# EDUCATION AND EXAMINATION REGULATIONS

# **MASTER'S DEGREE PROGRAMMES EEMCS**

A. FACULTY SECTION B. PROGRAMME-SPECIFIC SECTION

2021-2022 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 model 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 the Regulations

- These Regulations apply to education and examinations for the following Master's degree programmes: Applied Mathematics, Business Information Technology, Computer Science, Electrical Engineering, Embedded Systems, Interaction Technology, Internet Science and Technology, Systems & Control (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.
- These Regulations consist of a faculty Section (Section A) and a programme-specific Section (Section B). Section A contains general provisions that apply to education and examinations for all the Master's programmes at EEMCS. Section B contains programme-specific provisions. Together, Sections A and B form the Education and Examination Regulations for the relevant programme.
- 3. The 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.
- 4. These Regulations apply to anyone enrolled in the Master's programmes, irrespective of the academic year in which the student first enrolled in the programme.
- 5. Section B of these Education and Examination Regulations may include additional general provisions for the relevant programme.
- 6. For students who follow a study unit organised by another programme<sup>1</sup>, the rules for testing apply that are laid down in the assessment plan 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 concerned. Special facilities according to article A7 can only be granted by the programme for which the student is enrolled.
- 7. The general provisions and the programme-specific provisions to the Education and Examination Regulations have been authorized by the Faculty Board.
- 8. 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.
- 9. The institutional part of the Students' Charter includes a definition of what the UT considers as fraud. The Rules and Guidelines of the Examination Board of the Master's programme concerned has additional regulations about fraud, for instance about what action the Examination Board is entitled to take when they have observed a case of fraud.
- 10. Requests for exemptions to provisions laid down in the education and examination regulations should be submitted to the examination board or the programme board, the guiding principle here is which body has the authority to make a decision on or to make an exception to a provision of these regulations.
- 11. References in these regulations to 'the student', 'the lecturer', 'he', 'him' or 'his' must also be read as 'the female student', 'the female lecturer', 'she', or 'her'.

<sup>&</sup>lt;sup>1</sup> This does not apply, unless otherwise agreed, for units that are organised by a programme specifically for another programme.

# Article A1.2 Definitions

The following definitions are used in these Regulations:

- **a.** Academic year: The period beginning on 1 September and ending on 31 August of the following calendar year
- **b.** Admissions 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 his/her choice. If no Admissions Board has been appointed for the programme, the Programme Board will function as the Admissions Board.
- c. Assessment plan: A plan indicating how the testing of a course is organised.
- **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 digitally at www.utwente.nl/coursecatalogue.
- f. Course: A study unit of the programme, as defined by the WHW.
- **g.** Double degree: 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.;
- **h. EC**: A unit of 28 hours of study workload, in accordance with the European Credit Transfer System, a full academic year consisting of 60 EC or 1680 hours (Article 7.4 WHW).
- **i.** Education period: The period in which the study unit is offered. This period starts in the first week in which the study unit has any educational activity and ends in the last week in which the study unit has an educational activity and/or a test. Resits are not part of the education period. This period is not always the same as a quartile.
- **j. Exam:** An evaluation in a study unit of the knowledge, understanding and skills of the student, as well as the assessment of the results of this evaluation (Article 7.10 of the WHW); an exam may consist of a number of tests.
- **k.** Examination programme: All study units of a study programme counting towards the degree.
- I. Examination Board: The Examination Board is the body that establishes, in an objective and expert manner, whether a student meets the criteria set out in the Education and Examination Regulations regarding the knowledge, insight and skills required in order to obtain a degree from the programme concerned.
- **m.** Examiner: The individual who has been appointed by the Examination Board, in accordance with Article 7.12c of the WHW, to hold examinations and tests and to determine their results;
- n. Executive Board: Executive Board of the University of Twente.
- o. Faculty Board: Head of the faculty (Article 9.12 WHW).
- **p.** Final Examination: A programme concludes with a final examination. A final examination is deemed successfully completed if the study units belonging to a programme have been completed successfully.
- **q. Fraud and plagiarism:** Fraud is an act or omission by a student designed to partly or wholly hinder the accurate assessment of his/her 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.
- **r. Functional impairment:** A functional impairment is a physical, sensory, or other impairment that might limit the student's academic progress.

- **s.** Homologation: Some 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. of the WHW.
- t. Learning Management System (LMS): System that supports online learning and teaching. In this case: Canvas.
- **u. Master's programme or programme:** The Master's degree programme, as referenced in Article 7.3a Paragraph 1 subparagraph b of the WHW: the entirety of the course components, teaching activities/methods, contact hours, testing and examination methods and recommended literature.
- **v.** 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.
- w. Practical exercise: Participation in a practical training or other educational learning activity, aimed at acquiring certain (academic) skills. Examples of practical exercises are:
  - researching and writing a thesis;
  - carrying out a research assignment;
  - taking part in fieldwork or an excursion;
  - taking part in another educational learning activity aimed at acquiring specific skills or participating in and completing a work placement.
- **x. Pre-Master's programme or Bridging programme**: A programme 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. of the WHW.
- y. **Programme Board:** The committee charged by the Faculty Board with managing the programme.
- z. Programme Committee (PC): The Programme Committee as referred to in Article 9.18 WHW.
- aa. Quarter or quartile: A part of a semester as specified in the academic calendar of the university.
- **bb.** Semester: Half an academic year, as specified in the academic calendar of the university.
- cc. Senior Examiner: Specific examiners, appointed by the Examination Board to take on the role as chair of an assessment committee for the Final Project.
- **dd. Student Information System (SIS)**: System designated by the institutional board for registration and for providing information on all relevant data related to students and the programme, as described in the WHW. In this case: Osiris.
- ee. Student: Any person enrolled for a programme in accordance with Articles 7.34 and 7.37 of the WHW.
- **ff. Study Adviser:** Person appointed by the faculty board who acts as contact between the student and the programme, and as such represents the interests of the students, as well as fulfilling an advisory role.
- **gg. Study load:** The amount of time an average student needs to capture the learning material. The study load comprises for instance project work, self-study, lectures and writing papers. The study load is expressed in credit points in accordance with the European Credit Transfer System.
- hh. Study Programme: All study units followed by the student as part of his/her Master's programme;
- **ii. Test:** An evaluation of the knowledge, understanding and skills of the student, as well as the assessment of the results of this evaluation. A test is a part of an exam. If a study unit has only one test, this coincides with the exam for the unit in question.
- jj. University: The University of Twente (UT).
- **kk. WHW:** The Dutch Higher Education and Research Act (*Wet op het hoger onderwijs en wetenschappelijk onderzoek*).

**II.** Working day: Any day from Monday to Friday with the exception of official holidays and the prearranged compulsory holidays (compulsory days free of work) on which the staff is off.

Any other terms used can be assumed to follow the definitions ascribed to them by the WHW.

# A2. Previous education and admission

# Article A2.1 Previous education

- 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. In the event that a candidate does not have a Bachelor's degree as referred to in Paragraph 1, the Admissions Board of the Master's programme will assess the candidate's suitability for admission to the programme on the basis of the requirements stipulated in Section B.
- 3. The Admissions Board can admit students who lack some prior knowledge, provided they judge that this will 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 overall band score of at least 6.5 no older than two years
  - b. TOEFL internet-based test of at least 90 no older than two years
  - c. Cambridge CAE or CPE (both with an A, B, or C grade)
- 3. The following students are exempt from the requirement to prove their proficiency in English; students who:
  - a. have obtained a relevant Bachelor's degree from an accredited academic institution in the Netherlands;
  - have obtained a three-year Bachelor's degree in one of the following countries: Australia, Canada, Ireland, New Zealand, the United Kingdom or the United States of America).

# Article A2.3 Application and enrolment

- 1. The deadline for application for admission to the Master's programme is stipulated on the website <u>www.utwente.nl/master</u>. Different application deadlines apply to different types of applicants.
- 2. After admission, the student must enrol before 1 September or 1 February thereafter.

# Article A2.4 Admissions Board

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

### Article A2.5 Admissions procedure

- 1. The Admissions 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 Admissions 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 Board will also assess requests for admission on the basis of the following documents:
  - a. motivation letter;
  - b. English proficiency scores according to Art. A2.2;
  - c. Diploma;
  - d. transcript of records;
  - e. curriculum vitae;
  - f. abstract of thesis;
  - g. course descriptions for programme-specific courses, research methodology courses, mathematics courses and a table of content for the course materials.
- 4. The Admissions 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).
- 5. Candidates will 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)

- 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 will be informed of this promptly. The Examination Board or the Faculty Board will 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 Admissions 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 his/her 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 Admissions 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 Admissions 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, will serve 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 twice the nominal study duration of the units to be completed unless otherwise specified.
- 6. Students from Dutch Universities of Applied Sciences may be allowed to follow 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, will serve as proof of admission to the relevant Master's programme.
- 7. Deviations from these regulations are to be decided upon by the admission board.

# A3. Programme content, structure and rules

# Article A3.1 Aim of the programme

The aims and programme intended learning outcomes of the Master's programme (Article 7.13 Paragraph 2 (a) of the WHW) are described in the Section B.

Article A3.2 Programme structure

- 1. The programme comprises the study units listed in Section B.
- 2. The scope of the Master's programme in ECs is 120. These 120 credits must not include any credits which have constituted part of a previously completed Bachelor's degree audit.
- 3. If students are required to sign up to participate in a particular study unit, this is only possible during the periods designated for that purpose.
- 4. Every Master's programme has a duration of two years, with each year divided into two semesters.
- 5. Every semester consists of two periods of ten weeks of education.
- 6. Master's programmes are taught on a full-time basis.

Article A3.3 Language of Instruction

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

# Article A3.4 Exemptions

- 1. The examination board can grant students exemption from one or more complete study units at their request. To this end, students will demonstrate that they
  - a. have completed a component of a similar content, size and level of a university or higher professional education programme or
  - b. have, as a result of work and/or professional experience, sufficient knowledge and skills regarding the study unit concerned.
- 2. The examination board is authorised to make exceptions to the provisions as stated in paragraph 1 and grant an exemption to a student from parts of a study unit.
- 3. An exemption granted by the examination board will be registered in SIS with the concerning study unit or parts thereof with an EX (exemption).
- 4. Students cannot be forced to take extra study units or parts of study units in their curriculum instead of the granted exemption.
- 5. Exemptions may be granted to a maximum of 30EC.

6. Students may be exempted from the obligation to participate in practical exercises if they can demonstrate that they expect to be placed in a moral dilemma as a result of the need to meet one of the requirements for this component. In such cases, the examination board decides whether the component can be carried out in another manner to be determined by the examination board.

# Article A3.5 Flexible degree programmes

- The Examination Board for the Master's programme decides whether a student may take part in a flexible degree programme as stipulated in Section 7.3h. of the WHW. The Examination Board assesses whether the programme is appropriate and consistent within the domain of the programme and whether the level is high enough in relation to the programme intended learning outcomes.
- 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 ECs 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 Combined programmes

A student can obtain diplomas for two UT Master's programmes on the basis of a combined study programme that satisfies the requirements of each individual programme, including the programme intended learning outcomes.

The following requirements apply to the combined programmes and their composition:

- 1. The student needs to be admitted and enrolled in both programmes in order to combine two programmes.
- 2. The student's programme of courses represents an amalgamation of two separate study programmes and satisfies the requirements relating to the programme intended learning outcomes of both corresponding Master's programmes. Depending on the requirements of the two Master's programmes, there are four possibilities:
  - a. A **combined final project** and **combined internship**, whereby both study programmes also incorporate a **maximum of 20 ECs from common courses**.
  - b. A **combined final project**, but with a **separate internship or no internship**, whereby both study programmes also incorporate a **maximum of 30 ECs from common courses**.
  - c. **Two separate final projects**, with a **separate internship or no internship**, whereby both study programmes incorporate a **maximum of 30 ECs from common courses**.
  - d. 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 will apply
- 3. The combined programme as described in paragraph 2 includes not only study units that are part of both Master's programmes, but also courses for which an exemption has been granted for one Master's programme on the basis of results achieved as part of the other programme.
- 4. If a single combined final project is included in and is relevant to both Master's programmes, as referred to in 2a and 2b, the study load of the final project must be at least 100% of the

requirement in ECs for the final project of the programme that has the highest number of ECs plus at least 50% of the requirement in ECs for the final project of the other programme.

- 5. If a single combined internship is included that satisfies the requirements of both programmes as referred to in 2a, the study load of the internship must equal the load of the internship with the highest number of ECs.
- 6. Approval for the common courses is required from the Examination Boards of both Master's programmes.
- 7. Students who complete a study programme as described take a combined final degree audit which they will pass if the assessments included in their file would result in a pass for the final degree audit of both programmes individually in accordance with the applicable regulations. The Examination Boards of the programmes involved will decide whether a student will pass the final degree audit. The Programme Board will 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 timetable for completion must be approved by the supervisor 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 combined programme.
- 6. Programme-specific regulations regarding the final project are stipulated in Section B.

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

- 7. The committee contains at least two examiners, at least one of which is senior examiner; it is chaired by a senior examiner
- 8. The examiners must belong to (at least) two different research groups
- 9. All supervisors of the project are members of the assessment committee. Supervisors who are not examiners serve on the committee in an advisory capacity.
- 10. 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
- 11. 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 Board. 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 ECs 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 ECs of their examination programme;
  - b. additional requirements may apply for each programme, which will be stipulated in Section B where applicable.
- 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 daily 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 daily supervisor.
- 7. During the internship, the student will write a report about his/her work. At the end of the internship period, this report will be submitted to the company supervisor. The company supervisor will assess the report using the relevant assessment form. The assessment will be 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 will base his/her 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 of finishing the internship.

# Article A3.10 Duration of the internship

- 1. According to the study load of 20EC 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 will fall 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 and internship report will be made public unless confidentiality has been deemed necessary (see following Paragraphs).
- 2. The Programme Board may declare an internship report and/or 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 preferably before the start of the final project or internship, but no later than four weeks before the end of the final project or internship.
  - b. A confidential report remains accessible for the supervisor, the Programme Board, and any members of bodies with the authority to assess the quality of the grading of the entire programme.
  - c. All parties mentioned in 2b are required to respect the confidentiality of the report.
- 3. The confidentiality period will by default be set at 2 years up to a maximum of 5 years.

- 4. If confidentiality is deemed necessary as described in 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 for the relevant programme.

# Article A3.12 Evaluation

To monitor and to improve the quality of teaching, the EEMCS MSc programmes use information about the students' learning experiences. This information is obtained from:

- Internal evaluations
  - Periodic course evaluations at the end of each course
  - $\circ$   $\;$  Additional panel evaluations, on request from lecturer, students, or Programme Director  $\;$
- External sources
  - National Student Survey (NSE)
  - National Alumni Survey
  - International Student Barometer

# A4. Examinations

Article A4.1 Signing up for courses and examinations

- 1. Every student must sign up in SIS in order to participate in a course. It is also mandatory to register before every examination opportunity.
- 2. Notwithstanding Paragraph 1, any student who has correctly signed up to participate in the instruction/classes for a particular course and has been admitted will also automatically be signed up for the subsequent examination, unless the course description specifies otherwise. For each examination after that, the student has to register in SIS manually.
- 3. The student has the right to inspect recent model test questions or model tests, or old tests and the associated answer keys, along with the standards for assessment.

# Article A4.2 Course Catalogue and Assessment Plan

- 1. The course catalogue in SIS stipulates how a study unit is to be assessed and the form of any examinations. Exams and tests can have the following various forms<sup>2</sup>.
  - a. Tests or exams can be held online or offline.
  - b. A test or exam may be held online by means of online surveillance<sup>3</sup> or online proctoring<sup>4</sup>, in the event where no alternative exam method is reasonably possible<sup>5</sup>.
    - i. Pursuant the DPIA<sup>6</sup> the retention period of the data is 30 days unless the examination board decides that the data needs to be maintained longer for a fraud investigation.
  - c. The examination board may lay down further rules and conditions for online (proctored) testing.

<sup>&</sup>lt;sup>2</sup> A test or exam can have the following forms: a written test, an assignment, an oral test, practical exercises, or a combination of these forms.

<sup>&</sup>lt;sup>3</sup> Camera-surveillance of student(s) during exams without recording via e.g. Canvas, Teams.

<sup>&</sup>lt;sup>4</sup> Surveillance of student(s) using special proctoring software e.g. Proctorio.

<sup>&</sup>lt;sup>5</sup> This means online proctoring can be used for a few students as well as for an entire test.

<sup>&</sup>lt;sup>6</sup> The DPIA is an instrument to point out privacy risks of a processing operation to be able to take measures to mitigate those risks.

- d. These further rules and conditions must comply with the General Data Protection Regulation (GDPR), the Data Protection Impact Assessment (DPIA) on proctoring and the EER.
- e. Pursuant to Articles 12-14 of the GDPR, students must be informed before the use of online surveillance or online proctoring about the processing of their personal data.
- 2. At least two weeks prior to the start of the study unit an assessment plan, must be published in the Learning Management System (LMS)
- 3. The assessment plan includes at least all items as included in the course catalogue yet shall also include:
  - a. The learning objectives of the study unit;
  - b. when and how tests will be administered;
  - c. the relative weighting of the tests;
  - d. any required minimum grade per test
  - e. the resit for each test (if applicable), the form of the resit, when it will take place, and any conditions for participating in the resit;
- 4. The programme board may modify the assessment plan during the course of the study unit.
  - a. The assessment plan may only be changed in consultation with the examiners of the study unit or study units.
  - b. The programme board consults the examination board beforehand in case of changes in the form or the method of administering of a test or tests. If the change involves nothing more than moving tests or test components to a timeslot other than as shown in the schedule, the programme board must inform the examination board of the decision to make the change at the next meeting of the examination board.
  - c. Students are to be informed immediately of the change.
  - d. Changes to the assessment plan may, in reasonable expectation, not put students at a disadvantage. Examination boards may provide special facilities make in individual arrangements in these cases.
  - e. Changes to the assessment plan may, in reasonable expectation, not put students at a disadvantage. Examination boards may provide special facilities make in individual arrangements in these cases.

# Article A4.3 Examination 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 will be provided in the year subsequent to discontinuation to take the examination(s) or parts thereof, and a transitional arrangement will 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 participants agree.

# Article A4.4 Examination results

- 1. Examination results, as determined by the examiner, are expressed with a 'pass'/'fail' or in half grades from 1.0 up to and including 5.0 and from 6.0 up to and including 10.0 whereby:
  - a. Grades will only be rounded in the last phase of the assessment of the study unit.

The founding is done in accordance with the r		
In case n≠5		
Grade≥ n.00 and <n.25< td=""><td>⇔ n.0</td></n.25<>	⇔ n.0	
Grade ≥n.25 and <n.75< td=""><td>⇔ n.5</td></n.75<>	⇔ n.5	
Grade ≥n.75 and <(n+1).00	⇔ (n+1).0	
In case n=5:		
Grade ≥ 5.00 and < 5.50	⇒ 5.0	
Grade ≥ 5.50 and <6.00	⇒ 6.0	

b. The rounding is done in accordance with the following scheme:

- 2. Test results are expressed in a grade from 1.0 to 10.0 with one decimal place, or as 'pass / fail'
- 3. Exam results of 6.0 or higher are a pass.
- 4. ECs will only be awarded for the study unit if an examination has been completed with a grade of 6.0 or higher or a pass. No ECs will be awarded for individual components of study units and/or individual tests.
- 5. Exam results with a pass grade obtained at foreign universities will be registered with a P (Pass). Exam results obtained at Dutch universities will be adopted one-to-one in compliance with the former paragraphs.
- 6. If a student receives more than one result for the exam in the same study unit, the highest grade will apply. This also applies for the results of tests and components of tests within the same academic year and for the results of tests and components of tests that remain valid after the academic year in which they were obtained.

#### Article A4.5 Oral examinations

- 1. Oral examinations are conducted in public unless the Examination Board has determined otherwise in relation to a particular case.
- 2. If a third party wishes to be present during an oral test, they must submit a request to the Examination Board at least ten working days prior to the oral examination. This does not apply for graduation colloquia.
- 3. If the Examination Board has determined that members of the Examination Board (or an observer representing the Examination Board) are to be present during the oral examination, it will notify the examiner and the student at least one working day prior to the test.
- 4. For an oral examination, proof is required that the student was treated appropriately and that the assessment was reliable. This can be shown by, for instance, the presence of a second expert who cannot be a teaching assistant, or a video recording of the oral examination. The assessment is documented in a form that shows that the intended learning outcomes have been assessed appropriately.

# Article A4.6 Determining and announcing results

- 1. The result of a written examination or practical exercise is published via SIS within 20 working days. This will be done by BOZ (Office of Educational Affairs).
  - a. The examiner will determine the result of a written examination within 15 working days after the examination and notify BOZ of the result.

- b. No rights can be derived from examination results published on the LMS or communicated via any medium other than SIS.
- 2. The examiner will inform the student of the result within at most 1 working day after conducting the oral test. If the oral test is part of a series of oral tests for the same study unit, which take place on more than one working day. In that case, the examiner determines the result within one working day after the conclusion of the series of oral tests.
- 3. In case the result for a study unit is based on multiple tests, the date of completion of the final test will count 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 will also be made known. If the Examination Board is of the opinion that the examiner has not met his/her obligations, it may appoint another examiner to ascertain the result of the examination.
- 5. If a second examination is planned shortly after the first, the results of the first examination will be published at least five working days prior to the second examination.

# Article A4.7 Examination date

- 1. The examination date of a study unit, mentioned in the SIS, is the date upon 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 will lead to a new examination date, being the date of the submission of this additional material.
- 3. With respect to possible prior knowledge requirements of subsequent study units a student is allowed to assume that the student has passed an examination at the examination date, as long as the result of the examination is pending.
- 4. If the result of an examination is a fail and if because of this fail a student violates prior knowledge requirements of a subsequent unit in which the students participates, the Examination Board can decide that a student must interrupt this subsequent unit pending a repair of this fail.

# Article A4.8 Validity period for results

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

# Article A4.9 Post-examination discussion and right of inspection

- 1. The student is entitled to a justification of the results of a test from the examiner, whereby the examiner substantiates the assessment that has been given. If no collective discussion of the results is held, the student may request an individual discussion of the results with the examiner within ten working days of the publication of the results. *The discussion 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 presence of the examiner or a designated substitute.*
- 2. The student has the right to inspect his or her work for a period of two years after the assessment.

Article A4.10 Retention of examination results

- 1. Written examination questions, associated details and the assessed work from written tests will be retained for a period of two years.
- 2. The retention period for final thesis reports is seven years.

# A5 Final Degree audit

Article A5.1 Master's final degree audit

- 1. The Examination Board determines the result of the Master's final degree audit after establishing that the student has passed all the study units associated with the programme. The date indicated on the degree certificate (i.e., the date of the final degree audit) is the day on which the student completed the final study unit of his/her degree programme.
- 2. A diploma can only be awarded after the student has received formal approval for his/her study programme as described in Section B.
- 3. If the student wishes, they may submit a substantiated request in writing to the Examination Board to postpone the final degree audit, and thus to delay the awarding of the degree certificate. The student must indicate the duration of the desired postponement in any such request.
- 4. In principle the maximum duration of the delay that may be granted is 12 months. In exceptional cases the student may have justifiable reasons to submit a request to delay the presentation of the certificate for more than 12 months.
- 5. If the student has requested postponement on the basis of Paragraph 3, the date of the final degree audit will be the date on which the Examination Board decides that the student has passed the final degree audit subsequent to the postponement.

#### Article A5.2 Diploma and transcript

- The Examination Board grants a diploma as proof that the student has passed his/her final degree audit. The Executive Board will determine the model for the diploma and add a diploma supplement to the diploma providing information on the nature and content of the Master's programme completed. The diploma supplement will be in English and comply with the European format for such diplomas.
- 2. The International Diploma Supplement will be appended to the certificate for the successfully completed final degree audit (WHW, Article 7.11, Paragraph 4).
- 3. Individuals who have successfully completed more than one component of the programme and who cannot be awarded a diploma as stipulated in Paragraph 1 will, upon request, receive a statement issued by the relevant Examination Board stating which components have been successfully completed, as well as the study units involved, the number of ECs obtained and the method of examination for the examinations taken.

# 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 will be stated on the diploma and the diploma supplement.
- 2. The *judicium Cum Laude* can be mentioned on the Master's certificate provided the following requirements are met:

- a. The **weighted average**<sup>7</sup> 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 8.0;
- b. Those parts of the examination programme for which an exemption was granted or which were not graded with a number 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 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. In individual cases the Examination Board may grant the judicium Cum Laude even if not all requirements are met.

# A6. Student counselling and study progress

Article A6.1 Study progress report

1. Every student can access his/her 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 Academic counselling for students

- 1. The Faculty Board is responsible for student counselling, which includes informing the student of study opportunities inside or outside the programme.
- 2. Each student is allocated a study adviser.
- 3. The study adviser will provide advice on study-related matters, as well as any personal problems that may affect the student's studies if the student so desires.
- 4. If a student wishes to exercise his/her right to specific counselling or special facilities, the student is required to contact the study adviser. The study adviser will record any agreements made with the student, and this agreement is binding on both the student and the Programme Board.
- 5. The following applies to the entitlement to special facilities:
  - a. there are demonstrable force majeure or personal circumstances; the student is expected to report these circumstances prior to or at the time they occur;
  - b. if necessary and possible, special dispensation for participation in examinations or tests and/or the provision of special facilities for examinations or tests will be provided. Such dispensation and additional testing opportunities can only be granted by the Examination Board.

<sup>&</sup>lt;sup>7</sup> The weighted average is proportional to the number of credits.

# A7. Studying with a functional impairment

- 1. A functional impairment is a physical, sensory, or other impairment that might limit the student's academic progress.
- The Study Advisor and the student will discuss the most effective adjustments for the student as referred to in Article 2 of the Equal Treatment of Disabled and Chronically III People Act (WGB h/cz).
- 3. Adjustments are intended to remove specific obstructions when following the curriculum and/or sitting exams. Where necessary, these may concern facilities pertaining to the accessibility of infrastructure (buildings, classrooms and teaching facilities) and study material, changes to examination, alternative courses, or a custom study plan. Realising the programme intended learning outcomes must be guaranteed when implementing changes.
- 4. Based on the interview referred to in paragraph 2, the student is to submit a request for facilities to the Faculty Board, preferably three months before the student is to participate in classes, exams, and practical exercises for which the adjustments are required.
- 5. The request is to be submitted along with supporting documentation that is reasonably necessary for assessing the request (such as a letter from a doctor or psychologist registered in the BIG register, or in the case of dyslexia from a healthcare psychologist or special education needs expert, also registered in the BIG register).
- 6. The Faculty Board will decide on the admissibility of the request as referred to in paragraph 4 and will inform the student and the Study Advisor of the decision within 20 working days after receipt of the request, or sooner as the urgency of the request dictates.
- 7. The Study Advisor will ensure that the relevant parties are informed in good time about the facilities granted to a student with a functional impairment.
- 8. If the Faculty Board rejects the request in full or in part, the Faculty Board is to inform the student of the justification for the rejection and the possibilities for lodging an objection and an appeal. A written objection should be submitted in writing within six weeks after the decision has been communicated to the student. The objection is to be submitted to the objections, appeals and complaints office via the Student Services desk.
- 9. If extra facilities are granted, the period of validity will also be indicated. The applicant and the Study Advisor will evaluate the adjustments before the end of this period. During this evaluation, parties will discuss the effectiveness of the adjustments provided and whether they should be continued.
- 10. In the case of dyslexia, an additional period of 15 minutes for every hour is granted in the event additional time for a test is granted.

# A8. Amendments, transitional arrangements, appeals and objections.

# Article A8.1 Conflicts with the regulations

If any additional regulations and/or provisions pertaining to teaching and/or examinations conflict with these Education and Examination Regulations, the present document (Education and Examination Regulations) will take precedence.

# Article A8.2 Administrative errors

If, following the publication of an examination result, a list of grades, or an overview of a student's progress, an error is discovered, the party discovering the error – be it the university or the student – is

required to make this known to the other party immediately and to cooperate in the rectification of the error.

Article A8.3 Amendments to the regulations

- 1. Substantive amendments to these Education and Examination Regulations are determined by the Faculty Board in a separate decision.
- 2. Every effort will be made to ensure that substantive amendments to these Regulations do not apply to the current academic year. Substantive amendments to these Regulations may, however, be applied to the current academic year provided the interests of students are not prejudiced within reasonable bounds, or in situations of force majeure.
- 3. Amendments to these Regulations have no effect on earlier decisions taken by the Examination Board.
- 4. Transitional arrangements are arranged in accordance to Article A8.4.

Article A8.4 Transitional arrangements; examination opportunities

- 1. In the case of amendments to the Education and Examination Regulations, the Faculty Board may decide to put a transitional arrangement in place.
- 2. Any such transitional arrangement will be published in Section B.
- 3. The following principles will be applicable to any transitional arrangement if a Master's programme is changed:
  - a. Changes to a Master's programme will be published before the start of the academic year in which they take effect.
  - b. No guarantee can be given that all the study units of a Master's programme, as they existed at the time of a student's enrolment in a programme, will continue to be part of the Master's programme concerned. The version of the Master's programme most recently approved by the Faculty Board will serve as the basis for establishing the results of the Master's examination.
- 4. Transitional arrangements will always specify the following:
  - 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 will be designated as a suitable replacement for the discontinued study unit;
  - d. the term of validity of the transitional arrangement.
- 5. The transitional arrangement requires the approval of the Examination Board pursuant to the provisions of Paragraph 4.
- 6. In exceptional cases, and provided this works to the student's advantage, the Examination Board may allow a deviation from the number of times and the method by which examinations may be taken for a study unit that has been discontinued.

Article A8.5 Assessment education and examination regulations

- 1. The Faculty Board is responsible for the regular assessment of the Education and Examination Regulations and takes into account the resultant study load for the students to enable this to be monitored and adjusted if necessary.
- 2. In accordance with article 9.18 of the WHW, parts of the Education and Examination Regulations need the consent of the Programme Committee. On other parts the Programme Committee can advise.
- 3. The Programme Committee annually assesses the way in which the Education and Examination Regulations are implemented.

# Article A8.6 Appeal and objections

Any appeals against decisions made by the Examination Board or an examiner, and any objections to decisions made by the Faculty Board on the basis of these Regulations, must be submitted in writing to the Complaints Desk at Student Services no more than six weeks after the relevant decision has been communicated.

# Article A8.7 Hardship clause

In the event of demonstrable and meaningful unreasonableness and unfairness, the Examination Board may allow exceptions to the provisions of these Regulations.

#### Article A8.8 Publication

The Education and Examination Regulations and the Rules and Regulations of the Examination Board are published on the website of the programme in question.

#### Article A8.9 Commencement

These Regulations take effect on 1 September 2021 and supersede the Regulations dated 1 September 2020.

# SECTION B: PROGRAMME-SPECIFIC SECTION EMBEDDED SYSTEMS

# About this Section

The Education and Examination Regulations (EER) 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 Embedded Systems.

# B1. General provisions

# Article B1.1 Definitions

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

- 1. Programme mentor: a staff member, who is appointed by the examination board, to supervise students until they start their Master's thesis project.
- 2. The individual study programme is the examination programme of a student that is approved according to the rules of the master Embedded Systems.

# B2. Programme objectives and final attainment targets

# Article B2.1 Aim of the programme

This Master's programme is intended to impart sufficient knowledge, skills and a clear understanding of the area of Embedded Systems in order that the graduate is able to perform independent professional and scientific activities in the area at an academic level.

Article B2.2 Final attainment targets

- 1. The graduate has an all-embracing view on embedded systems, their design and their application in systems of various sizes (e.g. from small robots to cyber physical and networked systems) including their evolution over time, demonstrated by an integration approach in system design.
- 2. He<sup>1</sup> is capable of analysing the functional behaviour of complex embedded systems in a structural way using appropriate abstractions.
- 3. He is able to describe and study the non-functional aspects of embedded systems, e.g. resource boundedness and dependability.
- 4. He has a thorough knowledge of state-of-the-art methods and techniques for embedded systems design such as requirements engineering, hardware-software integration, performance modelling and analysis, validation and testing.
- 5. He is able to design embedded systems that satisfy the functional and non-functional requirements, taking into account the performance of the system during its lifetime. He is also aware of costs and environmental issues making optimal use of the available resources.

<sup>&</sup>lt;sup>1</sup> "He", "his" or "him" is referring to graduates of either gender.

- 6. He has the ability and attitude to include other disciplines or involve practitioners of these disciplines in his work, where necessary. As an engineer he is therefore able to work in a multidisciplinary setting.
- 7. He is able to conduct research and design independently and has a scientific approach to complex problems and ideas.
- 8. He possesses intellectual skills that enable him to reflect critically, reason and form opinions.
- 9. He has the ability to communicate the results of his learning, thinking and decision-making processes at an international level.
- 10. He is aware of the temporal and social context of science and technology (comprehension and analysis) and can integrate this context in his scientific work.

# B3. Further admission requirements

Article B3.1 Additional admission requirements

- 1. Students in possession of a Bachelor degree in Electrical Engineering (*Elektrotechniek*) or Computer Science (*Technische Informatica, Telematica* or *Informatica*) from a Dutch university are eligible for direct admission to the programme.
- 2. Students in possession of another Bachelor's degree issued by a Dutch university are eligible for admission to the programme if their knowledge and skills are comparable to section 3.1.1 after following a pre-master programme.
- 3. Students in possession of a relevant Dutch Bachelor's degree issued by a University of Applied Sciences can gain admission after first successfully completing a pre-master programme.

# Article B3.2 Pre-Master's programme

For students with an 'HBO degree' Elektrotechniek the pre-master programme is:

Course code	Name	Credits	Period
202001171	Calculus A	5	Semester 1
202001173	Calculus B	4	Semester 1
202001178	Linear Algebra A	3	Semester 1
202001185	Linear Systems	6	Semester 1
202001183	Algorithms,	4	Semester 1
	Datastructures an	k	
	Complexity for EmSys		
2015000252	Digital Logic an	3	Semester 1
	Computer Organization		
201500051	Self-tuition project	t 5	Quarter 1B
	(programming)		

For students with an 'HBO degree' (Technische) Informatica, Embedded Systems the pre-master programme is:

Course code	Name	Credits	Period
202001171	Calculus A	5	Semester 1
202001173	Calculus B	4	Semester 1

202001178	Linear Algebra A	3	Semester 1
202001185	Linear Systems	6	Semester 1
202001185	Algorithms,	4	Semester 1
	Datastructures and		
	Complexity for Emsys		
201500252	Digital Logic and	3	Semester 1
	Computer Organization		
191210001	Instrumentation fo	5	Quarter 1B
	Embedded Systems		

# B4. Curriculum structure

Article B4.1 Composition of programme

The 120 EC programme consists of the following components:

- a. compulsory courses
- b. homologation
- c. electives
- d. optional Internship/Multi-Disciplinary Project
- e. final project preparation and final project

Article B4.2 Compulsory units of study The compulsory courses are:

Year :	1
--------	---

Course code	Name	Credits
192130240	Embedded Computer Architecture 1	5
192140122	System Validation	5
201200006	Quantitative Evaluation of Embedded Systems	5
192130200	Real-time Systems	5
201000168	Embedded Systems Laboratory	5

Year 2

Course code	Name	Credits
201600017	Final Project Preparation	10
201900200	Final Project	30

# Article B4.3 Homologation

Due to the interdisciplinary character of the Embedded Systems programme, most students will not have all necessary prior knowledge. A maximum of 10 EC may be included in the individual study programme.

1. Students who have completed a Dutch university Bachelor's degree programme in computer science are required to include the following course in the homologation part of the master programme:

Course code	Name	Credits
191210001	Instrumentation for Embedded Systems	5

2. Students who have completed a Dutch university Bachelor's degree programme in electrical engineering without sufficient programming, i.e. bachelor UT students that did not complete the module network systems (201600197), are required to include the following course in the homologation part of the master programme:

Course code	Name	Credits
201800335	Programming 2	5

3. Students with a Bachelor's degree awarded by a University of Applied Sciences are required to include the following course in the homologation part of the master programme:

Course code	Name	Credits
201800126	Distributed Energy Management for Smart Grids	5

4. For admitted students not mentioned in paragraph 1, 2 and 3 an individual homologation programme is made by the examination board.

#### Article B4.4 Electives

Specialization courses totaling at least 15 credits should be selected. An individual study programme containing courses that are not in the list, e.g. relevant courses from the TU-Delft and TU-Eindhoven, require approval from the examination board. See Article B5 for approval of the Individual Study Programme.

Course code	Name	Credits
192135310	Modeling & Analysis of Concurrent Systems	5
191211590	System-on-chip-Design for Embedded Systems	5
201700075	Internet of Things	5
191210750	System-on-chip-Design	10
191211030	Mobile Radio Communications	5
192130112	Distributed Systems	5
191612680	Computer Ethics	5
201100137	Philosophy of engineering: Ethics	2.5
201900007	Perspectives on Engineering Design	2.5
192130250	Embedded Computer Architectures 2	5
201800126	Distributed Energy Management for Smart Grids	5
201500040	Introduction to Biometrics	5
201000231	Computer Arithmetic	5
192130022	Design of Digital Systems	5
191210950	Implementation of Digital Signal Processing	5
191210910	Image Processing and Computer Vision	5
192111301	Ubiquitous Computing	5
192620010	Mobile and Wireless Networking	5
202001472	Software Testing and Risk Assessment	5
191210850	Advanced Analog IC electronics	5

191211090	Real-time software Development	5
192130210	Real-Time Systems 2	5
201700082	Principles of Programming, Processes and Patterns	5
201100254	Advanced Computer Vision & Pattern Recognition	5
201700073	Ad-Hoc Networks	5
191211060	Modern Robotics	5
191210840	A/D Converters	5

Article B4.5 Internship and Multi-Disciplinary Design Project

- 1. The students can complete an internship worth 20 credits, or a multi-disciplinary design project (191211650) worth 10 credits, but not both, only after an agreement with the programme mentor.
- 2. Students with a diploma of a Dutch university of applied sciences are not allowed to do an internship.

#### Article B4.6 Thesis Project

- 1. A student will carry out an embedded systems related thesis project in a chair of Electrical Engineering or Computer Science.
- 2. The thesis project will normally be carried out within the chair, mentioned in paragraph 1. A thesis project may only be carried out external to one of the chairs with the explicit approval of the intended chairman of the assessment committee.
- 3. The thesis project cannot be carried out in the same organization as the internship.
- 4. The thesis project of 40 credits consists of a Final Project Preparation (201600017) and a Final project (201900200).
- 5. The Final Project Preparation consists of literature survey, feasibility study and detailed planning for the graduation project. The preparation has to be finished before the start of the graduation project.
- 6. In addition to the composition of the assessment committee (Article A3.8) an examiner of this committee can also be an examiner of the TU Delft or the TU Eindhoven.
- 7. Four weeks before the final audit of the thesis project the chair of the graduation committee must co-sign the application form for the master examination. With this sign the graduation committee entitles the student to give a final presentation and receive a final grade for the final project ("green light" declaration)

# B5. Study Programme

- 1. Students must draw up their individual study programme at latest six month after the start of the master's study and discuss it with the programme mentor. On behalf of the examination board the programme mentor has the right to approve the individual study programme.
- 2. The composition of the thesis committee and the thesis description have to be submitted to the examination board at the start of the final project.
- 3. Each individual amendment to an approved study programme has to be approved by the programme mentor.
- 4. Each individual amendment to an approved thesis committee must be resubmitted to the examination board for approval.

# B6. Degree

Students who have successfully completed their Master's final examination are awarded a Master of Science degree. The degree awarded is stated on the diploma.

# B7. Transitional and final provisions

# Article B7.1 Transitional provisions

Notwithstanding the current Teaching and Examination Regulations, the following transitional provisions apply for students who started the programme under a previous set of Teaching and Examination Regulations:

- A maximum of 15 EC of homologation may be included in the individual study programme for students that started this master programme prior to September 2018.
- Students that completed the course Energy Efficient Embedded Systems (192130122) cannot take the course Distributed Energy Management for Smart Grids (201800126) in their individual study programme.

# Article B7.2 Publication

- 1. The dean will ensure the appropriate publication of these Regulations and any amendments to them.
- 2. The Teaching and Examination Regulations will be posted on the faculty website.

# Article B7.3 Effective date

These Regulations enter into force with effect from 1 September 2021