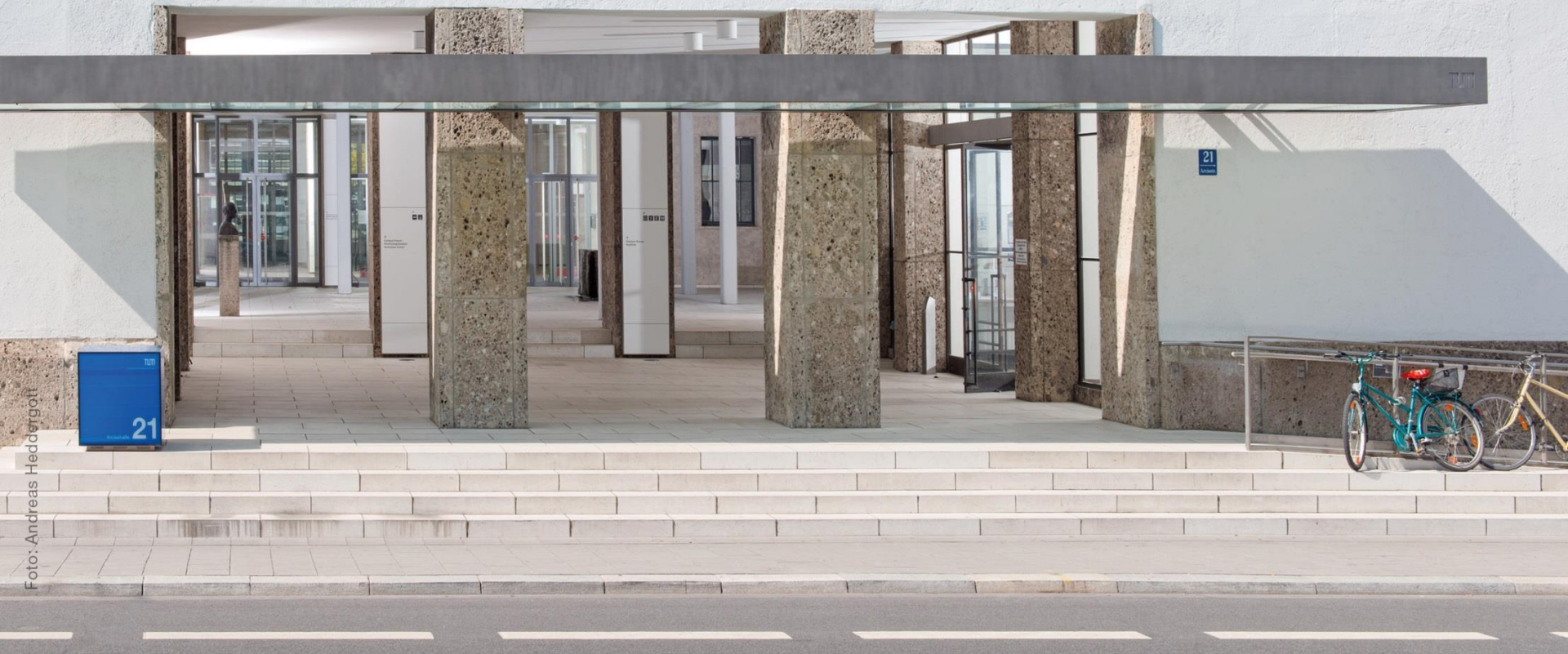


TECHNISCHE UNIVERSITÄT



# Master's Days – MSEI, MSCE, MSMCD

TUM School of Computation, Information and Technology

28.03.2025

Valentin Ahrens (MSEI), Kamolrat Ruangkhanap (MSMCD)  
and Iris Schachtner (MSCE)

# Questions Asked in Advance

## Here for Information only

- I do not have a specific question yet, I just want to inform myself.
- Perfect 😊, if any questions arise during the session, ask them in the chat we will keep track and try to answer them...

## Field 1 – Prerequisites and Application

- How are the possibilities with a Bachelor in XXX?
- Is a Informatics Bachelor good to start?
- What prerequisites are there for the MSEI?
- How about Language requirements?

### ➤ Prerequisites:

- (Basically any technical) Bachelor Degree, no matter if TUM, other University, dual or FH/TH
- A certain number of ECTS/Credits from the Fields Mathematics, Physics, Electrical & Computer Engineering  
(Calculator/Chancenrechner on:  
<https://www.cit.tum.de/cit/studium/studiengaenge/master-elektrotechnik-informationstechnik/>)
- Combined with grade of the Bachelor to result in a score, no minimum grade!
- Depending on the score: Direct acceptance, Interview, Direct Rejection German language Certificate essentially needed for the application not later (MSEI)! No proof of English needed (MSEI).
- No „Auflagenfächer“!

## Field 1 – Prerequisites and Application

- How and when to apply in the case of me finishing my Bachelors at TUM in the coming semester
- Can I apply before I get my degree certificate?
- Can I do master modules while still in bachelors and then use the credits?

### ➤ Transfer from Bachelor

- Application: 01.04.-31.05 for winter term and 1.10.-30.11. for summer term
- Transcript of records is sufficient for application, (preliminary) Certificate needed at latest for enrollment
- Application via TUMonline
- For international applicants get your degree checked by [uni-assist.de](http://uni-assist.de)

## Field 1 – Prerequisites and Application

- Transfer from another University?
  - General questions regarding application and Living in Munich
- 
- Transfer from other University
    - Can be done but usually with a loss of Credits.
    - High risk, usually not recommended!
    - Contact us beforehand ([academic-advising-ece.asa@xcit.tum.de](mailto:academic-advising-ece.asa@xcit.tum.de))
  - Living in Munich
    - Student housings provided by the Studentenwerk München (long waiting lists)

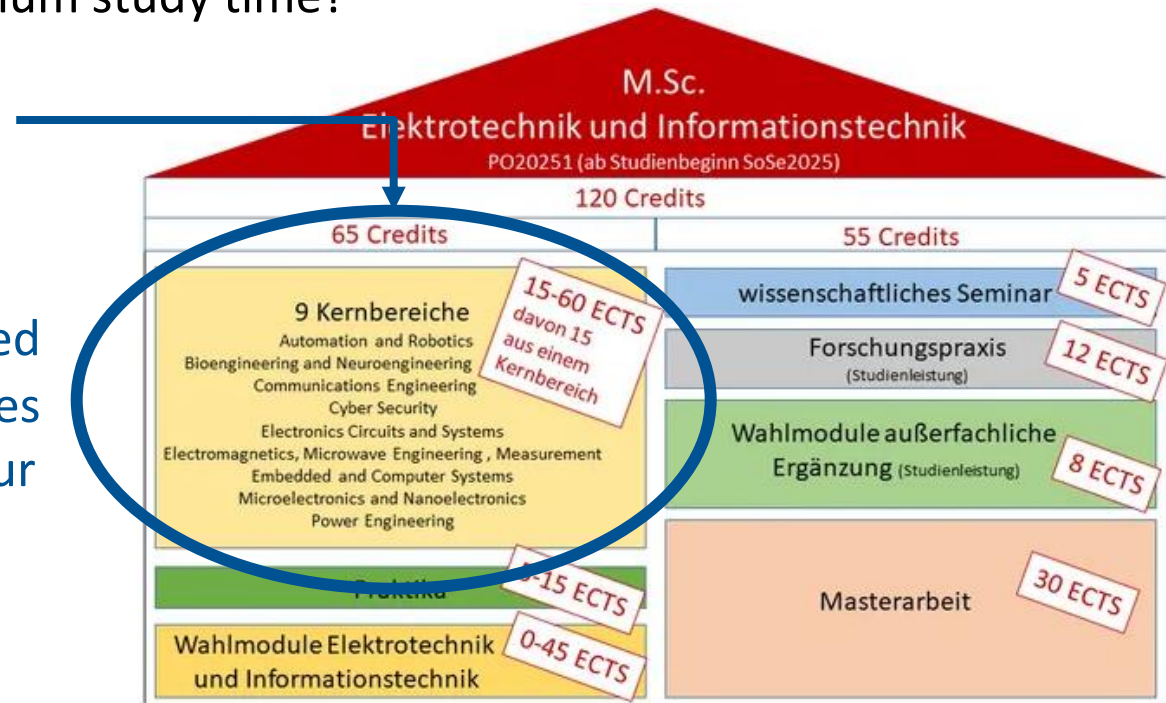
# Questions Asked in Advance

## Field 2 – During the Masters

- What are the contents of the course?
- How difficult is the Masters program?
- How do the internships ('Praktika') mentioned in the module book work?  
And How much practical courses are there
- What is the maximum study time?

➤ **Core modules:**  
Chose regarding  
your own interest!

You are neither fixed  
to one field nor does  
the choice limit your  
available modules.



# Questions Asked in Advance

## Field 2 – During the Masters

- Can I take courses of XXX? How is YYY represented?
- How to plan your courses for the 4 semesters?
- Check out the Module List (found at

<https://www.cit.tum.de/en/cit/studies/degree-programs/master-electrical-engineering-information-technology/>)

### Katalog Bioengineering / Neuro Catalogue Bioengineering / Neu

EI7473	BioMEMS and Microfluidics
EI70210	Biomolecular Electronics
EI70220	Digital Signal Processing
EI70270	Neuroprosthetics
EI70240	Statistical Signal Processing
EI70250	Systemtheorie der Sinnesorgane*) nicht mit EI70260 belegbar

### Katalog Communications Engineering: Catalogue Communications Engineering:

EI70320	Channel Coding	WS/SS	5	3/2/0	COE
EI70330	Data Networking	WS	5	3/1/0	LKN
EI70220	Digital Signal Processing	WS/SS	5	3/1/0	LMT
EI70350	Information Theory				
EI70360	Machine Learning and Optimization				
EI70370	Physical Layer Methods				
EI70380	Signal Processing and Machine Learning				
EI70240	Statistical Signal Processing				

MW1902	Automatisierungstechnik
MW2104	Engineering Methods and Data Management for Mobile and Stationary Mechatronic Systems
EI7310	Batteriesystemtechnik
ED180021	Battery Applications
EI7312	Bewegungssteuerung durch geregelte elektrische Antriebe

EI7263	Biologically-Inspired Learning for Humanoid Robots	SS	6	2/0/2	ICS	m (30%) + m (10%) + l (30%) + HA (30%)	E	3)5)7)9)
CIT3430000	Biomedical Engineering – Diagnostics and Clinical Correlations	WS	5	2/2/0	LBE	s, 90 min (80%) + v (20%)	D/E	3)
CIT4330010	Brain, Mind and Cognition	WS	6	3/0/0	LDV	b (40%) + HA (60%)	E	5)7)9)
EI7411	Channel Codes for Iterative Decoding	SS	5	3/1/0	LNT	s, 90 min	E	6)

EI71106	Introduction to Design, Control and Perception of Aerial Robotics	SS	6	2/2/2/0	RSI	s 120 min (40%) + p (60%)	E	9)
EI71099	Introduction to Human and Robotic Hand Grasping: Control and Manipulation	SS	6	2/2/2/0	RSI	s 90 min (40%) + p (60%)	E	9)
CIT433022	Introduction to Quantum Optics and Applications	WS/SS	5	2/2/0	LTI	m (75%) + ü (25%)	E	6)
CIT4330000	Introduction to Soft Robotics	WS	6	2/0/2	ICS	l (40%), v (20%), m (40%)	E	9)
CIT4430009	Inverse Problems in Electromagnetic Imaging	SS	5	3/1/0	HFT	s 90 min	E	2)
CIT4330009	IoT Security	WS/SS	5	2/2/0	ESI	s (60%) + ü (20%) + 20%	E	5)
EI7383	Künstliche neuronale Netze zur Identifikation mechatronischer Systeme	WS	6	2/1/1	EAL	s, 90 min	D	
ED160007	Lithium-Ionen-Batterieproduk-	WS	5	2/1/0	SoED	s 90 min	D	

# Questions Asked in Advance

## Field 2 – During the Masters

- What are the best opportunities to study abroad?

TUMexchange + ERASMUS+





# Questions Asked in Advance

## Field 2 – During the Masters

- Is it possible to take courses from other departments?
- How flexible is it to shift to the other master programs.
- Are there advantages choosing the MSEI over the MSMCD when having a interest in Chip-Design?
- What changes are there to the MSEI after MSNE is discontinued?
- Possibilities of combining Masters and PhD studies?
- External master thesis, wanted/disencouraged?
- Opportunities for internships, research collaborations.

# Questions Asked in Advance

## Field 2 – During the Masters

- Is Working part-time/full-time besides the Master possible
  - What are examples of research topics?
- 
- Working besides the Master:
    - Full-time work can be legally difficult (to the best of my knowledge)
    - Part time work can be possible (heavy workload with a full-time study)
    - Part-time study programs (50% and 66%) are available for the MSEI
    - Student jobs (1-2Days a week) in parallel are very common
  
  - Research Topics:
    - MSEI covers a broad range of Research topics all through the Electrical and Computer Engineering
    - Examples: Nanoelectronics, Circuit Design, Cryptography and Cyber Security, Biomedical, Robotics, Energy Systems, Communication Systems, Neuroengineering, Integrated Electronics, Optoelectronics, Sensors, etc.

# Questions Asked in Advance

## Field 3 – After finishing the Masters

- What career paths are available to graduates?
  - Job opportunities
    - Fields of work basically spans the same broad range as the research topics.
    - Job Profiles: Research, Development, Production, Planning, Sales, Patent lawyer, Insurances, Management, Consulting, etc.
    - Typical employers: Any kind of Companies, Universities and Research Institutes, Public Authorities, Radio/TV, etc.





## Ergebnisse der Befragung

geantwortet haben vor allem Absolvent\*innen der Jahre 2017-2019

- 90% würden wieder den MSEI studieren
- 96% sind aktuell erwerbstätig
  - davon 75% abhängig beschäftigt (>55% bei großen Unternehmen)
  - 17% promovieren
  - 3% sind selbständig



- >80% hatten spätestens 3 Monate nach Abschluss einen Job
- 80% mussten nur 0-5 Bewerbungen schreiben (davon 19% 0 Bewerbungen)

3



40:18



-1:13:02



1x

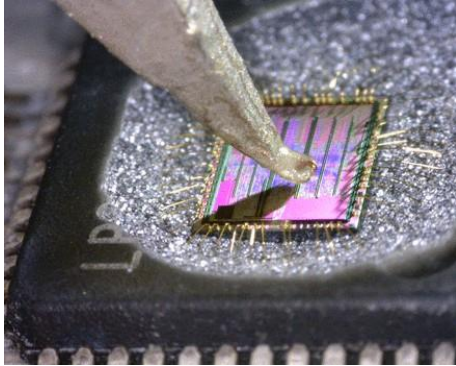
Geschwindigkeit



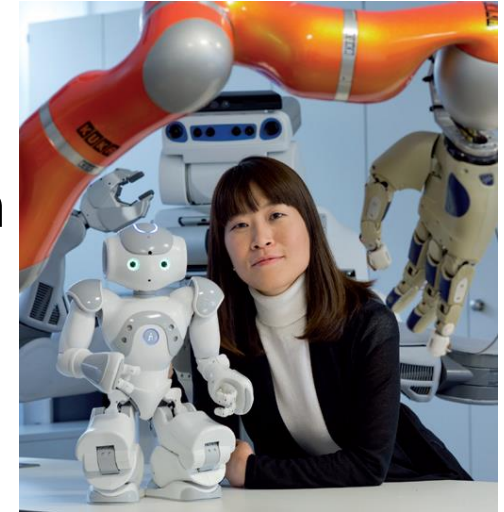
Qualität

**Virtueller Tag der Fakultät EI 2021**  
**Video unter: <https://www.ei.tum.de/tdf/>**

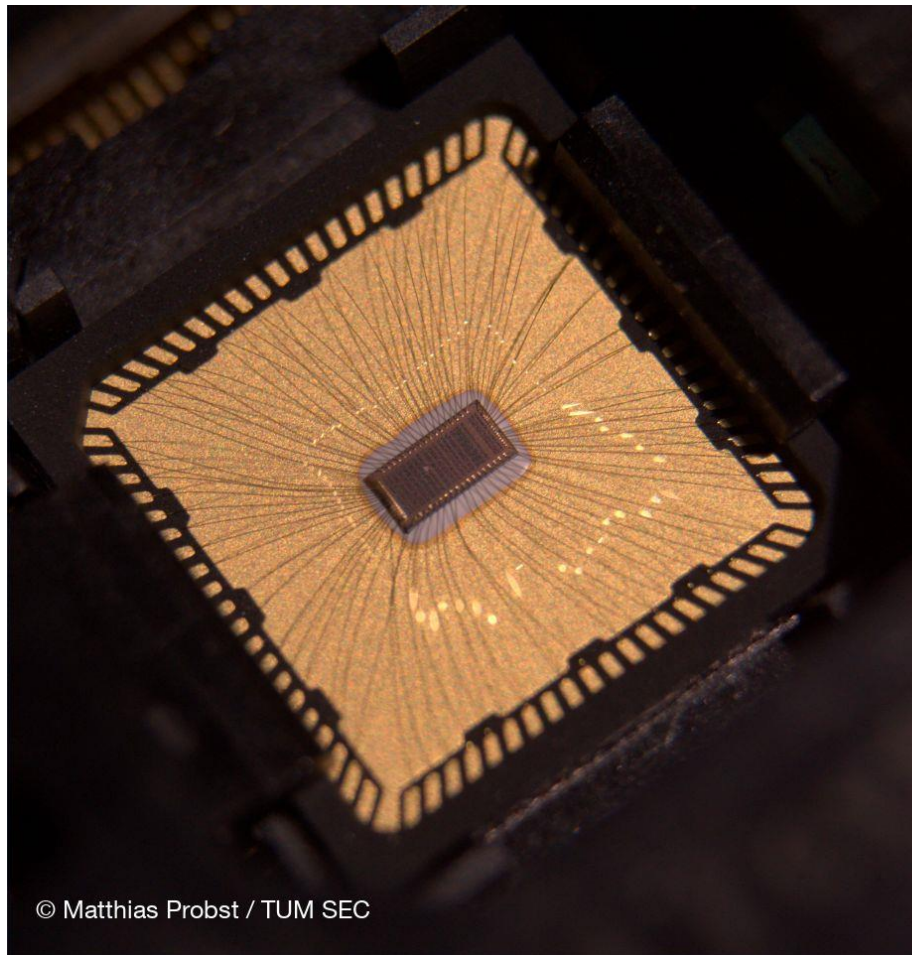
# Job Fields Electrical and Computer Engineer



Medical Engineering  
Robotics  
6G Mobile Communication  
Automotive  
Aerospace  
Artificial Intelligence  
Nanoelektronik  
Sensors  
Renewable Energies  
Cloud Computing  
Gaming  
Embedded Systems



# MSMCD – Master of Science in Microelectronics and Chip Design



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TUM School of Computation, Information and Technology  
Technische Universität München



## Microelectronics and Chip Design

Are you interested in our new Master's  
program? Join the info session!



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**March 31**

Monday

14:00

- Is it possible to do double master's with MSEI and MSMCD?

# MSCE – Master of Science in Communications and Electronics Engineering

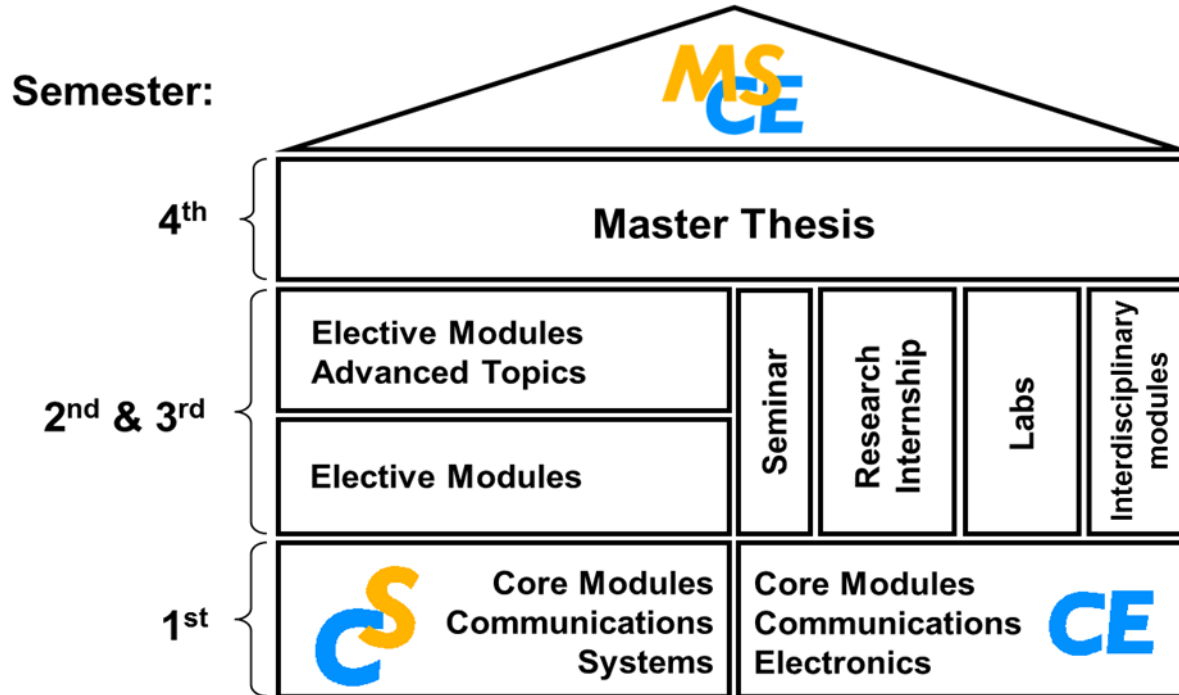
- What are the differences between different Master opportunities in EI (for example MSEI and MSCE) and is it possible to switch?

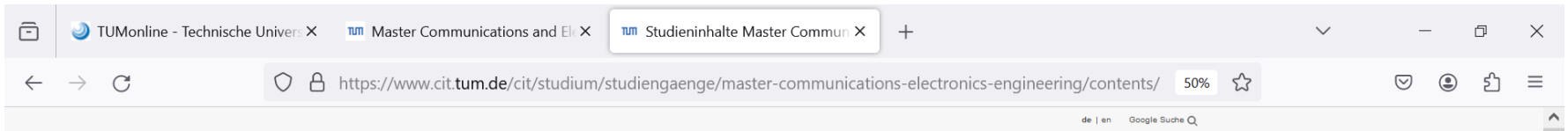


# Questions Asked in Advance

## Field 1 – Prerequisites and Application - MSCE

- Regarding application requirements?
  - Prerequisites:
    - English language certificate is required
    - No German language skills are required
    - Bachelor Degree with focus on Communications or Electronics Engineering, VPD
    - A certain number of ECTS/Credits from the Fields Mathematics, Electrical & Computer Engineering, Communications Engineering
    - Good (very good) grade of the Bachelor
    - Statement of Purpose
    - Letters of Reference
    - Direct Admit, Interview, Direct Rejection
    - Deadline for winter semester 2025/2026: 31th May 2025





- Startseite
- Studium
- Vor dem Studium
- Studiengänge
- Bachelor Bioinformatik
- Bachelor Elektrotechnik Informatik
- Bachelor Informatik
- Bachelor Informatik: Games Engineering
- Bachelor Information Engineering
- Bachelor Mathematik
- Bachelor Wirtschaftsinformatik
- Master Bioinformatik
- Master Biomedical Computing
- Master Communications Electronics Engineering
- Degree Program Contents
- Master Computational Science and Engineering
- Master Data Engineering and Analytics
- Master Elektrotechnik Informatik
- Master Informatik
- Master Informatik: Games Engineering
- Master Information Systems
- Master Mathematik
- Master Mathematical Finance & Actuarial Science

Startseite » Studium » Studiengänge » Master Communications Electronics Engineering » Degree Program Contents

Diese Seite ist nur auf Englisch verfügbar, da die Unterrichtssprache Englisch ist und wir für diesen Studiengang keinen Deutschnachweis fordern.

## Degree Program Contents Master in Communications and Electronics Engineering

### Follow up Guidelines

- For orientation in the study program, the following guidelines can be used:
- Communications Systems track: [Core Modules Follow up Modules](#)
  - Communications Electronics track: [Core Modules Follow up Modules](#)

### Degree Program Handbook

- Students who have started in winter semester 2022/2023 at TUM can download the Degre Program Handbook:
- [Degree Program Handbook WS 2022/2023](#)

### Module List and Module Descriptions

- The module list of the MSCE program can be found here:
- [Students who start the program in winter semester 2023/24: Module list MSCE\\_PO2023](#)
  - [Students who have started the program before winter semester 2023/24: Module list MSCE\\_PO2016](#) (Module descriptions are available in TUMonline)

### Suggestions for modules for interdisciplinary area:

- German Courses (recommended)
- Language Courses (exempt English)
- Management Courses

### Master's Thesis

Students can start the master's thesis if they have passed 63 credits from course work plus the research internship. For the registration of the master's thesis students have to contact the MSCE office.

Professors from CIT (department Electrical Engineering, Computer Engineering, Computer Science and Mathematics) are allowed to supervise

**TUM School of Computation, Information and Technology**

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**Contact**  
[mace\(at\)ei.tum.de](mailto:mace(at)ei.tum.de)  
Tel. +49 89 289 22265

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- Bachelor Mathematics +
- Bachelor  
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Electronics Engineering +
- Master Computational  
Science Engineering +
- Master Data Engineering and  
Analytics +
- Master Electrical  
Engineering and  
Information Technology** -
- Academic Content
- Master Informatics +

Home > Studies > Degree Programs > Master Electrical Engineering and Information Technology

## Electrical Engineering and Information Technology

### Master of Science (M.Sc.)

[Before starting the degree program](#) | [During the degree program](#) | [Contact](#)

The program builds upon students' existing competencies in Electrical Engineering and Information Technology (EI) and covers the spectrum of the academic field in all aspects. Moreover, it offers the opportunity for students to specialize in the following core areas:

- Automation and Robotics
- Bioengineering and Neuroengineering
- Communications Engineering
- Electromagnetics, Microwave Engineering and Measurements
- Electronic Circuits and Systems
- Embedded and Computer Systems
- Microelectronics and Nanoelectronics
- Power Engineering

The focus is on an academic training. Students learn how to research independently in project work and internships. Interdisciplinary modules improve their skills by developing their intercultural, business, social and personal competencies. This opens the door for a career in industry or research for graduates of the master's program in Electrical Engineering and Information Technology.

<b>Key Data</b>	+
<b>How is the program structured?</b>	+
<b>What skills and competencies will I acquire?</b>	+
<b>What career opportunities will I have afterwards?</b>	+
<b>What part-time options are available?</b>	+

### TUM School of Computation, Information and Technology

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#### Contact

**E-Mail:** [master\(at\)ei.tum.de](mailto:master(at)ei.tum.de)

**Tel:** +49 89 289 22242

#### [Examination Board](#)

#### [Student Academic Advising](#)

#### [Study Guide](#)

#### [Academic and Examination Regulations](#)

#### [Module List](#)

#### [new modules from the SS2024](#)

- **Student Advisory Service EI**
  - Topical questions regarding EI
  - Details about the Courses
  - Dipl.-Ing. Florian Rattei, Valentin Ahrens, M.Sc.:  
[academic-advising-ece.asa@xcit.tum.de](mailto:academic-advising-ece.asa@xcit.tum.de)
  - MSMCD: [msmcd.asa@xcit.tum.de](mailto:msmcd.asa@xcit.tum.de), Kamolrat Ruangkhanap
  - MSCE: [msce.asa@xcit.tum.de](mailto:msce.asa@xcit.tum.de), Iris Schachtner
- **General Student Advisory Services**
  - Information about Prerequisites
  - General Questions regarding Enrollment, Documents, Deadlines
  - Service Desk of the **TUM Center for Study and Teaching**,  
[studium@tum.de](mailto:studium@tum.de) 089/289-22245