EDUCATION AND EXAMINATION REGULATIONS

MASTER'S DEGREE PROGRAMMES EEMCS

A. FACULTY SECTION
B. PROGRAMME-SPECIFIC SECTION

2024-2025 academic year

Introduction to the Education and Examination Regulations for Master's degree programmes at the Faculty of Electrical Engineering, Mathematics and Computer Science.

General

The Dutch Higher Education and Research Act (Dutch abbreviation: WHW) of 1993 requires a broad outline of the teaching programme and examining for each degree programme to be recorded in the Education and Examination Regulations (EER (Dutch: OER)).

In accordance with Section 7.13, Paragraph 1, of the WHW, the EER must contain sufficient and clear information about the degree programme or group of programmes to which they apply. Section 7.13, Paragraph 2, of the WHW lists those issues that must, as a minimum, be stipulated in the EER with respect to procedures, rights and responsibilities relating to the education and examinations that are part of each degree programme or group of programmes. The WHW also includes a number of separate obligations relating to the inclusion of rules within the EER.

The EER is subdivided into two sections (Section A and Section B), which together form the EER. Section A, which can be seen as the faculty section, includes provisions that may apply to several Master's degree programmes. Section B contains the provisions that are specific to the particular Master's degree programme.

The EER is part of the UT Student Charter, which governs the rights of students and the way we treat each other at the UT. It gives an overview of the rights and obligations of our students and of the academic provisions. The charter consists of two parts: 1) the institutional section which applies to all students, irrespective of the programme and 2) the programme section, which is different for each programme and can be found in the Education and Examination Regulations (EER).

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SECTION A: FACULTY SECTION

A1 General provisions

Article A1.1 Applicability of these Regulations

1. This Faculty Section A contains general provisions that apply to education and examinations for all students in the following Master's degree programmes: Applied Mathematics, Business Information Technology, Computer Science, Electrical Engineering, Embedded Systems, Interaction Technology, Systems & Control, and Robotics (hereinafter referred to as: the Master's programmes) provided by the Faculty of Electrical Engineering, Mathematics and Computer Science (hereinafter referred to as: the faculty or EEMCS) of the University of Twente.
2. Each Master's programme also has its own Section B.
3. Section B of these Education and Examination Regulations may include additions to the general provisions in Section A only applicable to that specific programme.
4. Together the Faculty Section A and the Programme-specific Section B form the Education and Examination Regulations for the Master's programme concerned.
5. The Education and Examination Regulations apply to anyone enrolled in the Master's programmes, irrespective of the academic year in which the student first enrolled in the programme.
6. The Education and Examination Regulations also apply *mutatis mutandis* to the joint Master's degree programmes and study units provided by the faculty, pursuant to Section 7.3c of the WHW.
7. The general provisions and the programme-specific provisions to the Education and Examination Regulations are determined by the Faculty Board.
8. Students attending study units organised by another programme[1] are subject to the assessment rules laid down in the assessment schedule of the study unit concerned, in the Education and Examination Regulations and in the Rules and Guidelines of the Examination Board of the programme that organises the study unit. Special facilities according to article A7 can only be granted by the programme for which the student is enrolled.
9. The Examination Board sets down rules with regard to the execution of its tasks and powers in accordance with Section 7.12b of the WHW. These regulations are specified in the Rules and Guidelines of the Examination Board and include provisions about the rules of order during tests and rules in case of emergencies.
10. The institute section of the Student Charter includes a definition of what the University of Twente considers to be academic misconduct (fraud). The Rules and Guidelines of the Examination Board for the Master's programme in question include additional rules about academic misconduct (fraud), such as which measures the Examination Board may take if it establishes misconduct (fraud).

[1] This does not apply, unless otherwise agreed, for units that are organised by a programme specifically for another programme, so-called service education.

11. Requests for exemptions in respect of provisions laid down in the Education and Examination Regulations should be submitted to the Examination Board or the Programme Director of the student's own programme, as laid down in the relevant articles of these Regulations.

Article A1.2 Definitions

The terms used in these Regulations should be interpreted as follows:

a. **Academic year:** The period beginning on 1 September and ending on 31 August of the following calendar year.
b. **Admission Board:** The committee that assesses, on behalf of the Faculty Board, whether a candidate meets the requirements for admission to the Master's programme of their choice. If no Admission Board has been appointed for the programme, the Programme director functions as the Admission Board.
c. **Assessment schedule:** a schedule showing the method of assessment for a study unit.
d. **Combined Programme:** A programme of courses representing an amalgamation of two separate study programmes and covering the requirements and the programme intended learning outcomes of both individual Master's programmes, yielding two degrees.
e. **Course catalogue:** The guide for the Master's programme concerned that provides further details of courses and other information specific to the programme. The course catalogue is available at www.utwente.nl/coursecatalogue.
f. **Course:** A study unit of the programme, as defined in Article 7.3, Paragraph 2 and 3 WHW.
g. **Credit (EC):** A unit of 28 hours of study load, in accordance with the European Credit Transfer System; a full academic year consisting of 60 EC or 1680 hours (Article 7.4 WHW).
h. **Curriculum:** The aggregate of required and elective study units constituting a degree programme as laid down in Section B.
i. **Double degree:** two degrees awarded by two institutions of higher education that offer a joint study programme; the joint programme covers the programme intended learning outcomes of both programmes.
j. **Examination (also: exam):** An evaluation, performed to conclude a study unit, of the student's knowledge, understanding and skills as well as an assessment of the outcomes of that evaluation (Article 7.10 WHW); an examination may consist of a number of tests**.**
k. **Examination programme**: All study units of a study programme counting towards the degree.
l. **Examination Board:** The body that objectively and professionally assesses whether a student meets the conditions laid down in the Education and Examination Regulations regarding the knowledge, understanding and skills required to obtain a degree (Article 7.12 WHW).
m. **Examiner:** The individual appointed by the Examination Board to administer examinations and tests and to determine the results, in accordance with Article 7.12 Paragraph c WHW.
n. **Exemption:** The decision of the Examination Board that the student has knowledge and skills which are comparable in terms of content, scope, and level with one or more study units or components of study units. An exemption is granted based on acquired competencies, i.e., previously passed examinations in higher education or in view of knowledge and skills attained outside higher education.
o. **Executive Board:** Executive Board of the University of Twente.
p. **Faculty Board:** Head of the faculty (Article 9.12, Paragraph 2 WHW).

q. **Final Examination:** A degree programme is concluded with a final examination. If the study units in the degree programme have been completed successfully, then the final examination is deemed to have been completed (Article 7.10 WHW).
r. **Fraud and plagiarism:** Fraud is an act or omission by a student designed to partly or wholly hinder the accurate assessment of their own knowledge, understanding and skills, or those of another person. Fraud includes plagiarism, which is the use of someone else's work without including a correct reference to the source. See the Student Charter of the UT for further details.
s. **Higher Education and Research Act (abbreviated to 'WHW'):** The Dutch Higher Education and Research Act, Bulletin of Acts and Decrees 1992, 593, and its subsequent amendments.
t. **Homologation:** Study units that can be offered to students who are admitted to the master's programme but who nevertheless have insufficient knowledge, understanding or skills, according to Article 7.30b. WHW.
u. **Learning Management System (LMS):** System that supports online learning and teaching. In this case: Canvas.
v. **Master's programme (also: programme):** The Master's degree programme, as referenced in Article 7.3a Paragraph 1 subparagraph b WHW: the entirety of the course components, teaching activities/methods, contact hours, testing and examination methods and recommended literature.
w. **Master's thesis project / final project:** A study unit comprising literature research and a contribution to scientific research, which always results in a written report.
x. **Practical assignment:** A practical assignment as referred to in Article 7.13, Paragraph 2d WHW is a study unit or a study unit component emphasising an activity that the student engages in, as described in Section B.
y. **Pre-Master's programme (also: Bridging programme)**: A combination of study units that can be offered to students who cannot yet be admitted to the Master's programme due to insufficient knowledge, understanding or skills, in accordance with Article 7.30e. WHW.
z. **Programme Committee (PC):** Committee referred to in Article 9.18 WHW.
aa. **Programme Director:** The person appointed by the Faculty Board to administer the programme (Article 9.17 WHW).
bb. **Quarter (also: quartile):** A part of a semester as specified in the academic calendar of the university.
cc. **Semester:** Half an academic year, as specified in the academic calendar of the university.
dd. **Senior Examiner:** Specific examiners, appointed by the Examination Board to take the role as chair of an assessment committee for the final Project.
ee. **Student Information System (SIS)**: System designated by the Executive Board for registration and for providing information on all relevant data related to students and the programme, as referred to in the WHW. In this case: Osiris.
ff. **Student:** Anyone enrolled in a programme in accordance with Article 7.34 and 7.37 WHW.
gg. **Study Adviser:** Person appointed by the Faculty Board who acts as contact between the student and the university, and in this role represents the interests of the student, as well as fulfilling an advisory role.
hh. **Study load:** The time an average student needs to learn the course material. The study load comprises project work, independent study, lectures and writing assignments, for example. The

study load is expressed in credits according to the European Credit Transfer System, where 1 credit equals 28 hours.

ii. Study Programme: All study units followed by the student as part of their Master's degree programme.

jj. Study unit: A programme component as defined in Article 7.3, Paragraph 2 and 3 WHW. Also referred to as course.

kk. Teaching Period: The period in which a study unit is offered. This period starts in the first week in which an educational activity takes place for the study unit concerned and ends in the final week in which an educational activity takes place and/or a test is administered for the study unit concerned. Resits are not part of the teaching period. This period may sometimes not be the same as a quartile (quarter of an academic year).

ll. Test: An evaluation of the student's knowledge, understanding and skills as well as an assessment of the outcomes of that evaluation. A test is part of an examination. If the examination for a study unit consists of a single test, then the result of that test will count as the result of the examination in accordance with Article 4.7 WHW.

mm. UT: The University of Twente (UT).

nn. Working day: Any day from Monday to Friday with the exception of public holidays and the prearranged compulsory holidays ('brugdagen') on which the staff are free.

The definition of all other terms used in these Regulations is in accordance with the definition accorded by the main text of this document, the programme-specific section of the EER, the student charter or the WHW.

A2 Previous education and admission

Article A2.1 Previous education

1. In order to qualify for enrolment in a Master's programme, either a Bachelor's degree obtained through academic higher education (WO) is required, or a Bachelor's degree from a university of applied sciences (HBO) in addition to the successful completion of an appropriate pre-Master's programme. The requirements that the Bachelor's degree must meet are specified in Section B.
2. The Admission Board of the Master's programme assesses the candidate's suitability for admission to the programme on the basis of the requirements stipulated in Section B.
3. The Admission Board can admit students who lack a limited amount of credits on a topic regarding required prior knowledge, provided they judge that this does not reduce the student's likelihood of successfully completing the programme.
4. The Bachelor's degrees that entitle students to automatic admission are listed in Section B.
5. Additional admission requirements are stipulated in Section B.

Article A2.2 Language requirements

1. To be admitted to the programme, students must be proficient in English.
2. Proof of proficiency in English is required by the successful completion of one of the following examinations or an equivalent:
    a. IELTS (academic) certificate, not older than two years, with an overall band score of at least 6.5, and a minimum score on each section of at least 6.0.

b. TOEFL iBT (internet-based) certificate, not older than two years, with an overall score of 90, and a minimum score on each section of at least 21[2].
c. Cambridge C1 Advanced, formerly known as; Cambridge English Advanced (CAE) from 2015 onwards (when the subscores were introduced) and Cambridge C2 Proficiency, formerly known as; Cambridge English Proficiency (CPE) from 2015 onwards (when the subscores were introduced). Obtained an A, B or C grade, with an overall score of at least 176 and a minimum score on each section of at least 169.

3. Any exemptions to the Language requirement can be found at the UT Master website.

Article A2.3 Application and enrolment

1. The deadline for application for admission to the Master's programme is stipulated on the website www.utwente.nl/master. Different application deadlines apply to different types of applicants.
2. After admission, the student must enrol before 1 September or 1 February thereafter. The rules and regulations regarding enrolment are laid down in the UT Enrolment Regulations.

Article A2.4 Admission Board

Each programme has an Admission Board, which is appointed by the Faculty Board. The Faculty Board appoints this board after consulting with the Programme Directors and Examination Boards of the relevant Master's programmes.

Article A2.5 Admissions procedure

1. The Admission Board is responsible for the admissions to the programme in relation to any students that cannot be admitted directly (see Paragraph A2.1.4).
2. With a view to admission to the programme, the Admission Board assesses the candidate's knowledge, understanding and skills, including relevant language skills. The Board may request experts from inside or outside the University to test certain types of knowledge, understanding and skills, in order to supplement written evidence from the degree programmes the student has already completed.
3. In addition to the requirements, the Admission Board also assesses requests for admission on the basis of the following documents:
    a. motivation letter;
    b. English proficiency scores according to Article A2.2;
    c. Diploma;
    d. transcript of records;
    e. curriculum vitae;
    f. abstract of (Bachelor) thesis;
    g. course descriptions for programme-specific courses, research methodology courses, mathematics courses and a table of content for the course materials.
4. The Admission Board may decide that particular units must be included in the student's study programme to compensate for lack of knowledge on the part of the student (homologation courses).

[2] By exception, you can also take the TOEFL iBT (Special) Home Edition test (only valid for the September 2024 and February 2025 intake). This is only the case when you cannot use a regular language test as listed in this table because the onsite language test centre is closed because of unsafe situations in your country.

5. Candidates receive either confirmation of their admission to the Master's programme, admission to a pre-Master's programme or a negative decision. An appeal against a decision can be lodged with the UT Complaints Desk within six weeks.

Article A2.6 Refusal or termination of enrolment (unsuitability/judicium abeundi)

1. Based on the provisions of Section 7.42a of the WHW, the Faculty Board or the Examination Board may, in exceptional cases, ask the Executive Board to terminate or refuse a prospective student's enrolment in a programme, if that student's actions or words show that the student is unsuitable either for practising one or more of the professions for which the programme in question would prepare the student or for practical preparations for professional practice.
2. If it is believed that a prospective student is unsuitable for the programme, as described in Paragraph 1, the Examination Board or the Faculty Board will initiate an inquiry, and the student is informed of this promptly. The Examination Board or the Faculty Board does not issue any recommendation without carefully considering the interests involved and giving the prospective student the opportunity to be heard.

Article A2.7 Pre-Master's programme

1. The Admission Board may decide to admit a candidate to the Master's programme on the condition that a pre-Master's programme is completed successfully before their admission.
2. A pre-Master's programme is a bridging programme with a study load of 15 or 30 ECs, to be decided by the Admission Board. The courses in the pre-master are subject to the Bachelor Education and Examination Regulations.
3. The pre-Master's programme is assembled by the Admission Board. A fixed programme may be defined for specific groups of students. However, a student may also be given a personalized programme.
4. Proof of the successful completion of the pre-Master's programme, together with the related Bachelor's degree, serves as proof of admission to the relevant Master's programme, in the same and in the subsequent academic year.
5. Candidates are required to complete the pre-Master's programme within a year unless otherwise specified.
6. Students from Dutch Universities of Applied Sciences may be allowed to attend a pre-Master's programme during their Bachelor's programme. Paragraph 5 applies to these students. In this case, the relevant Bachelor's degree, together with the successfully completed pre-Master's programme, serves as proof of admission to the relevant Master's programme.

A3 Programme content, structure, and rules

Article A3.1 Aim of the programme

The qualities relating to the knowledge, understanding, and skills that the student should have acquired upon completing the programme (aims and learning outcomes) (Article 7.13 Paragraph 2 (a) of the WHW) are set out in Section B.

Article A3.2 Programme structure

1. Section B describes the Master's programme in accordance with Article 7.13, Paragraph 2 WHW.

2. The scope of the Master's programme is at least 120 EC. These 120 credits must not include any courses for which credits have been obtained during a previous UT Bachelor's programme.
3. Registration is required prior to participating in a study unit, this is only possible for students during the periods designated for that purpose.
4. Every Master's programme has a nominal duration of two years, with each year divided into two semesters, both divided into two quarters[3]
5. Master's programmes are taught on a full-time basis.

Article A3.3 Language of Instruction

1. The language of instruction for all EEMCS Master's programmes is English.

Article A3.4 Exemptions

1. The Examination Board may grant an exemption to students at their request for one or more examinations or tests. To this end, the student should demonstrate having sufficient knowledge and skills in relation to the examination concerned or the test in question.
2. An exemption granted by the Examination Board is registered in SIS under the study unit or study units, or components thereof, by means of an EX (exemption).
3. Students cannot be compelled to take additional study units or components of study units in their curriculum instead of an exemption that has been granted.
4. Exemptions may be granted to a maximum of 30 EC.
5. Students may also be exempted from practical assignment if they can demonstrate that a required practical assignment will likely give rise to a personal moral dilemma. In such cases, the Examination Board determines whether the component can be completed in another manner and in what way.

Article A3.5 Flexible-degree programme

1. The Examination Board decides on requests for permission to take a flexible-degree programme as referred to in Article 7.3j WHW. The Examination Board assesses whether a flexible-degree programme is appropriate and consistent within the domain of the educational programme and whether the level is high enough in light of the attainment targets of the programme.
2. The content of the flexible-degree programme is determined and motivated by the student and must be equivalent to a regular Master's programme in terms of scope, breadth and depth.
3. The following requirements must be met in order to be eligible for the Master's degree:
    a. the deviation from the regular Master's programme must be at least 30 EC while still ensuring coherence in terms of content.
    b. the level of the programme must match the objectives and programme intended learning outcomes that apply to the programme for which the student is enrolled.

Article A3.6 Combining programmes

1. A student can obtain diplomas for two UT Master's programmes on the basis of a combined programme.
2. Students need to be admitted and enrolled in both programmes in order to combine two programmes.

[3] See www.utwente.nl/en/ces/planning-schedules/academic-calendar/academic-calendars/ for a more detailed explanation of the academic calendar at the UT.

3. Approval for the programme and overlap in courses is required from the Examination Boards of both Master's programmes
4. The following requirements apply to the composition of a combined programme:
   a. The programme of courses represents an amalgamation of the separate degree programmes and satisfies the requirements of each individual programme, including the programme intended learning outcomes .
   b. The study load in EC of the combined programme must be at least 180 credits for two two-year programmes, or 150 credits for a combination of a one-year and two-year programme.
   c. The maximum overlap in courses outside of the Master's final project(s) is 40 credits.
   d. The combined programme must include two separate Master's final projects, or one larger combined Master's final project.
   e. Two separate Master's final projects may only be combined into one larger one, if the topic is relevant to both Master's programmes. The study load of this combined Master's final project must be at least 100% of the requirement in EC for the Master's final project of the programme that has the highest number of EC plus at least 50% of the requirement in EC for the Master's final project of the other programme.[4]
   f. In case there is a Standard Programme for a combined study programme defined by two UT Master's programmes, the requirements laid down in the Standard Programme apply.
5. The requirements on examiners and supervision for the internship and Master's final project of both programmes must be met.
6. Students who complete a study programme as described take a combined final examination which they pass if the assessments included in their file would result in a pass for the final examination of both programmes individually in accordance with the applicable regulations. The Examination Boards of the programmes involved decide whether a student passes the final examination. The Programmes provide instructions concerning the date of a combined final colloquium.

Article A3.7 Master's final project

1. Requirements for starting the final project:
   a. Students must have no more than 10 ECs still to complete, other than the final project.
   b. As an exception to the rule above, if the programme allows for a combined final project and internship, 10 ECs in unfinished courses other than the internship and final project are allowed.
2. The student and examiner(s) must agree on the start date and completion date for the Master's final project.
3. This agreement is to be documented in a plan that takes into account the nominal length of the final project, a reasonable holiday period and any uncompleted study units.
4. The schedule for completion must be approved by the examiner and signed by the student.
5. The final project is concluded with an oral presentation in public at the University of Twente unless the project is carried out at another university as part of the exit year of a double degree programme.
6. Programme-specific regulations regarding the final project are stipulated in Section B.

[4] For some EEMCS programmes graduation is divided into a 10EC preparatory study unit and 30EC thesis project. For the purpose of this rule A3.6.4d only, they are considered one single 40EC project.

Article A3.8 Composition of the assessment committee for the Final Project

1. The committee consists of at least two examiners, of which at least one is senior examiner; it is chaired by a senior examiner.
2. The examiners must belong to at least two different UT research groups.
3. All supervisors of the project are members of the assessment committee. Supervisors who are not examiners serve on the committee in an advisory capacity.
4. The examiners are collectively responsible for grading the thesis. In case of different opinions among the examiners, the chair of the assessment committee takes the ultimate decision on the grade.
5. In the event that the assessment committee cannot meet the above specifications, a motivated request to the Examination Board may be made by the Programme Director. The approval for the particular assignment remains valid during the academic year in which the request was granted or the duration of the final project in question with the maximum of one year.

Article A3.9 Internship

1. The internship is a period of study-related professional practice amounting to 20 EC and is carried out by the student at a company, university, or organization outside the University of Twente.
2. Requirements for starting the internship:
    a. students must already have obtained at least 45 EC of their examination programme.
    b. additional requirements may apply for each programme and are stipulated in Section B.
3. A description of the internship must be drawn up and approved by a member of UT staff appointed as examiner. This approval must be obtained before commencing the internship.
4. Students must contact the internship office for an intake at least three months before their preferred start date of the internship.
5. The day-to-day supervisor for the internship is the company supervisor: a member of the organization where the internship is carried out. This supervisor must be named in the project description, mentioned in Paragraph 3.
6. The UT supervisor mentioned in Paragraph 3 supervises the student remotely during the internship. If, in the opinion of this UT supervisor, adequate supervision by the company supervisor is not – or no longer – possible, the UT supervisor may decide to take over as the student's day-to-day supervisor.
7. During the internship, the student writes a report about their work. At the end of the internship period, this report is submitted to the company supervisor. The company supervisor assesses the internship using the relevant assessment form. The assessment is based on the supervisor's observations of the student and on the report submitted by the student.
8. The UT supervisor acts as the examiner for this unit and bases their grade on the assessment made by the company supervisor, the report written by the student and a discussion with the student. The student must submit the report to the UT supervisor within two months after finishing the internship. The internship report is *not* publicly available.

Article A3.10 Duration of the internship

1. According to the study load of 20 EC, the duration of an internship is the equivalent of 14 weeks of full-time work including writing a report. An extension with two weeks of this period is allowed to compensate for unforeseen delays.

2. If the host organisation and the student want to maintain a working relation after this period, the student must complete the internship first. After completion of the internship, the working relation between the student and the company falls outside the scope of the student's study programme and outside the responsibility of the University of Twente.

Article A3.11 Confidentiality

1. The final-thesis report is made public unless confidentiality has been deemed necessary.
2. The Programme director may declare a final thesis report to be confidential for a limited period upon receiving a motivated request to do so.
    a. A confidentiality request must be made by the examiner as soon as possible, but no later than four weeks before the end of the final project.
    b. A confidential report remains accessible to the supervisor, the Programme director, and any members of bodies with the authority to assess the quality of the grading of the entire programme.
    c. All parties mentioned in Paragraph 2b are required to respect the confidentiality of the report.
3. The confidentiality period is by default set at 2 years up to a maximum of 5 years.
4. If confidentiality is deemed necessary as described in Paragraph 2, the contents of the public final thesis presentation may be adapted to avoid making public those matters that are considered confidential.
5. Section B of these Education and Examination Regulations may include additional provisions.

Article A3.12 Evaluation

1. The Programme director is responsible for monitoring the quality of the educational programme.
2. The Programme director is responsible for evaluating the programme.
3. To monitor and to improve the quality of teaching, the EEMCS MSc programmes use information about the students' learning experiences obtained from:
    - Internal evaluations
        - Periodic course evaluations at the end of each course
        - Additional (panel) evaluations, on request from lecturer, students, Programme committee, Examination Board or Programme Director
    - External sources
        - National Student Survey (NSE)
        - National Alumni Survey
        - International Student Barometer
4. Section B can include further details on how the education in the programme is evaluated.

A4 Teaching and assessment

Article A4.1 Examinations

1. Each study unit concludes with an examination.
2. The examination consists of one or more tests.
3. A test or examination can have various forms[5] and can be administered online or offline.

[5] A test or exam can have the following forms: a written test, an assignment, an oral test, a presentation, practical assignment, or a combination of these forms.

4. The time allotted to administering a test may not exceed three hours. Exceptions in this regard are listed in Article 7.2.
5. If the examiner wishes to use a form of assessment that requires more than three hours, the examiner must, with due regard for Article 4.2.3, ask the examination board for approval to deviate from the above.
6. A student has the right to inspect recent model test questions, model tests, or old tests that are representative of the test or examination, as well as the associated answer keys, along with the norm for assessment and time estimated for answering the example test.
7. If an examination or test is administered online using *online surveillance*[6] or *online proctoring*[7], the Examination Board may set further rules and conditions for online (*proctored*) assessment. General information and detailed rules on online assessment is presented at the university's website.

Article A4.2 Course Catalogue and Assessment Schedule

1. The Programme director publishes at least the following details of the study units in SIS not less than four weeks in advance: scope, intended learning outcomes and content, language of tuition and assessment, prerequisites, required and recommended study materials, design of teaching methods, and assessment.
2. The assessment schedule of a study unit is drawn up by the examiner or examiners and is determined by the Programme director. The Examination Board provides advice on the assessment schedule.
3. At least two weeks prior to the start of the study unit an assessment schedule must be published in the Learning Management System (LMS).
4. The assessment schedule includes at least all items as included in the course catalogue yet shall also include:
    a. The intended learning outcomes of the study unit and how they are assessed and when they are attained.
    b. when examinations, tests, and resits are held (the precise times and dates are announced via the timetable).
    c. the relative weighting of the tests.
    d. any required minimum grade per test; a minimum grade for a test may not be set higher than 5.5.
    e. if applicable: information on resits (such as conditions, compensation options and grading periods).
5. The Programme director may modify the assessment schedule during the study unit:
    a. The assessment schedule may only be changed in consultation with the examiners of the study unit.
    b. The Programme director consults the Examination Board before any changes to the form or manner of administering an examination or one or more tests. If the change only

[6] Camera surveillance of the student or students during an *unrecorded* test, using for example Canvas, Teams, etc.

[7] Surveillance of the student or students using special *proctoring* software, such as Proctorio.

involves moving tests to a timeslot other than as shown in the timetable, the Programme director informs the Examination Board of the decision as soon as possible.

c. Students must be informed immediately of the change.

6. Changes to the assessment schedule may not put students at an unreasonable disadvantage. The Examination Board may take special measures in individual cases.

Article A4.3 Examination and test opportunities

1. There will be an opportunity to take written or oral tests at least twice a year. Other forms of examination can be completed at least once a year.
2. In the event that a study unit is discontinued, at least one opportunity is provided in the year subsequent to discontinuation to take the examination or parts thereof, and a transitional arrangement must be included in Section B for the subsequent period.
3. At the student's request, the Examination Board may permit a different form of examination than that stipulated in the course catalogue. The examiner may ask the Examination Board to permit a different form of examination on condition that all students participating in the test agree.

Article A4.4 Registering for courses, tests and examinations

1. Registration in SIS is required prior to participating in a course[8]. It is also mandatory to register before every test opportunity.
2. Notwithstanding Paragraph 1, any student who has correctly registered to participate in the instruction/classes for a particular course and has been admitted will also automatically be registered for the subsequent tests, unless the course description specifies otherwise. Only if as student has passed a test and the student still wants to take part in the subsequent test, the student has to register in SIS manually prior to the test opportunity.
3. Before the start of a study unit, the student must meet the prior knowledge prerequisites for that study unit
4. With respect to possible prior knowledge requirements of subsequent study units a student is allowed to assume that they passed an examination at the examination date, as long as the result of the examination is pending.
5. Notwithstanding Paragraph 4, if the pending result turns out to be a fail and because of that the student violates the prior knowledge requirements of a subsequent unit, the Examination Board can decide that the student must interrupt their participation in this subsequent unit pending a repair of the fail.

Article A4.5 Examination date

1. The examination date of a study unit, mentioned in the SIS, is the date on which the student fulfilled the last obligation, necessary for an assessment of the unit.
2. If a student agrees with an examiner about an examination date for a certain unit, the submission of additional material by the student after this date leads to a new examination date, being the date of the submission of this additional material.

[8] The applicable registration deadlines are mentioned on the webpage www.utwente.nl/en/education/student-services/education/courses-and-modules/ .

Article A4.6 Oral tests

1. If the student or the examiner wishes a third party to be present when administering an oral test, then a request to this end must be submitted to the Programme director at least fifteen working days prior to the oral test. The student and the examiner are notified of the Programme director's decision not less than five working days in advance. The Programme director must inform the Examination Board of the decision. Public graduation colloquia, public presentations and group tests are excluded from this provision.
2. If the Examination Board has decided that members of the Examination Board or an observer on behalf of the Examination Board is to be present during the administration of an oral test, then the Examination Board must make this known to the examiner and the student at least one working day before the oral test.

Article A4.7 Examination results

1. The examination result of a study unit, as determined by the examiner, is expressed in half grades from 1.0 to 5.0 and from 6.0 to 10.0[9] or as *'pass' / 'fail'*. With grades only being rounded in the final phase[10] of the assessment of a study unit and in accordance with the schedule below:

If digit before the decimal (n) ≠ 5	
Grade ≥n.00 and <n.25	⇨ n.0
Grade ≥n.25 and <n.75	⇨ n.5
Grade ≥n.75 and <(n+1).00	⇨ (n+1).0
If digit before the decimal = 5:	
Grade ≥5.00 and <5.50	⇨ 5.0
Grade ≥5.50 and <6.00	⇨ 6.0

2. Test results are expressed in a grade from 1 to 10 with a single decimal, or as *'pass' / 'fail'*.
3. Examination results of 6.0 or higher respectively '*pass'* are a pass.
4. Examination results, if a pass, obtained at foreign universities are registered as a P (*pass*). Examination results obtained at Dutch universities are adopted one-to-one, with due regard for the provisions in Paragraph 1.
5. Credits may only be issued for a study unit if the study unit has been completed with a pass mark.
6. If more than one examination or test result has been recorded in SIS for one and the same unit of study, the highest grade applies.

Article A4.8 Determining and announcing results

1. The result of a written test or practical assignment is published via SIS within 20 working days.
    a. The examiner determines the result of a written test within 15 working days after the test.

[9] In SIS, a comma is used based on the Dutch grading system (e.g., 7.0).

[10] Final phase: the calculation of the examination result after all test results have been announced.

   b. The examiner needs to pass on the result to the examination office or process the results in SIS within 5 working days of determining the result.
   c. No rights can be derived from test results published on the LMS or communicated via any medium other than SIS.
2. The examiner has to inform the student of the result of an oral examination within one working day, unless, for the examiner, the oral examination is part of a series of oral examinations of the same study unit which are administered on more than one working day. In that case, the examiner is to determine and announce the result within one working day following the conclusion of the series of oral examinations.
3. In case the result for a study unit is based on multiple tests, the date of completion of the final test counts as the examination date.
4. In case the examiner is unable to meet the terms described in Paragraphs 1 and 2 due to extraordinary circumstances, they must inform the Examination Board of this, providing reasons for this situation. The student is then informed of the delay by the Examination Board as soon as possible, whereby a new deadline for the result is also determined. If the Examination Board concludes that the examiner has not met their obligations, it may appoint another examiner to ascertain the result of the examination.
5. Notwithstanding Paragraph 1, the results of the first test have to be published at least five working days before the resit to give the student time to prepare.

Article A4.9 Period of validity

1. The period of validity for the results of an examination that has been passed is unlimited. The validity of an examination result can only be restricted if the tested knowledge, insight, or skills are proven to be out of date. The Examination Board ensures that these results are invalidated.
2. Test results are only valid in the academic year in which they were obtained unless they are aggregated into an examination result or the assessment schedule explicitly states otherwise.
3. The Examination Board may extend the validity of test results in individual cases at the request of the student.

Article A4.10 Post-examination right of inspection and discussion

1. Students are entitled to discuss and review their test together with the examiner, and the examiner has to explain the assessment. This can be done individually or in a group setting, either in person or by using an online tool. The examiner chooses the setting of methods and tools for discussion.
2. Individual and group discussions must take place no later than five weeks after the publication of the test results, but at least five working days prior to the next test opportunity, in the (online) presence of the examiner or a substitute designated for that purpose.
3. If the examiner holds a group discussion of the assessment, the student must use that opportunity to exercise the right to discussion referred to in Paragraph 1. If a student is not given the opportunity at the group discussion to discuss the reasons for the examiner's assessment of the test with the examiner, the student may submit a request for individual discussion with the examiner within five working days after the group discussion. The individual discussion has to take place no later than five working days prior to the next test opportunity.
4. If there is no group discussion of the test scheduled by the day of the publication of the results, then a student may submit a request to the examiner for an individual discussion within ten days

after publication of the results. The individual discussion has to take place no later than five working days prior to the next test opportunity.

5. The student has the right to inspect their work for a period of two years after the assessment.

Article A4.11 Retention period for tests

1. The retention period for test assignments, keys, papers, and the assessments of written tests is two years.
2. The retention period for final thesis reports is seven years.

A5 Final Examination

Article A5.1 Master's final examination and degree

1. The Master's final examination is considered to be complete when the student has passed all study unit examinations in the Master's programme. The examination board may find, under conditions that it has set, that not every examination has to be passed to determine that the master's final examination has been successfully completed (Article 7.12b paragraph 3 WHW).
2. The date of the final examination is the date on which the student completes the final study unit of the degree programme.
3. A diploma can only be awarded after the student has received formal approval for their study programme as described in Section B.
4. A student may submit a written request, giving reasons, to the Examination Board to postpone the final examination, and thus to postpone the awarding of the diploma. The maximum duration of any postponement that can be granted is twelve months, in principle. In exceptional cases[11], the student may have valid reasons for requesting that the awarding of the diploma be postponed for more than twelve months.
5. If the student has requested postponement based on the provisions of Paragraph 4, then the date of the examination is the date on which the Examination Board decides that the student has passed the final examination subsequent to the postponement.
6. Students who have successfully met all requirements for the Master's final examination are awarded a Master of Science (MSc) degree.
7. The degree conferred is stated on the diploma.

Article A5.2 Diploma

1. The Examination Board awards a diploma as proof that the student has satisfied all the requirements of the examination once the Executive Board has confirmed that the procedural requirements for awarding the diploma have been met. The date indicated on the diploma (i.e., the date of the final examination) is the date on which the student completed the final study unit of the degree programme.
2. The diploma is signed by the chair of the Examination Board. If the Chair is absent, one of the members of the Examination Board may also sign the diploma.
3. The diploma is in English and complies with the European format for such diplomas and WHW Article 7.11.

[11] Some examples (by way of illustration, not to exclude other situations): the student attends a double degree or combined degree programme, or an extensive extra-curricular activity requires more than twelve months.

4. An International Diploma Supplement is appended to the diploma. This supplement is intended to provide insight into the nature and content of the degree programme to promote the international recognition of the programme (WHW, Article 7.11, Paragraph 4).
5. If the Examination Board has awarded a specific distinction (e.g., cum laude) to the student, then this is mentioned on the diploma.
6. Students who have successfully completed more than one examination but cannot be awarded a diploma as referred to in Paragraph 1, receive, at their own request, from the Student Services Desk a statement prepared by or on behalf of the Examination Board which in any case states the results of the examinations the student has passed.

Article A5.3 Cum Laude

1. The Examination Board checks whether the student has fulfilled all requirements. If the *judicium Cum Laude* ('with distinction') applies, this is stated on the diploma and the diploma supplement.
2. The *judicium Cum Laude* can be awarded provided the following requirements are met:
    a. The precise weighted average[12] of the grades for all study units of the Master's examination programme, excluding the Master's thesis (final project) and the internship (if applicable), is at least 8.00; Results for study units outside the examination programme, are not taken into account.
    b. Those parts of the examination programme for which an exemption was granted, or which were not graded with a number[13] are not considered when calculating the average grade.
    c. Exemptions within the examination programme may be granted to a maximum of 15 ECs.
    d. The study unit of the Master's thesis (final project) is graded at 9.0 or higher.
    e. If an internship is part of the examination programme, it is graded at 8.0 or higher.
    f. No more than one study unit of the examination programme has been graded lower than 7.0.
    g. The study programme has been completed within 125% of the nominal duration, starting from the start date recorded in SIS.
3. Students who have been found guilty of academic misconduct in academic activities related to the programme for which the cum laude is to be awarded, are excluded from the judicium cum laude.
4. In individual cases the Examination Board may grant the judicium Cum Laude even if not all requirements are met due to extenuating circumstances. It is noted that the distinction of cum laude is never awarded automatically, but only following individual assessment of the student's academic achievements.

[12] The weighted average is proportional to the number of credits.

[13] With the exception of EIT Digital Master school programmes

A6 Student guidance and study progress

Article A6.1 Study progress report

1. Every student can access their list of the results achieved in SIS. The student can request a certified study progress overview from the Student Services Desk if required.

Article A6.2 Student guidance

1. The Faculty Board is responsible for student guidance.
2. Student support and guidance includes 'decentralised' guidance, as provided within study programmes, and 'central' guidance, as provided by the Centre for Educational Support.
3. Student guidance includes guidance with questions or problems with regard to career orientation and career choices and guidance with problems that affect study progress. Students are offered personal and professional student (career) guidance for optimal study progress. Where possible, needs for specific guidance are met.
4. Each student is assigned a study adviser.
5. The study adviser supervises students and advises them on all aspects of the studies, also on personal circumstances that may be affecting the student's studies.
6. A systematic method on how students are monitored and obstruction in study progress is signalled is documented by the programme (for example in a policy plan or an annual cycle).
7. Information about the guidance facilities of the study programme is in any case available on the website of the study programme.

Article A6.3 Special Facilities

1. If students wish to exercise their right to specific supervision or special facilities, they should contact the study adviser. The study adviser records the agreements made with the student in SIS.
2. A student is entitled to special facilities in case of demonstrable circumstances beyond the student's control or extenuating personal circumstances. The facility may provide for dispensation from or an additional opportunity to sit examinations or tests to be granted and/or for specific facilities to be made available. Such dispensation and additional resits may only be granted by the Examination Board.

A7 Studying with a functional impairment

Article A7.1 Studying with a functional impairment

1. A functional impairment is defined as having an illness condition, impairment, or handicap that might impede or otherwise constitute a barrier to the student's academic progress.
2. Facilities are aimed at removing individual barriers in attending the degree programme and/or when it comes to taking examinations and tests. These facilities may be related to access to infrastructure (buildings, classrooms, and teaching facilities) and study materials, adjustments to the form of assessment, alternative learning pathways, or a customised study plan.

Article A7.2 Request for facilities

1. The study adviser and the student concerned discuss the most effective facilities that can be provided for the student as referred to in Article 2 of the Equal Treatment of Disabled and Chronically Ill People Act (WGB h/cz).
2. Based on the discussion referred to in Paragraph 1, the student has to submit a request for facilities. This request should be submitted to the study adviser, who has been mandated by the Faculty Board, preferably three months before the student participates in classes, exams, and tests for which the facilities are required.
3. The request should be supported by documents that are needed to enable an assessment to be made.
4. The study adviser decides on the admissibility of the request and informs the student of the decision within twenty working days after receipt of the request, or sooner if the urgency of the request dictates.
    a. Should the request be granted, the period of validity is also indicated.
    b. If the request is not granted, or only partly granted, the study adviser informs the student of the justification for not granting the request as well as the possibilities for filing an objection and an appeal with the Complaints Desk.
    c. Students who are dyslexic, are granted a maximum of 15 extra minutes for each hour that a test or exam is officially scheduled.
5. The study adviser informs the relevant parties in due time about the facilities that have been granted.
6. The applicant and the study adviser evaluate the facilities before the end of the period for which they have been granted. During this evaluation, the parties discuss the effectiveness of the facilities provided and whether they should be continued. No evaluation takes place of facilities granted to students because of the functional impairment dyslexia.

A8 Amendments, transitional arrangements, appeals and objections.

Article A8.1 Conflicts with the regulations

If other additional regulations and/or provisions pertaining to education and/or examinations conflict with these Education and Examination Regulations, the provisions in these Education and Examination Regulations prevail.

Article A8.2 Administrative errors

If, following the publication of a result, a marks sheet, or a student's progress report a manifest error is discovered, the discoverer, be it the university or the student, is required to make this known to the other party immediately upon finding the error and to cooperate in rectifying the error.

Article A8.3 Amendments to the regulations

1. Substantive amendments to these Education and Examination Regulations are enacted by the Faculty Board in a separate decision.
2. In principle, substantive amendments to these Regulations do not apply to the current academic year. Amendments to these Regulations may apply to the current academic year if the interests of the students are not prejudiced within reasonable bounds, or in situations of force majeure.
3. Amendments to these Regulations have no effect on earlier decisions by the Examination Board.

Article A8.4 Transitional arrangements

1. In the case of amendments to the Education and Examination Regulations, the Faculty Board adopts a transitional arrangement, as necessary.
2. The transitional arrangement must to published on the degree programme's website or published in Section B of these regulations.
3. The following principles are applicable to any transitional arrangement if a Master's programme is changed:
    a. Changes to the curriculum are to be announced prior to the academic year in which the changes take effect.
    b. No guarantee can be made that all programme study units that were part of the curriculum when students enrolled in a programme continue to be part of the curriculum. The final Master's examination is to be based on the curriculum most recently adopted by the Faculty Board.
4. Transitional arrangements always include:
    a. which discontinued study units are equivalent to study units or components thereof in the revised Master's programme that is included in Section B.
    b. if a study unit without practical exercises is discontinued, there will be at least one opportunity in the subsequent academic year to take a written or oral examination or to ensure assessment by some other means.
    c. if a study unit that involves practical exercises is removed from the programme, and during the subsequent academic year no opportunities are provided to complete these practical exercises, at least one study unit is designated as a suitable replacement for the discontinued study unit.
    d. the term of validity of the transitional arrangement.
5. The transitional arrangement must be approved by the Examination Board.
6. In exceptional cases and to the student's benefit, the Examination Board may deviate from the prescribed number of opportunities to sit exams and/or tests related to study units that have been dropped from the curriculum.

Article A8.5 Assessment of the Education and Examination Regulations

1. The Faculty Board is responsible for the regular assessment of the Education and Examination Regulations, with specific emphasis on the study load.
2. In accordance with article 9.18 of the WHW, the programme committee has a partial right of consent of and a partial right to be consulted on parts of the Education and Examination Regulations.
3. The Programme Committee is responsible for the annual assessment of the manner in which the Education and Examination Regulations are implemented.

Article A8.6 Appeal and objections

An appeal and objections must be submitted in writing to the University of Twente Complaints Desk within six weeks after notification of a decision to the student.

Article A8.7 Hardship clause

In cases of demonstrable unreasonableness and unfairness of a predominant nature, the Examination Board or the Programme Director may allow the provisions in these Regulations to be deviated from. This depends on which body is authorised or has the duty according to these Regulations to take a decision on or make an exception to a provision in these Regulations.

Article A8.8 Publication

The Education and Examination Regulations and the Examination Board's Rules and Guidelines are to be published on the degree programme's website.

Article A8.9 Entry into force

These Regulations enter into force on 1 September 2024 and replace the Regulations dated 1 September 2023.

SECTION B: PROGRAMME-SPECIFIC SECTION ROBOTICS

About this Section

The Education and Examination Regulations (EER), as part of the Student Charter, are subdivided into two sections (Section A and Section B), which together form the EER. Section A, which can be seen as the faculty section, includes provisions that apply to all EEMCS master's degree programmes. Section B contains the provisions that are specific to the particular degree programmes, in this case the master's programme Robotics.

B1 General Provisions

Article B1.1 Definitions

In addition to the definitions in Article A1.2, the following definitions are used in this Section B:

a. **Programme mentor**: a staff member, who is appointed by the programme board for each specialisation to advice students who joined the specialisation until they start their graduation project. The programme mentor assists the students in the selection of courses related to the specialisation, profile, and the MSc-thesis project.
b. **MSc-Thesis Supervision Committee**: the committee supervising the student conducting their MSc-thesis project.
c. **MSc-Thesis Assessment Committee**: the committee assessing the student who has carried out their MSc-thesis project. It consists of the MSc-Thesis Supervision Committee and the external examiner.
d. **Specialisation**: chosen by the students, identifying the scientific direction within Robotics, providing a strong robotics basis through 6 compulsory courses.
e. **Profile**: set of 2 courses and mindset throughout the whole curriculum steering towards the future career of the student.
f. **CBL:** Challenge Based Learning. Actually, as applied in the MSc Robotics programme.
g. Course-Specific CBL elements: parts of the compulsory courses, defined (framed) by the course teachers, that must be integrated by the students in their challenge. The results of the course-specific CBL elements are being assessed by the course teachers within the compulsory course itself.
h. CBL Teacher / Coordinator: responsible for the coordination of the Challenge-Based Learning projects throughout the 1st year, and the assessment of the CBL process of the students in the whole curriculum.
i. ELSE Components: the role of Ethical, Legal, Social, and Economical aspects of robotics, being addressed and assessed within the compulsory courses of each specialisation.

Article B1.2 Aim of the programme

The academic MSc Robotics programme aims to educate academic master students to integrate knowledge and expertise of mechatronics, artificial intelligence applied to robotics, and human-robot interaction both physically and socially. As a result, graduates are able to develop and realise intelligent robotic systems using a systems-engineering approach. Such robotic systems can operate in unstructured as well as structured environments and can interact with the environment and with humans in that environment (socially and also physically). Graduates are able to evaluate the use of these robotic systems and are able to bear responsibility regarding the design decisions made, also from ELSE perspective.

Article B1.3 Programme Intended Learning Outcomes

Table 1 Programme Intended Learning Outcomes (PILOs)

An MSc Robotics graduate is able to...	
1.	integrate specialised advanced knowledge, skills, and insight in one of the three chosen specialisations: Mechatronics & Physical AI, Algorithms & Software AI, or Human-Robot Interaction & Hybrid AI. The graduate has knowledge about the other two specialisations and is able to use and integrate this knowledge in the context of one's own specialisation.
2.	integrate specialised advanced knowledge, skills, and insight in the chosen profile: Research, Design, or

	Innovation & Entrepreneurship. The graduate has knowledge about the other two profiles and is able to use and integrate this knowledge in the context of one's own profile.
3.	integrate specialised advanced knowledge in at least one of the topics of the robotics research groups at the UT, related to the application areas as mentioned in the DSFR[14]. The graduate can appreciate new knowledge of adjacent application areas and to integrate this in one's work.
4.	work and communicate effectively in a multi-disciplinary environment / team using a systems-engineering approach and can carry responsibility as a team lead. Furthermore, the graduate can explain and discuss (both orally and in writing) outcomes of one's work to academia and industry, to specialists, and to laymen.
5.	develop a broad scope with respect to the ethical, legal, societal, and economical (ELSE) aspects of the graduate's work and can evaluate and reflect on the impact of the graduate's work.
6.	devise and realise personal goals and reflect on it within the limits of the programme. The graduate can identify and acquire lacking expertise, and can critically reflect on own knowledge, skills, and attitude. The graduate possesses the attitude and ability to maintain and continuously improve one's academic and professional knowledge, skills, and insight (life-long learning).

Article B1.4 Specialisations and Profiles

The core of the MSc Robotics programme is formed by the three Specialisations (Table 2), and the three Profiles (Table 3). A student chooses a Specialisation and a Profile. The robotics basis is provided through 6 compulsory courses for each Specialisation.

Table 2 The three Specialisations of MSc Robotics

Specialisation
Mechatronics and Physical AI (MPAI)
Algorithms and Software AI (ASAI)
Human-Robot Interaction and Social AI (HRISAI)

Through the selection of one of the Profiles, the student steers towards their future career. For each Profile there is a list of elective courses to choose one from (except for the innovation and entrepreneurship profile with one compulsory course).

Table 3 The three Profiles of MSc Robotics

Profile
Research
Design
Innovation & Entrepreneurship

B2 Admission requirements

See Chapter A2, for general regulations regarding admission and enrolment.

[14] See Domain Specific Frame of Reference: Medical Robotics, Robotics for Inspection and Maintenance, Robotics for Agro and Food, and Robotics for Industry, being mechatronics and smart industry.

Article B2.1 Admission requirements for students with a Dutch academic BSc degree

Students in the possession of a degree in one of the bachelor's programmes, mentioned in Table 4, obtained at a Dutch University, are eligible for admission. For admission, the conditions mentioned in Table 4 apply.

Table 4 Admission requirements for students with a Dutch academic BSc degree

BSc	Without further requirements	With UT minor Systems and Control or UT minor Biorobotics	After pre-master programme (max. 30 EC)
Mechanical Engineering	X		
Electrical Engineering	X		
Advanced Technology		X	X
Biomedical Technology		X	X
Chemical Science and Engineering			X
Civil Engineering		Minor S&C	X
Creative Technology			X
Industrial Design Engineering			X
Technical Computer Science			X
Applied Physics		X	X
Applied Mathematics		X	X

Article B2.2 Admission requirements for students from a Dutch University of Applied Sciences

See Article A2.7, for general regulations regarding pre-master's programmes.

1. Students seeking admission on the basis of a bachelor's degree awarded by a Dutch University of Applied Sciences (UAS) must complete a pre-master's programme, comprising of the courses mentioned in Table 5.

Table 5 Pre-master's programme for students having a BSc degree of a Dutch UAS

Code	Course	Study load (EC)
202001171	Calculus A	5
202001178	Linear Algebra	3
201500252	Digital Logic and Computer Organization	3
202001173	Calculus B	4
202001185	Linear Systems	6
202001141	Engineering System Dynamics	5
202000238	Academic Research Skills	4
	Total	**30**

2. The programme assumes a minimal knowledge level VWO-B in mathematics and a VWO-level in English. (VWO being the Dutch preparatory secondary school for the universities).
3. The conditions for admission to the master's programme are as stipulated in Article A2.7.

4. A student from a Dutch University of Applied Sciences, who has completed the pre-master's programme, mentioned in paragraph 1, as a part of a suitable bachelor's programme, is admitted directly to the Robotics master's programme after obtaining the bachelor's degree.

B3 Curriculum structure

Article B3.1 Composition of the programme

The curriculum consists of the elements as shown in Table 6.

1. Students with a bachelor's degree from an Academic University (so *not* from a University of Applied Sciences)
   a. take Variant 1 of Year 2, the regular variant, or
   b. may take Variant 3 of Year 2, see Paragraph 4 for eligibility of Variant 3.
2. Students with a bachelor's degree from a University of Applied Sciences *must* take Variant 2 of Year 2.
3. (International) students for whom the Admission Committee has specified to take Variant 2 of Year 2 *must* take this variant.
4. Variant 3 of Year 2 is only possible if the chosen profile is Research, or mandatory if the MSc-Thesis Project is performed outside the UT.

Table 6 Structure of the MSc Robotics curriculum

Year	EC	Topic
1	30	Compulsory courses within Specialisation
	10	Electives within Profile
	Max. 10	Courses related to MSc-thesis project
	10-20	Free Electives
2 – variant 1	20	Internship
	40	MSc-thesis project
2 – variant 2	10	Academic-skills project
	10	Free Electives
	40	MSc-thesis project
2 – variant 3	20	Free Electives / Courses related to Profile or Specialisation
	40	MSc-thesis project

Article B3.2 Specialisation and Profile courses

The set of compulsory Specialisation courses and the Profile courses has a study load of 40 EC according to the following rules:

1. Students must complete the six courses for their selected Specialisation, totalling 30 EC, listed in Table 7, Table 8, and Table 9 for each Specialisation.

Table 7 Compulsory courses of the Specialisation Mechatronics and Physical AI. ("Faculties" mean involved faculties)

Course code	Course	Quarter	Faculties
202200101	Modelling, Dynamics, and Kinematics	1A	EEMCS
202200100	Systems Engineering	1A	EEMCS
202200104	Control System Design for Robotics	1B	ET
202200107	Design Principles for Robotic and Mechatronic Mechanisms	2A	ET
202200108 / 202200109	Software Development for Robotics or Advanced Software Development for Robotics*	2A	EEMCS
202200111	System Identification with Parameter Estimation and Machine Learning	2B	ET

* Advanced Software Development for Robotics must be taken if pre-knowledge on Software Development implies too much overlap with Software Development for Robotics. Can be determined by the Admission Committee, the teachers, or the programme management.

Table 8 Compulsory courses of the Specialisation Algorithms and Software AI. ("Faculties" mean involved faculties)

Course code	Course	Quarter	Faculties
202200103	Image Processing & Computer Vision	1A	EEMCS
202200100	Systems Engineering	1A	EEMCS
202200105	Robot Perception, Cognition, and Navigation	1B	ITC, BMS
202200109	Advanced Software Development for Robotics	2A	EEMCS
202200106	Optimal Estimation for Dynamic Systems	2B	EEMCS
202200112	AI for Autonomous Robots: deep learning and reinforcement learning	2B	ITC

Table 9 Compulsory courses of the Specialisation Human-Robot Interaction and Social AI. ("Faculties" mean involved faculties)

Course code	Course	Quarter	Faculties
202200102	Human-Robot Communication	1A	EEMCS,
202200100	Systems Engineering	1A	EEMCS
202200105	Robot Perception, Cognition, and Navigation	1B	ITC, BMS
202200110	Tele-presence Robotics	2A	EEMCS
202200109	Advanced Software Development for Robotics	2A	EEMCS
202200113	Human-Robot Collaboration	2B	EEMCS

2. In addition, students must complete two courses, totalling 10 EC, corresponding to their selected profile.

a. For the research Profile, this selection is different per Specialisation, and is shown in Table 10, Table 11, and Table 12. Courses from all these three tables can be chosen. However, pre-knowledge requirements must be taken into account.

Table 10 Elective courses for the Profile Research, Specialisation Mechatronics and Physical AI

Course code	Courses for Research Profile of Mechatronics and Physical AI	Quarter
191560430	Nonlinear Dynamics	1A
201900074	Fundamentals of Numerical Methods	1A
191561620	Optimal Control	1B
201800177	Deep Learning - From Theory to Practice	1B
201900037	Flexible Multibody Dynamics	1B
201900091	Advanced Topics in Finite Element Methods	1B
201400285	Biostatistics	1B
201300004	Robotics for Medical Applications	1B
202000030	Automated Production Systems	1B
191560671	Robust Control	2A
201900085	Nonlinear Control	2A
202000256	Learning and Adaptive Control	2A
202001392	Active Sound and Vibration Control	2A
201900097	Machine Learning in Engineering	2A
202000032	Industrial Robotic Systems	2A
202200305	Laser Scanning for 3D Mapping	2B
201200133	Biomechatronics	2B
191571090	Time Series Analysis	2B
202100226	Reinforcement learning in Engineering	2B
201900098	Uncertainty quantification and model reduction	2B
191211110	Modelling and Simulation	2B

Table 11 Elective courses for the Profile Research, Specialisation Algorithms and Software AI

Course code	Courses for Research Profile of Algorithms and Software AI	Quarter
201600076	Foundations of information retrieval	1A
191560430	Nonlinear Dynamics	1A

202300200	Data science	1B, 2A
201400285	Biostatistics	1B
201800177	Deep Learning - From Theory to Practice	1B
191561620	Optimal Control	1B
202200104	Control System Design for Robotics	1B
202100244	Pervasive computing	2A
201900097	Machine learning in Engineering	2A
191560671	Robust Control	2A
201900085	Nonlinear Control	2A
202000256	Learning and Adaptive Control	2A
202100108	Uncertainty qualification and Data-driven modelling	2A
202000244	Aircraft and Wind Turbine Aerodynamics	2A
202100226	Reinforcement learning in Engineering	2B
201900098	Uncertainty quantification and model reduction	2B
191211110	Modelling and Simulation	2B
201100254	Advanced computer vision & pattern recognition	2B
202200305	Laser Scanning for 3D Mapping	2B
201000168	Embedded Systems Laboratory	2B
191571090	Time Series Analysis	2B
202100107	Deep learning for 3D Medical Analysis	2B

Table 12 Elective courses for the Profile Research, Specialisation Human-Robot Interaction and Social AI

Course Code	Courses for Research Profile of Human-Robot Interaction and Social AI	Quarter
201800226	Concepts, measures, and methods	1A
201400180	Multi-sensory design	1B
201600081	Advanced project in natural language processing	1B
201800177	Deep Learning - From Theory to Practice	1B
201500008	Empirical methods for designers	1B
201400285	Biostatistics	1B
201600077	Conversational Agents	2A
191150480	Human Movement Control	2A
201600079	Trends in Human-Robot Interaction Research	2A
201600085	Advanced project in brain computer interfaces	2B

201600086	Advanced Research Projects in Human Robot Interaction	2B
201800235	Social Robot Design	2B
191571090	Time Series Analysis	2B

b. For the Design profile, 2 courses, totalling to 10EC, must be chosen from Table 13.

Table 13 Elective courses for the Profile Design

Course Code	Courses for Design Profile	Quarter
201600018	Modelling of technical design processes	1A
201700042	Safety by design for products, equipment, and systems	1B
201800227	Human-Centred Design	1B
202000033	Frontiers in Design and Manufacturing	2A
201800235	Social Robot Design	2B
201700294	Engineering Project Management	2B
201000212	Smart Environments Integration Project	2B
202000040	Design of Flexible and Soft Robotic Systems	2B

c. For the Innovation and Entrepreneurship profile, the course "Innovation Tournament" is compulsory, and 1 other course must be chosen from Table 14, totalling to 10 EC:

Table 14 Elective courses for the Profile Innovation and Entrepreneurship, including the compulsory course 202200114, "Innovation Tournament"

Course Code	Courses for Innovation and Entrepreneurship Profile	Quarter
202200114	Innovation Tournament (*compulsory*)	1B
202100178	I&E Basics: Innovation Management for EIT	1A
201600018	Modelling of Technical Design Processes	1A
201800229	Basics of Impact, Innovation & Entrepreneurship	1B
201700119	Business Development Lab (part of EIT digital)	1B
202001492	Design Thinking for Service and Business Innovation	2A
201700294	Engineering Project Management	2B

Article B3.3 MSc-thesis-project-linked subjects

Up to 2 courses (max. 10 credits) as listed in any of the presented course lists (Tables 7 – 15) can be prescribed by the research group where the student wants to do the MSc-thesis project. An overview of these prescribed courses is presented to the students before the start of the academic year.

Article B3.4 Electives

The remaining credits for the first year, depending on the number of credits obtained in MSc-final-project-linked subjects, as explained in Article B3.3, are complemented to a total of 20 credits with elective subjects. Available courses are listed in Table 15. Note that furthermore courses presented in any of the lists above (Tables 7 – 14) can be selected. The total set of courses for the first year comprises 60 credits.

Students attending variant 2 or 3 of the second year, complement the elective courses to 30 respectively 40 credits. The total set of courses comprises 70 respectively 80 credits.

Courses, not on one of the course lists, can be chosen but must be explicitly approved by the Examination Board.

Table 15 Elective courses

Course Code	Elective Courses	Quarter
191210930	Measurement systems for mechatronics	1A
201400427	Transducer Science	1A
201500222	Technology for Health	1A
191157750	Engineering Acoustics	1A
202000037	Structural Dynamics	1A
201600074	Natural language processing	1A
201500009	Electric Vehicle System Design	1B
201600075	Speech processing	1B
201800156	Biomechanics of Human Movement	2A
202000244	Aircraft and Wind Turbine Aerodynamics	2A
202300146	Law and Governance of Robotics & AI	2A
201600077	Conversational agents	2A
201800228	Mastering Tinkering	2A
201700173	Control for UAVs	2B
201700071	Identification of human physiological systems	2B
202000248	Soft Robotics	2B
201000201	Virtual reality	2B
202200116	Capita Selecta Robotics	Year
201800207	Capita Selecta RAM	Year

Article B3.5 Mutual exclusion of courses due to too much overlap

Some topics are being taught in different courses, and sometimes there is too much overlap. Specific overlap or non-overlap situations are mentioned here.

1. Machine Learning in Engineering (201900097) can be taken next to System Identification, Parameter Estimation, and Machine Learning (202200111).
2. Machine Learning I (201600070) and Machine Learning in Engineering (201900097) have too much overlap and may *not* be taken both. Note that Machine Learning I and II are suitable for perception and HRI aspects, and Machine Learning in Engineering is more for cognition and motion planning aspects. Machine Learning in Engineering cannot be taken as prerequisite for Machine Learning II (201600071).
3. Machine Learning in Engineering (201900097) can be taken next to AI for Autonomous Robots: deep learning and reinforcement learning (202200112).
4. Machine Learning in Engineering (201900097) can be taken next to Deep Learning – From Theory to Practice (201800177).
5. Software Development for Robotics (202200108) and Advanced Software Development for Robotics (202200109) cannot be taken in the same quarter.

Article B3.6 Homologation courses

The rules for homologation courses are stipulated in Article A2.5, Paragraph 4.

Article B3.7 Challenge-Based Learning projects

1. Each student must take part in 4 CBL projects dealing with their compulsory courses, one per quartile.
2. Students work in groups, composed of students from different Specialisations and different Profiles.
3. Students who start the programme (either in September or February) attend the introductory CBL project.
4. Students spend at least 1 EC per compulsory course per quartile on CBL project work. This 1 EC is part of that compulsory course of the quartile.
5. Students reflect on CBL work in their “compulsory-course CBL projects” and in their MSc-thesis project, and record that in their CBL portfolio.

Article B3.8 ELSE components

1. ELSE (Ethical, Legal, Social, Economic) aspects of Robotics are interwoven in the compulsory courses.
2. Each compulsory course covers a part of the essential ELSE aspects, such that per Specialisation, all compulsory courses cover together all ELSE aspects relevant for MSc Robotics.

Article B3.9 Internship in Variant 1 of Year 2

1. See Article B3.1 Paragraph 1 for eligibility of students to take the Internship.
2. Students attending variant 1 of Year 2 complete an internship worth 20 EC. The general regulations for the internship are stipulated in Article A3.9 and A3.10.
3. Included in the required 45 EC of courses, the six compulsory courses of the chosen Specialisation and Challenge-Based Learning MSc Robotics 1 (202200115), must have been completed before starting the internship.

Article B3.10 Academic-Skills Project in Variant 2 of Year 2

1. See Article B3.1 Paragraph 2 and 3 for eligibility of students to take the Academic-Skills Project.
2. Students attending variant 2, complete the academic-skills project, worth 10 EC.

3. At least 45 EC in which the six compulsory courses of the chosen Specialisation and Challenge-Based Learning MSc Robotics 1 (202200115) are included, must have been completed before starting the academic-skills project.

Article B3.11 Variant 3 of Year 2

1. See Article B3.1 Paragraph 4 for eligibility of students to take this variant.
2. Students choosing the Research profile and variant 3 of Year 2 must select 4 more courses from the Research Profile course lists, see Article B3.2, Item 2.
3. Students planning to do the MSc-thesis project outside UT must select 4 more courses according to Article B3.4, second paragraph.

Article B3.12 MSc-Thesis Project

The general regulations for the MSc-Thesis project, worth 40 EC, are stipulated in Article A3.7. The composition of the MSc-Thesis assessment committee is stipulated in Article A3.8.

1. In addition to Article A3.7, Paragraph 1 (a maximum of 10 EC next to the MSc-Thesis project may be open), the six compulsory courses of the chosen Specialisation and Challenge-Based Learning MSc Robotics 1 (202200115) must have been completed. In case of Variant 2 of Year 2 is taken, also the Academic-Skills Project (202200119) must have been completed.

B4 Planning, procedures, guidance, and assessment during the master's study

Article B4.1 Specialisation and profile combination

1. Before starting the master's study, students choose one of the Specialisations and Profiles of the programme. The student determines their study programme, including the variant of the second year together with the programme mentor, and draws up a schedule for attending the subjects.
2. The study programme must be approved by the programme mentor and submitted by the student to the registrar of the examination board, at the latest 8 weeks after starting the master's programme.
3. Amendments to an approved study programme are possible but must be approved by the programme mentor and must be submitted by the student to the registrar of the examination board.

Article B4.2 Practical Assignments

1. The SIS states which units include practical assignments. If a unit involves practical assignments, the examiner gives an assessment, by the latest, at the end of the period in which the subject is scheduled, whereby grading periods as mentioned in Article A4.8 apply.
2. If the results for the practical assignments are unsatisfactory, then the student has time available until the end of the next quarter to complete these assignments with a satisfactory result. If satisfactory results have still not been obtained, then the student can only obtain satisfactory results for the assignments by carrying out the course again.
3. The assessments of the practical assignments can only be obtained after the student has participated in the assignments concerned.

Article B4.3 Challenge-Based Learning Projects

1. The course-specific elements of the CBL project work are assessed by the course teacher. This can be an individual or group assessment and is specified in the test plan of the course. The grade for these course-specific elements is part of the final grade of the course, contributing to an equivalent of at least 1 EC to this final grade.
2. The CBL challenge work itself, including the process, is assessed by the CBL teacher. The problem-providing stakeholders can be consulted in evaluating the end product.
3. Formative assessments during the CBL challenges can be conducted by the CBL teacher, also supporting students to keep on track. At the end of each CBL challenge, the CBL teacher formatively assesses the CBL work.
4. After the four compulsory-course CBL projects (regularly after Year 1) and at the end of the programme, individual reflection on the CBL process is summatively assessed using the CBL assessment form.

Article B4.4 ELSE components

1. Assessment of ELSE components is part of the regular assessment of the compulsory courses, and thus not separately recorded.

Article B4.5 Internship (Int)

General rules for the Internship are stipulated in Article A3.9

1. The topic of the internship must be such that students can apply their knowledge and competences obtained from the student's course programme. This implies that the topic of the internship must match the Specialisation and Profile of the student.
2. The examiner must be on the list of examiners for internships, maintained by the examination board. A qualified staff member, who is not on this list, can be appointed as examiner by the examination board.
3. The name of the examiner and the company supervisor, the *Int* title and topic description, and the planned start date and end date must be sent to the Internship Office before the start of the *Int*.
4. The examiner of the internship must visit the student after 2/3 of the internship time, to discuss intermediate results and progress, preferably physical at the location of the internship, otherwise virtual. Only in case time zone differences and lack of travel possibilities prevent a meeting, progress and status is reported by other means.
5. The examiner of the internship bases their assessment on the evaluation by the external supervisor, the observations during the internship including the visit to the student at their internship location, and the report.
6. The examiner of the internship must justify the assessment by filling out the assessment form for the internship, shown in Appendix B-I.

Article B4.6 Academic-Skills Project (ASP)

See Article A8.9Article B3.10 for additional requirements for starting the Academic-Skills Project.

1. The topic of the Academic-Skills Project must be in the scientific fields on which the Specialisation of the student is grounded. Furthermore the Academic-Skills Project must address aspects being taught

in the Profile of the student.
Motivated exceptions can be proposed to the Examination Board.

2. The composition of the Academic-Skills Project Supervision Committee, the ASP (provisional) title and topic description, and the planned start date, the two foreseen intermediate milestone dates and the foreseen end date must be sent to the registrar of the Examination Board before the start of the ASP, using the ASP Planning Form as published on the MSc-Robotics website.
3. The Academic-Skills Project is concluded with an oral presentation of 20 minutes followed by a Q&A session of about 20 minutes in public at the University of Twente.
4. The assessment of the Academic-Skills Project is done by two staff members whereby one is an examiner, and at least one is responsible for the day-to-day supervision.
5. If the final grade is a Fail, then the student can use up to three weeks to repair. The student and the supervisors may agree upon spreading out the 3 weeks full-time over a longer period part-time. Assessment of this 'resit' results in a pass with a grade of 6 or a Fail. This new final grade is regarded as the result of this resit.
6. If the result of a resit is a Fail, the student has to carry out a new Academic-skills project.
7. The examiner of the Academic-skills project must justify its assessment by filling out the assessment form for the Academic-skills project, shown in Appendix B-II.
8. The completely filled-in assessment form must be sent to the registrar of the Examination Board within one week after the public presentation and assessment, provided Paragraph 9 is fulfilled.
9. This student must submit all relevant documentation and data to the Supervision Committee within *one* week after the presentation and assessment.

Article B4.7 MSc-Thesis Project (MTP)

See Article A3.7 and A3.8 for general regulations regarding the start, planning procedure, and composition of the assessment committee of the MSc-Thesis Project. See Article B3.12 for additional requirements for starting the MSc-Thesis Project.

1. The topic of the MSc-Thesis Project must be in the scientific fields on which the Specialisation of the student is grounded. Furthermore the MSc-Thesis project must address aspects being taught in the Profile of the student.
   Motivated exceptions can be proposed to the Examination Board.
2. A student carries out a robotics-related MSc-Thesis project in a robotics-related research group of the UT, preferably a research group mentioned in Table 16.
3. An MSc-Thesis project may *only* be carried out external to the UT after explicit approval of the intended chairperson of the MSc-Thesis Assessment Committee, and *only* when variant 3 of year 2 has been chosen.
4. The MSc-Thesis Supervision Committee consists of at least a senior examiner chairing this committee, and a day-to-day supervisor. These two roles may be combined in one person.
   The MSc-Thesis Assessment Committee is the MSc-Thesis Supervision committee plus the external examiner.
5. The composition of the MSc-Thesis Supervision Committee, the MSc-Thesis-project (provisional) title and topic description, and the planned start date, the two foreseen intermediate milestone

dates, and the foreseen end date must be sent to the registrar of the examination board before the start of the project, using the MTP Planning Form as published on MSc-Robotics website.
6. Formative feedback must be given according to the scheme published in the SIS.
7. The Supervision Committee informs the registrar of the Examination Board about the results of the first two phases (Exploration Phase and Production Phase), by sending the actual date of these formal formative feedback meetings.
8. Repair Procedure: In case the project gets delayed due to reasons beyond control of the student and agreed upon as such by the chairperson of the supervision committee, the planning is updated, and after agreement by the MSc-Thesis Supervision Committee, the registrar of the EB is informed about the new foreseen end date and new foreseen intermediate milestone dates (if applicable).
9. The MTP extension due to applying the Repair Procedure (Paragraph 8) may *not* exceed 50% of the nominal duration of the project (so 16 weeks), excluding illness of the student. The content of the MTP must be adapted to avoid overrunning this extension limit.
10. Resit Procedure: If at formative feedback moments during the project (end of first phase and at subsequent formal formative feedback moments), the MSc-Thesis Supervision Committee expects no pass to be achieved at the planned end date due to the student's performance being below par, whereby a Repair Procedure has been used, the resit period as mentioned in Paragraph 15 can be incorporated in the updated planning. This extension is regarded as a 'resit', including possible results as indicated in Paragraph 15.
11. Four weeks before the final assessment of the MSc-Thesis project the chairperson of the MSc-thesis Supervision Committee must co-sign the application form for the master examination. With this signature, the MSc-Thesis Supervision Committee entitles the student to give a final presentation and receive a final grade for the MSc-thesis project.
12. The student must hand over the final version of the project report to the MSc-Thesis Assessment Committee not later than one week before the planned graduation date. The student and the committee may agree upon a different point in time for the delivery of the report.
13. The Master-Thesis Project is concluded with an oral presentation of 30 minutes followed by a Q&A session of about 30 minutes in public at the University of Twente.
14. The assessment of the MSc-thesis project is done by at least two examiners, one being responsible for the day-to-day supervision, being the senior examiner chairing the assessment committee (and also the MSc-Thesis Supervision Committee), and the other being an independent colleague from outside the research group of the supervisor and hence being *not* involved in the supervision. Qualifications for senior examiner are presented in Article A8.9Article B4.8.
15. If the final grade is a Fail, then the student can use up to two months to improve the work. Assessment of this 'resit' results in a pass with a grade of 6 or a Fail. This new final grade is regarded as the result of this resit.
16. If the result of a resit is a Fail, the student has to carry out a new MSc-thesis project.
17. The MSc-Thesis Assessment Committee must justify its assessment by filling in the assessment form for the MSc-thesis project, shown in Appendix B-III.
18. Any of the rubrics for the assessment, "Scientific Quality", "Organization, Planning, Collaboration" and "Communication", need to be passed to pass the MSc-thesis project.
19. The completely filled-in assessment form must be sent to the registrar of the Examination Board within one week after the public presentation and assessment, provided Paragraph 20 is fulfilled.

20. This student must submit all relevant documentation and data to the Supervision Committee within *one* week after the presentation and assessment.
21. If the student cannot complete the MSc-thesis project within the period according to the plan as mentioned in Article A3.7 and Paragraph 5 for reasons of force majeure, the project must be rescheduled according to Paragraph 8, by extending the project duration to compensate for the time loss the student suffered. In this extension, Paragraph 9 must be taken into account.
22. If in the cases of Paragraph 8 or Paragraph 21 no agreement on the rescheduled plan is reached, the EB must be requested to mediate, who takes a decision, to which appeal as usual for EB decisions is possible.

Table 16 Research groups / chairs conducting Robotics Research

Faculty	Abbreviation	Name
EEMCS	RaM	Robotics and Mechatronics
ET	MS3-PE	Precision Engineering
EEMCS	HMI	Human Media Interaction
ET	BE-BRT	Biomechatronics and Rehabilitation Technology
ET	BE-SR	Surgical Robotics
ET	BE-NE	Neuromechanical Engineering
ITC	EOS	Earth Observation Sciences
ET	MS3-AMDA	Applied Mechanics and Data Analysis
BMS	LDT-CODE	Cognition, Data and Education
ET	DPM-SEMD	Systems Engineering and Multidisciplinary Design
BMS	HBE-ETM	Entrepreneurship and Technology Management
ET	DPM-AMSPES	Advanced Manufacturing, Sustainable Products, and Energy Systems
ET	DPM-HCD	Human-Centred Design
ET	DPM-IdPDE	Information-driven Product Development & Engineering
BMS	TPS-CSTM	Technology and Governance for Sustainability
BMS	COM	Communication Science

ET and BMS Departments

- MS3 Mechanics of Solids, Surfaces, and Systems
- BE Biomechanical Engineering
- LDT Learning, Data Analytics, and Technology
- DPM Design, Production, and Management
- HBE High-Tech Business and Entrepreneurship
- TPS Technology, Policy, and Society

Article B4.8 Qualifications of senior examiners

Senior Examiners are appointed by the Examination Board, and for MSc Robotics an Examiner must comply to the following criteria to become a Senior Examiner:

1. The Examiner has either a UTQ certificate (or equivalent) or an SQE certificate, i.e., the Examiner may not be in the process of acquiring such a certificate.

2. The Examiner has been examiner for MSc-Thesis projects of MSc-Robotics students at least five times (two occasions for other programmes may be counted here also). Until 31 August 2026, also MSc-Thesis project assessment of students in robotics-related specialisations / tracks in ME, EE, S&C, GEO, EMSYS, BME, CS, or I-Tech count here, and these examiners are explicitly pointed to the rules concerning assessment of MSc-Thesis projects of MSc Robotics.
3. Motivated exceptions can be proposed to the Examination Board.

Article B4.9 Study counselling

Regulations for study counselling are stipulated in Chapter A6.

B5 Special opportunities

Article B5.1 Additional regulations regarding Flexible Degree programmes

General regulations for flexible degree programmes are stipulated in Article A3.5.

1. The flexible degree programme must include at least one unit comparable with the MSc-thesis project of the MSc Robotics programme; this unit must have a workload of no less than 30 EC and no more than 50 EC.
2. A Flexible Degree programme that can be regarded as belonging to the MSc Robotics programme contains a substantial number, in the order of 20%, of the courses for this programme.
3. An applicant who submits a Flexible Degree programme can include a number of electives, to be chosen later from a list attached to his request. These electives must be approved by the chairperson of the MSc-Thesis Supervision Committee.
4. In case of a Flexible Degree Programme the planning, procedures, and guidance during the MSc Robotics programme deviate from the setup in Article A8.9Article B4.1
    a. A (provisional) description of the MSc-final project should be part of the programme proposal.
    b. The examiner being responsible for the day-to-day supervision of the MSc-final project must be known and must be proficient in a Robotics-related topic.
    c. This examiner must confirm that the study programme forms a suitable preparation for the MSc-thesis project.
    d. If this examiner does not belong to a research group participating in the Robotics programme, then an examiner of a group participating in the Robotics programme, must be a member of the graduation committee and must co-approve the items in Paragraph c.

Article B5.2 Additional regulations regarding double/combined programme

Regulations for a double/combined programme are stipulated in Article A3.6

1. On behalf of the MSc Robotics programme, an examiner from a group participating in the student's specialisation must be a member of the MSc-Thesis Assessment Committee.

Article B5.3 Combining two specialisations

1. It is possible to combine two specialisations in one study programme of 120 EC.
    a. To this, the study programme of the student must contain the compulsory courses of both specialisations.
    b. The programme mentors of both specialisations must approve the student's programme.

c. The MSc-thesis project must be supervised and assessed by members connected to both specialisations.

Both specialisations are mentioned on the diploma.

Appendix B-I – Assessment form internship

The following assessment form for the internship is filled out by the UT examiner in consultation with the external supervisor from the company who is essential for the input on topics marked with *, most notably Process, obviously. However, when the UT examiner is able to visit the student on their internship location, information for assessing the * topics can be gathered by the UT examiner.

Note that the administrative info, e.g., student name and student number, examiners' roles, and names, are omitted here.

Assessment criteria	**Grade and remarks**
Scientific Quality (30%) • Interpret problem and translate it to more concrete project specifications. • Adequate realisation of the project * • Technical insight * • Level of Knowledge * • Creativity *	
Process & attitude (40%) * • Work independently and goal-oriented under the guidance of a supervisor • Take initiative • Be flexible regarding problems / criticism • Acquiring (new) technical skills • Work attitude • Interaction and communication skills • Planning and organisation of work • Deliver intermediate results (project plan, demo) showing progress w.r.t content and time – in case the workflow of MSc Robotics projects is used	
Report – Written communication (30%) • Problem statement • Context and existing work • Discussion and argumentation • Results and conclusions • Organisation and structure • Clarity / Language	
Final grade	

The external supervisor fills out the following form[15]. This information is used by the UT examiner as input.

	Excellent	Very good	Good	Satisfactory	Sufficient	Insufficient	Not applicable
Adequate realization of the assignment							
Level of knowledge							
Technical Insight							
Critical judgement							
Creativity							
Self-reliance							
Initiative							
Flexibility regarding problems and criticism							
Co-operation with colleagues							
Communication skills, oral							
Communication skills, written							
Total Impression							

[15] Taken from the faculty EEMCS internship supervisor evaluation form.

Appendix B-II – Assessment form Academic-Skills Project

The following assessment form for the Academic-skills project is filled out by the examiner and the other supervisor / staff member.

Note that the administrative info, e.g., student name and student number, examiners' roles, and names, are omitted here.

Assessment criteria	Grade and remarks
Scientific Quality: content (25%); process (25%) • Interpret problem and translate it to more concrete research questions or design specifications. • Find and study relevant literature and HW/SW tools and critically assess their merits. • Work in a systematic way and document findings effectively. • Work in correspondence with the level of the specialisation courses. • Work of sufficient depth and amount	
Organization, planning, collaboration (20%) • Work goal oriented under the guidance of a supervisor. • Seek assistance if required and beneficial for the project. • Benefit from the guidance of the supervisor by scheduling regular meetings, providing progress reports, and initiating topics to be discussed. • Organize work by making a project plan, executing it, adjusting it when necessary, handling unexpected developments and finish in time. • Deliver intermediate results (project plan, demo) showing progress w.r.t content and time.	
Communication (30%) 20% report, 10% presentation • Write a scientific project report that motivates the work in a context, communicates the work and its results in a clear, well-structured way to peers. • Give a scientific presentation on the work demonstrating a scientific way of working, targeting both fellow-students and research-group members.	
Final grade	

Appendix B-III – Assessment form MSc-thesis Project

The following assessment form for the MSc-thesis project is filled out by the assessment committee of the student.

Note that the administrative info, e.g., student name and student number, examiners' roles, and names, revenue division over groups, are omitted here.

Assessment criteria	Grade and remarks
Scientific Quality (50%) • Interpret problem and translate it to more concrete research questions or design specifications. • Find and study relevant literature and HW/SW tools and critically assess their merits. • Work in a systematic way and document findings effectively. • Work in correspondence with the level of the elective courses. • Original work of sufficient depth, relevant to the chair.	
Organization, planning, collaboration (20%) • Work independently and goal-oriented under the guidance of a supervisor. • Seek assistance if required and beneficial for the project. • Benefit from the guidance of the supervisor by scheduling regular meetings, providing progress reports and initiating topics to be discussed. • Organize work by making a project plan, executing it, adjusting it when necessary, handling unexpected developments and finish in time. • Deliver intermediate results (project plan, demo) showing progress w.r.t content and time.	
Communication (30%) 20% report, 10% presentation • Write a MSc thesis that motivates the work in a context, communicates the work and its results in a clear, well-structured way to peers. • Give a MSc presentation on the work demonstrating a scientific way of working, targeting both fellow-students and research-group members.	
Final grade	

Rubrics to base the grades on are shown below[16]. For halve grades, one can 'interpolate' the rubrics of the adjacent full grades.

[16] Adapted from the assessment form master thesis of the UT's MSc Electrical Engineering programme.

Rubrics for MSc-thesis assessment

Scientific Quality (50%)

- 4: there are errors or omissions that could have easily been prevented by using standard theory at the level of (elective) master courses.
- 5: there are errors or omissions that could have been prevented by using standard theory at the level of the (elective) master courses.
- 6: work has been done at the level of the elective courses, but this has not led to new insights.
- 7: work has been done at the level of the elective courses, and this has had a clarifying effect in the area of the assignment.
- 8: work has been done at the level of the elective courses, and new insights have been gained that are useful in the chair's current research. Maybe (in time) publishable.
- 9: theoretical treatment goes beyond the level of the elective courses, and the result is very useful for research in the chair and can (eventually) be used for a non-trivial publication.
- 10: Brilliant results. The beginning of a new research theme in the chair.

Organization, planning, collaboration (20%)

- 4: The supervisors have tried to give guidance to the process, but this has apparently been ignored by the student.
- 5: The supervisors have tried to give guidance to the process, but the student has not picked this up.
- 6: Significant guidance has been necessary, and the supervisors have had to raise these issues before action was taken.
- 7: Guidance has been necessary, but this has been sought by the student.
- 8: The student showed a lot of initiative, was able to adjust his/her own schedule and figured out most practical issues by him/herself.
- 9: The assignment and planning were defined by the student and the project was executed according to the planning.
- 10: The assignment was initiated, defined, and planned by the student. The project was executed according to the planning and unexpected events did not lead to delays. The candidate contributed to the work of other students as well.

Communication (30%), 20% report, 10% presentation

- 4: The report was essentially written by the supervisors. The supervisors did not recognize the work in the presentation. In some cases, questions were not understood, even after reformulation and wrong answers were given.
- 5: Several report versions have been necessary. The final version is not coherent and contains serious spelling and grammatical errors. Presentation was badly structured. Some of the answers during the Q&A session were incorrect.
- 6: Several versions of the report have been necessary to arrive at an acceptable result. The structure needs some improvement, but the quality of the content is sufficient. The presentation made sense to the supervisors, but others had a hard time following it. Most of the questions were answered correctly but some were not addressed appropriately.
- 7: The structure of the report was determined in consultancy with the supervisors and limited advise concerning readability was given. The presentation was a valid representation of the work. Some answers during the Q&A session could have been answered in a better way.
- 8: The structure of the report was mainly determined by the student. Some changes were required in formulations, charts, etc. The presentation was enjoyable for both experts and others. Questions were answered well in almost all cases.
- 9: The structure of the report was completely determined by the student and only marginal corrections concerning readability were needed. The presentation gave new insights to both experts and non-experts. In

the Q&A session, the questions were answered well.

- 10: report was made essentially without relevant feedback by the supervisors. The presentation was given with great style, clarity, and effectiveness. The Q&A session convincingly showed that the student masters the subject matter with strong argumentations.