

EDUCATION AND EXAMINATION REGULATIONS

MASTER'S DEGREE PROGRAMMES EEMCS

A. FACULTY SECTION

B. PROGRAMME-SPECIFIC SECTION

2023-2024 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 programme¹ 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).
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.

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

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 on the basis of 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 official holidays and the prearranged compulsory holidays (compulsory days free of work) 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 (UAS) 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 21².
 - 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

² An alternative English test can be the TOEFL iBT (Special) Home Edition test. This test is valid for February 2023, September 2023, and February 2024 intake.

- 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. The following students are exempt from the requirement to prove their proficiency in English; students who hold:
 - a. a relevant Bachelor's or Master's degree from an accredited academic institution in the Netherlands.
 - b. a three-year Bachelor's degree in one of the following countries: Australia, Canada (English-speaking part), Ireland, New Zealand, UK or USA. When your awarding institution is in one of these countries, but your teaching institution was not, you are not exempted. The same rule applies to distance (online) education where the awarding institution is in one of the mentioned countries, but the student was not.
 - c. a secondary education diploma with English as an exam subject from one of the predetermined countries (according to the [country list](#)).

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 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).

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.
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 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 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 nominal duration of two years, with each year divided into two semesters, both divided into two quarters³
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 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:

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

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**⁴, 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 applies.
3. The common courses programme as described in Paragraph 2 includes not only study units that are part of both Master's programmes, but also all 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 Paragraphs 2a and 2b, the study load of the final project must be at least 100% of the requirement in EC for the final project of the programme that has the highest number of EC plus at least 50% of the requirement in EC 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 Paragraph 2a, the study load of the internship must equal the load of the internship with the highest number of EC.
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 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 decides 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.

⁴ If for students from a university of applied science the internship is substituted by an individual project for both programmes, then these projects may be combined in the same way as the internship, whereby the number of credits from the individual project and common courses together is less than or equal to 40 EC.

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.

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 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* published publicly.

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 be 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 forms⁵ and can be administered online or offline.
4. 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.
5. 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

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.

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 course⁸. 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 a 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.

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.
3. 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.
4. Notwithstanding Paragraph 3, 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 A4.6 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

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

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 10.0⁹ or as *'pass'* / *'fail'*. With grades only being rounded in the final phase¹⁰ 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.
 - 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

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.

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.
2. Test results are only valid in the academic year in which they were obtained unless they are aggregated into an examination result.
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. Student are entitled to discuss and review their test together with the examiner, and the examiner has to explain the assessment.
2. 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 three working days prior to the next test opportunity.
3. If there is no group discussion of the test, 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 three working days prior to the next test opportunity.
4. Individual and group discussions must take place no later than five weeks after the publication of the test results, but at least three working days prior to the next test opportunity, in the presence of the examiner or a substitute designated for that purpose.
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.
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 cases¹¹, 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.
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.

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.

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 average¹² 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 number¹³ 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. 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.

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.

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

¹³ With the exception of EIT Digital Master school programmes

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 the teaching 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 be 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 2023 and replace the Regulations dated 1 September 2022.

SECTION B: PROGRAMME-SPECIFIC SECTION

BUSINESS INFORMATION TECHNOLOGY

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 this particular degree programme, i.e. the Master's programme in Business Information Technology.

B1 Programme objectives and final attainment targets

Article B1.1 Aim of the programme

1. The primary goal of the Master's programme on Business Information Technology (MBIT) is to provide graduates with a combination of academic and professional skills and specialised technical knowledge that will enable them to analyse, design, validate and implement advanced ICT systems in their business usage context. The students are trained to participate in and contribute to research in the field in ways that are scientifically, ethically and socially sound.

The Master's programme offers a stimulating and challenging research-oriented environment in which the following secondary goals are achieved:

- a. Students acquire comprehensive knowledge and insight and develop their professional and academic skills based on initiative and personal responsibility for the learning process.
- b. Students develop an investigative and reflective attitude.
- c. Students acquire an understanding of and gain experience in methods and techniques to be able to model and describe systems and their properties.
- d. Students acquire knowledge of, insight into and experience with requirements identification, design, validation and implementation of ICT systems. They learn to use this knowledge, insight and experience in their search for meaningful and promising alternatives and for making well-considered choices.
- e. Students acquire knowledge of, insight into and experience with requirements identification, design, validation and implementation of business networks. They learn to use this knowledge, insight and experience in their search for meaningful and promising alternatives and for making well-considered choices.
- f. Students develop an attitude that promotes constructive criticism whereby choices are substantiated and discussed.
- g. Students work in a team and contribute to the application and/or development of theory, methods, technologies and tools for the development of ICT systems taking into account their usage context.
- h. Students gain experience to function in complex dynamic situations in which the relevant information is not always immediately and fully available.

To further activate their education (with cases, research assignments and discussion of the research, developments and state-of-the-art literature in the field), students are encouraged to follow developments in the field. They are expected to directly and independently coordinate their personal progress towards these developments. The goal of the Master's programme is to allow graduates to develop aptitudes and proven talent for academic research to the extent to which a continuation of their education with doctoral or EngD research should be possible.

The Master's programme on Business Information Technology has a particular emphasis on innovative developments and the integration and optimisation of business processes and IT. The programme focuses on acquiring comprehensive knowledge and insight, as well as gaining experience in the integrated development of (networks of) organizations and their business processes and ICT systems, and related theories and concepts. Methods and technologies, as well as the analysis, evaluation and modelling of both functional and qualitative properties, are important aspects of the programme. Based on solid knowledge and an understanding of the life cycle of ICT systems in their business context, the Master students develop the skills and insight required to manage innovative development processes in an architectural framework and in an environment of internationally-oriented business networks. Insight into

the current research in this area is promoted in a number of different ways. Students of the Master's programme develop a constructive critical and reflective attitude by analysing research and design activities, both their own and of others.

Article B1.2 Programme Intended Learning Outcomes

The Master of Science programme on Business Information Technology prepares students to occupy a leading position in the field of Information Systems (IS). Knowledge in the field of management and IT is the very core of their preparation. The Master graduates are capable of integrating and applying this knowledge in the broad context of organisational practice and also have well-developed skills in communication, interpersonal relations and group work. Finally, the Master's graduates possess the specific skills needed for a successful career, such as knowledge of IT and organisations, a critical attitude, and a disposition towards lifelong learning and innovation.

The Programme Intended Learning Outcomes:

1 Business-IT alignment knowledge and skills

- 1.1 The graduate understands, and can act upon, the concept of business innovation, including the interaction between IT innovations and innovations in business processes and business organisation.
- 1.2 The graduate understands and is able to assess the short and long-term impact of the business strategies on both the effectiveness and the efficiency of IT
- 1.3 The graduate is capable of developing business strategies and business information system strategies, and operationalising them in an architectural framework.
- 1.4 The graduate can apply the conceptual framework of Enterprise Architecture to improve business-IT alignment.
- 1.5 The graduate knows how to apply methods and techniques for the integrated development of business processes and business information systems, by making a reasoned selection, by communicating the principles and by contributing to their further development.
- 1.6 The graduate knows how to apply information systems methods and techniques like requirements analysis, resource management & planning, architectural design, implementation and administration for alignment and life cycle management of information systems.
- 1.7 Students understand the fundamentals of digitally securing an organisation and know how to apply the standards, frameworks and risk assessment techniques for managing and developing enterprise information security strategies and concerns.
- 1.8 The graduate has competencies from at least one of the specialisations of the BIT master programme.
 - a. Graduates of the IMEA specialisation are capable of:
 - applying IT in projects in organisations to improve business performance and
 - designing IT systems to support business processes, strategy and mission effectively.
 - b. Graduates of the DSB specialisation are capable of analysing and interpreting large amounts of data to make business decisions, such as reconfiguration of organisations and their IT infrastructure.

2 Scientific approach

- 2.1 The graduate can independently and systematically apply the design cycle (analysis, design, implementation, evaluation and reflection) to complex IT and business problems by selecting and applying theories from information systems and different other disciplines if necessary.

- 2.2 The graduate can independently systematically design and execute a research plan (literature research, problem analysis, formulating hypothesis, design and execution research plan, data analysis, report, conclusion) crossing different disciplines or fields if necessary and contribute to the scientific research.
- 2.3 The graduate has MSc-level knowledge of and is able to apply research methodology and research ethics in the areas of both social science research and design research.
- 2.4 The graduate can apply creative and critical thinking, reflection, and argumentation.
- 2.5 The graduate is capable of independently acquiring new knowledge and skills from different disciplines.

3 Professional skills

- 3.1 The graduate can cooperate, discuss and report in written and verbal ways, in English, in both a professional and a research setting, and is aware of the differences between these settings.
- 3.2 The graduate is capable of working as part of a (multi-disciplinary) team in different roles in terms of sharing responsibilities, applying time management, and planning resources and reporting, and is aware of group dynamics in development projects.
- 3.3 The graduate is capable of functioning as a professional in and between different disciplines/fields /cultures.

4 Taking account of Social and Temporal context

- 4.1 The graduate is capable of analysing and discussing ethical, social, cultural and societal aspects of challenges, solutions and developments and their consequences in the field.

Article B1.3 Didactic concept

The didactic concept of the MBIT programme is based on the three "O's" that characterise the University of Twente's academic programmes: Research ('Onderzoeken'), Design ('Ontwerpen'), and Management ('Organiseren'). The University of Twente also encourages a multidisciplinary approach and provides ample room for internationalisation. An entrepreneurial attitude and an emphasis on designing solutions for complex problems complete our university's profile. As a consequence, the didactic concept that lies at the heart of this Master's programme can be characterised as being a mix of (1) knowledge development in the classical sense, (2) integration of this knowledge into projects, and (3) their application in areas, for example, finance, logistics and healthcare. For the latter, some courses, and in particular the final project, have adopted a challenge-based approach: students work on open-ended real-world problems, and they choose which knowledge to combine (possibly from different disciplines), they select technologies that they deem appropriate, they consult with experts from academia and the industry, all with the aim to provide solutions for, and learning from such challenges.

Concerning the research aspect, this programme prepares the students to operate at the level of junior researcher by familiarizing them with the Design Science paradigm, as introduced by Hevner, March, Park & Ram¹⁴. This is a scientific paradigm that aims at increasing human and organizational capabilities through the creation of new and innovative artefacts. Within this paradigm, the building and application of the newly designed artefacts creates knowledge and understanding of the problem domain as well as of the ways of solving problems.

¹⁴ Hevner, A., March, S., Park, J., & Ram, S. (2004). Design science in information systems research, *MIS Quarterly*, 28(1), 75-105.

B2. Further admission requirements

Article B2.1 Additional admission requirements

A request to be admitted to the programme is assessed by the MBIT Admission Board. In addition to the general criteria, the MBI Admission Board distinguishes two types of (inter)national education:

1. Research Universities (offer more research-oriented programmes);
2. Universities of Applied Sciences (prepare students for more practical jobs).

The assessment of all applicants' skills is based on their academic background. The MBIT Admission Board has specific requirements depending on the degree of the applicants. Knowledge gaps can be repaired during a pre-master's programme, which should be successfully completed before the student is admitted to the master's programme. In case the knowledge gap is limited, a repair can happen during homologation courses incorporated in the Master's programme.

The MBIT Admission Board determines the duration and content of the pre-master's programme and/or homologation courses. As a general guideline, the study load of the homologation courses should not exceed 15 EC.

The regulations for the different educational backgrounds are:

1. Dutch Research University Degree

1. A Bachelor's degree awarded by a Dutch university.
Applicants with a Bachelor's degree other than Business & IT or Information Science in a related field awarded by a Dutch university are eligible for admission depending on the contents of their Bachelor's programme. Concerning English proficiency and possible homologation courses, the Admission Board decides for each applicant whether additional requirements should be set, and whether a proficiency test should be taken.
2. A Bachelor's degree awarded by the University of Twente:
 - a. Applicants with a Bachelor's degree in Business Information Technology are directly admitted to the programme.
 - b. Students who have obtained a Technical Computer Science (TCS) or Industrial Engineering & Management Science (IEM) Bachelor's degree are directly admitted to the programme. They will have to follow some homologation courses that are incorporated into their Master's programme. CS students can choose between 'Implementation of IT in Organizations' or 'ICT Management', while IEM students take 'Software Management' or 'Intro to Computer Science'.
 - c. Applicants with a technical Bachelor's degree other than BIT, CS or IEM may be admitted to the programme after completion of their Bachelor's and their pre-master's programme.
 - d. Applicants with a non-technical Bachelor's degree and VWO Mathematics B may be admitted to the programme after completion of their Bachelor's and their pre-master's programme.

2. Degree from an University of Applied Sciences (HBO)

Students with a Bachelor's degree in a related field awarded issued by an HBO institution may be admitted to the programme after completion of their Bachelor's and pre-master's programme.

The Admission Board determines whether or not a pre-master's is possible based on the following:

- Academic records;
- Content of the Bachelor's programme;
- Proficiency in Mathematics B at pre-university education level (*Dutch: VWO*);
- Proficiency in English at the pre-university level (*Dutch: VWO*);
- Curriculum Vitae;
- Letter of motivation.

The following degrees are currently considered to be in a related field:

- Information Technology, HBO ICT, Information Systems, Computer Science ('Informatica');
- Business IT & Management ('Bedrijfskundige Informatica');
- Information Science ('Informatiekunde')
- Industrial Engineering and Management

This is by no means an exhaustive list. Whether or not other programmes are related is decided by the Admission Board.

3. Non-Dutch University Degree

The MBIT Admission Board assesses international applicants with a Bachelor's degree awarded by a foreign Research University or by a University of Applied Science on an individual basis. The assessment of the applicant's competencies is based on the following:

- Academic record;
 - NUFFIC credential evaluation;
 - Content of the degree (field related);
- Quality of level of Bachelor's programme;
- CGPA of at least 75% (3.0 on a 4-scale) or equivalent;
- English proficiency test report;
- Letter of motivation;
- Any additional information required by the Admission Board.

With regards to the Dual degree with the University of Muenster (WWU) (Appendix I), nominated students admitted to the IS Master's programme at WWU are automatically admitted to the BIT Master's programme when they meet the general UT admission requirements.

B3. Curriculum

Article B3.1 Composition of programme

The Master's programme on Business Information Technology consists of:

- Six mandatory core courses,
- Two alternative specialisations with a choice of at least 4 out of 6 specialisation courses,
- Elective courses,
- Research topics,
- Final project.

The Master's programme adds up to at least 120 EC; therefore, students can graduate with more than the minimum number of 120 ECs.

The academic programme is depicted in the next articles, showing the course code, course name, quartile and study load in EC. More details are available via SIS and/or are made known in a timely manner by the examiner in accordance with the provisions of Chapter A4. An alternative version of the programme can also be completed as part of a Dual degree in cooperation with the [University of Muenster](#). This double degree is described in more detail in Appendix I.

Article B3.2 Core courses

The choice of core courses follows from the conviction that all BIT Master's should understand the principles of business process management, enterprise architecture and IT strategy, data science, business case development and enterprise security. Furthermore, all BIT Master's should understand and be able to apply the methods and techniques of design science and other research methodologies.

The core courses of the BIT Master's programme are the following:

Term	Code	Name	EC
Q1	201400277	Enterprise Architecture	5
Q2	192376500	Business Process Integration Lab	5
Q2	202000027	Enterprise Security	5
Q2 / Q3	201400174	Data Science	5
Q3	202000029	Empirical and Design Science Research	5
Q4	192376000	Business Case Development for IT-Projects	5

Article B3.3 IT Management & Enterprise Architecture (IMEA)

This specialisation focuses on the overall management and design of business and IT solutions within organisations, with the aim of improving business performance. In this specialisation, courses on information systems are combined with courses related to the application and management of ICT in relation to business strategy. The courses in this specialisation are the following:

Term	Code	Name	EC
Q3	192340101	Implementation of IT in Organizations	5
Q3	192360021	ICT Management	5
Q4	192320111	Architecture of Information Systems	5
Q1	2023xxxxx	Digital Transformation	5
Q4	202000028	Smart Industry Systems	5
Q4	202001549	Low Code Application Development	5

A student in the IMEA specialisation must complete at least 4 out of 6 of the courses listed above. The courses in this specialisation aim to consolidate the knowledge and develop the necessary skills for the graduate to perform the professional roles of IT (project) manager or Enterprise Architect. Therefore, these courses aim to provide students with a solid formation in the implementation and management of IT in organisations and systems architecture, business processes acumen, 'systems thinking', architecture frameworks, communication and collaboration, change management, emerging technologies, and ethical considerations.

Article B3.4 Data Science & Business (DSB)

In this specialisation, courses have been selected to cover the methods and techniques necessary to prepare students to perform business analysis by exploring and reasoning on large amounts of data and to cover the techniques of deploying and using the extracted information to benefit business performance. The courses in this specialisation are the following:

Term	Code	Name	EC
Q1	191506103	Statistics and Probability	5
Q1	201600070	Machine Learning 1	5
Q1	202300064	Simulation	5
Q2	201200044	Managing Big Data	5
Q3	201100051	Information Services	5
Q4	202000028	Smart Industry Systems	5

Students in the Data Science and Business specialisation must complete at least 4 out of 6 of the courses listed above. Regarding the professional profile, this specialisation focuses mainly on the profile 'Business Data Analyst'. Therefore, this set of courses aims to develop skills in data analysis (including data pre-processing/cleaning, transformation, visualisation and statistical analysis), statistical and quantitative skills, data mining/machine learning, data management, use of data from (and to support the development of) emerging technologies, simulation, data governance and ethics, and collaboration and teamwork.

Article B3.5 Electives

In addition to the 50 EC that are determined by the core and the specialisation courses, the students spend 30 EC on elective courses.

Article B3.5.1 Preapproved electives

The courses listed below can be chosen by the students as elective courses. A study programme is automatically approved as long as the student follows the mandatory programme completed with courses from the electives list below. A student needs approval from the Examination Board to follow a course as part of their elective space that is not in this list. In case a student follows a course that is not in this list without approval of the Examination Board, the credits from this particular course do not count in their examination programme.

Term	Code	Name	EC
ALL YEAR	201300059	Internship BIT	20
ALL YEAR	201800405	Study Tour (via study association Inter-Actief)	10
Q1	202300064	Simulation	5
Q1	201900119	Digital Strategy	5
Q1	201600070	Machine Learning 1	5

Q1	192111332	Design of Software Architectures	5
Q1	192320601	Multi agent systems	5
Q1	191506103	Statistics and Probability	5
Q1	201600012	Management and Governance of Innovation & Creativity	5
O1	201500091	Purchasing Strategy and System	5
Q1	191820160	Purchasing management	5
Q1	201700089	Sustainable Business Development	5
Q1	201800045	Construction Supply Chain and Digitization	5
Q1	201600076	Foundations of Information Retrieval	5
Q1	201500081	B-B Marketing	5
Q1	201600013	Investments & Risk Management ¹⁵	5
Q1	192135450	ADSA: Model Driven Engineering	5
Q1	202100258	FAIR Principles and the FAIRification process	5
Q1	201800005	Applied Statistical Learning	5
Q1	201600074	Natural Language Processing	5
Q1	201500083	Change management & consultancy	5
Q2	191612680	Computer Ethics	5
Q2	192320501	E-commerce	5
Q2	201200044	Managing Big Data	5
Q2	201500041	Cybersecurity Management	5
Q2	201800177	Deep Learning	5
Q2	201600040	Requirements Engineering processes and methods ¹⁶	5
Q2	201600071	Machine Learning 2	5
Q2 or Q3	201500363	Data Science additional topics	5
Q3	201100051	Information Services	5
Q3	201100126	Human Computer Interaction	5
Q3	192652150	Service-oriented Architecture with Web Services	5

¹⁵ Not in combination with 191860181

¹⁶ Not for students with an UT BSc degree BIT

Q3	192340101	Implementation of IT in Organizations	5
Q3	192360021	ICT Management	5
Q3	201500088	HRM and Technology Design	5
Q3	201700080	Information theory and statistics	5
Q3	201800010	Transportation and Logistics Management	5
Q3	194105070	Information Systems for the Financial Services Industry	5
Q3	202100263	Linked Data and Semantic Web	5
Q3	201700074	Internet Security	5
Q3	2023xxxxx	Cybersecurity: Information Hiding in Business & Social Contexts	5
Q3	201600015	Strategic Technology Management and Innovation	5
Q4	192320111	Architecture of Information Systems	5
Q4	201600375	Communication Technology for Global Work ¹⁷	5
Q4	192340041	Software Management	5
Q4	192360501	E-health strategies	5
Q4	201500038	E-law	5
Q4	201700082	Software Engineering Techniques	5
Q4	201300074	Research Experiments in Databases and Information Retrieval (REDI)	5
Q4	202001552	Human Factors and Organizational Design in Socio-technical Systems	5
Q4	202000028	Smart Industry	5
Q4	202001549	Low Code Application Development	5
Q4	202100112	Graphical Models and Causality	5
Q4	202100291	Ontology-Driven Conceptual Modeling	5
Q4	202200345	Applications of AI in Business	5
Q4	202001583	Sports Interaction Technology: Designing Interactive Systems for Sports	5

¹⁷ Not in combination with 201200180

B3.5.2 Student exchange, internship and (international) cooperation

The research groups that contribute to the MBIT courses have contacts with companies, foreign universities and research institutions. Students interested in studying abroad can make use of these contacts. For more information on see: www.utwente.nl/en/eemcs/student-mobility/, www.utwente.nl/en/eemcs/internship/ or [study tour](#).

Study tour and internship are mutually exclusive

In order to guarantee the scientific depth of the programme, the 201300059 Internship (20 EC) and the study tour (10 EC) are mutually exclusive options. A student can only do one of them as part of their examination programme.

Study abroad language course

Credits from a language course as part of a study abroad exchange programme do not count towards the MBIT examination programme.

B3.5.3 Capita Selecta BIT

Students who want to perform a Capita Selecta in their programme have to ask permission from the Examination Board in advance. Some of the criteria the Examination Board will apply to approve a Capita Selecta are:

- a. The contents and objectives should not overlap too much with any of the available courses, unless following an available course is not practically possible at a certain moment.
- b. The Capita Selecta should contribute to the programme intended learning outcomes.
- c. The Capita Selecta should meet the level requirements of the programme.
- d. The study load for the Capita Selecta must match the number of ECs the student will obtain after completing the Capita Selecta.
- e. The student needs to find a suitable examiner to support the Selecta Capita Selecta proposal and supervise the learning activities.
- f. A Capita Selecta can only be requested when there is no other way to meet some BIT-specific training needs of the student.

Article B3.6 Research Topics

Students need to take the course Research Topics BIT (201300058) immediately preceding the Master's final project. During this course the students get acquainted with a research area as a preparation for the Master's final project. The goal is to identify and report the state-of-the-art literature on the topic chosen by the student. Based on the gaps identified in the literature review, students must derive the research question (and sub-questions, if any) to be investigated in the 'Final Project BIT'. In addition to the research question, in the Research Topics course, students must provide a research plan, including the research procedure and the timeline that will be used during the master's thesis research. Because this study unit is meant as a preparation for the Final Project, to start research topics students must:

1. Have obtained at least 60 EC
2. An examiner who agreed to act as supervisor and a topic approved by the examiner
3. A registration in Mobility Online

For the assessment of the Research Topics, the student together with their initial supervisor must involve a 2nd examiner to be part of the assessment committee, so that the assessment committee will consist of one examiner from the EEMCS Faculty and one examiner from the BMS Faculty, with at least one also

as a senior supervisor for the Final Project. Unless the direction of the Research Topics won't be continued into the Final Project, in that case only one examiner suffices.

Term	Code	Name	EC
ALL YEAR	201300058	Research Topics BIT	10

More information on the Research Topics can be found at www.utwente.nl/en/mbit/final-project.

Article B3.7 Final Project

The Final Project is scheduled in the second semester of the second year of the Master's programme and is preceded by the Research Topics.

Term	Code	Name	EC
ALL YEAR	192399979	Final Project BIT	30

The final project can be seen as an individual 'Master's assessment test'. After successfully completing the project, the student demonstrates that they deserve the Master of Science qualification. In the final project, the student's competence in the integrated application of knowledge, comprehension and skills covered in the earlier study units is assessed. Although the assignment focuses on a specified field of study, the project is assessed on the basis of a number of well-defined generic criteria.

To conclude the project, the student submits a written report (the 'Master thesis') and delivers a public oral presentation about the project, addressing both its implementation and the obtained results. An assessment form for the final project is used to help ensure the homogeneity and transparency of the assessment across all final projects.

The following applies:

1. The final project is a 30-credit study activity to be carried out over a half-year period, which completes the Master's programme.
2. The final project may be developed and implemented at a UT research group, but it may also involve a commissioned assignment from a company, research institution, or another higher education institution. The final project may be performed abroad as well.
3. The final project is a research and/or development undertaking related to the area of the student's chosen specialisation.
4. The final project committee consists of at least two supervisors: one from the BMS faculty and one from the EEMCS faculty, stressing the Business and IT signatures of the programme, respectively.

Further information on the final project can be found in the Final Project Manual at www.utwente.nl/en/mbit/final-project.

B4. 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.

B5. Transitional and final provisions

Article B5.1 Transitional provisions

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

1. *Regulation 2020-2021 regarding the curriculum change*

Term of validity for this rule: indefinitely

- a. For students who have not yet completed both Design Science Methodology and Foundations of Information Systems, Design Science Methodology will be replaced by Empirical and Design Science. IMEA students need to take Enterprise Security instead of Foundations of Information Systems.
- b. IMEA Students who only completed Design Science Methodology and not Foundations of Information Systems need to take Enterprise Security instead of Foundations of IS.
- c. Students who only completed Foundations of Information Systems and not Design Science Methodology need to take Enterprise Security instead of Design Science Methodology.
- d. For students who started in Q4 of 2019-2020 and/or who have not completed Foundations of Information Systems, Design Science Methodology and E-strategizing, the core courses of 2020-2021 will replace the ones for 2019-2020. IMEA students take Smart Industry as an additional specialisation course instead of Foundations of Information Systems.
- e. DSB students who started in or after February 2019-2020, or DSB students who started in Q2 2019-2020 and did not complete Enterprise Architecture, replace E-strategizing with Enterprise Security.

Article B5.2 Publication

1. The Faculty Board will ensure the appropriate publication of these Regulations and any amendments to them.
2. The Education and Examination Regulations will be posted on the faculty and programme website.

Article B5.3 Effective date

These Regulations enter into force with effect from 1 September 2023.

APPENDIX I: DUAL DEGREE PROGRAMME UNIVERSITY OF MUENSTER

This appendix describes the Dual degree programme Business Information Systems and Data Science together with the Information Systems (IS) programme of the School of Business and Economics (SBE) of the University of Muenster (WWU) in Muenster, Germany. The programme focuses on business analytics and data science.

Article I.1 Admission

All students directly admitted to the Master BIT without homologation can apply for the Dual degree with entry semester at the UT. A minimum CGPA of 7 (or country's equivalent) is an entry requirement. The programme management will select maximum 10 applicants based on their CGPA and motivation. Nominations will be automatically acknowledged by SBE.

Article I.2 Curriculum

I.2.1 Programme start UT (entry) to WWU

M1: Winter semester at UT

Term	Code	Name	EC
Q1	201400277	Enterprise Architecture	5
Q1	201600070	Machine Learning 1	5
	Elective UT1	Choice out of: Management and governance of innovation and creativity, simulation or multi-agent systems	5
Q2	192376500	Business Process Integration Lab	5
Q2	202000027	Enterprise Security	5
Q2	201600071	Machine learning 2	5

M1: Summer semester at UT

Students start the summer semester at the UT, but transfer to Munster just before the start of Q4.

Term	Code	Name	EC
Q3	202000029	Empirical and Design Science Methodology	5
Q3	Elective UT2	Choice out of: Data Science, global strategy and business development, or Implementation of IT in organizations	5
Mandatory participation in the seminar orientation from Muenster			

M1: Summer semester at Muenster

Term	Name	EC

S2	BN: Network Economics	6
S2	Seminar	6
S2	Project seminar	12

M2: Winter Semester Muenster

Term	Name	EC
S1	BI: Data Analytics 1	6
S1	BI: Management Information Systems & Data Warehousing	6
S1	IM: Tasks & Techniques	6
S1	Elective M1 (e.g. BN: IOS)	6
S1/2	Elective M2 (all Method-tracks)	6

M2: Final Project

Choice of either Muenster or UT as home base for the master thesis. The local regulations apply, supervision will be shared.

I.2.2 Programme start WWU (entry) to UT

M1: Winter Semester Muenster

Term	Name	EC
S1	BI: Data Analytics 1	6
S1	BI: Management Information Systems & Data Warehousing	6
S1	IM: Tasks & Techniques	6
S1	Elective M1 (e.g. BN: IOS)	6

M1: Summer semester Muenster

Term	Name	EC
S2	BN: Network Economics	6
S2	Seminar	6
S2	Project seminar	12
S2	Elective M2	6

M2: Winter Semester UT

Term	Code	Name	EC
Q1	201400277	Enterprise Architecture	5
Q1	201600070	Machine Learning 1	5
	Elective UT11	Choice out of: Management and governance of innovation and creativity, simulation or multi-agent systems	5
Q2	192376500	Business Process Integration Lab	5
Q2	202000027	Enterprise Security	5
Q2	201600071	Machine learning 2	5

M2: Summer Semester UT

Term	Code	Name	EC
Q3	202000029	Empirical and Design Science Methodology	5
Q3	Elective UT2	Choice out of: Data Science, global strategy and business development, or Implementation of IT in organizations	5

M2: Final Project

Choice of either Muenster or UT as home base for the master thesis. The local regulations apply, supervision will be shared.

Article I.3 Final Project

The Master thesis will be carried out at either Muenster or Twente as a home base. Regulations from the chosen location will apply. Supervision of the Final Project will be joined. All eligible supervisors from both universities will be classified as either business or computer science. Students need a minimum of two supervisors, one categorized as business, one as computer science.