



# Department Day Master Kick-Off 2023

**Master's program Electrical Engineering**

**29 August 2023**

Elmine Meyer, Program Leader Master Electrical Engineering

Harald van den Meerendonk, Academic Advisor Master Students Electrical Engineering

# Welcome

## Marion Matters-Kammerer

- Program Director Electrical Engineering  
Vice-dean of the department of Electrical Engineering



## Elmine Meyer

- Program Leader Master Electrical Engineering
- Assistant professor Electromagnetics



## Harald van den Meerendonk

- Academic advisor master, pre-master  
and HBO-TOP students Electrical Engineering



# Department Day

- 13:00h – Walk-in with coffee and tea
- 13:15h – Introduction TU/e and Electrical Engineering
- 13:25h – General information for all master students
- 13:55h – Specific information about the curriculum
- 14:15h – Break with coffee and tea
- 14:30h – Tour de Flux
- 16:30h – Drinks and BBQ
- 19:00h – Closure

# Before we continue...

Are you a pre-master student?

- Pre-Master kickoff on 4 September 2023 at 10:00h
- Invitation has already been sent
- Today's information is of interest AFTER you have completed the pre-Master's program

Furthermore:

- This presentation will be shared on the education guide.

# Department Day

- 13:00h – Walk-in with coffee and tea
- **13:15h – Introduction TU/e and Electrical Engineering**
- 13:25h – General information for all master students
- 13:55h – Specific information about the curriculum
- 14:15h – Break with coffee and tea
- 14:30h – Tour de Flux
- 16:30h – Drinks and BBQ
- 19:00h – Closure

# Eindhoven University of Technology (TU/e)

## Top-ranking Dutch University

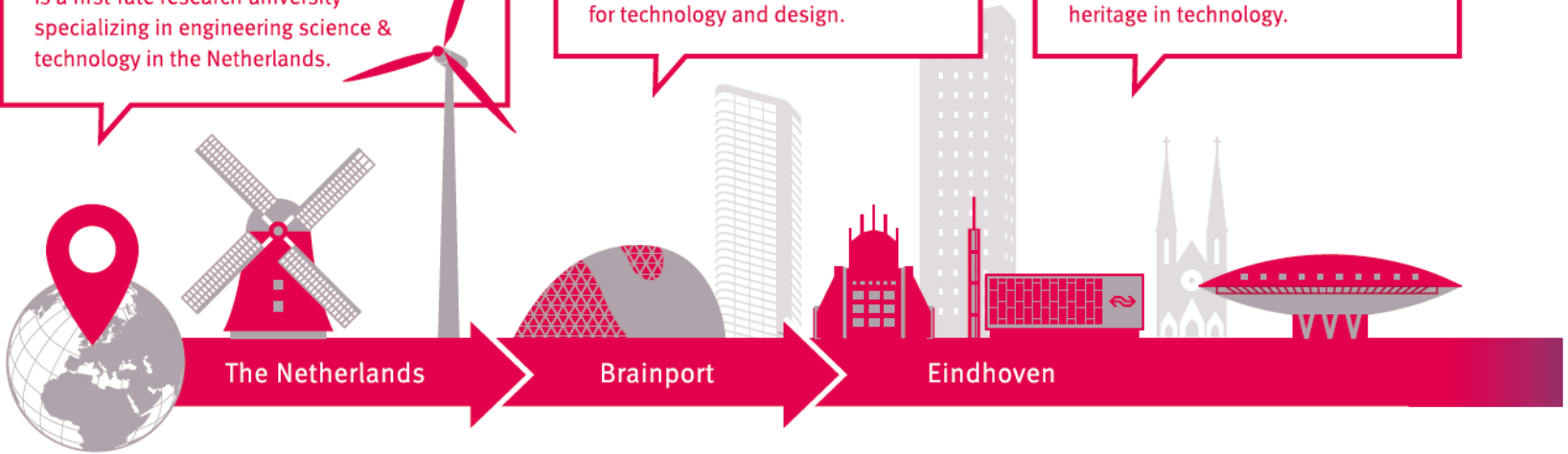
Eindhoven University of Technology is a first-rate research university specializing in engineering science & technology in the Netherlands.

## At the heart of the Brainport region

TU/e is situated in the heart of one of the most intelligent communities in the world: Brainport, renowned for technology and design.

## Strong technology heritage Eindhoven

With companies such as Philips, ASML, DAF, NXP and FEI, the Eindhoven region has a strong heritage in technology.



# Electrical Engineering

- 2-year Master's Program (Accredited)
- # of 1<sup>st</sup> year students 2023 MSc EE: 108
- Total students in MSc EE: 364 (2022-2023)
- Average # MSc EE Graduates per year 92 (2017-2022)
- 275 PhD students and 102 full-time TU/e academic staff members
- Collaboration with industry in the Brainport area on internships and graduation projects (over 200 companies in the area!)
- International connections (academia and industry)





# Electrical Engineering Centers

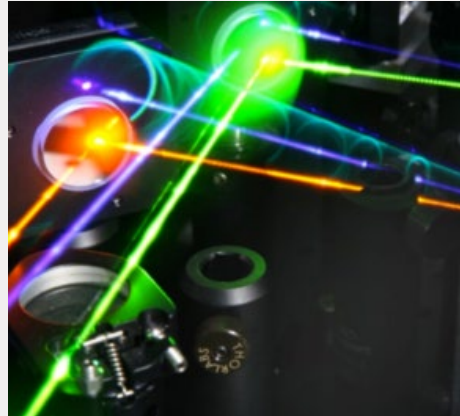
## Care & Cure



[Center for Care and Cure Technology](#)

[Eindhoven MEDTEch innovation center](#)

## Connected World



[Center for Wireless Technology](#)

[Eindhoven Hendrik Casimir Institute](#)

## Smart & Sustainable Society



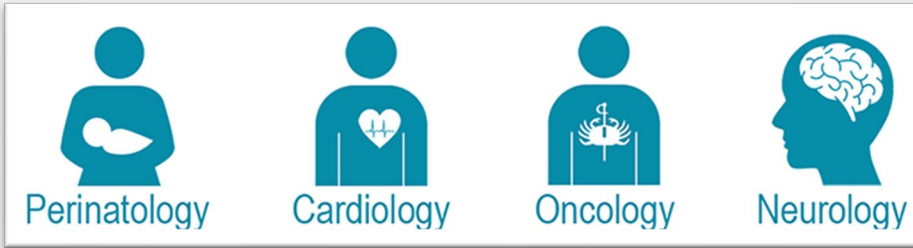
[Center for Cyber-physical Systems](#)

[Eindhoven Institute for renewable energy research](#)

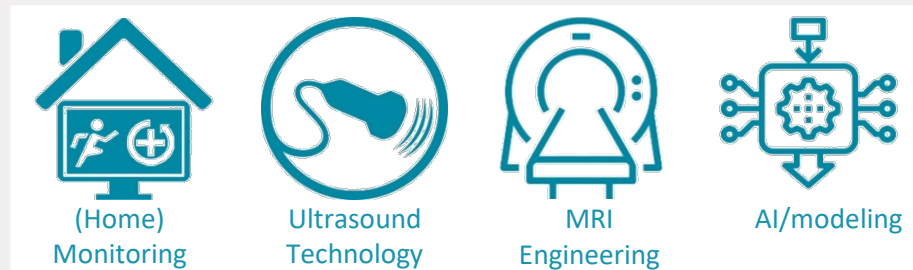


# Center for Care & Cure Technology (C3Te)

## Application Areas



## Technology Areas



# Center for Wireless Technology



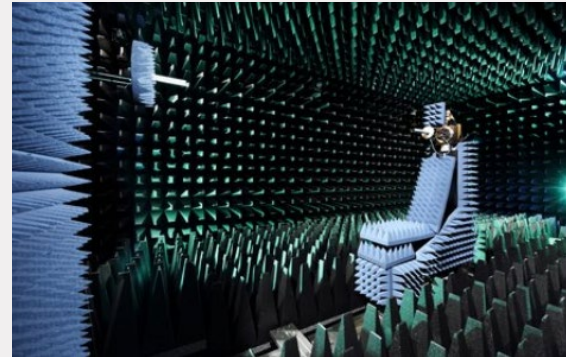
Internet of Things

Terahertz  
Technology



Radio Astronomy

Ultra-high  
data rate  
communication



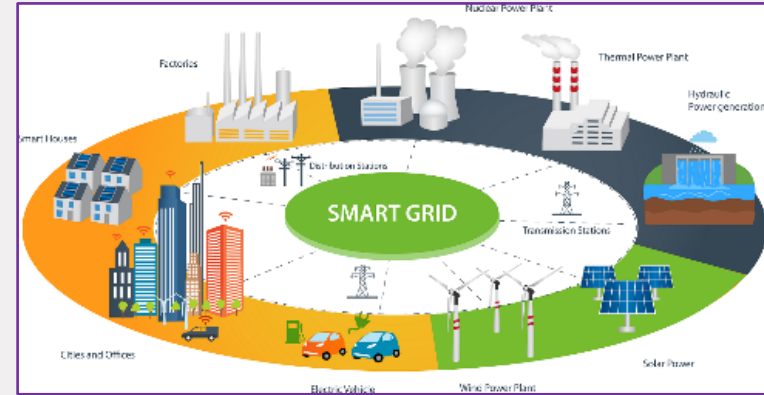
# Center for Cyber-Physical Systems



High-tech production equipment



Autonomous vehicles



Smart electricity/water grids

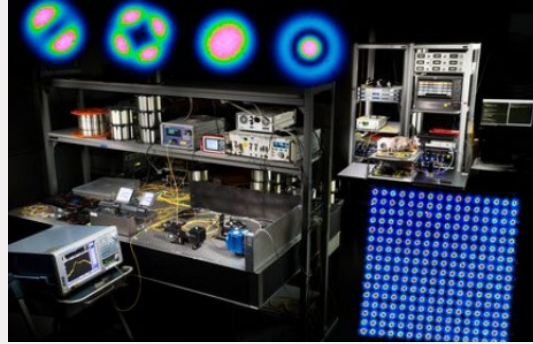
Focus areas: productivity, quality safety, power consumption, power quality, stability

# Research Groups (1)



## Control Systems (CS)

- Dynamic modelling and model-based control of complex dynamic systems
- 9 Labs



## Electro-optical communication (ECO)

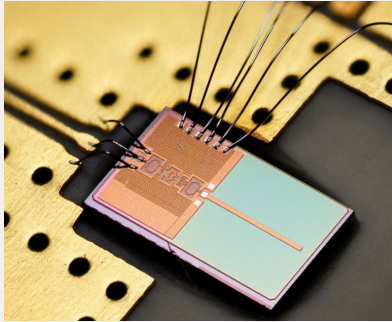
- High-capacity optical transmission
- Optical networks
- Terahertz photonics



## Electrical Energy Systems (EES)

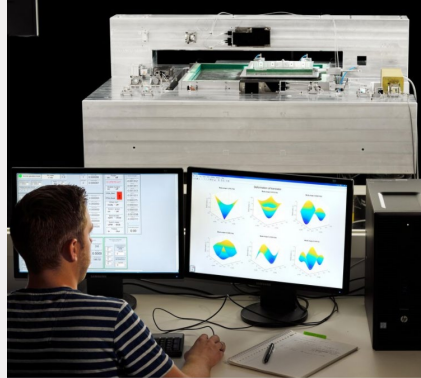
- Power grid technologies
- Intelligent power grids

# Research Groups (2)



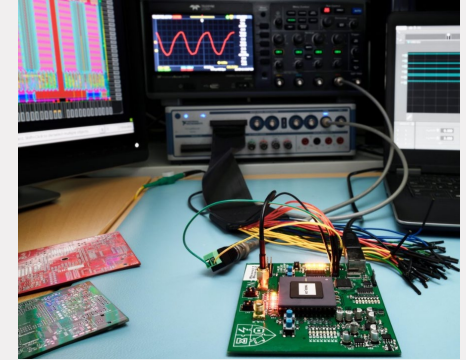
## Electromagnetics (EM)

- Integrated Antenna Systems
- EM for Care & Cure
- Multi-physics modelling and computation
- EM Metrology
- EM Radio Science



## Electromechanics and Power Electronics (EPE)

- High-performance motion technology
- High-efficiency energy conversion
- Electromechanics Lab
- Power Electronics Lab

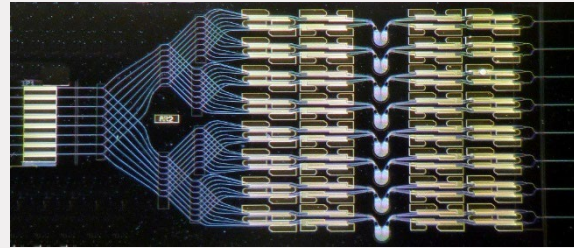
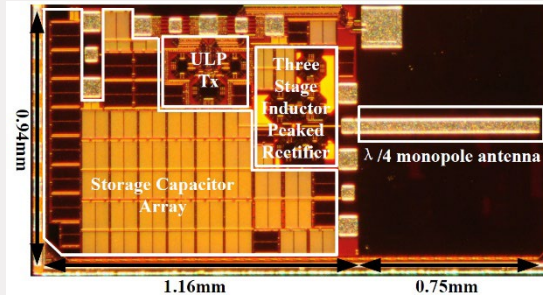


## Electronic Systems (ES)

- Model-driven engineering
- Smart electronic systems
- Digital nano-electronics



# Research Groups (3)



## Integrated Circuits (IC)

- RF transceivers
- Wideband data converters
- Emerging technologies
- Resource efficient electronics
- MRI Hardware development

## Photonic Integration (PhI)

Integrated photonic circuits for

- Communication
- Sensing

Focus on indium phosphide technology

## Signal Processing Systems (SPS)

- Bayesian Intelligent Autonomous Systems
- Biomedical Diagnostics
- ICT
- Lighting and IoT



# Two specialized master tracks

## Care and Cure

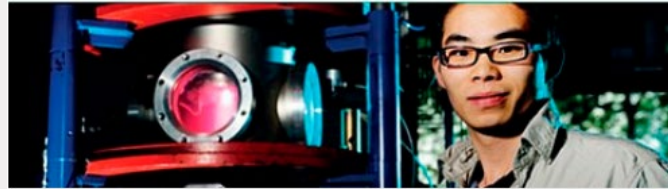


### Care and Cure

The importance of the health field as a consumer of technological applications and, in particular, electrical engineering...

**Research groups:**  
**Phi, EM, SPS, IC**

## Connected World Technologies



### Connected World Technologies

Telecommunication technology is a dynamic area of expertise: math & IT, physics, chemistry technology and innovation sciences...

**Research groups:**  
**ECO, Phi, EM, SPS, IC**

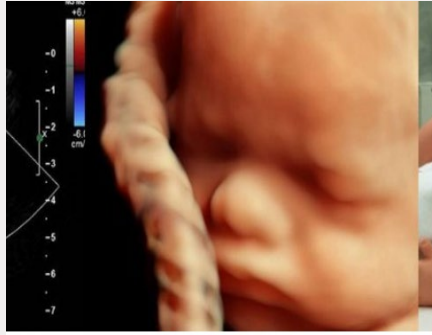
# Master's track Care & Cure



## RESEARCH PROGRAM

### Neurology

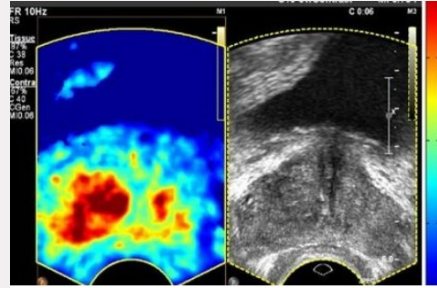
Our goal is to understand, repair, modulate, enhance, replace, or (otherwise) exploit properties of the neural system to advance diagnostics...



## RESEARCH PROGRAM

### Perinatology

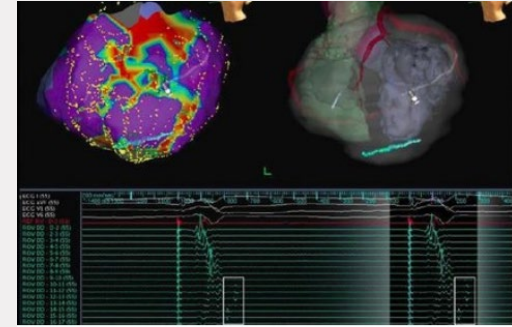
Innovative technology improves healthcare during pregnancy, delivery and neonatal life



## RESEARCH PROGRAM

### Oncology

Technology will shape the future of cancer care: From computer-aided detection to nanomagnetic engineer for treatment and in silico models...



## RESEARCH PROGRAM

### Cardiology

Evolving medical technology and improvements in metrics transformed the field of cardiology

[Center for Care and Cure technology Eindhoven \(C3Te\)](#)

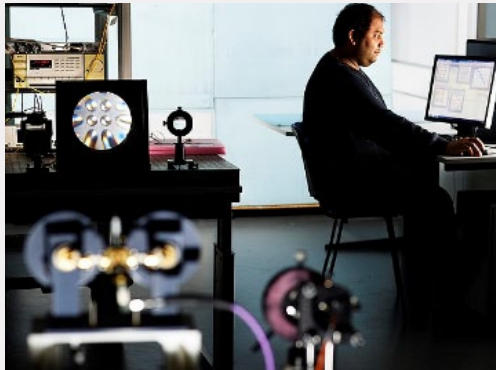


Center for  
Wireless  
Technology

Institute for  
photonic  
integration



CWTe labs

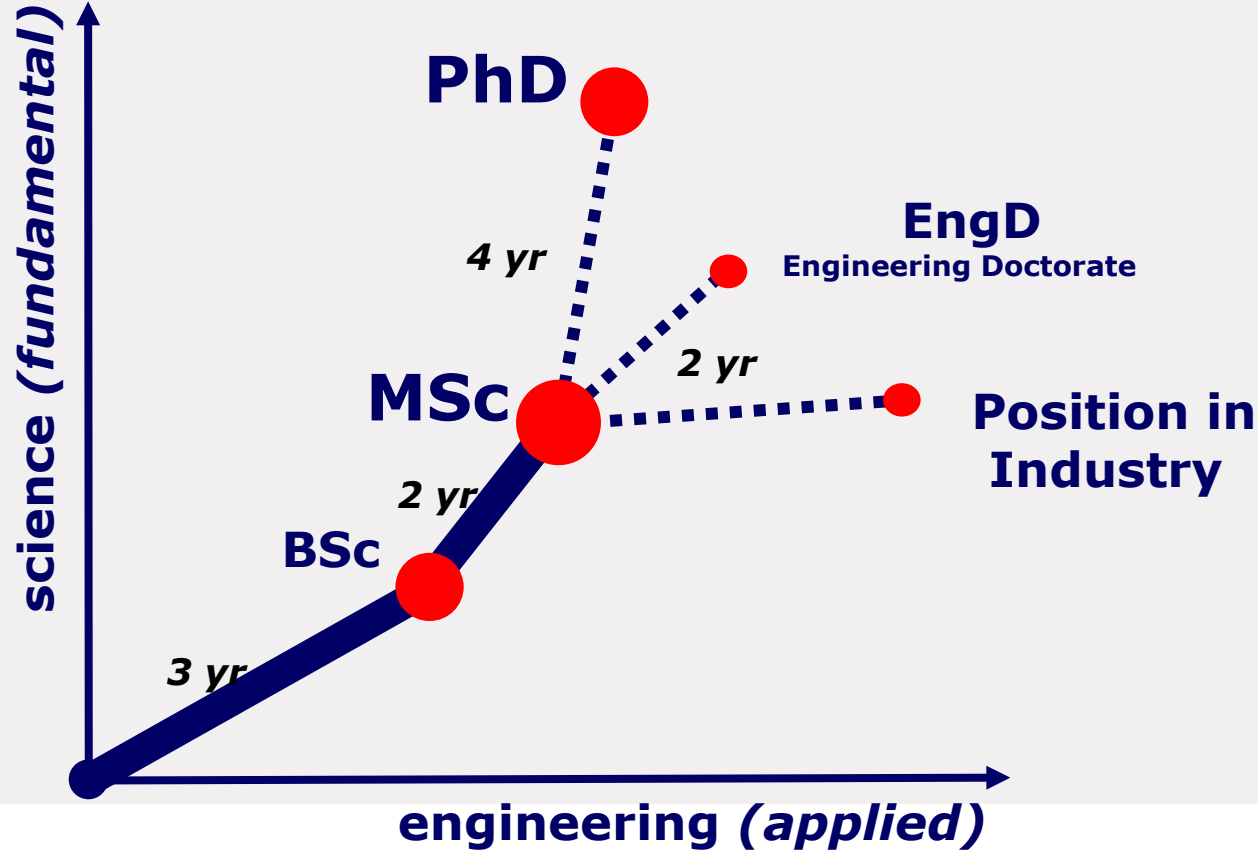


**Master's track**  
**Connected World**  
**Technologies**

Nanolab



# After graduation



# Department Day

- 13:00h – Walk-in with coffee and tea
- 13:15h – Introduction TU/e and Electrical Engineering
- **13:25h – General information for all master students**
- 13:55h – Specific information about the curriculum
- 14:15h – Break with coffee and tea
- 14:30h – Tour de Flux
- 16:30h – Drinks and BBQ
- 19:00h – Closure

# General information for all master students

- Choosing research group/specialization and core courses
- Master Marketplace
- Mentoring
- Broadening
- IND Study Progress Check
- Registration for courses and exams
- Safety and health
- Education guide
- Academic advisor



# What do you need to do as a new master student?

- Choose your research group
- Choose your core courses
- Register your research group in the Master Marketplace
- Setup your study program
- Write your Personal Development Plan (PDP)
- Sign the TU/e Code of Scientific Conduct
- Plan a mentor meeting
- Canvas information channel
- Approve your study program

# Choose your research group

- Choose a research group (specialization) where you want to do your graduation project.
- Check the research websites of our nine research groups via the education guide:  
<https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/curriculum/specialization-electives>

Check the website of StudentBody, with video presentations:

<https://www.studentbody.nl/explore-your-master/>

# Choose your core courses for Q1

- Choose three core courses based on your preferred research group:  
<https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/curriculum/core-courses/>
- Register for the courses of the first quarter.  
For new/external master students only: the deadline for registration has been extended until **Friday 8 September 2023 at 17:00h**
- Read the checklist to see what you need to do as a new master student (Downloads):  
<https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/curriculum>

# Master Marketplace

## Online tool for

1. Registration of research groups (=specialization)
2. For planning and defining your study program
3. Overview of available internship and graduation projects

## 1. Why registration of research groups?

- get to know in advance how many master students choose a research group, so that:
- research groups can guarantee sufficient graduation projects and scientific staff
- specialization is part of your study program

# Master Marketplace

## 2. Why filling in your study program?

- Know in an early stage if your choice of specialization electives and free electives is according to the regulations of the Master's program
- Know in an early stage if your choice of specialization electives and free electives is sufficient for the research group where you want to do your graduation
- Use the Master Marketplace to plan your courses and automatically generate your study program as an Excel file (or fill in the Excel file manually!)

## 3. Why overview of projects?

- An online central place for available projects for internship and graduation
- Get insight in research activities of the research groups
- Scientific staff can upload their projects

# Master Marketplace (1) – Register specialization

To do (see also checklist):

- Save your preferred research group/specialization in the Master Market Place before **16 September 2023**. Changing group/specialization later is always possible
- Choose specialization from this academic year 2023-2024 (e.g. “IC in 2023-2024”)

<https://master.ele.tue.nl>

- Master Marketplace is open for all new master students of Electrical Engineering



# Master Marketplace (1) – Register specialization

## Register For Specialization Path

Course Planner

Download Filled Approval Form

Student: ?

Cohort: ?

Origin: ? \*

Institute (if not TU/e): ?

Specialization Path: ? \*

Save

Fields marked with \* are required.

Feedback

Save specialization here

Enter specialization here

By Kolibri Solut

# Master Marketplace (1) – Register specialization

- After **16 September 2023**, mentors from the research groups will be informed about all students who have selected their group for their specialization.
- Name and email address will be sent to a mentor
- Each research group has its own mentor(s), see Mentoring

# Master Marketplace (2) – Planning courses

- In the Master Marketplace, you can plan your courses (core, specialization electives and free electives) for your study program using the Course Planner according to the curriculum (see education guide)
- You can plan
  - All master EE courses (directly from the MMP)
  - Other department courses (you have to add them yourself)
  - Other courses (e.g. from other universities or abroad, you have to add them yourself)

# Master Market Place (2) – Course Planner empty

[Master Marketplace](#) [Home](#) [Registration](#) [Projects](#) [Chosen projects](#) [Study Guide](#) [About](#) [Profile](#) [Logout](#)

## Course Planner

from Other institute ( ), started in 2020  
Specialization path: ECO in 2019-2020

[← Back to registration](#)

[Add Year](#) [Validate](#) [Save Planning](#) [Add other department course](#) [Add course outside TU/e](#)

	Q1	Q2	Q3	Q4
Y1				
Y2				

Quartile:  
  
Timeslot:  
  

[FREE ELECTIVE](#)  
[CORE COURSE](#)  
[PROFESSIONAL DEVELOPMENT](#)  
[SPECIALIZATION](#)  
[OTHER COURSES](#)

[Feedback](#)

By Kolibri Solutions 2016-2020 Currently deployed: e3ec86a4 <

# Master Market Place (2) – Course Planner filled in

## Course Planner

from BSc EE TU/e, started in 2019  
Specialization path: SPS in 2019-2020

[← Back to registrations](#)

	Q1	Q2	Q3	Q4
Y1	<div>5CTA0 - Statistical signal processing ⓘ</div> <div>2DME20 - Non-linear optimization ⓘ</div> <div>5CPA0 - Numerical methods in electrical engineering ⓘ</div>	<div>5LIV0 - Video health monitoring ⓘ</div> <div>5LSH0 - Computer vision and 3D image processing ⓘ</div> <div>5LSB0 - Monitoring of respiration and circulation ⓘ</div> <div>5CKB0 - Tutoring and coaching ⓘ</div>	<div>5LSM0 - Convolutional neural networks for computer vision ⓘ</div> <div>5SSC0 - Adaptive array signal processing ⓘ</div> <div>Course is in wrong quartile</div> <div>5SSD0 - Bayesian machine learning and information processing ⓘ</div> <div>5CKF0 - Research set-up ⓘ</div>	<div>5LSF0 - Applications of information theory ⓘ</div> <div>5LSL0 - Machine learning for signal processing ⓘ</div>
Y2				

Quartile:

Timeslot:

► FREE ELECTIVE

► CORE COURSE

► PROFESSIONAL DEVELOPMENT

► SPECIALIZATION

► OTHER COURSES

## Master Marketplace (2) – Planning courses

- If you have planned all your courses, you can generate a study program as an Excel file with all the courses filled in
- Use the button ‘Download Filled Approval Form’ to download the Excel file

BUT

- You can also fill in the Excel file yourself (use the template Excel **Approval study package master EE** in Downloads):  
<https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/curriculum/>



# Master Marketplace (2) – Planning courses

## Register For Specialization Path

Course Planner

Download Filled Approval Form



Download Excel file here

Student: ?

Cohort: ?

Origin: ? \*

Institute (if not TU/e): ?

Specialization Path: ? \*

Save

Fields marked with \* are required.

Feedback

By Kolibri Solut

# MMP Excel file

	A	B	C
1	Approval form of the study package EE master program		
2	Personal information		Remarks
3	Student name:		
4	Student ID:		
5	TU/e email address:		
6	Date of master subscription:	2019	
7	Prior education:	BSc EE TU/e	
8	General information		Remarks
9	Submission date:		
10	Professional skills Personal Development Plan discussed with mentor (Yes/No):		
11	Code of Scientific Conduct signed (Yes/No):		
12	Have you followed the Health and safety training? (Yes/No):		
13	* Send a digital copy to CSA.EE@tue.nl		
14	TU/e contacts		Remarks
15	Mention your preference for a research group in which you will follow the specialization courses and graduation project		
16	Research group:	SPS	
17	Name mentor:		
18	Master program		Remarks
19	Special Master's track		
20	Connected World Technologies (CWT) (Yes/No)		
21	Care & Cure (C&C) (Yes/No)		
22	Artificial intelligence for Engineering Systems (AIES) (Yes/No)		
23	Core courses		Remarks
24	Code - Course name		
25	5CTA0 - Statistical signal processing	5.0 EC	Y1Q1
26	2DME20 - Non-linear optimization	5.0 EC	Y1Q1
27	5CPA0 - Numerical methods in electrical engineering	5.0 EC	Y1Q1
28	Total	15 EC	
29	Professional Development Program		Remarks
30	Professional skills		
31	Code - Course name		
32	5CKB0 - Tutoring and coaching	2.5 EC	Y1Q2
33	5CKF0 - Research set-up	2.5 EC	Y1Q3
34	Total	5 EC	
35	Specialization courses		Remarks
36	Code - Course name		
37	5SSC0 - Adaptive array signal processing	5.0 EC	Y1Q3
38	5SSD0 - Bayesian machine learning and information processing	5.0 EC	Y1Q3
39	Total	10 EC	
40	Elective courses		Remarks
41	Code - Course name		
42	5LSM0 - Convolutional neural networks for computer vision	5.0 EC	Y1Q3
43	5LSL0 - Machine learning for signal processing	5.0 EC	Y1Q4
44	5LSF0 - Applications of information theory	5.0 EC	Y1Q4
45	5LSB0 - Monitoring of respiration and circulation	5.0 EC	Y1Q2
46	5LSH0 - Computer vision and 3D image processing	5.0 EC	Y1Q2
47	5LIV0 - Video health monitoring	5.0 EC	Y1Q2
48	Total	30 EC	
49	Internship		Remarks
50	Code - Course name		
51	5I015 - Internship 15 erts	15.0 EC	
52			
53	Total	15 EC	
54	Graduation project		Remarks
55	5G045 - Graduation project 45 erts	45.0 EC	
56	Total	45 EC	
57	Additional courses (optional)		Remarks
58	Code - Course name		
59			
60			
61			
62	TOTAL MASTER STUDY PROGRAM	120 EC	

# Master Marketplace (2) – Planning courses

- You can use this Excel for the mentor meeting (see Mentoring)
- Check and fill in the other fields of the Excel where necessary
- If you want to follow a track (C&C, C&C with subtrack(s) or CWT), denote this in the Excel as well. Check the requirements on the education guide
- Send it to the Examination Committee for official approval using the EC Sharepoint [webform](#) before the registration deadline of Q2. Use **article 3.6** of the OER/PER for the item  
**Based on article of OER (EER)**

Save

Cancel

## New item

Student ID \*

Student ID-Number

Surname \*

First name

Program \*

Electrical Engineering (MSc)

Date of request \*

12-10-2021

Type of request \*

Approval exam program

Choose the type of your request

Based on article of OER (EER) \*

Enter value here

You can't leave this blank.  
See <https://educationguide.tue.nl/organization/regulations-codes-of-conduct-and-guidelines/program-and-examination-regulations-per/TL=2> for the OER.

Motivation \*

Attachments

Add attachments

Apply label

None

Save

Cancel

# Master Marketplace (2) – Planning courses

- Approval by the Examination Committee also means updating your study program in Osiris
- Update in Osiris means you can check your own study progress
- You have to take the courses listed in your approved study program, but you can always change your study program if you want to take other courses
- If you want to change your study program, you can update the Excel you sent earlier (or use the Master Marketplace to make the changes and download the Excel)
- Send the updated Excel to the Examination Committee using the Sharepoint [webform](#)

# Master Marketplace (3) – Overview of projects

Master Marketplace [Home](#) [Registrations](#) [Access Control](#) [Study Guide](#) [Support](#) [Projects](#) [Distributions](#) [About](#)

## Published graduation projects

**ALL PROJECTS** FAVORITE ONLY

Copy CSV Print Clear filters

Show  entries Search:

	Name	Research group	Responsible staff	Assistants	Specialization Path	End date visible	Progress
	Type to filter	Select value	Select value	Select value			Select value
☆	Data-driven modelling of interconnected systems for separable controller synthesis	CS	m. Lazar	• Tom Steentjes	Any	None	Project is being executed
☆	Modelling of EV emission in the range 2-150 kHz (Elaad)	EES	Vladimir Cuk		Any	None	Project is being executed
☆	Controller Synthesis for Switched Systems	CS	Tijs Donkers		Any	None	Not yet started
☆	Uterine electrophysiological monitoring outside pregnancy	SPS	Chiara Rabotti	• Massimo Mischi • Lin Xu	• SPS in 2018-2019	None	Not yet started
☆	Integrated Optical Alignment sensor for Electronic IC production (1/2)	PHI	Erwin Bente	• Yuqing Jiao	• PHI in 2018-2019	None	Not yet started
☆	Ageing modeling of lithium-ion batteries	CS	Tijs Donkers		Any	None	Not yet started
☆	Eco-driving algorithm	CS	Tijs Donkers	• Diana Heijnerman - Douma	Any	None	Project is being executed
	Representation of Chemical Reaction						

Feedback

By Kollit

# Master Marketplace (3) – Overview of projects

Master Marketplace

Home

Registrations

Access Control

Study Guide

Support

Projects

Distributions

About

## Low Cost Two-Dimensional Optical Pressure Sensor For Patient Monitoring

By [Henrie Van Den Boom](#)

☆

### General description

Currently, people suffering from serious sleeping disorders are monitored using expensive camera equipment. Because this equipment cannot be placed in a patient's home, the patient has to spend one or more nights at a sleep clinic. To reduce costs and increase patients comfort, a system has to be designed which can easily be taken home. A possible implementation is a two-dimensional optical sensor system which can be placed under a mattress which uses a grid of Polymer Optical Fibres.

Polymer or Plastic Optical Fibre (POF) is commonly used for low-speed, short-distance optical data communication. Due to their relatively large diameters of about 1 mm, POFs are easy to handle and allow the use of low precision connectors. Its chief advantage over the glass optical fibre, is its robustness under bending and stretching. Polymer optical fibres can also be used for sensing. Systems based on detecting attenuation variation when pressure or bending is applied to the POF are already studied extensively and commercial products are available for various applications. However, a two dimensional pressure detection system using a grid of POF based on only attenuation detection is in principle not possible.

The goal is to design and realize a two-dimensional pressure detection system using a grid of POF and is based on detection of the coupling of optical signals at the crossings of a POF grid. Based on this principle, low cost pressure detection can be achieved at each crossing of the fibre grid individually. A proof of principle system has been realised with encouraging results, but further research and development has to be done to obtain a real time and optimised system.

Moreover, this principle can be used for many other applications. For instance it can be used under (or woven into) a carpet to detect walking and falling of elderly persons, which is more privacy-friendly than using for instance video cameras.

We already presented a paper at a conference on this promising subject, see attachment or [https://pure.tue.nl/ws/files/88738840/2D\\_POF\\_sensor\\_POF2017\\_full\\_paper\\_final.pdf](https://pure.tue.nl/ws/files/88738840/2D_POF_sensor_POF2017_full_paper_final.pdf).

This research is in collaboration with Sleep Medicine Centre Kempenhaeghe, Heeze, [www.kempenhaeghe.nl](http://www.kempenhaeghe.nl).

### Students task description

Within this research subject you can work on:

- Pressure sensitive optical coupling between crossing fibres
- Design and realising a real time data acquisition and control system
- Design and realising the optoelectronics of the system.

Type:Graduation project

Capacity group:Electro-optical Communication

Students needed:1-2

Required specialization path:No specific required

External Information:

External Site

Created on:April 26, 2018

Applications:Disabled

Distributions:None yet.

Progress:Not yet started. Students can apply to this project.

[Feedback](#)



# Mentoring

## Mentor

- All first year master students are “assigned” a mentor based on their preferred research group
- A mentor is a scientific member from Electrical Engineering and belongs to the research group where you want to do the graduation project.
- A mentor guides you from the start of the master until the beginning of the internship
- Only after 4 September, you must contact your mentor to make an appointment yourself. Do this before 30 September 2023. The actual meeting can be held later but before **14 October 2023** (because of the registration deadline for courses Q2)

# Mentoring

## Student mentor

- All first year master students who are new to TU/e are “assigned” a student mentor
- Goal: to support you in feeling at home at TU/e, getting familiar with the program, meeting your fellow students, learning more on TU/e educational systems, campus life
- A student mentor is a master student who is already familiar with the TU/e and Eindhoven
- Your student mentor will invite you to join the first meeting

# Mentoring – Who is who?

Research group	Mentor
CS	Siep Weiland / Paul van den Hof / Tijs Donkers / Mircea Lazar
ECO	Oded Raz
EES	Nikos Paterakis
EM	Bas de Hon
EPE	Naila Nasibulina
ES	Marc Geilen
IC	Eugenio Cantatore
Phi	Erwin Bente
SPS	Sveta Zinger / Alex Alvarado



via secretary  
of CS!

<https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/mentoring/>

# Mentoring

## Before you plan a meeting

1. Write your Personal Development Plan (PDP) on how to (further) develop your professional skills
2. Sign the TU/e Code of Scientific Conduct as part of Scientific Integrity
3. Setup your study program including all core courses, specialization electives and free electives for discussion with the mentor

# Mentoring – Personal Development Plan

## 1. Write your Personal Development Plan

- Write your own Personal Development Plan (PDP) containing:
  - Choices within the curriculum, like courses, internship and graduation
  - Professional skills in academic writing, presenting and teamwork you want to improve
  - Other (academic) skills you want to develop
  - See: <https://educationguide.tue.nl/programs/graduate-school/coaching-and-professional-skills/>
- Use your PDP to discuss in the mentor meeting
- You can find a template of a PDP on the online education guide (Downloads):  
<https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/mentoring/>

# Mentoring – Scientific Integrity

## 2. Scientific Integrity

- Read the webpage on scientific integrity, see <https://www.tue.nl/en/our-university/about-the-university/integrity/scientific-integrity/>
- Sign the Code of Scientific Conduct: a declaration of how to carry out your academic research regarding scientific integrity. For a link, see <https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/mentoring/>
- Send a digital signed copy to [EE.CSA@tue.nl](mailto:EE.CSA@tue.nl), put your 7-digit studentID (something like 19XXXXX or 20XXXXX) in the subject

# Mentoring – Preliminary study program

## 3. Setup your study program

- Use the online education guide for more information about the curriculum, master tracks and available core, specialization and elective courses, see the education guide
- Use the Master Marketplace or download a template Excel file from the education guide to fill in your study program



# Mentoring – Meeting

With your mentor, you

- Discuss your Personal Development Plan on how to (further) develop your professional skills
- Discuss your study program.  
The mentor only **advices** on your choice of specialized electives and free electives, the Examination Committee approves
- Discuss options for international experience

# Canvas information channel

## Communication

- Important information for all students is communicated via announcements on a specific Canvas information channel
- You are automatically subscribed in the first week of the first quarter
- Important information on the master EE will be communicated via this channel

# Broadening - International Experience

- Particularly for Dutch students: it is advised to choose at least 15 EC of international experience by following abroad:
  - Courses
  - Internship
  - Graduation project
- Check the International Experience page on the education guide for more information:  
<https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/international-experience/>
- Join the Q&A on International Experience on 15 November

# Broadening – Internal double diploma

## Joint Master's degree program

- $165 \text{ EC} \leq \text{\#credits} \leq 195 \text{ EC}$
- Two diplomas with only a minimum of 45 EC extra
- Combined graduation project 60 EC
- Meet the criteria of both Examination Committees
- <https://educationguide.tue.nl/programs/internal-double-diploma/>

# Broadening – Honors program

## Honors program

- For motivated students who want additional challenges, upgrade their personal and professional development, build a professional network
- 20 EC 'on top of' Master's degree program
- Focus on Personal Leadership (5 EC)
  - ***“This is the best course that I had in university because it helped me to base my decisions, in everything that I do, on love instead of fear” – Honors student***
- Focus on Professional Development (15 EC)
  - challenging activities, (external) internships, (external) projects

# Broadening – Honors program

## Honors program

- Information session on  
Date: **Friday 15 September 2023**  
Time: **12:45h till 13:25h**  
Location: **Luna 1.240**
- More information about the Honors program can be found here:  
<https://educationguide.tue.nl/programs/honors-academy/master-students>

# IND Study Progress Check with residence permit for study

- Students with a **residence permit for study** have to pass at least 50% of the maximum number of credits per academic year to retain their residence permit
- For students following the SENSE program, the progress check is based on the credits obtained in this academic year at TU/e
- A study progress check takes place in September of the **next** academic year based on the results obtained in **this** academic year

# IND Study Progress Check with residence permit for study

- But: a **preliminary** check will also be carried out in this academic year in February/March to see if you are on track
- The academic advisor also checks your study progress regularly (e.g. after Q1)
- In case of study problems, personal circumstances or insufficient study progress, contact your academic advisor in time



# Registration for courses and exams

## Courses

- Register for courses via OSIRIS in time. Check the deadlines ([education guide](#) and ESA emails) and AKR/ACR ([Administrative Costs Regulation](#)) procedure!
- Course registration also includes exam registration (only if you are officially enrolled as master student)
- You can register for maximum 20 EC per quarter
- You are not automatically registered for resits. Register separately!
- After registration, you should receive a confirmation email. Check and keep these emails. If not received, contact [ESA](#)!
- See the online education guide for more information:  
<https://educationguide.tue.nl/practical-info/student-administration/enrolling-courses-and-examinations/enrollment-courses-and-examinations-graduate-school>

# Registration for courses and exams

Not officially a master student yet?

- You can still register for master courses but **NOT** for master exams
- After officially enrolled as a master student, do not forget to register for the master exams from Q1 before the deadline for Q2

# Safety and health

For all **new** students to TU/e”instruction on safety and health

- Practical information about the buildings and learn how to avoid hazards and risks
- How to act in case of an emergency
- How to prevent physical complaints caused by computer work
- Instruction is mandatory for all new students
- You will be informed later by email what you need to do

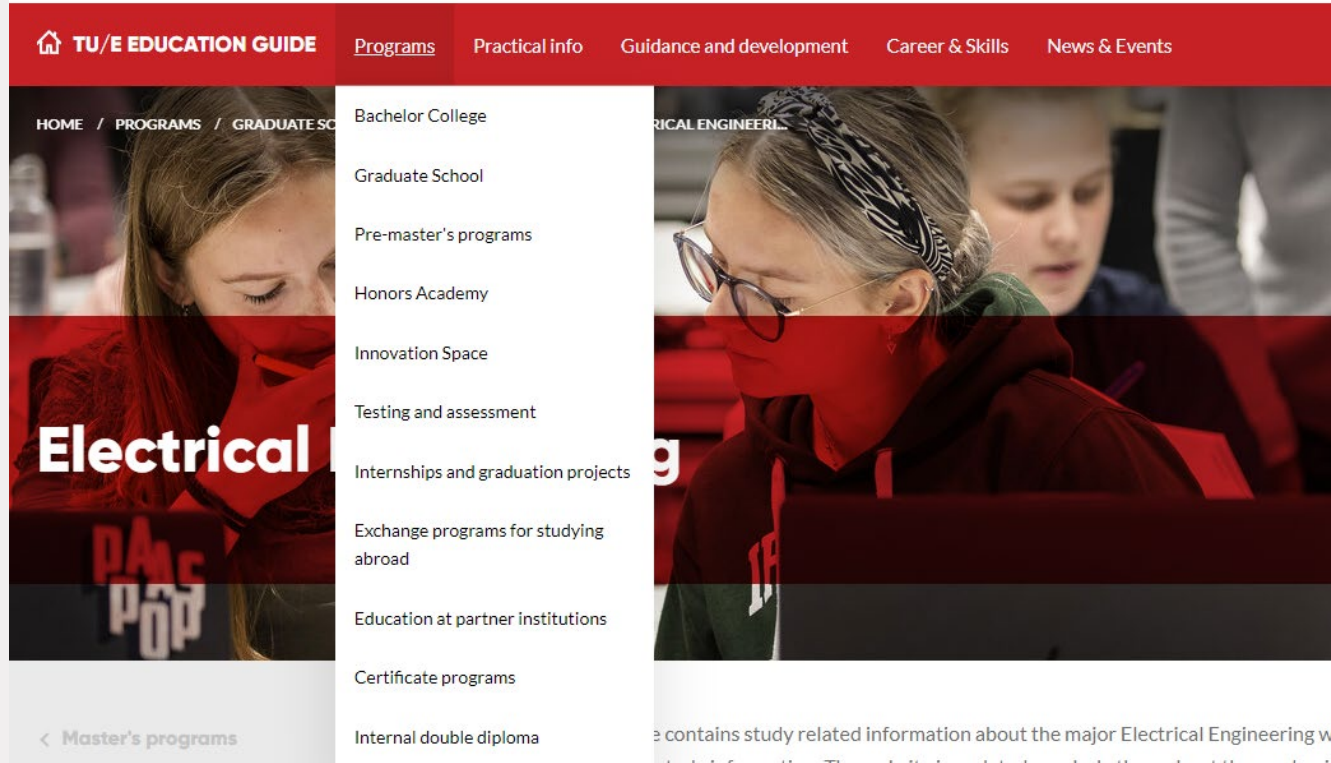
# Online education guide Electrical Engineering

All information presented here can be found on the online education guide:

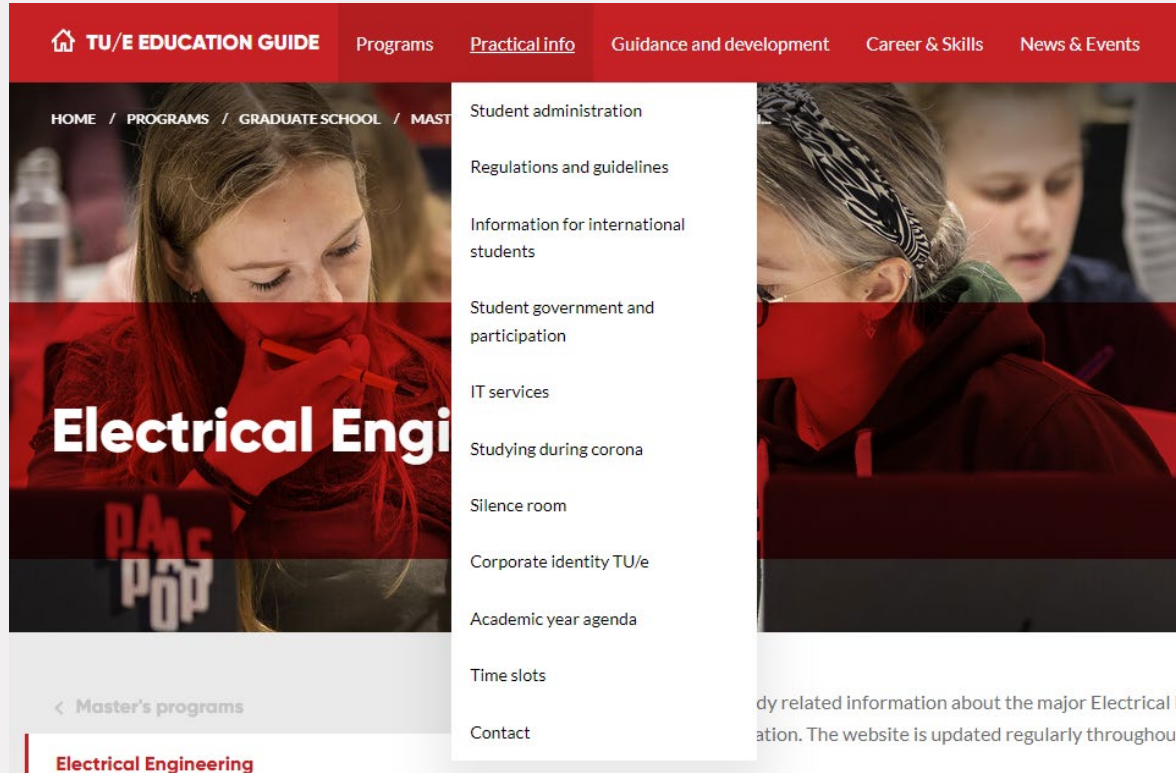
- Curriculum: courses, internship, graduation project, Master's tracks
- Coaching and Professional Skills, Mentoring
- Regulations: Program and Examination Regulations (PER/OER)
- Examination Committee and Program Committee
- Forms: all forms used within the Master's program
- Quality Assurance, A to Z

<https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/>

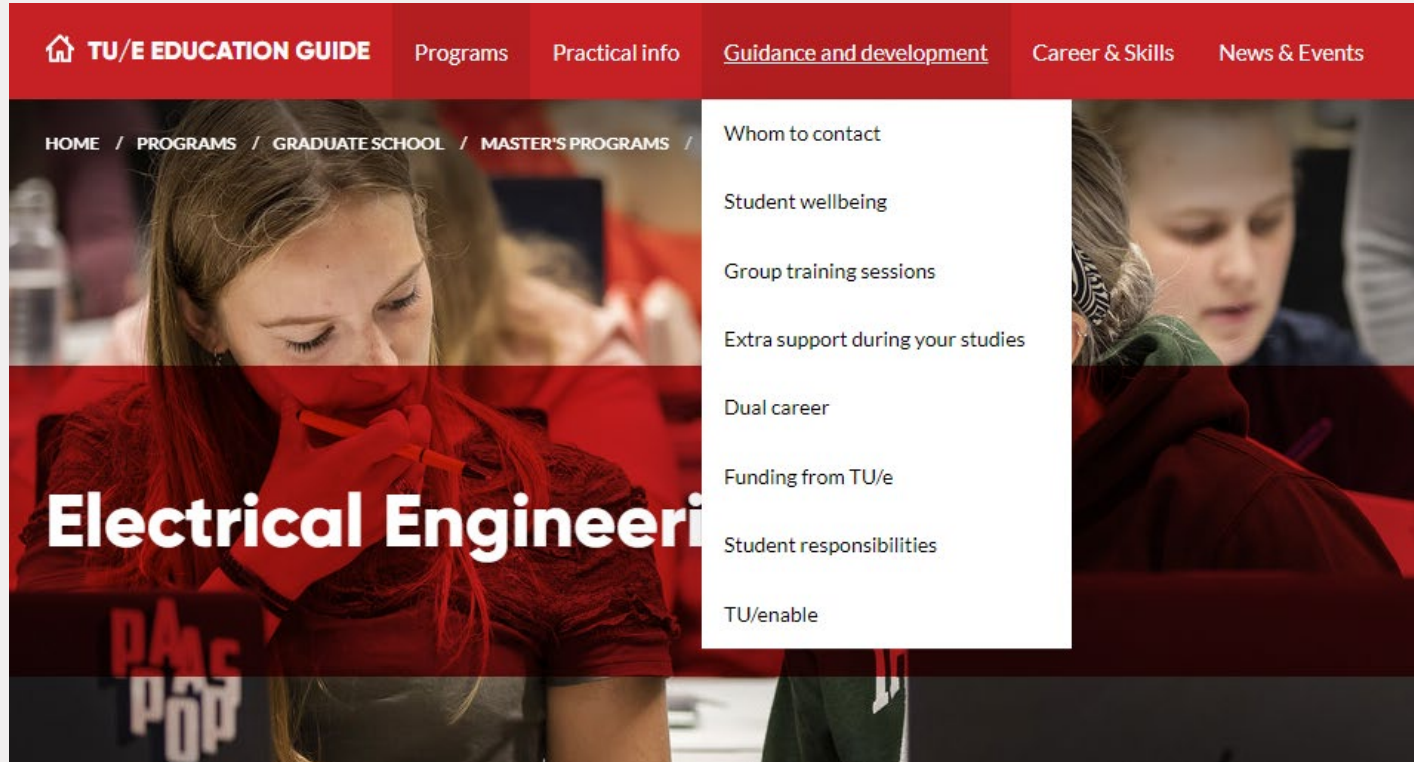
# Online education guide: <https://educationguide.tue.nl>



# Online education guide: <https://educationguide.tue.nl>

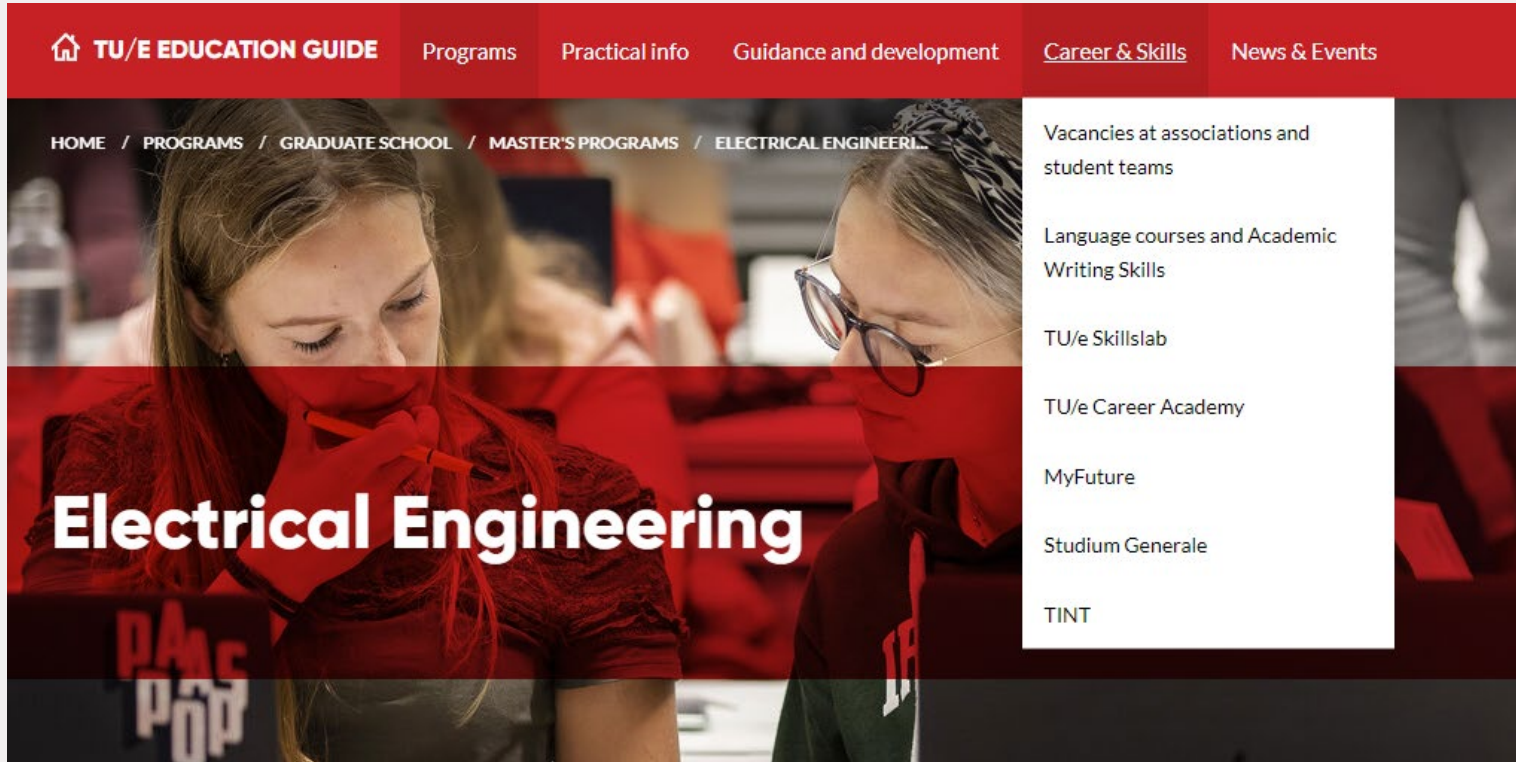


# Online education guide: <https://educationguide.tue.nl>





# Online education guide: <https://educationguide.tue.nl>





# Academic advisor

Academic advisor advises and helps you

- To improve your study progress
- With practical questions about the Master's program
- With study-related questions and problems
- With study skills
- With your planning
- In case of personal circumstances
- But: you also have a responsibility  
<https://educationguide.tue.nl/guidance-and-development/student-responsibilities>
-

# Academic advisor

Academic advisor may refer to

- Study choice advisor: problems related to doubts about study choice
- Student counsellor: study grants, financial support, functional impairment or chronic illness, top-level sports
- Study management advisor: improve study progress and study output
- Student psychologist: depression, anxiety, autism, ADHD, stress, assertiveness, personal circumstances
- Confidential counsellor: conflicts between student(s), teacher(s), staff, supervisors, or in case of undesirable or unwelcome behaviour
- <https://educationguide.tue.nl/guidance-and-development/who-to-contact>

# Study+ - Studying at TU/e with extra support



What support does TU/e offer?  
What are my responsibilities?  
Where do I go for help?

To find out go to Canvas:  
[Study+: Studying with Extra Support](#)

Source: [Sensibilisation aux différents types de handicaps - Halte Pouce : Accompagner le Handicap au Quotidien \(halte-pouce.fr\)](#)

# Academic advisor

Academic advisor works according to privacy (GDPR /AVG) regulations

- Meetings and correspondence are always STRICTLY CONFIDENTIAL. Notes are being made and stored in your digital file to keep track of your situation. Personal information will NEVER be shared with lecturers and other staff unless there is an acute danger for you and/or others.  
<https://educationguide.tue.nl/guidance-and-development/who-to-contact>
- Part of the GDPR/AVG is that you send emails using your **TU/e mail address**, not your personal email address
- Study progress check after Q1, just to check how you are doing after the first quarter

# Academic advisor

## Last but not least

- New external students who are assigned a student mentor will receive an email soon
- Let me know if you experience problems in your study (e.g. study delay, planning issues or management of your studies)
- Let me know if you run into personal problems that may influence your studies: the sooner I know, the better I can help you
- “I rather see you studying with **pleasure** than with distinction”

**DO NOT BE AFRAID OR ASHAMED TO TALK TO ME 😊**

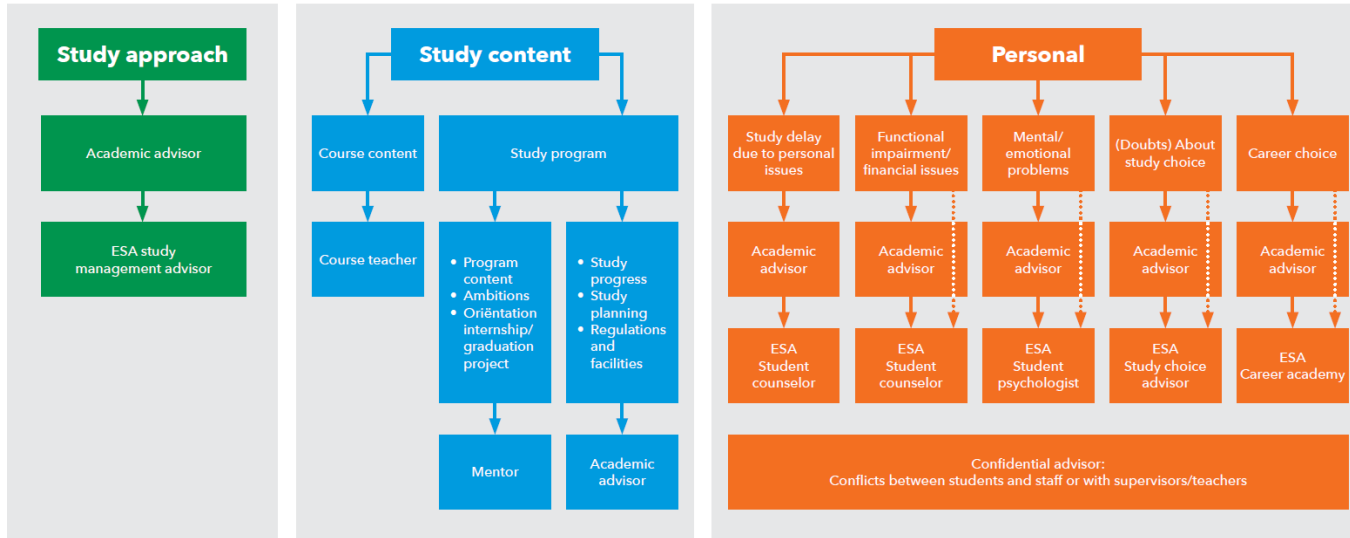
# Academic advisor

But ...

- In case you do not want to discuss your problems with me,
- you can also talk to one of our **student** Confidential Contact Persons (peer listeners)
- 24 students are officially trained as confidential contact persons
- <https://educationguide.tue.nl/guidance-and-development/who-to-contact/confidential-contact-persons-peer-listeners>

# Student guidance @ TU/e

## Student guidance for master's students



Do you have other questions? Or want more info? Please visit: <https://educationguide.tue.nl/organization/advisors-and-tutors/>  
Group training sessions: <https://educationguide.tue.nl/broadening/group-training-sessions/>  
Not sure where to go? Contact your academic advisor.

# Academic advisor

If you have any questions, come and visit me in Flux 0.122, make an [appointment](#) or send me an email:

**[EE.Academic.Advisor.MEE@tue.nl](mailto:EE.Academic.Advisor.MEE@tue.nl)**





# Join us! Be part of the TU/e community



Everyone is welcome here  
Inclusiveness is important



Please make every effort to include all  
Speak English

***Nationality, gender, religion, race, sexual orientation, appearance:  
We are all one!***

# Join us! Be part of the TU/e community

Join [Thor](#) (EE Study Association)

Join [COSMOS](#) (International Student Association)

Be active in your mentor group



go to [Student Sports Center](#)

Join one of the many  
[Student Associations](#)



# Department Day

- 13:00h – Walk-in with coffee and tea
- 13:15h – Introduction TU/e and Electrical Engineering
- 13:25h – General information for all master students
- **13:55h – Specific information about the curriculum**
- 14:15h – Break with coffee and tea
- 14:30h – Tour de Flux
- 16:30h – Drinks and BBQ
- 19:00h – Closure

# Master's program of Electrical Engineering

**Department Day Master Kick-Off 2023**

**29 August 2023**

Elmine Meyer, Program Leader Electrical Engineering  
Harald van den Meerendonk, Academic Advisor Electrical Engineering

# Master's program of Electrical Engineering

		# EC
Year 1: 60 EC	Core courses	15
	Specialization electives	10
	Free electives	30
	Professional development	5
Year 2: 60 EC	Internship	15
	Graduation project	45

Note: Internship in year 1 or summer is also possible

# Core courses master EE

- Choose three (or more 😊) core courses from set of eight in Q1

Code	Core course
2DME10	Discrete Mathematics
2DME20	Non-linear Optimization
2DME30	Complex Analysis
5CCA0	Semiconductor Physics and Materials
5CHA0	Classical and Modern Physics
5CPA0	Numerical Methods in Electrical Engineering
5CSA0	Modeling Dynamics
5CTA0	Statistical Signal Processing

- Choosing more core courses is allowed: add them as Electives

# Core courses master EE

- Research groups require specific core courses

	2DME30	2DME10	2DME20	5CCA0	5CTA0	5CHA0	5CPA0	5CSA0
	Complex analysis	Discrete mathematics	Non-linear optimization	Semi-conductor physics and materials	Statistical signal processing	Classical and modern physics	Numerical methods in EE	Modelling dynamics
CS	X		X		X		X	•
ECO	X			•	•	X/•	X/•	X
PHI	X			•	X	•	X	X
EES-1*		X	X		X			X
EES-2*				X		X	X	
EPE-1	X		X			•	•	•
EPE-2		X	X	•	X	•	X	•
EM**	X		X	X		X	•	
ES		•	X	X	X		X	X
IC-1				•	•		•	
IC-2				•	•		•	
SPS***		X	•		•		X	

• = Must have

X = Nice to have

\*EES-1 & EES-2: students are allowed to deviate from the indicated courses

\*\*EM: choose 2 out of 4, where it is recommended to choose 2DME20 & 2DME30 if you want to pursue a specialization in modelling techniques

\*\*\*SPS: students of the ICT lab choose 2DME10 as the 3rd course. Students of all other labs choose 5CPA0 as the 3rd course.

# Specialization courses

- Choose 10 EC of specialization courses from your preferred research group in Q2 and Q3

Path	Code	Course	Quarter
CS	5SMC0	Control Principles for Engineered Systems	2
	5SMB0	System Identification	3
ECO	5SHA0	Photonic Integrated Devices	2
	5STA0	Optical Fibre Communications Technology	3
EES-1	5SED0	Electrical energy systems in transition	2
	5SEE0	Planning and Operation of Electrical Power Systems	2
	5SEF0	Smart grids, ICT and electricity markets	3
EES-2	5SVA0	High Voltage Technology	2
	5SVB0	Electromagnetic Compatability	3

5SED0 and 5SEE0 have 2,5 credits!



# Specialization courses

- Some research groups have two specialization paths

Path	Code	Course	Quarter
EM	5SPB0	Microwave Engineering and Antennas	2
	5SPD0	Electromagnetic Modeling Techniques	3
EPE-1	5SWA0	Rotary Permanent Magnet Machines	2
	5SWB0	Advanced Power Electronics	3
EPE-2	5SWC0	Linear and Planar Motors for High-Precision Systems	2
	5SWB0	Advanced Power Electronics	3
ES	5SIA0	Embedded Computer Architecture	2
	5SIB0	Electronic Design Automation	3

# Specialization courses

Path	Code	Course	Quarter
IC-1	5SFA0	Data Converters 1: Fundamentals	2
	5SFD0	Data Converters 2: Design	3
IC-2	5SFB0	RF Transceivers 1: Fundamentals	2
	5SFE0	RF Transceivers 2: Design	3
PhI	5SHA0	Photonic Integrated Devices	2
	5SHC0	Microfabrication Technology	3
SPS	5SSD0	Bayesian Machine Learning and Information Processing	2
	5SSC0	Adaptive Array Signal Processing	3

# Elective courses

- Choose a total of at least 30 EC of elective courses. Core courses and specialization electives are also valid electives
- Choose from about 70 EE master courses, other TU/e master courses, or master courses from other universities (always to be approved by Examination Committee). Level 3 (Advanced) bachelor courses from EE are allowed for homologation purposes
- Electives can be found on the education guide (PDF):  
<https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/curriculum/elective-courses/>
- Mentor gives advice on specialized and free electives

# Professional Development

## Main targets

- Formulating a research question and conducting literature review (for every master student)
- Career Development
  - Gaining insight in your own wishes regarding future jobs and companies and use sources to orientate yourself efficiently on the job market
- Improving skills of academic writing and presenting scientific information:
  - using feedback moments at the end of the internship and halfway through the graduation project

# Professional Development

## Main targets

Code	Course	Quarter
5CKF0	Research set-up	1 or 3
5CKG0	Career Development	2, 3 or 4

<https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/curriculum/professional-development/?L=2>

# Internship

- Research project of 15 EC (course **5I015 Internship 15 ects**), for hbo graduates 10 EC (**5I010 Internship 10 ects**)
- Possibility to extend with 5 EC (course **5I005 Extension internship** instead of an elective course), not for hbo graduates
- Advised to choose internship abroad to obtain international experience. Hbo graduates do the internship within a research group
- Always under the responsibility of an EE staff member

# Internship

- Before you start, register for the internship (and extension) via Osiris and webform (education guide).
- No registration deadline for internship course code: register when you are about to start
- Assessment is done by internship assessment form
- Advice on extra training via SkillsLab or courses based on results of Reporting and Presenting
- Check the **Study guide Internship EE** for detailed information:  
<https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/curriculum/internship>

# Graduation project

- Graduation project of 45 EC (32 weeks, course code: **5G045 Graduation project 45 ects**)
- Project contributes to the research of the supervising research group
- Can be done inside and outside the department of EE
- Always under the responsibility of an EE staff member
- Allowed to start when you have completed all components (core, specialisation, professional development, 20 EC of electives, internship) of your study program except for at most two electives (10 EC).



# Graduation project

- Before you start, register for the graduation project via Osiris and webform (education guide).
- No registration deadline for graduation project course code: register when you are about to start
- Examination Committee is very strict on the duration of the graduation project!
- Half way through the graduation project -> evaluation/feedback moment with presentation
- Based on feedback, extra training on writing or presenting may be necessary

# Graduation project

- At the end of the graduation: final presentation (defense) and graduation paper
- Assessment is done by graduation committee
- Check the **Study guide Graduation project EE** for detailed information:  
<https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/curriculum/graduation-project/>

# English language skills

SFC640, SFC630, SFC600

- Good language skills in writing and presenting/speaking are essential in the master and beyond
- You can follow extra courses:
  - SFC640 Academic writing in English (can be used as a master elective)
  - SFC630 Pre-academic writing in English
  - SFC600 English Placement Test (entrance test for SFC630/SFC640)
  - SkillsLab: <https://skillslab.tue.nl>
  - Academic Writing Skills and English Language Toolbox, see: <https://educationguide.tue.nl/career-skills/language-courses-and-academic-writing-skills>
- Good language skills are also part of the assessment of internship and graduation

# Master's tracks

## Two tracks within the Master's program of Electrical Engineering

- Care & Cure (C&C):  
<https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/master-track-care-cure>
- Connected World Technologies (CWT)  
<https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/master-track-connected-world-technologies>

Obtain certificate as proof of further specialization

But: choosing a track is not mandatory

What to you need to do?

- If you choose a track(s), indicate this on the **Approval study package Master EE Excel**

# Master's tracks C&C and CWT

Master's tracks	Research groups
Connected World Technologies	ECO, PhI, EM, IC, SPS
Care & Cure	PhI, EM, IC, SPS

## Requirements for certificate C&C and CWT

- Two specialization electives from one of the research groups (main specialization), and
- Two additional specialization electives from the remaining research groups (other specialization), and
- Graduation project is in the field of C&C or CWT

# Master's tracks C&C and CWT

## Subtracks within C&C

- Neuro engineering
- Oncology
- Cardiology
- Perinatology

## Requirements for subcertificate C&C

- Meet the criteria for the C&C certificate
- Choose three master electives from a specific C&C subtrack, see <https://educationguide.tue.nl/programs/graduate-school/masters-programs/electrical-engineering/master-track-care-cure/>
- Courses from the C&C subtrack done in the Bachelor also count for the subcertificate

# Q&A

Two Q&A's:

- International Experience 15 November 2023 (probably 😊)
- Internship and graduation project February 2024

Keep an eye on 5EE-INFO 23/24 for more information on the Q&A sessions.

# Finally

- This presentation will be shared on the education guide
- Questions?
- Before we go: form 7 groups of students



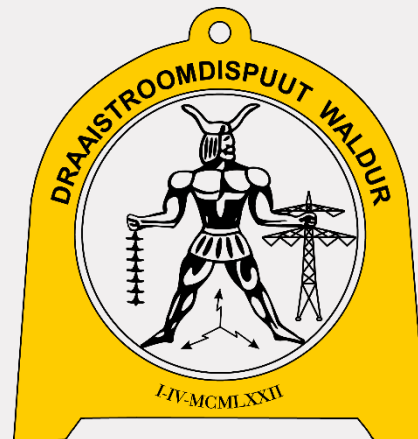
# Department Day

- 13:00h – Walk-in with coffee and tea
- 13:15h – Introduction TU/e and Electrical Engineering
- 13:25h – General information for all master students
- 13:55h – Specific information about the curriculum
- **14:15h – Break with coffee and tea**
- 14:30h – Tour de Flux
- 16:30h – Drinks and BBQ
- 19:00h – Closure



**IEEE**

**IEEE Student Branch Eindhoven**



# Study Association e.t.s.v. Thor

- Study material
- Symposia
- Workshops
- Excursions
- Lunch lectures
- Study trips
- Parties



# What is a Master Association?

- Goal: help (master) students to explore educational and job opportunities in a specific area.
- Organizing activities
  - Excursions
  - Lunch lectures
  - Study trips

# Why this presentation?

## Bachelor EE

Care  
&  
Cure

Smart and  
Sustainable  
Society

Connected  
World



Department Day Master Kick-Off 2023



TU/e



# DSD WALDUR

## Master study association Waldur

- Electricity Network / Smart Grids
- Sustainability
- Power Conversion / Power electronics
- Electromechanics
- Automotive

Groups: EPE/EES

## Communication

- Website
- Facebook
- LinkedIn group

[www.Waldur.nl](http://www.Waldur.nl)

<https://fb.com/dsdwaldur/>







# DSD WALDUR

## How do we connect?

- Company visits
- Lunch lectures
- Study tours
- Network events
- Vacancies
- Symposium
- Informal Drink



# Master Association ODIN

Founded: 10 March 1980

Members: +/- 60

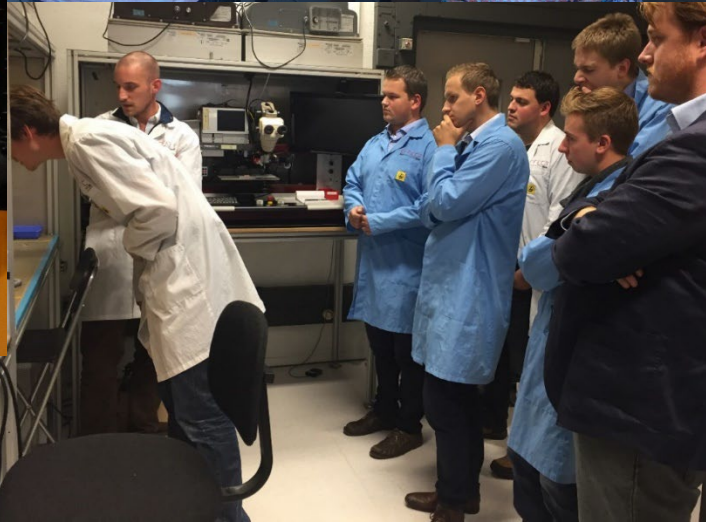
Own alumni society: IORD

Purpose: Introduce (pre-)master students into the field of telecommunications and information technology (Connected world). Promote research in these fields.

Excursions, lectures, trips, symposia, workshops and more...



# Activities



**SMART** Photonics  
III-V foundry services

Department Day Master Kick-Off 2023

# What is Eir?

- Care & Cure
- Started in 2016
- +- 50 members

## Expertise

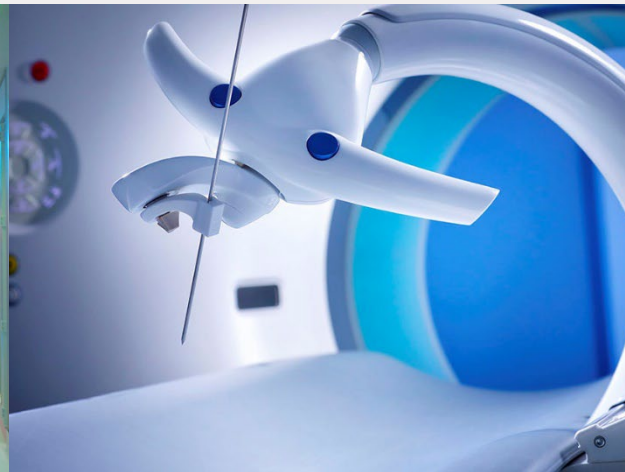
- Electromagnetics
- Image Processing
- Bio-Electronics
- Control Systems
- Signal Processing







**PHILIPS**  
Healthcare



Department Day Master Kick-Off 2023

**TU/e**

# More information?

[www.waldur.nl](http://www.waldur.nl)

[www.ma-eir.nl](http://www.ma-eir.nl)

[www.odin.tue.nl](http://www.odin.tue.nl)

StudentBody



Master Kick Off 2022

Contact: [SB@tue.nl](mailto:SB@tue.nl) | [Studentbody.nl](https://studentbody.nl)

## The StudentBody

- The educational feedback body of the Department of Electrical Engineering
- By students, for students

# THE STUDENTBODY TEAM



## What do we do?

- Year Councils
- Panel of Education
  - BBQ
  - Dinner with the Dean
  - Best Teacher Awards
  - Contact us with educational problems



## Year councils and panel of education

- Year Councils with Commissioner of Education
- Panel of Education with Commissioner of Education, Program Directors, Quality Assurance Officer and student-member of Department Council
- Setup unique within TU/e
- Short feedback loop
- Problems can be fixed a.s.a.p.



**Questions?**



**IEEE**

---

**IEEE Student Branch Eindhoven**

# Who are we?



Quinten

Luca

Stan



---

**IEEE Student Branch Eindhoven**

**TU/e**

# What is IEEE?

- Institute of Electrical and Electronics Engineers
- Global organization, originally from the United States
- Involved in Standards & Regulations, Educational Activities and Publications & Conferences



---

**IEEE Student Branch Eindhoven**

# What does our student branch do?

- Organize a range of activities for members of the faculty EE.
- Manage IEEE memberships for faculty members.
- Focus on interaction, knowledge exchange and a hint of professionalism



---

**IEEE Student Branch Eindhoven**  
**TU/e**



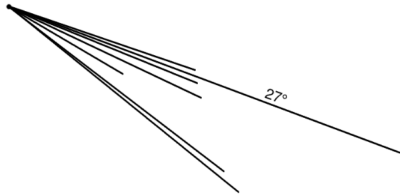
# Activities



## 1 Golden Rule

What ruler is found in the following image?

AFAD



**IEEE Student Branch Eindhoven**  
**TU/e**

# Committees

- WIE (Women In Engineering)
- SailCo
- Capricorn
- ReLCo
- BOCo
- LuCo



---

**IEEE Student Branch Eindhoven**

**TU/e**



# More information

- [ieee.tue.nl](http://ieee.tue.nl)
- Contact us at [ieee@tue.nl](mailto:ieee@tue.nl)
- Find us in Flux on the 6<sup>th</sup> floor, directly opposite of the stairs.



---

**IEEE Student Branch Eindhoven**