

## **Guide Graduation project AI&ES For thesis supervisors**

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Contact student-related topics: [Academic advisor AI&ES](#)

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This guide applies to thesis supervisors who supervise graduation projects of the master students AI&ES in the academic year 2023-2024.

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## Introduction Graduation project AI&ES

The graduation project is an individual research project on a topic related to Artificial Intelligence in the context of Engineering Systems. The graduation project must be supervised by an assistant, associate or full professor, or anyone explicitly appointed by the Examination Committee of the department that the staff member belongs to. The graduation project can be carried out within all TU/e departments connected to the AI&ES master, within a company, at another university or research institute in the Netherlands or abroad.

The graduation project is structured in two phases. The first phase is the **preparation phase**, that can last maximum of 6 weeks, during which the student will write and submit a research plan to the thesis supervisor. The research plan will contain the background and already obtained results on 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) and the end date, when the final graduation report (thesis) must be completed.

The preparation phase is followed by the **project phase**, of a duration of 26-28 weeks, during which the actual project is carried out. The graduation project can either focus on experimental work, application-oriented work or fundamental research questions, or combinations of these. It can be carried out on campus, in collaboration with companies or research institutions outside TU/e, or abroad. The total duration of the graduation project is monitored by the EC AI&ES.

## Supervising students

An [overview](#) of the research groups that have specific Artificial Intelligence (AI) expertise in Engineering Systems (ES), is published on the online Education Guide AI&ES. This overview is regularly updated by the [education coordinator AI&ES](#). The overview gives an indication of the overall orientation and expertise of the research group in a specific track (pink blocks for each track). **However, any thesis supervisor who is associated with a specific AI&ES track in the overview, can supervise a student who is enrolled in any track within the AI&ES master.**

If the research group of a thesis supervisor who supervises an AI&ES student is not included in the overview; the thesis supervisor is advised to contact the [education coordinator AI&ES](#).

Once a student's registration form is approved by the CSA EE, the form will be shared with the secretary of the research group that the thesis supervisor belongs to.

## Publishing graduation projects on the Master Marketplace

Two times per year (May/June 2023 and September/begin October 2023) the track coordinators will reach out via email to the thesis supervisors requesting to start collecting graduation projects proposals and add these to the [Master Marketplace](#) (MMP).

The thesis supervisor carefully reads the instructions for adding the graduation projects to the MMP - [Guide on how to access and add graduation projects on the Marketplace \(MMP\)](#) and proceeds with creating an account on the MMP (if not having done this already). [Hiltje Nawijn](#) is the contact person for questions related to the MMP, and the specific track coordinator is the contact person for questions related to the content of the graduation projects.

## Duration graduation project

For students who started their master program AI&ES in the academic year 2022-2023, the duration of the graduation project is 32 weeks (about 7 and a half months). This corresponds to 45 EC. For students of an internal

double diploma with a combined graduation project, the duration of the graduation project is 42 weeks. This corresponds to 60 EC.

A student's registration form should clearly specify the start date and end date of the graduation project. **The students are allowed to add 2 weeks (in addition to the 32 weeks) in case they would like to include a holiday break.** Considering 2 weeks of holidays, the actual duration of the graduation project should sum up to 34 weeks. Should the students need to take a longer period than 2 weeks, they must submit a request for approval to the EC AI&ES via [Osiris Case](#).

The **start date** is the date when the student registers for the graduation project online (via the Registration form Graduation project AI&E) and via Osiris, the first day of the preparation phase/phase 1. The **end date** is the date when the student must submit his/her thesis (graduation report) to the thesis committee (not longer than 32/34 weeks). By the end date of the graduation project, a student should have the presentation and defense date planned already, even if these will take place after the end date as submitted in the registration form.

There could be the case that a student still needs to complete one or more courses at the same time as the graduation project is formally scheduled (Q2-Q3 year 2). This would lead to requiring extra time to complete the graduation project that the student may request from the EC AI&ES. The maximum allowed duration of this extension will be calculated as such: 4 weeks for 5 EC, 7 weeks for 10 EC and 11 weeks for 15 EC. A student can request a shorter duration too.

It is a student's obligation to discuss his/her situation with the thesis supervisor and academic advisor. The student will have to submit a request for approval of the extra time to the EC AI&ES, via Osiris Case, **before registering online via the registration form and via Osiris**. Once the student's request is approved, the student will proceed with registering for the graduation project via the online registration form and Osiris.

## Meeting students

The students must check the graduation projects published on the MMP **first, before reaching out to a thesis supervisor**. Once contacted via email, the thesis supervisor meets with the student.

Two routes are available:

### a. Student's own graduation project (company/abroad)

The student will reach out to the thesis supervisor and discuss the following criteria: previous knowledge/subjects/skills, program of examinations (study program), personal interests and career ambitions. In addition to this, the thesis supervisor will address whether the project matches the AI&ES master and the student's track within the master.

Should there be a match among all criteria, the thesis supervisor informs the student that he/she may continue with the chosen topic/proposal. **The thesis supervisor will add the project on the MMP afterwards, following the guidelines indicated in the webform on the MMP and indicate the status "Reserved"**. Of course, the project will not be available for other students; it is added for the purpose of having an overview and as a database for future students.

In case there is no match among some of the criteria, or the student needs to expand his/her knowledge, the thesis supervisor will inform the student accordingly. There are no further actions required from the thesis supervisor at this time.

### b. Project via the MMP

The student will reach out to the thesis supervisor and discuss the following criteria: previous knowledge/subjects/skills, program of examinations (study program), personal interests, and career ambitions.

Should there be a match among all criteria, the thesis supervisor informs the student that he/she may continue with the topic/proposal. **The thesis supervisor will change the status of the project on the MMP to “Reserved.”**

In case there is no match among some of the criteria, or the student needs to expand his/her knowledge, the thesis supervisor will inform the student accordingly. There are no further actions required from the thesis supervisor at this time.

## Checking student's registration form

The following information must be agreed between the thesis supervisor and the student before its submission:

### **Graduation project information:**

- *Title graduation project*
- *Brief description of the graduation project (min 150 – max 300 words)*

### **Graduation project dates:**

- *Start date preparation phase*
- *End date preparation phase*
- *Start date project phase*
- *End date project phase (including breaks/holidays)*

The thesis supervisor receives a copy of the [Registration form Graduation project AI&ES](#) via email the moment the student submits it via the online Education guide. The thesis supervisor checks the above information, and only in cases that there is any discrepancy, contacts the [CSA EE](#) and the student in the same email. CSA EE will check whether student's registration (entry requirements and graduation dates) is correct. Within 10 working days the student and thesis supervisors receive confirmation that the student's registration is approved, and that he/she may continue with the graduation project.

In case of issues with the registration form, the student will receive an email from the [EC AI&ES](#) informing him/her that the registration form is rejected, and the next steps to follow for the student. It is student's responsibility to act on it – meeting with the thesis supervisor or/and with the academic advisor. **Once the information is corrected, the student will resubmit a corrected registration form, which will be received by the thesis supervisor and the CSA EE.**

The students are informed that they must submit their company agreements or contracts via the [Registration form Graduation project contract](#) that is available on the online Education Guide AI&ES. This form is specific for submitting contracts and/or agreements from the host institutions, universities, companies, Nuffic agreements, exchange agreements, non-disclosure agreements (NDA). The CSA EE, with the support from the Legal Department and International Office, will process them and follow up directly with the students. All the signed documents are saved in Osiris to the student's personal file.

## Phase 1: preparation phase

Once the registration is confirmed by the CSA EE, the student will formally start the preparation phase of the graduation project, which is expected to last a **maximum of 6 weeks**. The thesis supervisor meets with the student with an expected frequency of 2-4 times per month. Once the student emails his/her research plan, the thesis supervisor will revise and approve it (VO voldoende/sufficient) or share points of improvement with the student (ON onvoldoende/insufficient). Should the research plan receive an ON, the student has one more chance to work on it based on the thesis supervisor's feedback and resubmit the research plan. However, there are no specific consequences for the student in case he/she decides not to adjust the research plan.

The format of the research plan can be downloaded from the online [Education Guide AI&ES - Forms](#).

## Phase 2: project phase

The student starts the project phase of the graduation project, meaning that he/she will be working consistently on completing his/her project and writing the final thesis. The thesis supervisor will meet with the student 2-4 times per month and will monitor the student's progress on the graduation project. The way that such monitoring has been done so far is as follows:

- registration for the graduation project and completing the preparation phase
- contact moments with the thesis supervisor during the project phase
- completing the thesis withing the set deadlines.

Sometimes a student must postpone the end date of his/her graduation project after starting already, due to project-related or personal reasons/circumstances. The student has the obligation/responsibility to inform the thesis supervisor about the necessity to postpone the end date. When the reasons are project-related (e.g., too much workload, delay in starting it due to the company/research group, etc.), the student meets with the thesis supervisor to discuss the situation. Consequently, the thesis supervisor will recommend the student consult with the AI&ES academic advisor as well. The student will submit a request for approval to the EC AI&ES via Osiris Case, including the advice received from the thesis supervisor. The thesis supervisor will receive an email from the EC AI&ES once a decision is made on student's request.

The student **has the choice not to share** the reasons for his/her request with the thesis supervisor, when these are personal. In such a situation, the student informs the thesis supervisor that he/she needs to postpone the end date due to personal reasons and meets with the academic advisor to discuss further.

Pending the EC AI&ES decision, the student either must complete the graduation project within the initial end date (the request was not approved) or benefit from the extension (request was approved). The EC AI&ES can allow to postpone the end date to a maximum of two months; in exceptional cases, the end date can be postponed by more than two months.

The student can stop the graduation project of choice and start another one, without consequences for his academic progress or final grade of the second graduation project. Should this situation occur, the thesis supervisors will always direct the student to contact the academic advisor AI&ES before taking any further actions. There is a procedure in place for such situations, which will be communicated directly to the thesis supervisor by the academic advisor AI&ES or CSA EE.

## Diploma application

In order to graduate from their master program, students need to request the EC AI&ES to determine whether they have completed the master exam program and are eligible to receive a master's degree. Such request is called diploma application, and it is done via Osiris Student **at least four weeks before the EC AI&ES meeting that the student plans to graduate**. Although it is student's responsibility to submit such request, it is considered beneficial that the thesis supervisor reminds the student about the deadline.

## Thesis committee

The thesis supervisor makes a proposal for the members of the student's thesis committee and submits the form accessible via Education Guide AI&ES - [Forms](#) - Composition Thesis Committee AI&ES to the EC AI&ES **no later than 2 months before the end date of the graduation project**. The proposal will be submitted via email to the Secretary [EC AI&ES](#).

The form should be only submitted if the student is still on track with his/her planning, according to the end date indicated in the Registration form. The presentation and defense may take place at a later moment (after the end date), however these have to be planned already by the end date of the graduation project.

Should the student not be able to share his/her thesis with the thesis committee by the end date, based on the monitoring of his/her graduation project, the end date of the graduation project must be postponed. Extensions of the end date of the graduation project should be made to the EC AI&ES with a motivation given by the thesis supervisor **at least one month before the planned end date of the graduation project**. Extensions can be allowed up to a maximum of two months.

Should the proposal for the thesis committee not meet the requirements, as stated in the [RE EC AI&ES](#), the thesis supervisor will have to adjust it based on the feedback received from EC AI&ES and resubmit it. Should there be any changes in the thesis committee after submitting the proposal to the EC AI&ES, the thesis supervisor will have to resubmit a new form with the members of the thesis committee to the EC AI&ES. Any changes on short notice (e.g., unavailability of one of the members due to sickness or leaving TU/e) must be recorded on the Assessment form Graduation project AI&ES and discussed directly by the thesis supervisor or chair thesis committee with the EC AI&ES.

Once hearing back from the Secretary EC AI&ES that the thesis committee of a student is approved, the thesis supervisor organizes, with the support from the CSA EE, the student's graduation presentation and defense, and invites student's thesis committee to it.

## Confidentiality

The thesis should follow the guidelines of a typical 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. From this moment onwards the student is not allowed to alter the thesis.

The thesis supervisors receive the thesis at **least 15 working days before the student's graduation project end date as indicated in the registration form**, and if confidentiality applies, a public summary or a public version of the thesis.

The thesis supervisor will test the thesis for fraud and plagiarism using the designated software Ouriginal (Urkund). In cases where such a test is impossible for technical or confidentiality reasons, the thesis supervisor must check the authenticity of the thesis. Once tested, the thesis supervisor will confirm to the student and will request the student to share the thesis with the thesis committee, **no later than on the end date of the graduation project as indicated in the registration form**. The student will continue with preparing his/her graduation presentation and defense.

In case fraud or plagiarism is suspected, the thesis supervisor starts a fraud case with the EC AI&ES. The thesis committee will be informed, and the student's final presentation and defense will be cancelled.

It is the student's responsibility to check whether the company where he/she is conducting his/her research for the graduation project, or the research group requests to impose an embargo or not.

The following routes are possible for the student:

### Company/research group wants to impose an embargo

#### a. Embargo for maximum of two years

- The student finalizes the *thesis* and a *public summary* of the thesis.
- The student emails the thesis, the public summary and the signed Code of conduct form to the thesis supervisor (and company if relevant) and CSA EE.

#### b. Embargo for two-to-five years

- The student finalizes the *thesis* and *public version* of thesis.

- The student emails the *thesis, public version* of the thesis and the signed Code of conduct to the thesis supervisor and CSA EE (and company if relevant) in the same email.

**Company/research group does not want to impose an embargo**

- The student finalizes the thesis and emails it, together with signed Code of Conduct form, to the thesis supervisor (and company if relevant) and CSA EE.

In principle, the theses are public and open access, meaning that these are published in the TU/e library. However, when an embargo is imposed, a thesis may not be published in the TU/e library during the embargo period. The same applies for all other publications derived from the thesis (e.g., scientific journals and conferences).

## Final presentation and defense

The thesis supervisor will organize the student's final presentation and defense, and invite the members of the thesis committee and, if applicable, the external supervisor as well. The secretary of the research group arranges the public announcement of the final presentation.

The members of the thesis committee read the student's graduation project report before the final presentation. Afterwards, they attend the student's graduation presentation and defense. The chair of the thesis committee fills out the assessment form graduation project that can be downloaded from the Education Guide AI&ES - [Forms](#) - Assessment form Graduation project AI&ES.

The student is informed on what grade has been assigned to his/her graduation project. The final grade is 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 is marked as NMR 'not met requirements' (NVD, 'niet voldaan'). A NVD always requires further investigation by the EC AI&ES before further actions are taken.

The chair of the thesis committee emails the form to the CSA EE and confirms that the student has received a satisfactory grade for his/her graduation project. The CSA EE will register the assessment form and the grade in Osiris.

In the situation that the student did not pass his/her graduation project, the chair of the thesis committee will inform the EC AI&ES and CSA EE. The EC AI&ES will start a mandatory investigation. The EC AI&ES requests input from the thesis supervisor and the student regarding the situation (e.g., what went wrong, what should be done next, which conditions apply for the resit) and further steps to be taken. The EC AI&ES informs and asks the academic advisor AI&ES for input as well. Once the requested input is gathered, the EC AI&ES decides on the terms/conditions that a student must meet to retake his/her graduation project.

More information on the [graduation procedure](#) can be found in the online Education Guide AI&ES.



## Timeline

Below you can find an overview of the timeline, actions and people responsible for each one of them, during the graduation project process. The same table is shared with the student in the [Study guide Graduation project AI&ES](#).

<i>When</i>	<b>Who</b>	<b>What</b>
<i>A few months before the start of the graduation project</i>	Student	Finds a graduation project
	Student & thesis supervisor (& external supervisor)	Meet with the thesis supervisor
<i>Start of the graduation project</i>	Student	Meets with the thesis supervisor Registers for graduation project via online form Enrolls for the graduation project course in Osiris
	Non-EU/EEA-students	Register for the Nuffic training agreement
<i>Phase 1: preparation phase (4-6 weeks after the start of the graduation project)</i>	Student	Writes and shares the research plan with the thesis supervisor
<i>Phase 2: project phase (26-28 weeks after completing the preparation phase)</i>	Student	Works on the graduation project and thesis
<i>Min. 2 months before the end date of the graduation project</i>	Thesis supervisor	Submits the proposal composition thesis committee to the EC AI&ES
<i>Min. 1 month before the EC AI&amp;ES meeting when student plans to graduate</i>	Thesis supervisor	Organizes the final presentation
	Student	Confidentially applies - writes a public summary or public version Prepares the final presentation Diploma application via Osiris Case
<i>Min. 10 working days before sharing the thesis with the thesis committee (end date graduation project)</i>	Student & thesis supervisor (& external supervisor)	Follow procedure Confidentiality
<i>Min. 15 working days before sharing the thesis with the thesis committee</i>	Student	Sends the final thesis to the thesis supervisor
	Thesis supervisor	Tests the thesis for fraud and plagiarism
<i>Max. on the end date of the graduation project as indicated in the registration form</i>	Student	Shares the thesis with the thesis committee
<i>Min. 10 working days before the EC AI&amp;ES meeting when the student plans to graduate</i>	Student	Sends the required documents to the CSA EE
<i>Before the final presentation</i>	Thesis committee	Reads the thesis
<i>Last day – the final presentation</i>	Student & thesis committee	Gives the final presentation Defends the graduation project
<i>Last day – the final assessment</i>	Thesis committee	Assess and grade the graduation project
<i>Last day - after the final assessment</i>	Chair thesis committee	Emails the final assessment form to the CSA EE
<i>Before August 31<sup>st</sup></i>	Student	Terminates TU/e enrollment