

Appendix 9b of Article 4.5, paragraph 2, of the Regulations of the Examination Committee 2023-2024

Graduation procedure for Master's degree programs

A. GRADUATION PROJECT

a. Finding a graduation project

Graduation projects can be found in the Master Market Place, an online platform where students can browse through available graduation projects of the departments involved. In the Master Market Place, graduation projects are continuously updated throughout the year.

Link to the Master Market Place <https://marketplacetue.nl/>

b. Registration of the graduation project

Students are allowed to start their graduation project if:

1. *They have passed at least 60 EC, including the team project.*
2. *Their program of examinations (study program) has been approved by the EC AI&ES.*

In the event that students do not meet the above entry requirements, students cannot start the graduation project.

Should you be completing a combined master program (double diploma program), the following entry requirements apply to you:

1. Core courses: *your program needs to contain the full program of the six core courses*
2. Specialization study components: *you need to choose one of the AI&ES tracks and to follow the four track-related courses*
3. Interdisciplinary team project: *you need to do the AI&ES team project of the chosen track. This project cannot be replaced by another team project.*
4. Graduation project:
 - a. *The combined graduation project contains 60 credits.*
 - b. *The combined graduation project needs to be supervised by two departments to make sure the interdisciplinarity of the project is guaranteed. Deviations in the supervision must be approved by the EC AI&ES.*

Students have to find a thesis supervisor for the graduation project. The graduation project must be supervised by a thesis supervisor at TU/e (a staff member of one of the research groups participating in the AI&ES program). The thesis supervisor is an (assistant, associate, full) professor and expert on the subject of the project, or anyone explicitly appointed by the EC. Students need to register for their graduation project with the consent of their supervisor. Registration for graduation project must be arranged in OSIRIS and through the webform on the AI&ES education guide.

The registration through the [webform](#) specifies at least:

- a. The name of the student, the thesis supervisor, and the research group
- b. The title and short description of the graduation project
- c. The planning of the graduation project.

The registration form of the graduation project will be sent to the thesis supervisor, the secretary of the research group and the Center for Student Administration EE (CSA- EE).

CSA-EE will verify whether the conditions for commencing a graduation project are met.

For non-EU/EEA-students doing an external graduation project in the Netherlands, an additional graduation agreement (the NUFFIC Training Agreement) is mandatory. See the online education guide for more information.

c. Duration of the graduation project

The duration of the graduation project is 32 weeks fulltime without breaks (45 EC). For double degree programs with a combined graduation project the weight of the graduation project is 60 credits. The

graduation registration should clearly specify the start and end date of the graduation project. In case breaks are included in the duration students have to mention the period in the webform.

Extensions of the end date of the graduation project should be made to the examination committee via OSIRIS-cases with a confirmation given by the thesis supervisor at least one month before the planned end date. Extensions can be allowed for a maximum of two months.

d. Organization and planning

The graduation project consists of two phases:

- Phase 1: preparation phase
- Phase 2: project phase

Phase 1: preparation phase

The preparation phase of the project takes typically 2-6 full working weeks. The preparation phase is concluded with a preparation phase report containing:

- The background and already obtained results in the topic
- The project goal (based on literature and/or previous work)
- Research method (means, steps, results)
- Project planning (of at least 6 and at most 8 months)
- End date, when the final graduation project report has to be submitted.

Your TU/e thesis supervisor will revise and approve it (VO voldoende/sufficient) or share points of improvement (ON onvoldoende/insufficient). Should your research plan receive an ON, you are expected to work on the feedback you have received and resubmit your research plan. Approval of your research plan will mark the completion of the preparation phase of your graduation project.

Phase 2: project phase

Two months before the end of the project, the thesis supervisor makes a proposal for the members of the thesis committee. The proposal must be approved by the Examination Committee and the thesis supervisor is informed of the validity of the composition of the thesis committee.

At least 15 working days before your final presentation and defense, the student sends the graduation report to the TU/e supervisor. If the company imposed an embargo, include a public summary of your graduation report or a public version of the graduation report.

The graduation project is completed when the presentation, defense, and grading by the thesis committee are completed.

No later than the end date of student's graduation project (as registered on the registration form) student's need to submit the final report of the graduation project to the thesis committee.

e. The master thesis committee

1. The thesis committee assesses and grades the graduation work.
2. The Thesis Committee consist of at least 3 members of which:
 - * of which at least one is an Associate- or Full Professor.
 - * of which one is the thesis supervisor.
 - a. Voting member 1 – is the chair of the committee which is an assistant-, associate- or full professor in one of the AI&ES research groups. The chair of the committee is responsible for the assessment of the Graduation Project.
 - b. Voting member 2 – is an assistant-, associate- or full professor from one of the AI&ES research groups, or anyone explicitly appointed by the EC-AIES.

- c. Voting member 3 – is an examiner from one of the AI&ES departments, or anyone explicitly appointed by the EC-AIES, but in either case not belonging to the research group in which the student performs the graduation project.
- d. Optional voting member 4: is a post-doc, assistant, associate, or full/part-time professor not belonging to the research group in which the student performs the graduation project.
- e. Non-voting (advisory) member(s) 1 or 2: (coach) staff member, post-doc, PhD student, technician, staff member from company host.

The secretary of the Examination Committee will verify the composition of the thesis committee. All deviations from these rules require permission from the Examination Committee.

f. Final assessment

The thesis committee assesses the graduation project as carried out by the student. The assessment involves the 5 categories:

- (i) specialization,
- (ii) research and design,
- (iii) execution,
- (iv) report,
- (v) presentation and defense, that are equally weighted in the assessment.

The final grade of the graduation project shall be rounded to the nearest half grade on a scale of 0 to 10. The graduation project is considered successfully completed if it is assessed with a final grade of 6.0 or more.

The final grade is only calculated if each category is completed with a minimum of 5.0 otherwise it shall be marked as NMR 'not met requirements' (NVD, 'niet voldaan').

The assessment takes place after an event in which the student

- (i) presents the graduation work in a public presentation where at least the thesis committee members are present,
- (ii) defends the work on a questioning of the student by the members of the thesis committee (see paragraph j).

After the final assessment the chair of the thesis committee sends the assessment form to [CSA EE](#).

g. The graduation report and title page

The graduation project is concluded by writing a graduation report/paper following the guidelines of a typical length conference/journal submission in the field of the graduation project, which describes the project and its results, and is ready to be submitted as a regular contribution to a periodical and complies to the quality standards of scientific journals or peer-reviewed conference papers. Appendixes can be added but will not be assessed."

The student sends the final report (graduation paper) to the thesis supervisor and CSA EE at the same time (in the same e-mail). The thesis supervisor will test for fraud. Next to the report the student must send the code of conduct (see paragraph h) and possibly a declaration of confidentiality (see paragraph i) to CSA EE. All documents should be complete and submitted to CSA EE at least 10 working days before the last EC-AI&ES meeting.

The title page at least covers the following information:

- The title (and subtitle) of the graduation project
- Surname student + initials
- Names of all members of the thesis committee
- Study load (# of ECTS) of the graduation project
- Year of graduation
- Name thesis supervisor
- Name of Master's program(s), track
- An indication on whether or not the thesis is public information, and if not the date of publication

- A statement that the Master's thesis has been carried out in accordance with the rules of the TU/e Code of Scientific Integrity

See the [online education guide](#) for the title page for the paper.

h. Fraud and plagiarism

In agreement with the TU/e Code of Scientific Integrity, MSc students are required to sign a statement declaring that the graduation paper and related research have been carried out in accordance with the rules of the Code of Conduct. A reference to this statement should be made in the paper.

Every report/paper should be tested for plagiarism using designated software by or under responsibility of the thesis supervisor before handing in the report/paper to the thesis committee. In cases where such a test is impossible for technical or confidentiality reasons, the thesis supervisor has to check its authenticity. In cases of suspicion of fraud or plagiarism, the thesis supervisor informs the Examination Committee.

Together with the thesis supervisor the TU/e Code of Scientific Conduct for the Masters Thesis has to be signed to declare that the graduation paper has been carried out in accordance with the rules of the TU/e Code of Scientific Conduct. A digital copy has to be sent to ee.CSA.ee@tue.nl.

See for the [online education guide](#) for the code of conduct.

i. Confidentiality

- In principle, graduation theses/reports are public and Open Access. This means that a thesis/report must be included/published in the TU/e library.
- If a company/organization involved in the preparation of the thesis believes that (commercial) interests may be harmed by publication of the thesis, the company/organization may impose a temporary embargo of up to two years. This means that the thesis may not be published for a period of two years and may therefore not be included in the TU/e library. The imposition of an embargo must have been announced by the company/organization in good time; at the latest '10 working days before the student submits the thesis to the Thesis Committee.
- If the company/organization deems it necessary to impose an embargo for more than two years, the company/organization will have to submit a substantiated request to the dean of the department. The dean may decide to extend the confidentiality period by a maximum of another 3 years. The submission of the substantiated request must be made in good time; at the latest '10 working days before the student submits the thesis to the Thesis Committee.
- In the event of a two-year embargo, a publicly available summary of the thesis (hereinafter: public summary) must be made available in addition to the confidential version (read: original version). The student may choose to write a public version of the thesis instead of a public summary.
- If there is an embargo of more than two years, a public version of the thesis must be made available in addition to the confidential version.
- The confidential version of the thesis will be used for purposes related to the assessment. For this reason, the confidential version will be made available to the Thesis Committee, the Examination Committee and, if necessary, the Examination Appeals Board and review committees of the NVAO.
- The public summary or public version of the thesis is checked for plagiarism using plagiarism detection software. The investigation into plagiarism of the confidential version of the thesis is carried out by the student's supervisor(s).
- The public summary or public version of the thesis will be included/published in the TU/e library after the thesis has been defended.
- The public summary or public version of the thesis will be replaced in the TU/e library by the confidential version after the embargo has expired.

j. The presentation and defense of the master graduation

- The graduation presentation is a public meeting which aims to present the personal contribution of the graduation to the recent development of the research area to scientific staff of the department and to other interested audience.
- The graduation presentation is targeting master students of the same program. The graduation presentation is also intended to procure and secure uniformity in the assessment of the graduation

work. To this end, the thesis supervisor and student personally invite several staff members from other groups and/or experts from outside the department to the graduation presentation.

3. The thesis supervisor organizes a meeting in which the graduation student presents the work.
4. The group secretary of the thesis supervisor takes care of a public announcement of the graduation presentation.
5. A graduation presentation takes half an hour, which includes the opportunity to ask questions. The graduation student presents the graduation work in such a way that the student's own contribution can be distinguished clearly.
6. After the presentation the oral defense takes place. The student defends the graduation work on a questioning by the members of the thesis committee (time limit of maximum 60 minutes).

B. MASTER EXAMINATION AND DIPLOMA

Graduation formalities

1. Diploma application

In order to graduate registration in OSIRIS for an Examination Committee meeting is needed. (In OSIRIS, on the Progress Tab, click Qualification Request). The closing date for registration is at least four weeks before the Examination Committee meeting. For exact data, see the [online education guide](#). Registration always refers to the first upcoming session of the Examination Committee. The student is not present at the meeting.

2. All program parts have to be registered in OSIRIS

The Examination Committee checks the completeness of all documents. All documents should be complete at least 10 working days before the EC AI&ES meeting.

All results (exams, internship) should be known and registered in OSIRIS 10 working days before the Examination Committee meeting.

The Examination Committee decides on the examination and judicia during the meeting. See for the cum laude regulations the Program and Examination Regulations (OER). The secretary of the Examination Committee informs the student on the result of the final examination. The CSA EE informs the student on the graduation and organizes the graduation ceremony.

ASSESSMENT GUIDELINES OF MASTER PROJECTS

CATEGORIES

Specialization	Student-centered
Research and Design	Work-centered
Execution	Process-centered
Report	Documentation-centered
Presentation and Defense	Communication-centered

SPECIALIZATION

Main gradient:

Knowledgeable and able → Knowledgeable, able, and aware → Can use all relevant knowledge and skills → Creates knowledge and techniques → Foresees the future.

Aspects:

- **Quality of literature review:** Collection of papers Motivated collection Extracted methods and trends Classification Vision on history and future.
- **Level of specialized knowledge:** Sufficient understanding Apply and implement in a relevant way Confront, justify work against state-of-the-art Produce novel trade-offs and solutions Visionary interpretation of knowledge.
- **Disciplinary knowledge:** Facts, terminology, theories and basic skills Application and analysis skills Able to motivate all decisions Able to create new links and theories Motivated broad and far-reaching vision.
- **Ability to connect problem definition to research field or sub-questions:** Able to guess a solution Able to consider conceptual alternatives Abstraction and synthesis skills Able to derive new abstract, conceptual relations Able to produce and defend visionary argumentation.

RESEARCH AND DESIGN

Main gradient:

Contains useful information → Provides answers, expectations met → Complete, consistent, and relevant → Innovations → Break-through

Aspects:

- **Formulation of research questions:** Coherent plan, goals, approaches → Explicit problem definition, research question, research approach → Motivated approach and solid answer to the research question → Methodological creativity or innovations → Societal and scientific benefits.
- **Quality and quantity of established results:** Reconfirm established knowledge → Explicit, concrete deliverables → Results at the state-of-the-art level → Results advance theory and application → Demonstration, prototype.
- **Creativity, originality, innovative value:** Self-made items → Improvements → Useful and motivated advancements → Proven novelties → Breakthroughs.
- **Critical attitude towards results, methods, scope, and perspective of research:** Basic checks → Critical considerations → Verification and validation → Criticism on own work and the state-of-the-art → Boundaries before, now and after.

EXECUTION

Main gradient:

Follows common-sense, yields results → Follows good practices and advice → Effective, follows best practices → Full ownership → Sets an example.

Aspects:

- **Level of independence:** Exact instructions needed → Guidance needed → Independent, little guidance → Fully independent → Autonomous and a source of inspiration.
- **Commitment and dedication:** Basic work ethics → Positive attitude → Fully responsible → Full project ownership → Drive beyond own project.
- **Time planning:** Major goals and milestones achieved → Project goals and milestones achieved in time → Pro-active, independent planning → Full project management → Planning and management beyond the project scope.
- **Effectiveness:** Major goals achieved → Effective alignment, coordination, communication → All activities are meaningful and effective → Exceeded expectations → Impact beyond the project scope.

REPORT

Main gradient:

Reports useful information → Organizes, interprets information → Clear, well-structured, succinct, accessible, complete → Convinces and sets an example → Lasting impact.

Aspects:

- **Readability of report:** Understandable with effort → Easily readable → Pleasant, coherent, convincing story → Original, creative style → Submitted to an IEEE journal or conference.
- **Problem formulation:** Main problems and goals can be extracted → Explicit problem definition, research questions and goals → Well-structured and motivated problem definitions, research questions and research approach → Quantified problems, questions, and approach → Scientific, methodological, societal relevance.
- **Quality of content:** Clear what has been done and why → Explicitly validated results → Results can be reproduced → Original content, tutorial value → Ground-breaking content.
- **Structure and organization of report:** Coherent flow → Title, abstract, introduction, literature, background theory, application/problem, approach/methodology, paper body, analysis, results, validation, conclusions and reference are properly presented → Easily navigable content → Content-tailored organization → Inspirational organization.

PRESENTATION AND DEFENSE

Main gradient:

Presents what is done → Presents and defends what is done → Interactive, confident, complete, well-structured, clear → Creative, convincing → Influences.

Aspects:

- **Coverage of research outcomes:** Key elements are included → Explicit problems, research questions, and solutions → Effective coverage of all relevant aspects → Presentation adds value → Broad scientific and societal context.
- **Presentation skills:** Correct formulations and pace → Eye contact, non-verbal communication → Self-confidence and enthusiasm → Unique style and perfect timing → Inspirational, convincing
- **Quality of supporting material:** Slides show the work → Structured, consistent, attractive slides → Presentation material is meaningful and effective → Creative style, activation, and material → Inspirational material, demonstration.
- **Discussion skills:** Passive participation → Active participation → Organized and conclusive discussion → Instructive, insightful, and creative discussion → Strategizing.

<p>Voting member 1: <i>is the chair of the committee which is an assistant-, associate- or full professor in one of the AI&ES research groups. The chair of the committee is responsible for the assessment of the Graduation Project. Please mention title and research group.</i></p>	
<p>Voting member 2 <i>is an assistant-, associate- or full professor from one of the AI&ES research groups, or anyone explicitly appointed by the EC-AIES. Please mention title and research group.</i></p>	
<p>Voting member 3: <i>an examiner from one of the AI&ES from one of the AI&ES research groups, or anyone explicitly appointed by the EC, but in either case not belonging to the research group in which the student performs the graduation project. Please mention title and research group. Please mention title and research group.</i></p>	<p>Optional voting member 4: <i>is a post-doc, assistant, associate, or full/part-time professor not belonging to the research group in which the student performs the graduation project. Please mention title and research group.</i></p>
<p>Non-voting (advisory) member(s) 1 or 2: <i>(coach) staff member, post-doc, PhD student, technician, staff member from company host.</i></p>	

At least one voting member comes from a different research group than the group of the supervisor.

At least one of the voting members needs to be an associate/full professor.

The thesis supervisor and panel chair must be different persons.

Signature supervisor¹:

Date:

¹ Please send a signed copy of this form to the secretary of the EC AI&ES:
ee.Examination.Committee.AIES@tue.nl

Assessment form Graduation Project AI&ES *Version September 2023*

Name of student:		ID number:	
Graduation research group:	Course code:	EC:	Track name:
AI&ES chair of committee:		Coach (optional):	
AI&ES Thesis supervisor:		Affiliation:	
		Country:	
Title of graduation project:			
Date started (conform webform registration):		Date of assessment:	
Brief sub-grade motivation <i>(Add qualitative comments per category on the next page)</i>			Category Sub-grade
Specialization - student centered <i>Quality of literature review:</i> <i>Level of specialized knowledge:</i> <i>Disciplinary knowledge:</i> <i>Ability to connect problem definition to research field/sub-questions:</i>			Weak Strong <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Research and design - work centered <i>Formulation of research questions:</i> <i>Quality and quantity of established results:</i> <i>Creativity, originality, innovative value:</i> <i>Critical attitude towards results, methods, scope and perspective of research:</i>			Weak Strong <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Execution - process centered <i>Level of independence:</i> <i>Commitment and dedication:</i> <i>Time planning:</i> <i>Effectiveness:</i>			Weak Strong <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Report - documentation centered <i>Readability of report:</i> <i>Quality of content:</i> <i>Problem formulation:</i> <i>Structure & organization:</i>			Weak Strong <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Presentation and defense - communication centered <i>Coverage of research outcomes:</i> <i>Presentation skills:</i> <i>Quality of supporting material:</i> <i>Discussion skills:</i>			Weak Strong <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
The final grade is the mean value of the five sub-grades per category. The final grade is rounded to half integers.		Final grade¹:	

Student's work has been checked against plagiarism: ☐

Date:

Signature chair of the committee²:

The student's identity has been verified for the entire presentation and defense: ☐

¹ Students pass the graduation project if the final grade is 6.0 or higher. The final grade is only calculated if each category is completed with a minimum of 5.0 otherwise it shall be marked as NMR 'not met requirements' (NVD, 'niet voldaan').

² Please hand in a signed hardcopy of the two pages of this form at CSA EE, or digitally signed at ee.CSA.ee@tue.nl.

Committee members

Voting member 1: *is the chair of the committee which is an assistant-, associate- or full professor in one of the AI&ES research groups. The chair of the committee is responsible for the assessment of the Graduation Project. Please mention title and research group.*

Voting member 2 *is an assistant-, associate- or full professor from one of the AI&ES research groups, or anyone explicitly appointed by the EC-AIES. Please mention title and research group.*

Voting member 3: *an examiner from one of the AI&ES from one of the AI&ES research groups, or anyone explicitly appointed by the EC, but in either case not belonging to the research group in which the student performs the graduation project. Please mention title and research group. Please mention title and research group.*

Optional voting member 4: *is a post-doc, assistant, associate, or full/part-time professor not belonging to the research group in which the student performs the graduation project. Please mention title and research group.*

Non-voting (advisory) member(s) 1 or 2: *(coach) staff member, post-doc, PhD student, technician, staff member from company host.*

At least one voting member comes from a different research group than the group of the supervisor.
The thesis supervisor and panel chair must be different persons.

Confidentiality

Should the master report be treated confidentially:
yes / no

Embargo date:

Clarification of scores from the previous page if needed/feedback to the student.
Clarification is obligatory with grade 5, 6, 9 or 10.

Specialization - student centered:

Research and design - work centered:

Execution - process centered:

Report - documentation centered:

Presentation and defense - communication centered: