Study guide
Internship 2023-2024
Master Electrical Engineering

EINDHOVEN UNIVERSITY OF TECHNOLOGY

Course codes & credits:	5I015, 15 EC 5I010, 10 EC 5I005, 5 EC
Level:	Master
Program:	Electrical Engineering
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This study guide applies to students starting the internship of the master Electrical Engineering in the academic year 2023-2024.

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Content

1 Introduction

The internship is a research project or design project on a topic related to Electrical Engineering. The internship is supervised by an EE assistant, associate or full/part-time professor, or anyone explicitly appointed by the EC. The internship may be carried out within our department (internal), outside our department (external), or as a combination. The internship is also an opportunity for an international and industrial experience.

We advise you to read through this entire study guide before you start your internship so that you are well informed about the whole process and know what to do and what to pay attention to.

2 Learning objectives

After finalizing the internship, you are able to:

- Work independently or as a member of a team on a problem in the domain of Electrical Engineering.
- Work in a professional environment, under supervision.
- Work in a structured manner with logical progression.
- Plan and organize the execution of the internship project aligned with supervisor(s).
- Execute the project following a scientific research methodology, i.e. formulate a research question, set-up and perform research, interpret and formulate the outcomes and conclusions.
- Clearly communicate about the process, progress, and results both orally (presentation) and in written form (report) on a specialist level
- Contribute to scientific discussion related to the internship.

3 Timeline

When	Who	What
A few months before start internship	Student	Find an internship project
A month before start internship	Student & EE supervisor (& external supervisor)	Meeting to discuss details and duration of internship project
	Student	Register for internship in OSIRIS
		Register for internship via internship registration webform
	Non-EU/EEA-students doing an internship in a company	Register for the NUFFIC-training agreement
First day	Student	Start your internship. Good luck!
During the internship	Student & EE supervisor (& external supervisor)	Work on your internship project and write your internship report
A month before end date	Student	Prepare your presentation and defense
		Finalize your internship report
At least … working days before end date	Student	Hand in your internship report
	EE supervisor	Test the internship report for fraud and plagiarism
Last day - presentation	Student & EE supervisor (& external supervisor)	Give your presentation about your internship project and defend it
Last day - assessment	EE supervisor	Assess and grade the internship
Last day - after assessment	Student & EE supervisor	You are informed about your grade
	EE supervisor	Email assessment form to CSA EE

4 Finding an internship project

The initiative for finding an internship project and an EE supervisor lies with you. Be pro-active and start looking for an internship project and EE supervisor on time.

There are a number of ways to find an internship project; suggestions are outlined in sections 4.1 to 4.3 below.

4.1 Finding an internship project in the EE department

You can find an internship project in the Master Marketplace, an online platform where you can browse through all available internship projects of the EE research groups. Internship projects are continuously added throughout the year by the EE research groups. When you see an internship project you want to do, you should contact the indicated staff member to arrange matters further.

You can also find internship projects via the websites of the EE research groups: CS, ECO, EES, EM, EPE, ES, IC, PHI and SPS. These websites also give information about the current research of the research groups and about the researchers connected to the research group including contact details. If you already know an EE staff member of a research group you are interested in, you can contact them to indicate you are interested in doing an internship project at their research group and ask for current possibilities or share your own ideas about your internship project. Otherwise, you can contact the internship staff contact person of each research group:

- CS: secretariaat CS
- ECO: José Hakkens-Jansen
- EES: dr. Phuong Nguyen
- EM: Suzanne Kuijlaars
- EPE electromechanics: dr.ir. Dave Krop
- EPE power electronics: dr.ir. Henk Huisman
- ES: secretariaat ES
- IC: prof.dr.ir. Eugenio Cantatore
- PHI: secretariaat PHI
- SPS: dr. Alex Alvarado
- SPS ICT lab: dr. Alex Alvarado
- SPS BM/d: prof.dr.ir. Massimo Mischi
- SPS VCA: prof.dr.ir. Peter de With

The internship is the ideal opportunity for orientation within the area of Electrical Engineering. To broaden your horizon, you are encouraged (not obliged) to do your internship in another research group than you will choose for your graduation project. If you do choose to work on your internship and graduation project within one research group or even within one project, please note that you must complete the first project before you can start the second project and that the contents of both projects should differ. An internship project may be preceded by lab training on equipment safety and emergency protocol.

4.2 Finding an internship project in a company

Maybe you have a specific company in mind where you want to do your internship project. There are a lot of contacts between the EE research groups and companies. You can contact the EE research groups with questions for internships. Otherwise, read company websites for information about current possibilities and about possible company contacts within the EE department. An internship project at a company should always be supervised by an EE supervisor, so make sure to find an EE supervisor yourself that matches the company's field of research. An internship project at a company should be of sufficient level for a master's student, large enough for the minimal duration, and supervised daily by an external supervisor (in addition to the EE supervisor who is ultimately responsible for your internship project). The external supervisor should minimally hold a MSc degree in the technical science domains. The EE supervisor, however, remains formally responsible for the internship.

4.3 Finding an internship project abroad

Maybe you are interested in going abroad for your internship. This can be of great value for you. You can immerse yourself in another culture and develop new skills.

An internship abroad should be of a sufficient level for a master's student, meet the minimal duration criteria and be supervised daily by an external supervisor (in addition to the EE supervisor who is ultimately responsible for your internship project).

A good starting point for finding an internship abroad at specific universities, research institutions or companies is the network of EE staff members and research groups. Many of the EE staff members have excellent connections abroad. If you already know an EE staff member, you can contact them to discuss international options. The mentors of the research groups are another good starting point to discuss international options.

The International Office EE can also help you to find an internship project abroad. The International Office of EE can inform you about international partner universities and can provide you with an overview of international universities, research institutes and companies where EE students have been in the past. You can also read experience reports of students who went abroad before you.

It is very important to keep in mind that arranging an internship project abroad takes time. You should start arranging this well in advance. Within TU/e the registration system Mobility Online is used to register all international incoming and outgoing exchange. If you go abroad for your internship, you must go through the application procedure of our university and the faculty of Electrical Engineering (e.g. Mobility Online). This can easily take 4 to 6 weeks. The International Office EE can assist you with your registration and provide important information.

If you are interested in doing an internship abroad, please read this website and all its subpages carefully for more information on how to arrange this.

4.4 Finding an EE supervisor

You must find an EE supervisor for your internship project yourself. An internship project can be supervised by an EE assistant professor, associate professor or full/part-time professor, or anyone explicitly appointed by the Examination Committee EE.

Once you have found an internship project, meet up with your EE supervisor and discuss the details of your internship project (e.g. contents, scope, location and planning of your internship project) plus any other questions you might have.

5 Starting criteria and registration

5.1 Starting criteria

There are no starting criteria or entrance requirements for the internship (i.e. there are no requirements for completing courses), except that you must finish your internship before you start your graduation project. You are allowed to start your internship at any point within your master program. So, you can start any day, any week, even in the holidays, dependable on the availability of your EE supervisor. Note, however, that your EE supervisor can require you to finish specific courses before you start your internship as these courses might be relevant for your pre-knowledge.

5.2 Registration

You must register for your internship in both OSIRIS *and* through the internship registration webform, see below.

5.2.1 OSIRIS registration

You must register yourself for the internship in OSIRIS.

- The internship registration code is 5I015 (15 EC).
- The optional internship extension code is 5I005 (5 EC). The choice of extension must be arranged and approved before the start of your internship. You indicate your choice of extension via the internship registration webform (see below) before the start of your internship.
- For students of the master's program for HBO-bachelors the internship registration code is 5I010 (10 EC). Students of the master's program for HBO-bachelors may not extend their internship.

5.2.2 Internship registration webform

You must also register for the internship through the internship registration webform. Make sure you discuss all the details of your internship with your EE supervisor before filling out and submitting the webform. Your submitted internship registration webform will be sent to your EE supervisor, the secretary of the research group and the CSA EE who will check whether your registration is correct. If anything is incorrect you will be notified by either your EE supervisor or CSA EE. In some cases, you will be asked to resubmit the registration webform (e.g. when the provided information is incorrect).

5.2.3 Non-EU/EEA-students: NUFFIC training agreement

For non-EU/EEA-students who do an internship in a company in the Netherlands, an additional agreement (the NUFFIC training agreement) is mandatory. Dutch law requires that copies of the agreement are kept by both the internship provider and TU/e. You can find more information at the Study in Holland-website. The NUFFIC training agreement should be signed by mrs. Jolie van Wevelingen, the managing director of the EE department. Please hand in a digital or printed version of your NUFFIC training agreement via International Office EE or at Flux 0.124. A signed version of the agreement will be returned to you as soon as possible.

5.2.4 Company contract

The company where you do your internship might want you to sign a company contract. The company contract can include things like payment/allowance, insurance, working hours, legal information, intellectual property, confidentiality, etc. The company might have its own company contract; but it is preferred to use the TU/e's model work place contract. The contract can be a tripartite contract (you, the company and TU/e sign it) or a bipartite contract (you and the company sign it). Before you sign a company contract have it checked for you by CSA EE. In case of a tripartite contract, the contract may only be signed on behalf of TU/e by mrs. Jolie van Wevelingen, managing director of the EE department. This will also be arranged for you by CSA EE. Your supervisor should not sign the company contract. Please be aware that the process of reviewing, changing and signing a contract can easily take one month. Therefore, send your contract to CSA EE as soon as possible.

If you do your internship project at ASML, please consult this website about the framework agreement between TU/e and ASML.

5.2.5 Non-disclosure agreement

In case the company wants to impose a non-disclosure agreement (NDA) for you and/or your EE supervisor, please email the NDA to CSA EE for checks before any of you signs it.

5.3 Internal double diploma

For students doing an internal double diploma, need to do a 15-credit internship for the EE program.

5.4 Internship in the master program for HBO-bachelors

Students of the master program for HBO-bachelors complete an internship of 10 EC as a preparation of the graduation project. This internship is a research project under the supervision of one of our own EE staff members and is carried out within one of the EE research groups. The most important goal of this internship is to learn to handle a scientific and open-ended project assignment, which involves integrating knowledge from multiple areas of the field of electrical engineering. Apart from that, this internship is an opportunity to practice reporting in English. For these reasons, the internship of students of the master program for HBO-bachelors cannot take place in a company or abroad and must be done within the EE department. Furthermore, students of the master program for HBO-bachelors may not extend their internship.

6 Duration

6.1 Duration of the internship

The duration of the internship for regular master EE students is 420 hours which translates into 10.5 weeks fulltime. This corresponds to 15 EC.

The internship can be extended with an additional 5 EC from the elective space resulting in 140 hours (3.5 weeks fulltime) additional time. The choice of extension must be arranged and approved before the start of your internship following the regular procedure for approval of courses in your exam program. Therefore, you must indicate your choice whether to extend your internship or not via the internship registration webform before the start of your internship.

Students of the master's program for HBO-bachelors complete an internship of 10 EC. This is 280 hours which translates into 7 weeks fulltime. Students of the master's program for HBO-bachelors may not extend their internship.

On the internship registration webform you should clearly specify the start date and end date of your internship. Make sure to discuss the start date and end date with your EE supervisor, and if applicable also with your external supervisor, before submitting the webform. When planning your internship, you and your supervisor(s) should take holidays into account. Considering holidays, the actual duration of the internship should meet the criteria listed above. In case holidays are included in the duration you must mention the holiday periods in the webform.

Internships are typically done fulltime. Doing an internship parttime is possible with good reason and with the approval of your EE supervisor.

6.2 Postponing the internship end date

If there are circumstances (personal or project-related) for which you need to postpone the end date of your internship, you should discuss and arrange this with your EE supervisor and, if applicable, your external supervisor.

Extensions or delays of the internship beyond 1 month require approval or notification by the Examination Committee EE.

7 During the internship

You start working on your internship project. Make sure to maintain regular contact with your EE supervisor or daily contact person and, if applicable, your external supervisor about your progress and to discuss your results and questions. At the start of the internship, discuss with your EE supervisor or daily contact person and, if applicable, your external supervisor how you will keep in contact (e.g., face-to-face meetings, online Teams meeting, or via email) and with what frequency. During your internship, adapt the communication, when necessary, e.g., if you

encounter a problem. Keep in mind that your EE supervisor is there to help you, so do not hesitate to contact them if you are worried about something concerning your internship project. In case you do not feel comfortable discussing a certain project-related or personal issue with your supervisor, you can contact the academic advisor.

In the assessment form internship EE and the assessment guidelines for master projects you can find more information about the assessment criteria that apply to the internship. Keep these in mind and make sure to work on these and embed these in your internship project.

8 Confidentiality

In case of an internship project at a company, be aware that the company may want to make your internship report confidential and impose an embargo period. This means your internship report may not be published during the embargo period. A company can announce an embargo the latest two weeks before you hand in your internship report to your supervisor. We advise you to discuss confidentiality from the very beginning of your internship with your internship company. In this way they are informed about the process we follow within EE (TU/e) and options we offer within EE (TU/e) for confidential projects and this way you know what you can expect in terms of confidentiality.

An embargo period can either be:

- A period of maximum two years. An embargo of maximum two years can be imposed by the company on its own. They do not need to send a request to EE (TU/e) for further approval on this.
- A period of two-to-five years. An embargo of two-to-five years should be approved by the Dean of the department of Electrical Engineering. The company should send a substantiated request for a two-to-five-year embargo to the Dean EE for approval. An embargo of two-to-five years needs to be communicated and decided upon carefully between the Dean EE, the company, the EE supervisor and you.

If your internship report is confidential, make sure to state this including the embargo period in the headings of your internship report.

Within EE it is policy to not publish internship reports via the TU/e library, but keep in mind that within the embargo period any other publications are not allowed either. If the company wants to impose an embargo always inform your EE supervisor about this and have them indicate this on your final assessment form.

9 Finalizing the internship

9.1 Report

At the end of your internship, it is mandatory to hand in an internship report to your EE supervisor, your external supervisor (if applicable) and the secretary of the research group. You should discuss with your EE supervisor and, if applicable, your external supervisor how many days before your presentation and defense they want to receive your internship report. Together with your EE supervisor, you agree on the conditions that your internship report should meet. There are no requirements on the length and format of your internship report. You should discuss these with your EE supervisor.

Your EE supervisor will check your internship report for fraud and plagiarism using the designated software Ouriginal (Urkund). In case such a test is impossible for technical or confidentiality reasons, your EE supervisor must check the authenticity of your internship report themself. In case fraud or plagiarism is suspected, a fraud case will be started by your EE supervisor at the Examination Committee EE. Your presentation and defense will be postponed.

Once you have handed in your internship report to your EE supervisor you may not alter your internship report. This includes not altering your internship report after your presentation and defense.

9.2 Presentation and defense

After finishing your internship and handing in your internship report, you must give a presentation and defense on your internship project for at least your EE supervisor and, if applicable, your external supervisor. Your presentation and defense are public so other people involved in your internship project or your guests are welcome to join. Your presentation should be 20 minutes.

9.3 Assessment

Your EE supervisor assesses and grades your internship using the assessment form internship EE on the categories: specialization, research and design, execution, report, presentation and defense. The Professional Skills academic writing and presenting scientific information are integrated in the internship assessment. In case of insufficient results extra training by means of SkillsLab workshops or trainings on academic writing and/or presenting can be advised.

You pass the internship if your final grade is 6.0 or higher. You also need to complete each category (sub-grade) with a minimum of 5.0. The executional part of the internship is a not retakeable component and will be regarded as a special case for which the assessment can only be taken once. With a failing grade on the internship, your EE supervisor can first seek for a remedial assignment to improve your grade. If this is not possible, or if you also fail this, you need to re-do the internship project or search for a different internship project.

After the assessment your EE supervisor (or the group secretary of your EE supervisor) emails your assessment form internship EE to CSA EE. Your grade will be processed in OSIRIS.