listed here. In the online education guide [http://educationguide.tue.nl](http://educationguide.tue.nl) a list of recommended courses offered by other TU/e departments can be found. However, MSE-W specific recommended courses from the IE&IS department are listed below.

Recommended electives MSE-W :

Courses on processes and data:
- Business process management 1BM05
- Foundations of data mining 2IMM20
- Introduction to process mining 2IMI35
- Advanced process mining 2IMI20
- Design and analysis of experiments 2DMN00
- Configuration management 1CM180

Course on simulation modeling:
- Advanced simulation 2DI66

Recommended homologation MSE-W:
- Math 2 2DD50 or Stochastic Performance Modelling 2WB60
- Production and Inventory Control 1CK50

**Internship**

15 credits

See Appendix 1 b1

**graduation project**

45 credits
c. **Organization of practical exercises**
   For study components including practical exercises, see the OSIRIS catalogue

d. **Study load of the degree program and of each of the study components it comprises**
   The minimum study load of the program is 120 credits. The study load of the study component is indicated under a or b, respectively.

e. **Number and frequency of the examinations, CAs and practical exercises**
   The examinations of the study components are described in the OSIRIS catalogue

f. **Form of the degree program**
   The program is a full-time program.

g. **Format of examinations/CA**
   The format of examinations of the study components listed under a or b is published in the OSIRIS catalogue

h. **Conditions for admission to the examinations/CA**
   All examinations/practical exercises may be taken and completed in any desired order, apart from the graduation project, which marks the conclusion of the program.

i. **Participation in practical exercises or CAs**
   For information on which examination of study components may not be taken until the corresponding practical exercises have been successfully completed, see the OSIRIS catalogue

j. **The study components from which students must choose for the elective part of their degree programs**
   For the elective part of their degree programs, students must make a choice from the following study components:
   1. TU/e Master's study components,
   2. master’s study components offered by a Dutch institution of Higher education other than the TU/e,
   3. master’s study components offered by an institution of Higher education abroad,
   4. An International research or design work placement at a partner university abroad.
   5. A maximum of 15 credits of Bachelor’s study components of sufficient level to be determined by the Examination Committee. With respect to contents, the study components that together form the elective programs may not show considerable overlap, either with each other or with all other study components of the study program. The student must be able to gain international experience without this causing any study delay.

k. **The number of opportunities to join the program**
   Internal intake: Students who have completed a Bachelor’s degree at TU/e may join the Master’s program on the first day of the month following successful completion of the Bachelor’s degree audit. The same applies to students who have completed a pre-Master’s program that provides admission to the Master’s program. Students of competency-centered Master’s learning programs may only join on September 1 or
February 1 (see Regulations for ‘Registration, Study Choice Check, Enrollment and Termination of Enrollment’).

Other intake: As of September 1, 2012, students may join the Master’s program on at least two dates: September 1 and February 1, in which a two-year program is offered that is manageable. External transfer students and rematriculators, namely those who have not completed a Bachelor’s degree at TU/e or who have not been enrolled at this university for a continuous period, may enroll in the Master’s program on September 1 and February 1 of each academic year, provided they meet the requirements (see Regulations for ‘Registration, Study Choice Check, Enrollment and Termination of Enrollment’).

**I. Admission requirements for issuing proof of admission**

The admission requirements for the Master’s degree program correspond to qualities relating to the knowledge, insight, skills or competencies that students have acquired when they have finished their Bachelor’s degree program mechanical engineering (the preceding Bachelor’s program).

Admission of foreign students:

Command of the English language

- TOEFL (Test of English as a Foreign Language): a minimum score of 21 for each section, and an overall band score of at least 90 points
- IELTS (International English Language Testing System), academic version: a minimum score of 6.0 for each section, and an overall band score of at least 6.5
- A minimum score C for Cambridge CAE or CPE.

The level of education of the foreign institution in which the students’ completed pre-university education must minimally be comparable to that in the Netherlands.

Level of knowledge or level of competency development: students must have acquired sufficient knowledge on the basis of the study components they have studied abroad or must have developed their competencies sufficiently. In order to be admitted to a Master’s program, their knowledge level must be comparable to that of Dutch students. See the Regulations for Admission to Master’s Programs at Eindhoven University of Technology for the way in which this is assessed.

**m. Bachelor’s degree certificates that provide direct access to the Master’s program**

The following Bachelor’s degree certificates provide direct access to the Master’s program:

- Luchtvaart- en Ruimtevaarttechniek (TUD)
- Maritieme Techniek (TUD)
- Mechanical Engineering (TUD, TU/e, UT)
- Technische Natuurkunde (TUD, TU/e, UT)

**n. Transitional arrangements**

none

**o. The way in which education in the degree program is evaluated and the results are made available to the relevant official bodies**
Program and Examination Regulations 2019-2020 MSc MW
The degree program shall describe the process of quality care within the program, how it deals with the results of the course and interdisciplinary evaluations, and what the role is of the various official bodies within this process, which must at least include recurrent course evaluations and interdisciplinary evaluations within the formats agreed at TU/e.
Appendix 2 to Article 3.2, paragraph 2 of the Program and Examination Regulations for the Master’s Degree Program in mechanical engineering

Rules concerning the pre-Master’s program

PRE-MASTER’S PROGRAMS

Art 1 Enrollment and admission

1. The admission and registration for a pre-Master’s program relating to a Master’s program chosen by students are open to those in possession of Higher Vocational Education (hbo) degree certificate or a university Bachelor’s degree certificate from a university as well as a maximum of a 30-credit deficiency to be able to follow the Master’s program. If the certificate has not yet been actually awarded, the prospective students may still enroll in the pre-Master’s program on condition that in due time before the start of the pre-Master’s program the students are in the possession of a statement by the Examination Committee of the institution in question declaring that they have fulfilled the conditions for obtaining the university or hbo degree.

2. Students will be admitted to their chosen Master’s programs only after they have successfully completed the study components of the pre-Master’s program.

3. The registration period as included in the applicable Regulations for Registration, Academic Career Check, Enrollment, and Termination of Enrollment shall apply for re-registration in the pre-Master’s program.

Art 2 Conditions for the pre-Master’s program

1. A pre-Master’s program is a maximum of 30 credits. The study components belonging to a pre-Master’s program must be scheduled within maximally two semesters from the moment of enrollment.

2. For students who have a Higher Vocational Education (hbo) degree certificate of a degree program
   - listed in Appendix 3, the pre-Master’s program encompasses a maximum of 30 credits
   - not listed in Appendix 3, the Departmental Admissions Committee shall determine if the deficiency is 30 credits.
   If this is the case, the Departmental Admissions Committee shall decide whether admission to and enrollment in the regular pre-Master’s program is permitted.

3. If the deficiency of students with a university degree certificate is maximally 30 credits, the Departmental Admissions Committee determines the size and content of the applicable pre-Master’s program no later than August 15. If there is a second registration period for the pre-Master’s program as of February 1, the pre-Master’s program must be determined before January 15.

4. There shall be at least two opportunities per study component in a period of two semesters to take final tests or CAs.

5. If students with prior education at university have a deficiency of a maximum of 15 credits, the departmental Admissions Committee determines whether the students must follow a pre-Master’s program or that the subjects can be taken within the Master’s program.

6. If students cannot complete the pre-Master’s program within six months of the start of the program and therefore are placed at a demonstrable disadvantage, and have obtained a minimum of 15 credits at that time, the students may submit a request to expand the
program with a maximum of 15 credits worth of Master’s study components. The credits obtained for Master’s study components during the pre-Master’s program shall be recorded on the students’ Master’s transcript as exemptions.

**Art 3**  
**Curriculum for pre-Master’s students**

1. A program of examinations is a set of study components that constitute students’ degree program (in this case, the pre-Master’s program). In competency-centered Master programs, the program of examinations is operationalized in the PDP of the students.

2. Before the start of the pre-Master’s program, the departmental CSA shall give all pre-Master’s students a program of examinations. In competency-centered programs study components are laid down in the PDP of the students.

3. The composition of the pre-Master’s program for students of an adjoining Higher Vocational Education (hbo) program is included in Appendix 3.

4. Individual pre-Master’s programs may be composed for pre-Master’s students with a university background.

**Art 4**  
**Study progress requirement for pre-Master’s students**

1. All pre-Master’s students must complete the pre-Master’s program within the term set for the program (maximally two semesters). If students do not meet this requirement, they shall not be admitted to the same or another pre-Master’s program that belongs to the same Bachelor’s program for a period of three years. In special cases the Examination Committee may deviate from this.

2. The study progress requirement does not apply to students who have submitted a request to the ESA to withdraw before December 1 (if it is a pre-Master’s program that can be completed in one semester) or before March 1 (if it is a pre-Master’s program that can be completed in two semesters) and who have not re-registered for another pre-Master’s program at TU/e.

Furthermore the academic progress requirement does not apply to students who have submitted a request to the ESA to withdraw who started February 1 and before May 1 (if it is a pre-Master’s program that can be completed in one semester) and did not re-register for another pre-Master’s program at TU/e or do not re-register as of September 1 (if it is a pre-Master’s program that can be completed in two semesters).

3. Pre-Master’s students shall receive a written pre-recommendation from the Examination Committee on their study progress at the mid-point of the determined term. This pre-recommendation serves as a warning in the event that the student is making insufficient study progress.

4. Within the determined term (maximally two semesters), students shall receive a binding written study progress decision from the Examination Committee relating to their continuation of the pre-Master’s program. The study progress decision is:

   a) positive if the pre-Master’s students have passed the complete pre-Master’s program within the determined term, and it is

   b) negative if the pre-Master’s students have failed to meet the provisions stated under a). Any credits obtained from Master’s study components do not count in this regard. The pre-Master’s students shall not be allowed to continue the pre-Master’s program.

5. In the event of extenuating personal circumstances, as referred to in Article 5, the Examination Committee determines when the standard must be satisfied.
6. Students who still have to successfully complete one study component can make a single request for one additional opportunity to complete the study component from the Examination Committee during enrollment as pre-Master’s students, preferably directly after not receiving a pass during the resit.

7. If students have not met the academic progress requirement, their enrollment is terminated at the beginning of the next month.

Art 5

Personal circumstances

1. When a study progress decision is issued, any acknowledged extenuating personal circumstances are taken into account.

2. Extenuating personal circumstances include the following:
   a. illness, physical, sensory or other forms of functional impairment, or pregnancy;
   b. exceptional family circumstances;
   c. membership or presidency of the University Council, the Department Council, a program board or committee, or membership of the board of a foundation whose statutes allow for the operation of facilities or services intended for students, or a body that, in the opinion of the Executive Board, has equivalent status considering its tasks;
   d. membership of the board of a student organization of a reasonable size and with full legal status, or of a comparable organization of reasonable size, where priority is given to promoting the general common interest and activities are genuinely performed to that end;
   e. other personal circumstances than those described in a to d that would lead to unreasonable hardship if they were not taken into account.

3. The extenuating personal circumstances referred to in the previous paragraph will only be taken into account if they are reported to the academic advisor as soon as possible and no later than twenty working days after they arise, by or on behalf of the students. In the case of pregnancy, the students must give notification as soon as possible, once she knows she is pregnant, but preferably no later than three months before the due date.

4. Students who wish extenuating personal circumstances to be taken into account must submit documentary proof that these circumstances exist or existed. The documentary proof must be submitted to ESA.

5. The academic advisor shall report extenuating personal circumstances in writing as soon as possible to the relevant Examination Committee, if students have given permission for this.

6. The Examination Committee shall ask the Central Committee on Extenuating Personal Circumstances for advice on the extenuating personal circumstances submitted by students.

7. In its letter of intent to issue a negative study progress decision, the Examination Committee must specify, giving reasons, whether extenuating personal circumstances can be recognized and what consequences this has for the students concerned.

Art 6

Application of the Program and Examination Regulations for the Bachelor’s program within the Bachelor College
1. These Program and Examination Regulations apply to Master’s study components (with exception to pre-Master’s study components) that are included in the program of examinations of pre-Master’s students.

2. The pre-Master’s program contains study components belonging to a Bachelor’s program within the Bachelor College, as well as pre-Master’s study components belonging to the Graduate school. The following articles from the Program and Examination Regulations of the Bachelor’s Program shall apply mutatis mutandis for these study components:

- Article 3.8 registration for and withdrawal from study components
- Article 3.9 registration for study components after the appointed time limit for registration
- Article 5.1( with the exception of paragraph 3) frequency, form and sequence of interim tests and final tests
- Article 5.3 oral final tests and CA components
- Article 5.4 participation in and registration for examinations
- Article 5.5 Resits
- Article 5.6 Withdrawal
- Article 5.7 assessment if examinations and Cas
- Article 5.8 determining results/markig periods
- Article 5.9 right of inspection for written (final) tests
- Article 5.10 Evaluation
- Article 5.11 term of validity and retention periods
- Article 7.1 student counseling (general)
- Article 7.2 academic advisor/monitoring study progress/study planning
- Article 7.8 studying with a functional impairment
Appendix 3 to Article 3.2, paragraph 3 of the Program and Examination Regulations for the Master’s Degree Program in mechanical engineering

Contents of pre-Master’s program

The pre-Master’s program consists of 30 credits of courses and training. Students with one of the HBO diplomas listed below will be admitted to the Mechanical Engineering Master’s program once the pre-Master’s program of 30 ECTS has been completed.

- Mandatory: 25 credits
- Choice: 1 course with 5 credits to choose from 6 optional courses

<table>
<thead>
<tr>
<th>Course</th>
<th>code</th>
<th>Mandatory/Choice</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Algebra</td>
<td>2DL60</td>
<td>M</td>
<td>2.5</td>
</tr>
<tr>
<td>Calculus</td>
<td>2WBB0</td>
<td>M</td>
<td>5</td>
</tr>
<tr>
<td>Advanced Calculus</td>
<td>2DL40</td>
<td>M</td>
<td>2.5</td>
</tr>
<tr>
<td>Thermodynamics</td>
<td>4EB00</td>
<td>M</td>
<td>5</td>
</tr>
<tr>
<td>Dynamics and control of mech. Syst.</td>
<td>4DB00</td>
<td>M</td>
<td>5</td>
</tr>
<tr>
<td>Solid mechanics</td>
<td>4MB00</td>
<td>M</td>
<td>5</td>
</tr>
<tr>
<td>Mechatronic design</td>
<td>4CC10</td>
<td>C</td>
<td>5</td>
</tr>
<tr>
<td>Heat and flow</td>
<td>4PB00</td>
<td>C</td>
<td>5</td>
</tr>
<tr>
<td>Strength and structure</td>
<td>4LB00</td>
<td>C</td>
<td>5</td>
</tr>
<tr>
<td>Flow and structure</td>
<td>4RC00</td>
<td>C</td>
<td>5</td>
</tr>
<tr>
<td>Dynamics and control of robotic syst.</td>
<td>4DC00</td>
<td>C</td>
<td>5</td>
</tr>
<tr>
<td>Chemically reacting flows</td>
<td>4MB00</td>
<td>C</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training courses for Pre-Master</th>
<th>Mandatory/Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSI</td>
<td>M</td>
</tr>
<tr>
<td>Health and Safety</td>
<td>M</td>
</tr>
<tr>
<td>Matlab</td>
<td>C</td>
</tr>
<tr>
<td>English diagnostic test</td>
<td>C</td>
</tr>
</tbody>
</table>

Admissible to the pre-Master program:

The following HBO-Bachelor’s degree certificates provide direct access to the pre-Master’s program.

- Autotechniek
- Elektrotechniek
- Luchtvaarttechnologie
- Technische natuurkunde
- Werktuigbouwkunde
- Mechatronica
Explanatory notes to the Program and Examination Regulations for the 2019-2020 Master’s program relating to pre-Master’s programs

In connection with the inclusion of the rules concerning the pre-Master’s program in Appendix 2 of this OER, additional information is provided below.

Art 1 Enrollment and admission

In order to participate, students must at least possess a Bachelor’s degree or Master’s degree from a university (or a statement from the Examination Committee that they meet the requirements to obtain a Higher Vocational Education (hbo) degree certificate or university degree before September 1 but that the degree certificate has not yet been issued) and has a maximum deficiency of 30 credits. Appendix 3 states the hbo programs that allow direct access to the pre-Master’s program. Pre-Master’s students must register through ‘Studielink’ before August 1 for the pre-Master’s programs that they would like to follow.

Art 2 Conditions for the pre-Master’s program

Students with a degree certificate from a hbo program, as stated in Appendix 3, who request registration for a pre-Master’s program are directly admissible. Before commencement of the program, the students must pay a fee for this. If the hbo program is not listed in Appendix 3, or the students have a prior university background, the Departmental Admissions Committee shall assess what the level of deficiency is of students. For a deficiency that exceeds 30 credits, the students shall not be admitted to a pre-Master’s program and shall be advised to enroll in the preparatory Bachelor’s program. For a deficiency with a maximum of 30 credits, the students must register for a regular pre-Master’s program. For students with previous university training who have a deficiency of 15 credits or fewer, the departmental Admissions Committee determines whether they are directly admissible to the Master’s program and must remedy the deficiencies within the Master’s program. See paragraph 1 of this article.

The Departmental Admissions Committee shall establish the pre-Master’s programs to be followed by students, based on the registration application and prior education of university Bachelor’s or Master’s students, as stated in paragraph 2 of this article. The Committee will do this after having given the students the opportunity to state the reasons that they consider themselves eligible for admission to the pre-Master’s program and whether they would like to apply for exemptions based on competencies, knowledge, insight, or skills acquired elsewhere. Before commencement of the pre-Master’s program, the students shall pay a fee. For regulations pertaining to this, please refer to the applicable Regulations for Registration, Academic Career Check, Enrollment, and Termination of Enrollment. This also applies to the Master’s study components the students are allowed to take on the basis of paragraph 5.

Paragraph 3 states that at the request of students and with approval of the Examination Committee students may expand their pre-Master’s programs with a maximum of 15 credits worth of Master’s study components if the students

- cannot complete the pre-Master’s program within six months of its commencement due to the scheduling of study components
- and 15 credits within the pre-Master’s program have been completed
- and the Examination Committee has grounds to believe the students have sufficient prior knowledge to participate in Master’s study components.
Program and Examination Regulations 2019-2020 MSc MW

Students who have been granted permission to take additional study components will receive confirmation from the Examination Committee, which will also notify the ESA and the departmental CSA. The departmental CSA will add these study components to the program of examinations, as referred to in Article 3.

Art 3 Program of Examinations for pre-Master’s students

Students may not take or be examined in study components that are not part of the program of examinations. The students can only register for those study components that are included in their program of examinations. They must therefore be careful to ensure that their program of examinations includes the study components that they would like to take and that they are allowed to take.

University students, as referred to in paragraph 4, are students with previous training that has been assessed by the Departmental Admissions Committee to be equivalent to three years of scientific education in the Netherlands.

Art 4 Study progress requirement for pre-Master’s students

Since the introduction of the Bachelor-before-Master rule, pre-Master’s students may no longer be admitted to a Master’s program until they have completed the pre-Master’s program. For this reason, a study progress requirement for pre-Master’s students has become part of the regulations. These students must complete the pre-Master’s program within the set term (maximally two semesters). Students who have been issued with a negative study progress decision may not re-register for the same TU/e program to which the pre-Master’s program belongs for a period of three years.

At the mid-point of the pre-Master’s program, the department may issue a provisional positive or negative recommendation, known as a pre-recommendation. If students receive a provisional negative pre-recommendation, this gives them a reasonable term in which to meet the study progress norm.

If students do not successfully complete the first year of the pre-Master’s program, they shall receive a negative decision.

In the case of a postponed recommendation, the Examination Committee may establish an amended norm, in accordance with paragraph 5.

The Examination Committee may grant pre-Master’s students one additional opportunity to take an exam, if the Examination Committee is of the opinion that the students will be able to complete the pre-Master’s program by means of this extra opportunity to take an exam.

Art 5 Extenuating personal circumstances

Extenuating personal circumstances may play a role when issuing a study progress decision. These personal circumstances correspond to those that may play a role when issuing a binding recommendation on the continuation of studies. They are laid down in Article 2.1 of the 2008 WHW Implementation Decree. This article describes the procedure by which the students can put forward personal circumstances, if applicable.

In order to assess those personal circumstances, the Examination Committee will seek the advice of the Central Committee on Personal Circumstances. Based on this advice, the Examination Committee will decide whether a postponed binding recommendation, as referred to in Article 3.4, applies.
Art 6  Application of the Program and Examination Regulations for the Bachelor’s program within the Bachelor College

Students who will be following a pre-Master’s program will be registered in a Bachelor’s program that prepares for a Master’s program. The Program and Examination Regulations for this Bachelor’s program shall thus also apply to the Bachelor’s study components taken by the students.

Appendix 5  Description Master Allocation Procedure for academic year 2019-2020

Description Master Allocation Procedure for the academic year 2019-2020
Dept. Mechanical Engineering

Introduction
In order to ensure that MSc students will get supervision of sufficient quality, the Board of the Department of Mechanical Engineering aims to match the number of MSc students within each research group of the Department of Mechanical Engineering1 with the available supervision capacity of that group is capped. In order to safeguard quality of supervision, the maximum number of students that can in enroll a particular research group will have to match the available capacity of that group. From September 2017 a new procedure has been implemented within the Department of Mechanical Engineering to allocate students to research groups. The Board of the department thereby provides students a suitable position within the university to complete their MSc project.

The Department of Mechanical Engineering is responsible for the MSc program Mechanical Engineering (MW), including the special Master’s track Manufacturing Systems Engineering (MSE-W), and the interdepartmental MSc programs Automotive Technology (AT), Systems and Control (SC), and Sustainable Energy Technology (SET). The regulations for the procedure presented below apply to all programs. Fixing supervision capacity per research group and the timeline and implementation of the procedure are slightly different for the MSc program MW (including MSE-W) and the interdepartmental MSc programs SET, AT and SC (because other departments are involved).

Procedure “Capacity-driven Master Allocation Procedure” (MAP)

Regulations
- Each of the MSc programs within the Mechanical Engineering Department is subjected to the same MAP procedure. The MAP procedure for these MSc programs is carried out once a year.
- Each of the research groups within the Mechanical Engineering department has a clearly defined supervision capacity (depending on the number of its scientific staff). This capacity determines the maximum

1 The department of Mechanical Engineering consists of 7 research groups also denoted as tracks or specializations.
number of MSc students that can enroll in a research group through one of the MSc programs.

- Bachelor students from a Dutch university can take part in the MAP procedure if they have secured at least 135 ECs in their BSc program, measured in July of each academic year at the completion of the regular exams at the end of Q4. Students missing more than 45 ECs at this stage need to take part in the MAP procedure of the next year.

- All pre-master and international students enrolling in one of the MSc programs need to take part in the MAP procedure.

- The same regulations apply to transfer students (zij-instromers) enrolling in one of the MSc programs during the ongoing academic year. Transfer students may select and be assigned to an undersubscribed group after consultation with their academic advisor, or they can choose to take part in the first upcoming MAP procedure following their MSc subscription. The same holds for any BSc or MSc student who has for whatever reason not taken part in the MAP procedure of the running academic year.

- The MAP procedure will assign each of the students to a particular research group. The validity of this assignment holds for a maximum of one year, until the START of the MAP procedure of the next academic year. Students are expected to start their MSc program within that time frame. If it turns out that a student did not receive any credit points from his/her course program by then, the previous assignment is canceled and the student needs to retake the complete MAP procedure of the next academic year. This regulation also applies to transfer students (zij-instromers) and all other students who did not initially take part in the MAP procedure of the running academic year.

- Students can take part only once a year in the MAP procedure.

- Students enrolled in one of the Master’s programs who wish to change their allocated research group need to consult their academic advisor and can only be allocated to an undersubscribed research group.

- Students who would like to change from the MSc program MW to one of the interdepartmental Master’s programmes AT, SET or S&C, or vice versa, cannot keep their allocation. They must take part in the MAP of the MSc program of their choice in the upcoming year. They can, however, be allocated to an undersubscribed group, after consultation with their academic advisor.

- In the MAP procedure for MW the special Master’s track MSE-W is considered as a separate MSc program from MW.

- Students who are not covered by these regulations need to make an appointment with their academic advisor to discuss their options.

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**Fixing supervision capacity per research group**

The dean and the group leaders of the research groups determine the supervision capacity of each research group once a year, i.e. fixing the maximum number of MSc
Program and Examination Regulations 2019-2020 MSc MW

students allowed to enroll in the group. The group’s total supervision capacity is split over the MSc programs (including the special Master’s track MSE-W) in which the group participates. The final split of a group’s supervision capacity over the different programs will be fixed once the number of international students enrolling the different programs is clear (around mid August).

- **Regarding the interdepartmental MSc programs SET, AT and SC**
  An estimate will be made of the total number of students enrolling in each of the interdepartmental MSc programs. For the most popular research groups participating in one of the interdepartmental MSc programs (so also for the popular research groups from other departments) a maximum cap per program will be fixed and agreed upon. If it turns out that the total intake of students is larger than the estimated intake, the maximum caps are adjusted proportionally.

- **Regarding the MSc program MW (including MSE-W)**
  The total number of places available for Mechanical Engineering will be larger than the total intake of Mechanical Engineering students. An estimate will be made of the total number of students enrolling in the special Master’s track MSE-W. If it turns out that the total intake of students is larger than the estimated intake, the maximum caps are adjusted proportionally.

**Timeline + implementation MW (including MSE-W)**

The assignment of students to a research group enrolling in the MSc program Mechanical Engineering takes place just before the start of Q1. Students enrolling in the Master’s program MW can choose between 7 research groups, students enrolling in the special Master’s track MSE-W can choose between 3 research groups.

1. At the start of June of each year, the total supervision capacity of each of the research groups and an estimate of the split over the MSc programs will be communicated.
   **Deadline: June 1, 2019**

2. TU/e BSc students and Mechanical Engineering pre-Master’s students indicate their 1st, 2nd and 3rd research group preference. The deadline for this coincides with the end of the regular exam period in Q4 (not the retakes). Students must upload a CV + a motivation letter for their 1st choice.
   **Deadline: August 5, 2019**

3. The department provides an overview of the number of students having indicated a research group as their 1st preference. The final number for the supervision capacity of each group and its split over the different MSc programs will also be listed.
   **Deadline: August 12, 2019**

4. International students enroll mid August and, after being informed, indicate their 1st, 2nd and 3rd choices. International students must upload a CV + a motivation letter for their 1st choice. Dutch Bachelor’s

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2 The dates provided are for the intake of the 2019-2020 academic year.
students and pre-Master’s students are given the opportunity to change their initial choice and upload a modified CV and/or motivation letter.

**Deadline: August 23, 2019;**

5. **Selection round 1: (Aug. 26–Aug. 28, 2019)**
   - Students are assigned on the basis of their first choice if there is sufficient supervision capacity in the research group of their preference;
   - Students are selected by the oversubscribed research groups on the basis of their first choice based on the provided CVs and motivation letters. For more info about the selection procedure, see below.
   - The outcome will be communicated via Canvas on August 28, 2019

   - Students who are not selected after round 1 will be assigned to their second choice (or third choice if the second choice is full after selection round 1) if there is sufficient capacity in the corresponding research group;
   - Students are selected by the oversubscribed research groups on the basis of their second choice (or third choice if the second choice is full after selection round 1) based on their CV (and motivation letter). For more info about the selection procedure, see below.
   - The outcome will be communicated via Canvas on August 30, 2019

7. Students who have not been accepted for their second choice after selection round 2 will be assigned to their third choice if there is sufficient capacity in the corresponding research group.

8. After two selection rounds, a small number of students may remain without an assigned research group. A ‘Match Making Meeting’ will be organized together with the undersubscribed research groups to ensure these students are also offered an attractive place. Existing cross links between undersubscribed and oversubscribed research groups will be exploited. The Graduate Program Director will make a first proposal for a match of a student with a research group on the basis of his/her 1st, 2nd and 3rd choice.

9. A small number of transfer students (zij-instromers) enrolls in the program halfway the year. These transfer students can be directly assigned to an undersubscribed group of their choice without any restriction or they can choose to take part in the MAP procedure of the upcoming new academic year.
The assignment of students to a research group enrolling in the SET or AT MSc programs starts halfway Q1 when specialization information meetings are organized. After the specialization meetings students apply for a research group in which they want to perform their thesis work. The new allocation procedure within the Department of Mechanical Engineering directly affects students who would like to perform their thesis work in one of the research groups in the Department of Mechanical Engineering. This procedure can also affect students choosing a research group in one of the partner departments.

1. At the start of June of each year, the total supervision capacity of each of the research groups and an estimate of the division over the MSc programs will be communicated. The final number for the supervision capacity of each group and its division over the different MSc programs will be listed mid August.

Deadline: August 12, 2019

2. Specialization Information Meetings: (Week 2 of Q1)

Central meetings are organized to inform students about the possibilities for specialization. The research groups involved from all participating departments present themselves. In the next two or three weeks students can contact research groups for extra information or research groups can organize extra information meetings for interested students.

3. Students indicate their 1st, 2nd and 3rd research group preference. Students must upload a CV + a motivation letter for their 1st choice.

Deadline: Friday week 5 of Q1

4. Selection round 1: (First half of week 6 of Q1)
   - Students are assigned on the basis of their first choice if they choose for a research group without a cap. This assignment still needs to be approved by the group leader;
   - Students are assigned on the basis of their first choice if they choose for a research group in the Department of Mechanical Engineering with sufficient supervision capacity;
   - Students are selected by the oversubscribed research groups in the Department of Mechanical Engineering on the basis of their first choice

Timeline + implementation SET and AT

The program (MW or MSE-W) and 1st, 2nd, 3rd research group preference in OSIRIS STUDENT

- Upload CV + motivation letter in CANVAS 4MAPMW

<table>
<thead>
<tr>
<th>Selection round 1</th>
<th>Selection round 2 / 3</th>
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</thead>
<tbody>
<tr>
<td>June 1-Aug 4, 2019</td>
<td>Aug 12-Aug 23, 2019</td>
</tr>
<tr>
<td>Aug 5-Aug 9, 2019</td>
<td>Aug 26-Aug 28, 2019</td>
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<td>Aug 29-Aug 30, 2019</td>
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</tbody>
</table>

Extended description:

- Change preference for research group and/or program in OSIRUS STUDENT
- Optionally upload new CV + motivation letter
- International students indicate their program and 1st, 2nd and 3rd research group preference in OSIRIS STUDENT

3 The dates provided are for the intake of the 2019-2020 academic year.
Selection round 2: (Second half of week 6 of Q1)

- Students who are not selected after round 1 will be assigned to their second choice (or third choice if the second choice is an oversubscribed research group that is capped after selection round 1) if their second choice (or third choice) is for a research group in the Department of Mechanical Engineering with sufficient supervision capacity or for a research group in one of the partner departments. The latter assignment still needs to be approved by the group leader;

- Students are selected by the oversubscribed research group on the basis of their second choice (or third choice) based on their CV (and motivation letter). For more info about the selection procedure, see below.

6. Students who have not been accepted for their second choice after selection round 2 will be assigned to their third choice if their third choice is for a research group in the Department of Mechanical Engineering with sufficient supervision capacity or for a research group in one of the partner departments. The latter assignment still needs to be approved by the group leader.

7. After two selection rounds, a small number of students with their first and second choice for a research group in the Department of Mechanical engineering may be assigned to a research group of their third choice outside the Department of Mechanical Engineering. A ‘Match Making Meeting’ will be organized with the research groups of their third choice to ensure these students are also offered an attractive place. Existing cross links between the oversubscribed research groups in the Department of Mechanical engineering (their first and second choice) and the research group of their third choice may thereby be exploited.

8. For students assigned to a research group in one of the partner departments and of whom the assignment is not approved by the group leader, the Graduate Program Director will make a proposal for a match with a research group on the basis of his/her 1st, 2nd and 3rd research group preference.

9. A small number of transfer students (zij-instromers) enrolls in the program halfway the year. These transfer students can be directly assigned to a research group in one of the partner departments or to an undersubscribed research group in the Department of Mechanical Engineering of their choice without any restriction or they can choose to take part in the MAP procedure of the upcoming new academic year. These students need to contact their academic advisor for allocation.

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4 This is only possible for the MSc program AT in which 3 research groups participate with a cap.

5 There is a hypothetical case that after two selection rounds a very small number of AT-students may remain without an assigned research group. A ‘Match Making Meeting’ will be organized with the undersubscribed research groups to ensure these students are also offered an attractive place. Existing cross links between undersubscribed and oversubscribed research groups in the Department of Mechanical Engineering may thereby be exploited. The Graduate Program Director will make a first proposal for a match of a student with a research group on the basis of his/her 1st, 2nd and 3rd choice.
Timeline + implementation SC

The assignment of students to a research group enrolling in the interdepartmental MSc program SC starts halfway Q1 when specialization information meetings are organized. After the specialization meetings students choose a research group in which they want to perform their thesis work.

1. At the start of June of each year, the total supervision capacity of each of the research groups and an estimate of the division over the MSc programs will be communicated. The final number for the supervision capacity of each group and its division over the different MSc programs will be listed halfway August.

   **Deadline: August 12, 2019**;

2. Specialization Information Meetings: *(Week 2 of Q1)*

   Central meetings are organized to inform students about the possibilities for specialization. The research groups involved from all participating departments present themselves. In the next two or three weeks students can contact research groups for extra information or research groups can organize extra information meetings for interested students.

3. Students indicate their 1st, 2nd and 3rd research group preference. Students must upload a CV + a motivation letter for their 1st choice.

   **Deadline: Friday week 5 of Q1**;

4. Selection round: *(Week 6 of Q1)*

   - Students are assigned on the basis of their first choice if none of the participating research groups in the program is oversubscribed;
   - Students who have opted for an oversubscribed research group as their first choice are selected by all participating research groups in the program based on the provided CVs and motivation letters. For more info about the selection procedure, see below.

5. A small number of transfer students (zij-instromers) enrolls in the program halfway the year. These transfer students can be directly assigned to an undersubscribed research group in the MSc program of their choice without any restriction or they can choose to take part in the MAP procedure of the upcoming new academic year. These students need to contact their academic

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6 The dates provided are for the intake of the 2019-2020 academic year.
Selection Procedure

In Osiris students who wish to enroll in one of the MSc programs coordinated by Mechanical Engineering (MW, MSE-W, SET, AT and S&C) indicate their MSc program and 1st, 2nd and 3rd research group preference. Students provide a CV and motivation letter for their first choice via Canvas. Please use our guideline (click here) to get started. The research groups within the department of Mechanical Engineering will select students based on several criteria to be reflected in the CV and motivation letter, such as study program so far, professional skills, interests, extracurricular activities outside study, and so on.

If a student has the opinion that the regulations and rules determined in this MAP procedure have not been respected, he/she can object via Education and Students Affair (ESA, formerly STU), see https://studiegids.tue.nl/organisatie/regelingen-en-gedragcodes/studentenstatuut.