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1. Master Electrical Engineering 2018-2019

Electrical Engineering is about many things that are essential parts of people’s lives. It involves power generation, communication, healthcare and the environment, and electrical engineers solve a wide range of problems related to these topics. The department’s research focuses on smart, innovative electrical components and on the design of electrical systems, which may become very complex. We cooperate closely with the regional high-tech industry and with other partners all over the world.

The Electrical Engineering discipline is constantly changing. As a graduate of the Electrical Engineering Master Program you will find yourself equipped for researching, discovering and exploring new boundaries and for leading others along that way.

The purpose of the master program in Electrical Engineering is to teach students to work independently on complex research and design projects with the ability to rethink existing concepts and develop new ones. In the final phase of the program students will be able to present the results of their work to an international community. The curriculum of the Electrical Engineering master program comprises core courses, specialization courses, electives, professional development courses, an internship and finally a graduation project in which the student demonstrates his/her engineering ability to a high standard.

This document describes the master program in Electrical Engineering in 2018-2019. See transitional arrangements (chapter 12) for details about changes.

Special master’s tracks
Electrical Engineering is about many things that are essential parts of people’s lives. You can choose from two special Master’s track based in Electrical Engineering that integrate knowledge from many technical fields like Mathematics and Computer Science, Applied Physics, Chemical Engineering, Technology Management:

- Track Connected World Technologies
- Track Care and Cure
2. Curriculum

Program overview

<table>
<thead>
<tr>
<th>Year</th>
<th>Course</th>
<th>EC</th>
</tr>
</thead>
<tbody>
<tr>
<td>First year</td>
<td>Diagnostic Test of Professional Skills</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Core courses</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Specialization path</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Elective courses</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Professional development</td>
<td>5</td>
</tr>
<tr>
<td>Second year</td>
<td>Internship</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Graduation project</td>
<td>45</td>
</tr>
</tbody>
</table>

As of 2018-2019, the graduation project is 45 EC and only for new master students starting in 2018-2019. For students who started in 2015-2016, 2016-2017 and 2017-2018, the graduation project remains 40 EC.

The study load of the program is 120 EC. All examinations may be taken and completed in any order desired, except for the graduation project. Master students have to complete the Diagnostic Test of Professional Skills containing four subtests as part of their Personal Development Plan.

Check the Master Electrical Engineering Checklist on the digital study guide to determine what has to be done before the start and during the first quarter of the first year.

Downloads
EE Approval study package (12 KB)
Checklist Master EE 2018-2019 (120 KB)
Presentation Master Kick-Off curriculum 2018-2019 (2 MB)
Presentation Master Kick-off Professional Skills (955 KB)
Honors program
2.1 Core Courses

Students choose three core courses from the table below. The choice is free, but research groups require specific core courses for their specialization.

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>EC</th>
<th>Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>2DME10</td>
<td>Discrete Mathematics</td>
<td>5</td>
<td>1 (1,2)</td>
</tr>
<tr>
<td>2DME20</td>
<td>Non-linear Optimization</td>
<td>5</td>
<td>1 (1,2)</td>
</tr>
<tr>
<td>2DME30</td>
<td>Complex Analysis</td>
<td>5</td>
<td>1 (1,2)</td>
</tr>
<tr>
<td>5CCA0</td>
<td>Semiconductor Physics and Materials</td>
<td>5</td>
<td>1 (1,2)</td>
</tr>
<tr>
<td>5CHA0</td>
<td>Classical and Modern Physics</td>
<td>5</td>
<td>1 (1,2)</td>
</tr>
<tr>
<td>5CPA0</td>
<td>Numerical Methods in Electrical Engineering</td>
<td>5</td>
<td>1 (1,2)</td>
</tr>
<tr>
<td>5CSA0</td>
<td>Modeling Dynamics</td>
<td>5</td>
<td>1 (1,2)</td>
</tr>
<tr>
<td>5CTA0</td>
<td>Statistical Signal Processing</td>
<td>5</td>
<td>1 (1,2)</td>
</tr>
</tbody>
</table>

Planning in the right column indicates the quarter in which the course will be offered, and in between brackets the quarters in which the course examinations will be scheduled.

Students who have already passed the exam of course 5XPB0 Nano devices and integration in the Bachelor are strongly advised to avoid choosing the course 5CCA0 as a core course due to some overlap with 5XPB0. They can choose another core course instead. See the 5CCA0 course information for more details.
2.3 Specialization path

A specialization path is a set of two courses preparing for specialization in a specific area of Electrical Engineering.

If in specific situations a specialization path from the specialization path table is not an optimal specialization preparation, a different choice may be made, which must be approved by the graduation supervisor.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>Control Systems</td>
</tr>
<tr>
<td>ECO</td>
<td>Electro-Optical Communication</td>
</tr>
<tr>
<td>EES</td>
<td>Electrical Energy Systems</td>
</tr>
<tr>
<td>EM</td>
<td>Electromagnetics</td>
</tr>
<tr>
<td>EPE</td>
<td>Electromechanics and Power Electronics</td>
</tr>
<tr>
<td>ES</td>
<td>Electronic Systems</td>
</tr>
<tr>
<td>IC*</td>
<td>Integrated Circuits</td>
</tr>
<tr>
<td>Phi</td>
<td>Photonic Integration</td>
</tr>
<tr>
<td>SPS</td>
<td>Signal Processing Systems</td>
</tr>
</tbody>
</table>

*formerly known as MSM, Mixed-Signal Microelectronics
The paths and their courses are listed below. In this table, research group and track abbreviations are used as specified in the table above.

<table>
<thead>
<tr>
<th>Path</th>
<th>Code</th>
<th>Name</th>
<th>EC</th>
<th>Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>5SMA0</td>
<td>Model-based Control</td>
<td>5</td>
<td>2 (2,3)</td>
</tr>
<tr>
<td></td>
<td>5SMB0</td>
<td>System Identification</td>
<td>5</td>
<td>3 (3,4)</td>
</tr>
<tr>
<td>ECO</td>
<td>5SHA0</td>
<td>Photonic Integrated Devices</td>
<td>5</td>
<td>2 (2,3)</td>
</tr>
<tr>
<td></td>
<td>5STA0</td>
<td>Optical Fibre Communications Technology</td>
<td>5</td>
<td>3 (any)</td>
</tr>
<tr>
<td>EES-1</td>
<td>5SEBO</td>
<td>Decentral Power Generation and Active Networks</td>
<td>5</td>
<td>2 (2,3)</td>
</tr>
<tr>
<td></td>
<td>5SEC0</td>
<td>Planning and Operation of Power Systems</td>
<td>5</td>
<td>2 (2,3)</td>
</tr>
<tr>
<td>EES-2</td>
<td>5SVA0</td>
<td>High Voltage Technology</td>
<td>5</td>
<td>2 (2,3)</td>
</tr>
<tr>
<td></td>
<td>5SVB0</td>
<td>Electromagnetic Compatibility</td>
<td>5</td>
<td>3 (3,4)</td>
</tr>
<tr>
<td>EM</td>
<td>5SPBO</td>
<td>Microwave Engineering and Antennas</td>
<td>5</td>
<td>2 (2,3)</td>
</tr>
<tr>
<td></td>
<td>5SPDO</td>
<td>Electromagnetic Modeling Techniques</td>
<td>5</td>
<td>3 (3,4)</td>
</tr>
<tr>
<td>EPE-1</td>
<td>5SWA0</td>
<td>Rotary permanent magnet machines</td>
<td>5</td>
<td>2 (2,3)</td>
</tr>
<tr>
<td></td>
<td>5SWB0</td>
<td>Advanced Power Electronics</td>
<td>5</td>
<td>3 (3,4)</td>
</tr>
<tr>
<td>EPE-2</td>
<td>5SWC0</td>
<td>Linear and Planar Motors for High-Precision Systems</td>
<td>5</td>
<td>2 (2,3)</td>
</tr>
<tr>
<td></td>
<td>5SWB0</td>
<td>Advanced Power Electronics</td>
<td>5</td>
<td>3 (3,4)</td>
</tr>
<tr>
<td>ES</td>
<td>5SIA0</td>
<td>Embedded Computer Architecture</td>
<td>5</td>
<td>2 (any)</td>
</tr>
<tr>
<td></td>
<td>5SIB0</td>
<td>Electronic Design Automation</td>
<td>5</td>
<td>3 (3,4)</td>
</tr>
<tr>
<td>IC-1*</td>
<td>5SFA0</td>
<td>Data Converters 1: Fundamentals</td>
<td>5</td>
<td>2 (2,3)</td>
</tr>
<tr>
<td></td>
<td>5SFD0</td>
<td>Data Converters 2: Design</td>
<td>5</td>
<td>3 (3,4)</td>
</tr>
<tr>
<td>IC-2*</td>
<td>5SFB0</td>
<td>RF Transceivers 1: Fundamentals</td>
<td>5</td>
<td>2 (2,3)</td>
</tr>
<tr>
<td></td>
<td>5SFE0</td>
<td>RF Transceivers 2: Design</td>
<td>5</td>
<td>3 (3,4)</td>
</tr>
<tr>
<td>PhI</td>
<td>5SHA0</td>
<td>Photonic Integrated Devices</td>
<td>5</td>
<td>2 (2,3)</td>
</tr>
<tr>
<td></td>
<td>5SHB0</td>
<td>Photonic Integration: Technology and Characterization</td>
<td>5</td>
<td>3 (3,4)</td>
</tr>
<tr>
<td>SPS</td>
<td>5SSB0</td>
<td>Adaptive Information Processing</td>
<td>5</td>
<td>3 (3,4)</td>
</tr>
<tr>
<td></td>
<td>5SSCO</td>
<td>Adaptive Array Signal Processing</td>
<td>5</td>
<td>3 (3,4)</td>
</tr>
</tbody>
</table>
* It is highly recommended that the course Advanced CMOS design (5SFC0) is taken in line with these specialization paths.

Planning in the right column indicates the quarter in which the course will be offered, and in between brackets the quarters in which the course examinations will be scheduled.

2.4 Elective courses

Elective courses are all master courses and level three bachelor courses from Electrical Engineering, master courses from all other TU/e study programs and from programs from other universities. Core courses and Specialization Path courses are also valid electives. In case of doubt, the Examination Committee will decide if a course is admissible as an elective. For 15 credits of electives, a student needs approval of his/her mentor or graduation supervisor, the other 15 credits of electives are free to choose.

Excluded Master electives

The following courses do not count as master electives:

- All level 1 and level 2 Bachelor courses
- 5XSFO Enabling technologies for sports: Fundamentals of signal & video analysis
- 5XPBO Nano devices and integration if course 5CCA0 has also been chosen as a core course or elective

Elective courses (via Master Market Place)

2.5 Professional Development

Professional Development consists of the courses listed below. These courses are mandatory.

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>EC</th>
<th>Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>5CKB0</td>
<td>Project management</td>
<td>2.5</td>
<td>2,4</td>
</tr>
<tr>
<td>5CKF0</td>
<td>Research set-up</td>
<td>2.5</td>
<td>1,3</td>
</tr>
</tbody>
</table>

Planning in the right column indicates the quarter in which the course will be offered.

2.6 Internship

Purpose of internship

An internship (15 EC) is a small research project which prepares for the larger graduation project. The internship is an orientation within the area of electrical engineering. The internship is also the ideal opportunity for an international and/or industrial experience.
An internship is supervised by a staff member of the department of Electrical Engineering. It may be carried out within the department (internal), outside it (external), or as a combination. For a (partially) external internship, an external supervisor is also needed for daily supervision. The EE staff member, however, remains formally responsible for the internship. You can extend the internship with an additional 5 EC from your electives (course SM030 Extension Internship EE).

For the internship, specific Examination Regulation rules apply. To make sure all prerequisites are fulfilled, you need to fill out an internship contract before you start the internship. The internship contract should be filled in and signed together with your internship supervisor and handed in at the Center for Student Administration (CSA) AP/EE, Flux 0.127.

For non-EU/EEA-students doing an external internship in the Netherlands, an additional internship agreement (the NUFFIC Training Agreement) is mandatory. This training agreement can be downloaded from the NUFFIC site. 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 training agreement should be signed by Mrs. Jolie van Wevelingen, managing director of the departments of Electrical Engineering and Applied Physics. Please, hand in a printed version of the training agreement to Mrs. Monique Hunck, Flux 0.158. The signed agreement will be ready for you the next day.

HBO-graduates who follow the master program of Electrical Engineering for HBO-graduates do a shorter internship of 10 EC. HBO-graduates have to do the internship internally within the research group; they are not allowed to go outside the faculty or abroad. Furthermore, HBO-graduates are not allowed to extend the internship.

Finding an internship
To find an appropriate internship, address one of our staff members, e.g. from the table below, and discuss with him or her what you would like to do, where and when. The better you know your preferences, the more likely it is that one of our staff may be able to find the right project for you. Check the group’s website (click the group name in the table below) to find out about the research activities you can take part in with your internship. If you try to find an internship in a specific company, ask the company for existing research contacts with the EE department and contact these. If you wish to go to a specific country, contact the international coordinator Mrs. Petra Siemons.

Finalizing the internship
After the internship is finished, it is mandatory to hand in an internship report. Specific details about this report or any other methods of reporting are determined in the internship contract.

Internship staff contacts

<table>
<thead>
<tr>
<th>Group</th>
<th>Contact</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Systems (CS)</td>
<td>W.H.A. Hendrix</td>
<td>FLX 5.135</td>
</tr>
<tr>
<td>Electro Optical Communications (ECO)</td>
<td>J. Hakkens</td>
<td>FLX 9.093</td>
</tr>
<tr>
<td>Electromagnetics (EM)</td>
<td>S. Kuijlaars</td>
<td>FLX 9.068</td>
</tr>
<tr>
<td>Electromechanical and Power Engineering (EPE)</td>
<td>T. Swanink</td>
<td>FLX 2.110</td>
</tr>
</tbody>
</table>
2.7 Graduation project

The graduation project is a 45 EC research project on a topic related to Electrical Engineering, supervised by a staff member of the faculty of Electrical Engineering. It can be carried out internally of externally agreed upon by student and supervisor. A graduation project of 45 EC takes 32 weeks full-time without breaks. For students who started in 2015-2016, 2016-2017 or 2017-2018, the graduation project is still 40 EC corresponding with 28 weeks full-time without breaks. A student is allowed to start the graduation project if at most 10 credits of his electives are still open and the rest of the program is completed. Before starting the graduation work, a student and his supervisor set up a contract which specifies project details and summarizes study progress so far. Progress and final results are presented in a halfway presentation, in a final presentation and in a paper. The professional skills academic writing and presenting are also part of the assessment. The assessment is done by a panel which is appointed by the examination committee. A graduation project may have to be preceded by lab trainings in order to be able to handle equipment and emergency situations safely. For the graduation project, additional Examination Regulation rules apply (Articles 15, 17, 19, 21, 26, 35).

For non-EU/EEA-students doing an external graduation project in the Netherlands, an additional graduation agreement (the NUFFIC Training Agreement) is mandatory. This training agreement can be downloaded from the NUFFIC site. 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 training agreement should be signed by Mrs. Jolie van Wevelingen, managing director of the departments of Electrical Engineering and Applied Physics. Please, hand in a printed version of the training agreement to Mrs. Monique Hunck, Flux 0.158. The signed agreement will be ready for you the next day.

Finding a Graduation Project

You can find a graduation project using the Master Market Place. It is a web application where you can have a look at available graduation projects of our research groups. You may already be familiar with this system because it has similar features as the BEP Market Place. However, for the Master Market Place, graduation projects are continuously updated throughout the year.
Since your graduation supervisor needs to approve of part of your electives, you should discuss your electives with your mentor by the end of the first quarter. You need to take the initiative to contact the mentor yourself. You will discuss your electives with your mentor and (depending on the progress of your studies) in more or less detail the topic and the context of your graduation project with your graduation supervisor.

When the scope of your project has become clear, the essentials are written down in a graduation contract and signed by both student and graduation supervisor before starting the graduation project. You can get a concept graduation contract by sending a request by email to the Center for Student Administration (CSA) EE.

Completing the Graduation Project: the graduation paper

The graduation project is concluded by writing a graduation paper between 8 to 12 pages (conform IEEE publications format), which describes the project and its results, and is ready to be submitted as a regular contribution to a periodical.

The graduation paper needs to be handed in two weeks before the planned panel presentation at the Center for Student Administration (CSA) EE. Please use this title page for your paper.

Completing the Graduation Project: the graduation panel

To evaluate and grade the graduation project, the examination committee appoints a graduation panel of 4 or 5 staff members for a student who is about halfway the graduation work (see Appendix 11 or 12 of the EE Examination Regulations for more details on the composition of the graduation panel). The student's graduation supervisor will usually be part of the panel, but has no say in the grading. At this point halfway through the graduation project (after 14 weeks) the student reports and presents his work so far to the panel. The chairman of the panel evaluates the work of the student by means of the halfway evaluation form and sends it to the Center for Student Administration (CSA) AP/EE in Flux 0.127. When the project has finished, the panel meets again with the student, giving him/her the opportunity to present and defend the graduation work. At the end of the meeting, the panel determines the student's grade with help of the final evaluation form.

Graduation formalities

The final evaluation form should be handed in at the Center for Student Administration (CSA) EE in Flux 0.127 at least 10 working days before the next Examination Committee meeting takes place. Furthermore, all other results (exams, internship) should be known and registered in Osiris 10 working days before the Examination Committee meeting as well.

In order to graduate you need to register through Osiris for the final examination. The last date of registry is about four weeks before the examination date. For exact data see the Graduation deadlines in the Digital Study Guide or chapter 6. Registration always refers to the first upcoming session of the Examination Committee. You do not have to be present at the meeting.

After the panel meeting, the Examination Committee discusses the student and determines a final grade for the graduation project. Half grades are allowed but the student can only graduate if the final grade is
at least 6.0. In order to pass with distinction a grade 9 or higher is necessary and an average of 8 or more for all curriculum parts.

On completion of the graduation project, you have to fill in the Code of Scientific Conduct for the Master’s Thesis to declare that the thesis has been carried out in accordance with the rules of the TU/e Code of Scientific Conduct.

**Delayed completion**

The student and the graduation supervisor may decide to extend the graduation project period by at most two months. The Examination Committee needs to be informed of this extension before the end of the original period. If the extension is more than two months, a new graduation contract must be submitted to the Center for Student Administration (CSA) EE, for which an approval of the Examination Committee is needed.

**After the graduation**

When all parts of the curriculum are finished and the Examination Committee has decided that you are graduated, you can terminate your enrollment from the TU/e. Your enrollment will not be terminated automatically during the academic year. In order to terminate your enrollment before August 31 and receive a refund of your tuition fee, you must submit a request to that effect. You can find all information regarding this termination of enrollment procedure here.

"Search year”/Orientation year

After graduation, non-EU/EEA-graduates can apply for an orientation year, also called “search year”. With this residence permit, the graduate is allowed to stay in Holland for at most 1 year to find a job. You should hand in the application at IND yourself. You can find more information regarding the “search year” via the NUFFIC website. If you have more questions regarding the application for the “search year”, you can contact Ms. Angie Lammen.

**Downloads**

Midterm evaluation form (18 KB)

Final evaluation form (18 KB)

Title page graduation paper (668 KB)

2.7 TU/e Honors Academy

Do you like challenges? Is delivering excellent results what you aim for? Would you like to do scientific research or solve societal problems? Would you like to make a giant leap forward in your professional as well as personal development? Do you love working under pressure, with the strictest of deadlines? Would you like to build a professional network? Or is entering a prestigious Master abroad your ultimate dream? Then joining the TU/e Honors Academy might be just the thing for you.

The TU/e Honors Academy offers a varied choice of excellence tracks for bachelor and master students. The overall goal is to prepare you for personal leadership as well as scientific, societal and/or industrial leadership in a society that is affected exponentially by changes and developments.
3. Coaching and Professional Skills

You will be the future proof academic engineer, that is, an engineer who is able to make a significant contribution to society in the future. Your Master’s program will prepare you for this future and the development of professional skills are a major part of this.

Today's careers are built on a much broader spectrum than a diploma only. For you as a student, just acquiring the knowledge is no longer sufficient.

Nowadays, companies demand more and more of their future employees. Professional skills, like writing, presenting and teamwork, are essential to become a successful researcher, designer, teacher, entrepreneur or manager.

*How can I develop my professional skills during my Master’s program?*

You start with a well-defined personal development plan. This development plan should include curriculum choices, professional and academic skills you want to develop, aimed at your career path after graduation.

**TU/e Diagnostic Test of Professional Skills**

To get you started on your development plan, the [TU/e Diagnostic Test of Professional Skills](#) (a skill assessment) gives you more insight on the level of your skills. You discuss your personal development plan with your mentor.

During your Master’s degree you will execute and review your personal development plan. You have ample opportunity to develop your skills. Think of courses, internships, your final project, but also during extracurricular activities in study associations, using the TU/e SkillsLab, alumni mentors from the Alumni Coach Network, the TU/e Career Academy and other My Future partners.

**CV with impact**

You can show your accomplishments in your CV. This will show your future employees how you have worked on the development of your professional skills. If you want to know more about how to create a CV with impact, check out the website of the [TU/e Career Academy](#).

4. Mentoring

All master students of Electrical Engineering are assigned a mentor. The mentor belongs to the research group of the specialization direction chosen by the student. Before you make an appointment with your mentor, you have to:

- Complete the four tests of the [TU/e Diagnostic Test of Professional Skills](#)
- Setup a Personal Development Plan (PDP) based on the results of these tests
- Decide on your specialization/research group of preference
Choose your specialization electives and free electives

With your mentor you have to:

- Discuss the results of the four tests of the **TU/e Diagnostic Test of Professional Skills**
- Discuss your Personal Development Plan (PDP) on how to (further) develop your professional skills
- Discuss your choice of specialization electives and free electives
- Sign the **TU/e Code of Scientific Conduct** in the presence of your mentor

You have to make an appointment with your mentor to discuss the above mentioned items. You select your mentor based on your choice of your specialization/research group. The table below shows the mentors for each research group.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>Siep Weiland/Paul van den Hof</td>
</tr>
<tr>
<td>ECO</td>
<td>Oded Raz</td>
</tr>
<tr>
<td>EES</td>
<td>Nikos Paterakis</td>
</tr>
<tr>
<td>EM</td>
<td>Bas de Hon</td>
</tr>
<tr>
<td>EPE</td>
<td>Naila Nasibulina</td>
</tr>
<tr>
<td>ES</td>
<td>Marc Geilen</td>
</tr>
<tr>
<td>IC*</td>
<td>Marion Matters</td>
</tr>
<tr>
<td>PHI</td>
<td>Erwin Bente</td>
</tr>
<tr>
<td>SPS</td>
<td>Chiara Rabotti/Sveta Zinger</td>
</tr>
</tbody>
</table>

* formerly known as MsM: Mixed-signal Microelectronics

**Downloads**

Master Kick-off Professional Development
5. Examination schedules

Exam schedules for all courses you are enrolled in can be found in My Timetable.

6. Final Examination Schedule

In Osiris you can easily subscribe yourself for the upcoming examination session. You can do this by clicking on Progress and then Qualification request.

Below you will find the data of the examination committee meetings. You do not have to be present at the meetings. Please keep in mind the closing dates for subscribing in Osiris. At the time you subscribe for the exam you might expect to receive some credits. When the meeting takes place all the necessary credits need to be processed. The total amount of credits in the master phase is 120 credits.

When you have graduated you will receive an invitation for the ceremony in Luna at the campus.

### Final Examination Schedule

<table>
<thead>
<tr>
<th>Examination meeting</th>
<th>Closing date in Osiris</th>
<th>Master Ceremony (Hubble, Luna)</th>
</tr>
</thead>
<tbody>
<tr>
<td>29 August 2018</td>
<td>(extra timeslot)</td>
<td></td>
</tr>
<tr>
<td>30 Augustus 2018</td>
<td>Thursday 2 August 2018</td>
<td>Tuesday 9 October 2018 14.00 and 16.00</td>
</tr>
<tr>
<td>27 September 2018</td>
<td>Thursday 30 August 2018</td>
<td>Tuesday 9 October 2018 14.00 and 16.00</td>
</tr>
<tr>
<td>25 October 2018</td>
<td>Thursday 27 September 2018</td>
<td>Tuesday 20 November 2018 16.00</td>
</tr>
<tr>
<td>29 November 2018</td>
<td>Thursday 1 November 2018</td>
<td>Tuesday 29 January 2019 16.00</td>
</tr>
<tr>
<td>13 December 2018</td>
<td>Thursday 15 November 2018</td>
<td>Tuesday 29 January 2019 16.00</td>
</tr>
<tr>
<td>31 January 2019</td>
<td>Friday 22 December 2018</td>
<td>Tuesday 9 April 2019 16.00</td>
</tr>
<tr>
<td>28 February 2019</td>
<td>Thursday 31 January 2019</td>
<td>Tuesday 9 April 2019 16.00</td>
</tr>
<tr>
<td>28 March 2019</td>
<td>Thursday 28 February 2019</td>
<td>Tuesday 9 April 2019 16.00</td>
</tr>
<tr>
<td>25 April 2019</td>
<td>Thursday 28 March 2019</td>
<td>Tuesday 18 June 2019 16.00</td>
</tr>
<tr>
<td>23 May 2019</td>
<td>Thursday 25 April 2019</td>
<td>Tuesday 18 June 2019 16.00</td>
</tr>
<tr>
<td>27 June 2019</td>
<td>Thursday 30 May 2019</td>
<td>To be determined</td>
</tr>
<tr>
<td>29 August 2019</td>
<td>Thursday 1 August 2019</td>
<td>To be determined</td>
</tr>
<tr>
<td>26 September 2019</td>
<td>Thursday 29 August 2019</td>
<td>To be determined</td>
</tr>
<tr>
<td>31 October 2019</td>
<td>Thursday 3 October 2019</td>
<td>To be determined</td>
</tr>
<tr>
<td>28 November 2019</td>
<td>Thursday 31 October 2019</td>
<td>To be determined</td>
</tr>
<tr>
<td>19 December 2019</td>
<td>Thursday 21 November 2019</td>
<td>To be determined</td>
</tr>
</tbody>
</table>

7. Examination committee

The Board of Examiners is the authority to safeguard the standard of the degree program, including matters such as the appointment of examiners, testing and fraud, and all other aspects that are necessary to ensure that students who are awarded a degree have attained the outcomes for the relevant programs. All regulations can be found in the Examination Regulations of the Electrical Engineering department.
One of the tasks of the Board of Examiners is granting exemptions and the approval of study programs.

Visit the website of the Examination Committee of the Electrical Engineering department for more information.

**Contact**
EE Examination Committee EE.EC.Secr@tue.nl

Students may appeal a decision of the Examination committee. Their appeal should be addressed to College of Appeals for Examinations (CBE) of the Eindhoven University of Technology within six weeks after the decision is made.

**downloads**
- Fraud Policy
- Exam Framework
- Departmental Assessment Policy
- Central Examination Regulations
- OER/PER (Program and Examination Regulations EE 2018-2019)
- EE Examination Regulations 2018-2019

### 8. Program committee

The Program Committee is an important body in which students and lecturers discuss the quality of education (BSc and MSc within Electrical Engineering) and the way in which it is organized. In this context, the Program Committee provides advice on the design of the curricula, quality assurance and policy-making.

The Program Committee consists of an equal number of student and lecturer members, and grants consent to the dean in regard to sections of the Education and Examination Regulations, and advises the program directors on the curriculum. The statutory task of the Program Committee is to provide advice on promoting and safeguarding the quality of the degree programs. (Section 9.18 WHW). The Program Committee is a representative advisory body with the right of consent in regard to the program-specific sections of the Education and Examination Regulations.

The Program Committee actively contributes to educational innovation and enhancement by taking the initiative to place topics on the agenda. The topics might specifically concern the degree programs for which the Program Committee has been established as well as cross-degree programs, topics such as a uniform procedures in the Bachelor College and Graduate School. For these topics a Generic Program Committee has been conducted with representatives of all local Program Committees.

Program Committee meetings take place once every month. Contact, Secretariaat.E@tue.nl
9. Prior bachelors

Direct access
Students with a TU/e Bachelor’s degree in Electrical Engineering or a TU/e Bachelor's degree in Automotive Technology are directly admitted to the Master's program of Electrical Engineering. The following Bachelor’s degrees also provide direct access to the Master’s program:

- Bachelor of Science in Electrical Engineering from Twente University of Technology (UT)
- Bachelor of Science in Electrical Engineering from Delft University of Technology (TUD)

Visit the TU/e Admission and Enrollment website for more information about admission and other requirements.

Other TU/e Bachelor degrees
Students with a TU/e Bachelor's degree in Psychology and Technology, domain Robotics, a TU/e Bachelor's degree Applied Physics, a TU/e Bachelor's degree Biomedische Technologie or a TU/e Bachelor's degree Werktuigbouwkunde have to follow a pre-Master's program first. Upon completion of this pre-Master's program, they are admitted to the Master's program of Electrical Engineering. For more information about the pre-Master's program, please visit the Pre-Master Electrical Engineering website.

Other Dutch university Bachelor degrees
Students with a Bachelor of Science from a Dutch university, please visit the TU/e Admission and Enrollment website for more information about admission and other requirements.

University of Applied Science Bachelor degrees
Students with a Bachelor of Science Electrical Engineering from a Dutch University of Applied Science (hbo) have to do the standard pre-master's program Electrical Engineering first. Upon completion of this pre-master's program within one academic year, they are admitted to the Master's program of Electrical Engineering for hbo Bachelors. Visit the TU/e Admission and Enrollment website for more information about admission and other requirements. For more information about the pre-master's program, please visit the Pre-Master Electrical Engineering 2018-2019 website.

International Bachelor degrees
Students with an international Bachelor degree Electrical Engineering, please visit the TU/e Admission and Enrollment website for more information about admission and other requirements.

10. International Experience

If you wish to study abroad you will have plenty of opportunities. You can do the internship and/or graduation project outside of the Netherlands. They can be arranged with a great many of universities and companies abroad via the research contacts of the staff of our own Electrical Engineering Department. If you are interested talk to your graduation supervisor about using this opportunity. Many of our staff have excellent connections with researchers and companies abroad.

You can also go abroad for some elective coursework, although that is not so efficient as only 15 EC of your electives are completely free to choose. A way to deal with this is to combine the internship at a university with a couple of elective courses at this same university.
There are many bilateral agreements with ERASMUS partners in Europe (Belgium, Bulgaria, Germany, Greece, Italy, Poland, Portugal, Romania, Slovakia, Spain, Sweden, Turkey and UK).

The TU/e also has an agreement with the National University of Singapore to exchange some 10-12 students per year.

Language
Wherever you go it is much more pleasant if you can speak the language, at least enough to get by on a daily basis. So take the time to work on this. The Language Center (CLIC) at the TU/e has many facilities to help you with this.

How to organize this?
Contact Mrs. Petra Siemons, the Erasmus/study abroad coordinator for AP and EE, Flux 0.125 phone 040-247 2182.

It is important to allow enough time to prepare well. There are many sources of information, for example the International Relations Office at the TU/e. Get into contact with EE students who already went abroad previously. Very useful information is found on this ESA page.

11. Regulations

The rules for the master program have been written down in two documents:

- The Program and Examination Regulations 2018-2019
- TU/e Regulations of the Examination Committee 2018-2019

Program and Examination Regulations (PER/OER)
The PER is the Program and Examination Regulations for a program and contains clear and sufficient information about the program, making it the basic document for both students and teachers.

Subjects covered by the PER include:

- the content of the program and the associated final examinations, the number and sequence of other examinations and the times when these can be taken
- the type of examination (oral, written or other types of examination)
- the period of validity of successfully completed examination components
- the right of inspection and evaluation

The Higher Education and Research Act (Wet op het hoger onderwijs en wetenschappelijk onderzoek) draws a distinction between program and examination regulations and examination committee rules and guidelines. Subjects regulated by the TU/e Examination Committee Rules and Guidelines (Examination Regulations) include:

- compilation Examination Committee
- procedures Examination Committee
- tasks Examination Committee
- rules relating to quality assurance of testing and exams
11.1 Exemptions

The Examination Committee shall only process individual requests for exemptions. The request must have a detailed motivation, proof of having attained the study component, the subject description, the study materials, the test made, an official grade list, and advice from the teacher who is responsible for the subject for which exemption is being requested. The above shall be considered in the decision making, in which previous decisions shall be taken into account.

Exemptions are only granted if the student can provide persuasive evidence from which it is clear he/she meets the learning objectives of the study component in question. The advice of the teacher is taken into consideration.

The following limitations apply for the Master program:

- No exemptions are possible: for core courses no exemptions are possible, other core courses must be chosen. For Specialization Path courses and also other certification courses, if the relevant teacher agrees with the fact that the student already possesses the knowledge and skills, a free elective must be chosen instead. For free electives no exemption can be given, instead another course must be taken.
- Exempted courses cannot be listed as elective.
- The graduation project cannot be exempted.

12. Transitional arrangements

Transitional arrangements

Master’s program

Students who started their Master’s program in 2014-2015 or earlier, will be transferred to the revised Master’s program of September 2015. Depending which part of the old Master’s program already has been completed, the examination committee will compose an adapted program.

Professional skills

Students, lacking more than 60 EC, are obliged to take part in the TU/e Diagnostic Test of Professional Skills. These diagnostic tests help you to determine your level for various professional skills. See also Article 3.4.

The test is comprised of four mandatory elements:

- A Broad Test on Skills (SKL00)
• In-depth Test on Teamwork Skills (SKL10)
• In-depth Test on Presentation Skills (SKL20)
• In-depth Test on Academic Writing Skills (SKL30)

With the start of the academic year 2018-2019 the professional skills ‘Academic Writing skills’ and ‘Presenting scientific information’ will be integrated in the graduation project (in the final report and in the final presentation) of the Master’s program of Electrical Engineering. The mid-term report and mid-term presentation are considered as a feedback moments.

For students of generation 2017-2018 or earlier with a graduation project of 40 credits the following transitional arrangements for the professional skills are represented in the table below.

**Transitional arrangements professional skills**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Research set-up and communic. skills (3 modules)</td>
<td>5CKA0 (5CKA1, 5CKA2, 5CKA3) 5 ec</td>
<td>No longer offered</td>
<td>No longer offered</td>
<td>No longer offered</td>
</tr>
<tr>
<td>Academic writing skills</td>
<td>5CKA1 2 ec</td>
<td>5CKC0 2,5 ec</td>
<td>5CKC0 Last year offered 2,5 ec</td>
<td>5CKC0 Integrated in grad. project 2,5 ec</td>
</tr>
<tr>
<td>Presenting scientific information</td>
<td>5CKA2 1,5 ec</td>
<td>5CKD0 2,5 ec</td>
<td>5CKD0 Last year offered 2,5 ec</td>
<td>Integrated in grad. project</td>
</tr>
<tr>
<td>Research set-up</td>
<td>5CKA3 1,5 ec</td>
<td>5CKF0 2,5 ec</td>
<td>5CKF0 2,5 ec</td>
<td></td>
</tr>
<tr>
<td>Project management</td>
<td>5CKB0 2,5 ec</td>
<td>5CKB0 2,5 ec</td>
<td>5CKB0 2,5 sp</td>
<td>5CKB0 2,5 ec</td>
</tr>
<tr>
<td>Intercultural Comm., Coop. &amp; Integration</td>
<td>9ST66 2,5 ec</td>
<td>5CKE0 2,5 ec</td>
<td>5CKE0 Last year offered 2,5 ec</td>
<td>5CKE0 Assignment, Exam 2,5 ec</td>
</tr>
</tbody>
</table>

**Notes**
Students of generation 2017-2018 and earlier who still have to complete a number of courses of the professional skills, take the transitional program as mentioned in paragraph n, table 8, column 2018-2019:
- Research set-up and communication skills (5CKA0) consisting of 3 modules (5CKA1, 5CKA2, 5CKA3) is no longer offered in this set-up.
- Academic writing skills (5CKC0) will no longer be offered as a course, but the skills are being integrated in the graduation project. In order to complete this educational component and to receive the 2,5 credits
students need to register for 5CKC0 in Osiris.
- Presenting scientific information and research set-up (5CKD0) will no longer be offered in this set-up. Presenting scientific information will be integrated in the graduation project instead and the course Research set-up (5CKF0) needs to be completed.
- Project management (5CKB0) remains the same and needs to be completed.
- Intercultural Communication, Cooperation & Integration (9ST66/5CKE0) will no longer be offered as a course. Instead an assignment and exam will be offered in order to complete this educational component and to receive the 2.5 credits. Students need to register for 5CKE0 in Osiris.

13. Academic advisor

The academic advisor will advise students (either on request or on the advisor’s own initiative) on all the aspects of the degree program, and will ensure, partly based on the student’s study progress and whenever necessary, adequate referral to the competent bodies of TU/e, to student advisors of the ESA or TU/e confidential counselors. The academic advisor will inform students who fall behind in their studies of the opportunities to receive extra support or measures that may need to be taken to minimize further delay.

Academic advisor for Master and pre-Master students Electrical Engineering
ir. H.J.A. van den Meerendonk
FLX 0.123
T: +31 40 247 3761
E: H.J.A.v.d.Meerendonk@tue.nl

14. Quality Assurance

Providing high quality education is of utmost importance to the department of Electrical Engineering. To maintain the quality it is essential that every educational component is subject to structural and recurrent evaluation.

Course evaluations
The most common method of evaluation is by conducting surveys. Courses and projects are evaluated with digital surveys in EvaSys on a yearly basis. The results of the surveys enable us to collect the thoughts and opinions of students and give them the opportunity to provide feedback on their education. Educational components that are new will be evaluated for 3 consecutive years using surveys until they reach a sufficient level (see quality assurance plan for the criteria). Components that have reached a sufficient level are evaluated once every 3 years (1 year evaluation, 2 years no evaluation). The results of the surveys are evaluated by several stakeholders, such as the departmental committee, exam committee, quality assurance officer, the responsible lecturer/teacher, chairmen of research groups and the departmental board. If the course scores insufficient, an improvement plan will be conducted together with the responsible lecturer/teacher for the next round. The following year these components are monitored based on the evaluation and the improvement plan. After this the cycle of quality assurance starts again.
The educational program as a whole is also subject to yearly evaluations, organized on a central level by the TU/e or other interested external parties (VNSU).

*Additional Quality Assurance evaluation methods*

In addition to the surveys, the department makes use of other more direct methods of evaluation for educational components. Student meetings are organized for bachelor and master students (year councils) on a weekly basis. This way students can provide direct feedback on their educational program to the staff.

Compared to surveys, where evaluations take place at the end of the educational component, these types of evaluation methods are powerful tools for intermediate evaluations. For an overview of our evaluation instruments, see the quality assurance plan.

*Quality Assurance officer*

A quality assurance (QA) officer is appointed by the department to maintain all the processes related to quality assurance and ensures that all responsible parties receive the information necessary to perform their duties. For example the departmental QA officer maintains a record of course evaluations and determines which courses require evaluation, which policy should be used and communicates with the central QA officer of ESA on practicalities regarding EvaSys surveys. In addition to this, the QA officer attends meetings with other departmental QA officers to discuss general matters and developments related to quality assurance.

*Accreditation*

Based on the framework of accreditation developed by the Dutch-Flemish Accreditation Organisation (Dutch abbreviation: NVAO) all educational programs are subject to periodic evaluation by a visiting panel. Accreditation is a formal decision that the educational program complies to the quality demands formulated by the NVAO and that the graduation diploma is recognized as valid by the government. Accreditation lasts for 6 years and the current accreditation decision for the educational programs of Electrical Engineering lasts until **27th of April 2023**.

*Downloads*

[Quality assurance plan EE August 2018.pdf](#) (587 KB)

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**15. Contact**

**Departmental Board**

prof.dr.ir. A.B. Smolders, dean  
prof.ir. A.M.J. Koonen, vice-dean  
drs. J.C. van Wevelingen, managing director

**Program directors**

ir. S. Hulshof, Bachelor  
dr. ir. H. de Waardt, Master

**Manager ESA**

dr.ir. R.R. Trieling
A

Absent during an exam or obligatory practicum- when you are no able to attend due to special circumstances, you need to report this within 24 hours to your academic advisor.

C

Canvas - You can use MyTU/e to access Canvas, the learning management system. In Canvas you’ll find course information, practice tests, assignments, slides and more. You use Canvas during your education period, and to prep for exams. For any questions and comments, please contact the helpdesk by mailing ESAhelpdesk@tue.nl or calling 3826.

Center for Student Administration (CSA EE) - opening hours from Monday till Friday from 11.00 till 15.00 hrs, location Flux 0.127. Outside opening hours you can email CSA.EE@tue.nl. Forms can be put in the postbox CSA near the reception desk of Flux.

Complaints – When you have a complaint about courses, grants, teachers, the way of testing of examinations, you can first contact our academic advisors.

In case of serious complaints about, for example a decision of the examination committee or an examiner, admission to the Master Program, you can appeal to the Examination Appeals Board. For more information check our study guide.

Confidential advisor - TU/e currently has three confidential counselors who hold an independent position and enjoy the protection of the student.

E

Examination committee – The Examination committee is, among other things, responsible for the quality of the exams and final examinations. If you have a request, compliant or comment, you can send an email to EE Examination Committee: EE.EC.Secr@tue.nl

H

Honors program – In the TU/e Honors Academy various Honors Tracks have been launched, addressing major societal and scientific questions and challenges

I

Illness during an exam- When you are not able to attend an exam due to illness, you need to report this within 24 hours to your academic advisor.
IEEE - The Institute of Electrical and Electronics Engineers, Inc. is an international organization by and for academic engineers in the field of electrical engineering. Worldwide, there are more than 330,000 members. IEEE SBE is the student branch at TU/e. It is the most active branch of IEEE in Europe. Every year, they organize a wide range of activities. With this, the Student Branch Eindhoven prepares students socially, culturally and professionally for their future. More information on IEEE SBE, its activities and memberships can be found on the IEEE student branch website.

M
My Timetable - My Timetable generates your personal schedule, which can be used by students and lecturers. It’s possible to synchronize with all regular agenda-applications, so you can use your own preferred system to view your schedule. The schedule in My Timetable is adjustable to your own needs, and schedules of individual courses can be viewed. The tutorial can be found here. For questions you can contact roosters@tue.nl.

MyTU/e – MyTU/e provides an easy-to-use, personalized and effective system for you to manage everything you need to make a success of your learning and working at TU/e. This cloud based system provides you with everything you need in one place and with notifications to keep you updated. MyTU/e will be your go-to app for your learning, education and working experience.

O
OSIRIS - Go to MyTU/e to log into OSIRIS, the student information system that records all student data, from enrollment right through to graduation. Lecturers use OSIRIS to enter grades and check their groups and course information. Students use OSIRIS to view their grades, register for courses and examinations, and to keep track of their progress. For questions about OSIRIS you can contact the helpdesk at 3826 or per email. You can also contact the Center for Student Administration (CSA EE) in Flux 0.127.

P
Program committee - A Program Committee is an advisory and consultative body at degree program level, instituted by law. The Program Committee of Electrical Engineering covers the bachelor and master programs. The Program Committee consists of an equal representation of both lecturers and students.

Q
Quality Assurance

R
Registering for a course - To participate in courses you need to be registered for the course. This is possible up to 20 working days before the start of the new quarter. If you are not registered for the course, you will not be able to take it. If you do not register for exams, you will also not be able to take them. The deadlines for enrollment can be found here.

The course registration is done via Osiris. It is important to know that you can also enroll in courses that are not in your examination program. For more information, see Approval of Examination Program.
S

**Student statute** – As a student you have rights and obligations. You can read about this on our study guide.

**Student body** - The Student Body (SB) is the center of education participation at the department of Electrical Engineering. SB is run by three students of the department. Any student who has suggestions, complaints, or questions about the education can contact the SB.

**Student teams** – TU/e is a breeding ground for young engineers who address societal challenges by carrying out projects. Projects in which education, innovation and entrepreneurship are combined with surprising outcomes. TU/e counts several student teams which address challenges in the fields of energy, health and smart mobility.

T

**Thor** (The study association Thor focusses on the enrichment of the students of Electrical Engineering and Automotive Technology at TU/e. In order to achieve this goal, activities are organized for and by students.