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This education guide provides valuable information about the Electrical Engineering Pre-Master’s degree program. This document is part of the student statute. The student statute contains the mutual rights and obligations of TU/e and its student. According to law TU/e is obliged to have a student statute and to provide this to its students. The student statute consists of two parts: an institutional section (which applies to the entire TU/e) and a program section (which varies from program to program). This education guide, derived from the online education guide, is the Electrical Engineering Pre-Master’s degree program section of the TU/e student statute.

This education guide contains information about the structure and organization of the pre-Master’s degree program in Electrical Engineering as well as all kinds of practical study information.

In addition to the information provided here, you are strongly urged to consult the online education guide. Contrary to this education guide, the online education guide is updated regularly during the academic year. Contrary to this education guide, the online education guide is also updated with information, procedures and regulations concerning the corona-crisis (COVID-19 crisis) during the academic year of 2020-2021.

1. Pre-Master’s program Electrical Engineering

Since 1985, the Department of Electrical Engineering offers a standard program for HBO Bachelors (Higher Vocational Education). This program is divided into a pre-Master’s program of 30 credits and a subsequent 120 credits Master’s degree program for HBO Bachelors. The Department of Electrical Engineering also offers a pre-Master’s program for university Bachelors with a Bachelor’s degree program in a related field.

Pre-Master’s program for HBO Bachelors

The pre-Master’s program for HBO Bachelors is a deficiency-resolving program to bridge the gap in theoretical knowledge between HBO and university and consists of 5 Mathematics and 3 Electrical Engineering courses (total of 30 credits). Pre-master students must complete the pre-Master’s program before they can continue in the Master’s degree program for HBO Bachelors.

If you wish to apply for the pre-master Electrical Engineering, you must meet the entry requirements for mathematics and English.

Pre-Master’s program for university Bachelors

The pre-Master’s program for university Bachelors is a deficiency-resolving program for non-EE Bachelors to bridge the gap in theoretical knowledge of Electrical Engineering and consists of 6 Electrical Engineering courses (30 credits). Pre-master students have to complete the pre-Master’s program of university Bachelors before they can continue in the Master’s degree program of Electrical Engineering.

Study progress requirement

The pre-Master’s program of 30 credits has to be completed within the first year (max. two semesters), otherwise the student is not allowed to continue in the Master’s degree program. Furthermore, the student is not allowed in the pre-Master’s program for a period of three years. The study progress requirement does not apply to students who have submitted a request to ESA to withdraw before March 1st and who have not re-registered for another pre-Master’s program at TU/e.
Pre-master students receive a written pre-recommendation on their study progress halfway the third quarter. This pre-recommendation serves as a warning if the student is making insufficient study progress. At the end of the pre-master set term, students receive a binding written study progress decision relating to their continuation of the Master program. The study progress decision is:

1. Positive, if the pre-master student has passed the complete pre-Master’s program within the set term. As soon as the pre-Master’s program is successfully completed, the student can start with the Master’s degree program.
2. Negative, if the pre-master student has failed to meet the provisions stated under 1.

2. Admission

The admission and registration for a pre-Master’s program relating to a Master's degree program is open to those in possession of a Higher Vocational Education (HBO) diploma or a university Bachelor’s degree certificate from a university as well as a maximum of a 30-credit deficiency to be able to follow the Master’s degree program.

HBO Bachelors

Students with a Bachelor’s degree in Electrical Engineering/Elektrotechniek or Mechatronics/Mechatronica from a Dutch University of Applied Science (HBO) have direct access to the pre-Master’s program. These students will be admitted to the Master’s degree program for HBO Bachelors only after they have successfully completed the study components of the pre-Master’s program for HBO Bachelors. Students can register through Studielink for enrollment in the pre-Master’s program. Be aware of the May 1st deadline.

University Bachelors

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 Biomedical Engineering or a TU/e Bachelor’s degree Mechanical Engineering are admitted to the Master’s degree program (the master track AIES excluded) only after they have successfully completed the study components of the pre-Master’s program for university Bachelors. Students with a Bachelor’s degree in Physics from other Dutch universities are also allowed to follow the pre-Master’s program for university Bachelors. Students can register through Studielink for enrollment in the pre-Master’s program. Be aware of the May 1st deadline.

HBO-TOP

HBO-students doing the HBO-TOP program follow the pre-Master’s program for HBO Bachelors during their HBO program as part of their minor. Upon completion of the pre-Master’s program, students can continue directly in the Master’s degree program for HBO Bachelors after their graduation from HBO. Make sure to enroll through Studielink before the deadline of May 1st.

Please, take into account that the pre-Master’s program of Electrical Engineering comprises three quarters, which means that the pre-Master’s program cannot fully be completed within the minor (a minor normally lasts 2 quarters). HBO graduates who did not fully complete the pre-Master’s program as a HBO-top student, can continue as a pre-Master’s student and follow the remaining deficiency courses until the pre-Master’s program is finished.
HBO-TOP students who did course 2DL00 Basiswiskunde avondcursus as part of their entrance requirements for the HBO-TOP program, do not need to do the entrance test of 2WBB0 Calculus variant 2.

More information about enrollment can be found at the [HBO-TOP (minor)-page](#).

3. Curriculum pre-Master’s program for HBO Bachelors

The pre-Master’s program is listed in the table below. Pre-master students and HBO-TOP students need to do an entrance test for the course 5PRE01 Refresher English for pre-Master’s students to determine the level of their English. A student is exempted from following course 5PRE01 and doing its exam if the entrance test is passed. Pre-master students do not get credits for this course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>EC</th>
<th>Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>5PRE01</td>
<td>Refresher English for pre-Master’s students</td>
<td>0</td>
<td>1 (1,2)</td>
</tr>
<tr>
<td>2WBB0</td>
<td>Calculus variant 2</td>
<td>5</td>
<td>1 (1,2)</td>
</tr>
<tr>
<td>2DL60</td>
<td>Linear algebra</td>
<td>2,5</td>
<td>1 (1,2)</td>
</tr>
<tr>
<td>5ESD0</td>
<td>Control systems</td>
<td>5</td>
<td>1 (1,2)</td>
</tr>
<tr>
<td>2DL40</td>
<td>Advanced calculus I</td>
<td>2,5</td>
<td>2 (2,3)</td>
</tr>
<tr>
<td>2DL70</td>
<td>Probability and statistics</td>
<td>2,5</td>
<td>2 (2,3)</td>
</tr>
<tr>
<td>5EWB0</td>
<td>Electrical power systems</td>
<td>5</td>
<td>2 (2,3)</td>
</tr>
<tr>
<td>2DL50</td>
<td>Advanced calculus II</td>
<td>2,5</td>
<td>3 (3,4)</td>
</tr>
<tr>
<td>5ETA0</td>
<td>Introduction telecommunications</td>
<td>5</td>
<td>3 (3,4)</td>
</tr>
</tbody>
</table>

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

Prior knowledge courses (not part of the pre-Master’s program)

If the gap between HBO and TU/e is too big and essential prior knowledge from the Bachelor Electrical Engineering is missing, this knowledge can be obtained via video lectures of the courses from the table below. These courses are not part of the pre-Master’s program and therefore do not count towards the study progress requirement. Furthermore, it is not allowed to register for these courses and take the exams.

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>5ECA0</td>
<td>Circuits</td>
</tr>
<tr>
<td>5ESE0</td>
<td>Signal processing basics (Signals I)</td>
</tr>
<tr>
<td>5ECB0</td>
<td>Electronic circuits I</td>
</tr>
</tbody>
</table>
Safety training
A mandatory **SEE01 Safety and health, 1\textsuperscript{st} year instruction** training takes place online during Q1. The training consists of an online video. You will gain practical information about the TU/e campus and buildings, and learn how to avoid hazards and risks, how to act in case of emergency, and how to prevent physical complaints caused by computer work. It's important to watch the video carefully, not only for your own safety during your studies, but also for the safety of your fellow students and the EE staff. The training is mandatory for all new TU/e students and counts as a practical exercise within the pre-Master's program. You will receive an invitation to watch the online video. If you do not complete watching the video and answering the test questions about the video, you will not be able to complete your pre-Master's program: your completion will be registered in OSIRIS.

4. Curriculum Master's degree program for HBO Bachelors

After completion of the pre-Master’s program, the student is admitted to the Master's program for HBO Bachelors. Check the **guidelines** for internal access to the Master’s program for pre-Master’s students. The Master’s program for HBO Bachelors officially starts in September, but it is possible to **register for master courses in the fourth quarter**.

The Master's degree program for HBO Bachelors is:

<table>
<thead>
<tr>
<th>First year</th>
<th>Second year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Core courses</strong></td>
<td><strong>Professional development</strong></td>
</tr>
<tr>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td><strong>Specialization path</strong></td>
<td><strong>Internship</strong></td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td><strong>Elective courses</strong></td>
<td><strong>Graduation project</strong></td>
</tr>
<tr>
<td>20</td>
<td>45</td>
</tr>
<tr>
<td><strong>Homologation courses</strong></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

The program contains the same elements as the regular Master's program of Electrical Engineering except for:
- the internship of 10 credits (instead of 15)
- 20 credits of electives (instead of 30)
- 3 deficiency resolving courses (homologation courses, in total 15 credits)

Homologation courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>EC</th>
<th>Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>5ESCO</td>
<td>DSP fundamentals (Signals II)</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.

**Internship**

Due to the corona crisis regulations for the internship in the academic years of 2019-2020 and 2020-2021 have changed. The latest information can be found [here](#).

HBO Bachelors complete an internship (worth 10 credits) as a preparation for the graduation project. The internship is a small research project under the supervision of one of the EE staff members and is carried out in an EE lab. The most important goal of the internship is to learn to handle a scientific and usually rather vague project assignment, which involves integrating knowledge from multiple areas of the field of electrical engineering. Additionally, the internship is an opportunity to practice reporting in English. For these reasons, the internship cannot take place in a company and must be done within the EE Department. Furthermore, the internship cannot be extended.

**Electives**

HBO Bachelors choose 20 credits of elective courses. A student needs advice of his/her mentor or graduation supervisor for the electives. The same rules about choosing electives apply as for the regular Master’s program of Electrical Engineering. HBO Bachelors are not allowed to use an elective to extend their internship.

**Registering for master courses in Q4**

If you finish the pre-Master’s program in Q3 and you want to continue with the Master’s program for HBO Bachelors in Q4, you can register for Q4 master courses, provided you meet the requirements as stated in the [Program and examinations regulations](#) (Appendix 2, article 2, paragraph 6). Even if you cannot finish the pre-Master’s program in Q3 because of missing courses (either from Q2 or Q3 with re-sits in Q3 and Q4), you still can register for Q4 master courses provided you meet these requirements. Note that in the latter case, even though it is allowed to follow master courses, you still have to finish the pre-Master’s program, so the focus should be on passing the pre-Master courses. If you meet the requirements and want to register for Q4 master courses, send a request to the [Examination Committee EE](#) for permission and if allowed, register in time for these master courses. Check the [online education guide](#) for more information about the registration deadlines.

### 5. Curriculum pre-Master’s program for university Bachelors

The pre-Master’s program for university Bachelors consists of the following 6 courses (total 30 credits): 5 mandatory EE courses and one course free of choice.

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>SECCO</td>
<td>Electronic circuits II</td>
</tr>
<tr>
<td>SESD0</td>
<td>Control systems</td>
</tr>
<tr>
<td>SECO</td>
<td>DSP fundamentals (Signals II)</td>
</tr>
</tbody>
</table>
Select one course from the table below, depending on the specialization/track preference within the Master’s program of Electrical Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>5EPB0</td>
<td>Electromagnetics II</td>
</tr>
<tr>
<td>5EMA0</td>
<td>Mathematics II</td>
</tr>
<tr>
<td>...</td>
<td>one course from the table below</td>
</tr>
</tbody>
</table>

Students with a Bachelor Applied Physics from TU/e or Bachelor Physics from other Dutch universities are allowed to

- replace course 5ECC0 Electronic Circuits II by 5XCA0 Fundamentals of Electronics
- replace course 5EMA0 Mathematics II by another course from the table

Safety training
A mandatory 5EE01 Safety and health, 1st year instruction training takes place online during Q1. The training consists of an online video. You will gain practical information about the TU/e campus and buildings, and learn how to avoid hazards and risks, how to act in case of emergency, and how to prevent physical complaints caused by computer work. It's important to watch the video carefully, not only for your own safety during your studies, but also for the safety of your fellow students and the EE staff. The training is mandatory for all new TU/e students and counts as a practical exercise within the pre-Master’s program. You will receive an invitation to watch the online video. If you do not complete watching the video and answering the test questions about the video, you will not be able to complete your pre-Master's program: your completion will be registered in OSIRIS.

6. Academic advisor

Information about the academic advisor can be found here.

7. Examination schedules

Examination schedules for all courses can be found in My Timetable.
8. Examination Committee EE

Information about the Examination Committee EE can be found here.

Downloads
- TU/e Fraud policy
- TU/e Exam framework
- Assessment policy EE
- TU/e Central examination regulations
- OER BSc, Program and Examination Regulations EE 2020-2021
- OER MSc, Program and Examination Regulations EE 2020-2021
- Examination Regulations of the Department of Electrical Engineering 2020-2021

9. Program Committee EE

Information about the Program Committee EE can be found here.

10. Regulations

IMPORTANT UPDATE ADDENDA OER
Due to the measures taken against the corona virus there have been several changes in education and examination. This applies to the academic years of 2019-2020 and 2020-2021. Several decisions have been made to allow for these adjustments. On the basis of these decisions, a number of regulations have been or will be (temporarily) amended. Addenda to the regulations have been made for this. You can find the addenda here.

Program and Examination Regulations (OER in Dutch)
The Program and Examination Regulations (OER BSc & OER MSc) for a program contain clear and sufficient information about the program, making it the basic document for both students and teachers.

Subjects covered by the OER 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

Examination Regulations (ER)
The Higher Education and Research Act draws a distinction between the OER and the rules and procedures of a departmental Examination Committee. Subjects regulated by the TU/e Examination Regulations (Examination Regulations EE) include:
- compilation Examination Committee
- procedures Examination Committee
- tasks Examination Committee
- rules relating to quality assurance of testing and exams
- rules relating to measures taken in the event of fraud by examinees
- rules and guidelines relating to testing and exams
- compensation regulations
• graduation regulations

Downloads
OER BSc, Program and Examination Regulations EE 2020-2021
OER MSc, Program and Examination Regulations EE 2020-2021
Examination Regulations of the Department of Electrical Engineering 2020-2021

11. Quality assurance

Information about quality assurance can be found here.

12. Forms

Information about forms can be found here.

13. Contact

Departmental Board
prof.dr.ir. A.B. Smolders, dean
prof.dr.ir. A.J.M. Pemen, vice-dean research
prof.dr. M. Matters-Kammerer, vice-dean education
drs. J.C. van Wevelingen, managing director

Program directors
ir. S. Hulshof, Bachelor
prof.dr. M. Matters-Kammerer, Master, PDEng, PhD

Manager Education and Student Affairs EE
dr.ir. R.R. Trieling

Center for Student Administration Electrical Engineering (CSA EE)
Flux 0.125
T 040 247 4883 / 2806
E CSA.EE@tue.nl

Office hours: Monday - Friday 12:00 - 14:00 hrs.
Every first working day of each new quarter (August 31st, November 9th, February 1st, April 19th) CSA EE will also be open from 08.30 till 09.30hrs.

Contact person Education guides EE
C.R. van Kesteren MA

14. A-Z

A complete A-Z can be found here.