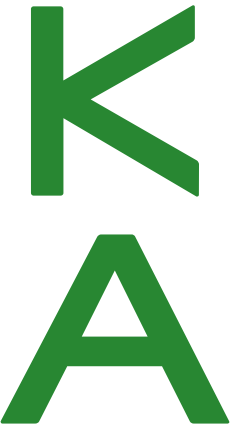# Electrical Engineering and Information Technology

What will you know after this presentation?

1. Why to **study in Karlsruhe**, Germany?

2. A short overview about our **university**

3. Things you should know about **our faculty** and its courses

4. A short introduction to our **new international bachelor degree programme**

5. And what about our well-established international **master's course**?

6. Questions and answers

Karlsruhe: located at the heart of Europe
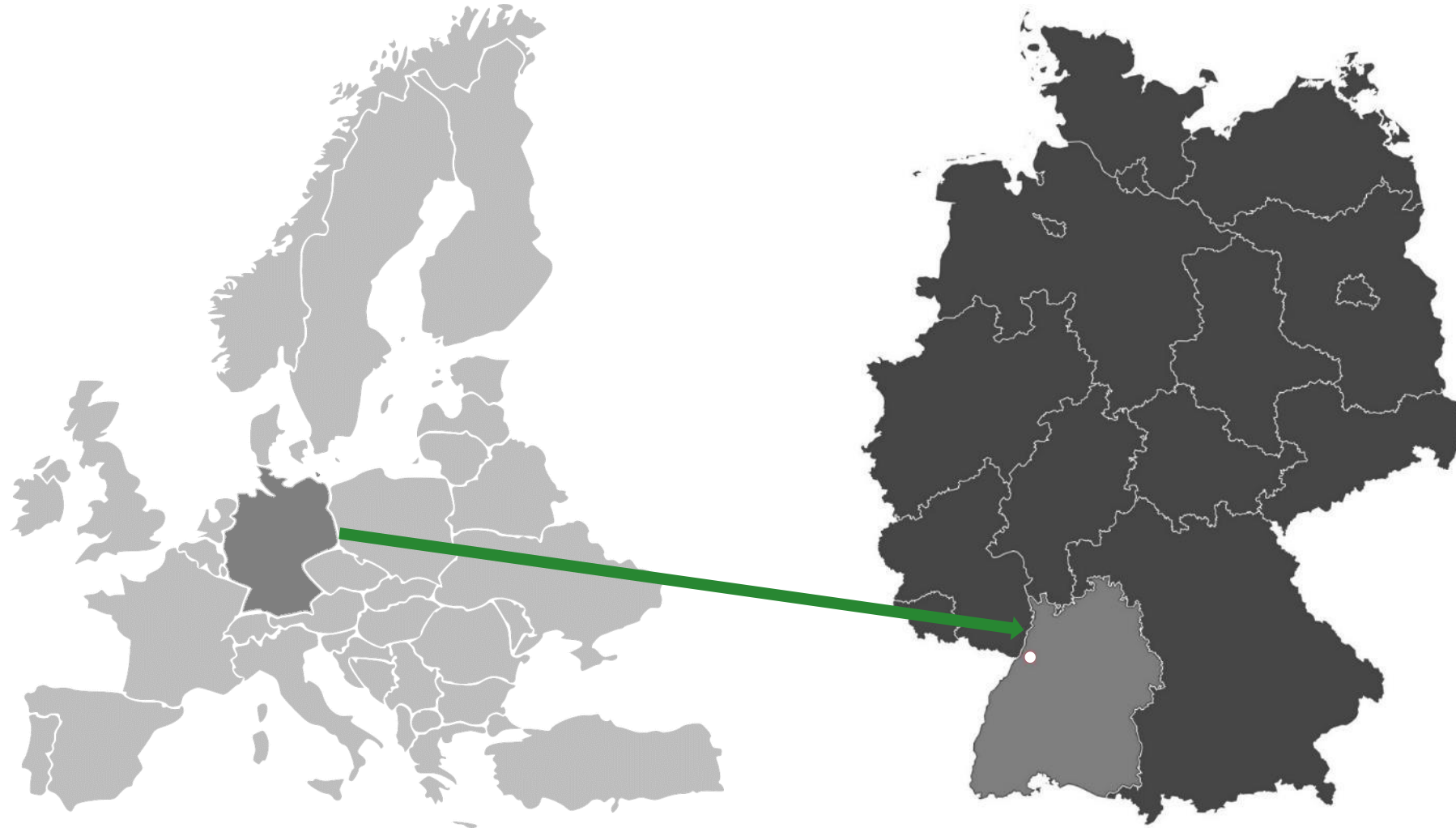
Some highlights about Karlsruhe

Germany's city "fittest for the future"
Morgenstadt City Index 2016

City of culture & creativity
ranked 2nd amongst Europe's medium-sized cities in 2017 "Cultural & Creative Cities Monitor"

Germany's most bicycle-friendly city
ADFC 2019

Excellent public transport system

Center of one of Europe's top technology regions

Germany's capital of justice
Seat of the Federal Constitutional Court and the Federal Court of Justice

All pictures by „Stadt Karlsruhe"

Karlsruhe as an important technology region

Our university is embedded in nature

Faculty of Engineering and Information Technology
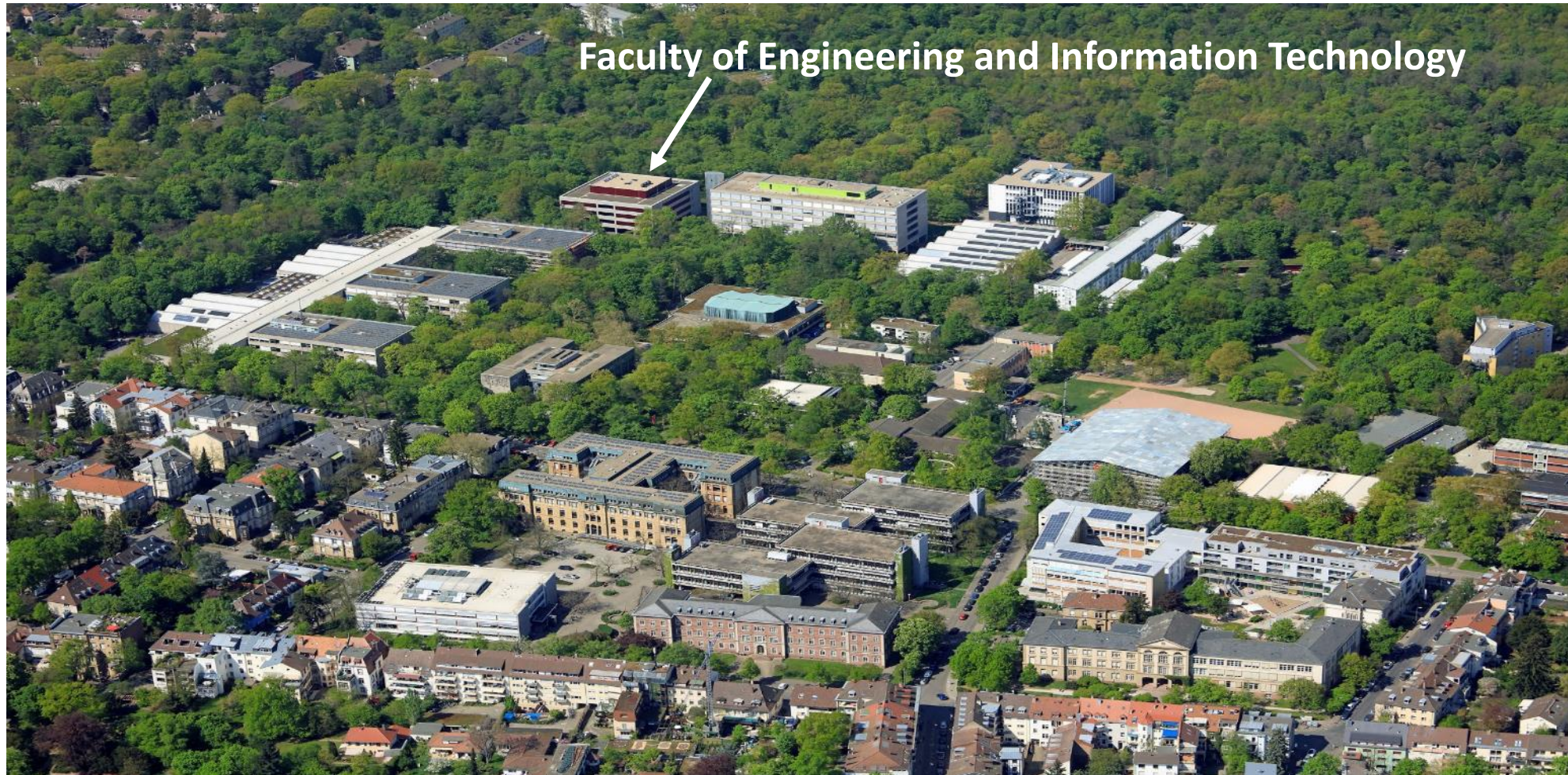
Our university's facts & figures

1878
founding year

1971
university status

7,000
full-time students

210
full professors

390
lecturers and instructors

6
faculties

22
bachelor's programs

20
master's programs

Key benefits of our bachelor degree programmes

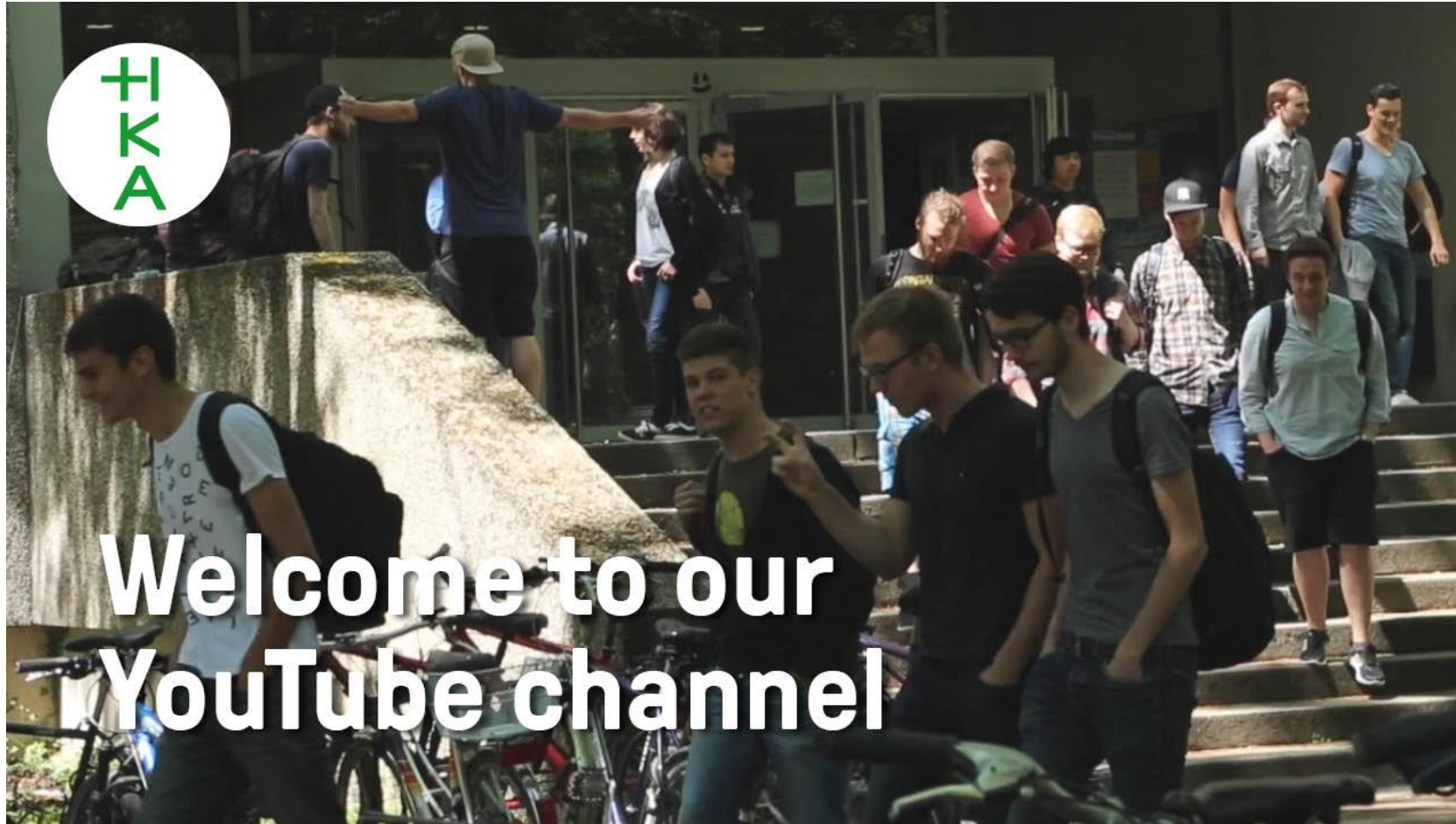|			
Ideal ratio of theory and practice	**Classroom-sized lecture halls**	**High career opportunities in German industry**	**Close supervision by + 30 professors**
Close industry network	**+ 3 years industry experience of all professors**	**Application-oriented education**	**Huge range of subjects**

Our bachelor's programmes

Electrical Engineering and Information Technology (EITB)

- 100% German teaching language
- 7 semesters, 210 ECTS
- Areas of specialisation as focal subjects:
  - Information Technology
  - Industrial Automation
  - Electromobility and Autonomous Systems
  - Power Engineering and Renewable Energy
  - Sensor Technology
  - Environmental Instrumentation

Electrical Engineering and Information Technology (EEIB)

- 100% English teaching language
- **Started in Oct. 2021**
- 7 semesters, 210 ECTS
- Focal subjects for area of specialisation at the main course
  - Automation & Robotic
  - Information Technology

Our master's programmes

Electrical Engineering and Information Technology (EITM)

- 100% German teaching language
- 3 semesters, 90 ECTS
- Areas of specialisation as focal subjects :
  - Information Technology
  - Industrial Automation
  - Electromobility and Autonomous Systems
  - Power Engineering and Renewable Energy
  - Sensor Technology

Sensor Systems Technology (SSTM)

- 100% English teaching language
- 4 semesters, 120 ECTS
- Natural Sciences & Electrical Engineering combined
- Research oriented

Robotics and Artificial Intelligence in Production

- Mainly German teaching language, individual lectures in English
- 3 semesters, 90 ECTS
- Combines different subject areas
- Digital transformation oriented

Bachelor programme Electrical Engineering and Information Technology

Top facts:

- Brand new, started in Winter 2021/22 (Oct. 2021)
- One start per year
- Real, 100% English-taught programme
- In-depth education in a broad range of Electronics, Control, Computing, Natural Sciences
- Proven concept, interchangeable with German taught parallel programme
- German language course in parallel
- 7 Semesters, two focal subjects for individual specialisations
- Precondition: German language knowledge of level A1 to be admitted

See website of department: **https://www.h-ka.de/en/eeib**

Modules in basic study period

Semester 1

- Mathematics 1
- Circuit Analysis 1
- Physics
- Programming 1
- Language 1

Semester 2

- Mathematics 2
- Circuit Analysis 2
- Electromagnetic Fields
- Digital Electronics
- Language 2

In Detail: Basic Study Period

Semester 1

Mathematics 1 6 SWS (7 CPs)	Circuit Analysis 1 (DC) 3 SWS (3 CPs) Circuit Analysis Project 1 1 SWS (2 CPs)	Physics 4 SWS (4 CPs) Physics Lab 2 SWS (2 CPs)	Computer Programming 2 SWS (4 CPs) Computer Programming Lab 2 SWS (2 CPs)	Deutsch als Fremdsprache 1 4 SWS (4 CPs) Intercultural Communication 2 SWS (2 CPs)

26 SWS
30 CPs
5 Exams
2 Labs

Semester 2

Mathematics 2 6 SWS (7 CPs)	Circuit Analysis 2 (AC) 4 SWS (4 CPs) Circuit Analysis 2 (AC) Lab 2 SWS (3 CPs)	Electromagnetic Fields 4 SWS (4 CPs)	Digital Electronics 4 SWS (4 CPs) Digital Electronics Lab 2 SWS (2 CPs)	Deutsch als Fremdsprache 2 4 SWS (4 CPs) Scientific Work 2 SWS (2 CPs)

28 SWS
30 CPs
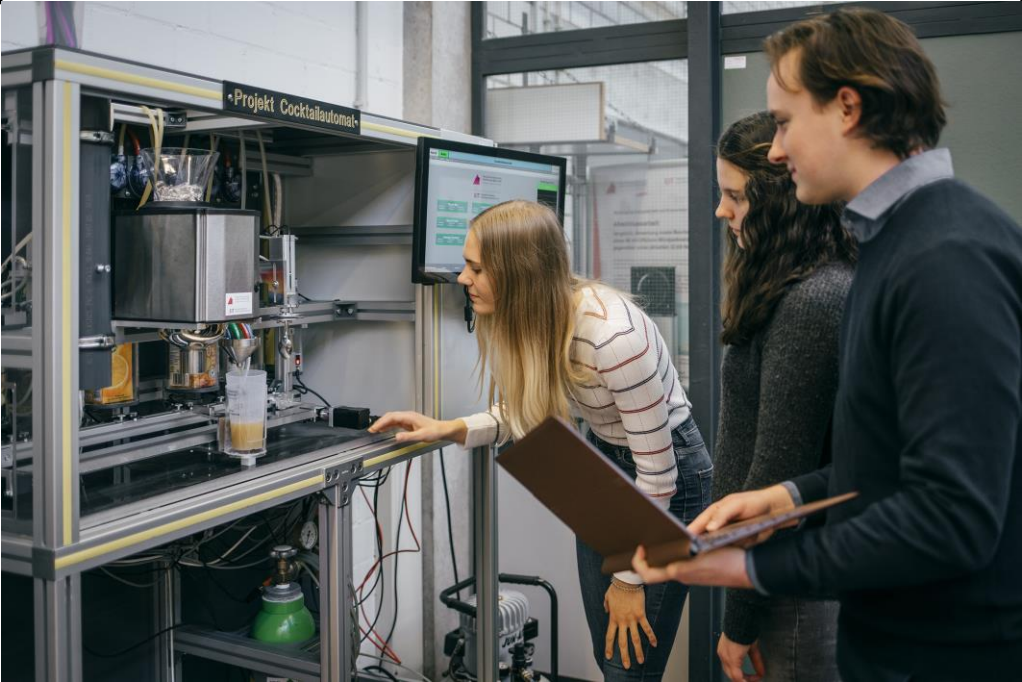5 Exams
2 Labs

SWS = Semester hour per week

CP = Credit Point (ECTS)

Emphasis in the main course of study program

Industrial Automation	Robotics

Modules in main study period

Semester 3

- Mathematics 3
- Instrumentation and Measurement
- Programming 2
- Signal and Systems
- Language 3

Semester 4

- *Focal Subjects 1*
- Advanced Electronics
- Microcontroller Systems
- Control Systems
- Management

Semester 5

- Practical Training Guidance
- Practical Placement / Industry Internship

Semester 6

- *Focal Subjects 2*
- Digital Systems

Semester 7

- *Focal Subjects 3*
- Project
- Bachelor Thesis
- Final Presentation

EEIB Module Summary: Main Study Period

Semester 3

Mathematics 3 4 SWS (5 CPs)	Instrumentation and Measurement 4 SWS (4 CPs)	Object Oriented Programming 2 SWS (2 CPs)	Signals and Systems 4 SWS (4 CPs)	Language 3 4 SWS (4 CPs)
Modelling and Simulation 2 SWS (2 CPs)	Instrumentation and Measurement Lab 2 SWS (3 CPs)	OOP Lab 2 SWS (2 CPs) / OOP Project 2 SWS (2 CPs)	Signals and Systems Lab 2 SWS (2 CPs)	

First time WS 22/23
28 SWS
30 CPs
6 Exams
3 Labs

Module exchanged

Semester 4

Applied Control 4 SWS (5 CPs)	Advanced Electronics incl. Lab 4 SWS (5 CPs)	Microcontroller-Systems 4 SWS (4 CPs)	Control Systems 4 SWS (5 CPs)	Management 6 SWS (6 CPs)
Applied Control Lab 2 SWS (2 CPs)	Advanced Electronics Lab 2 SWS (2 CPs)	Microcontr.-Systems Lab 2 SWS (2 CPs)	Control Lab 2 SWS (2 CPs)	

First time SS 23
30 SWS
33 CPs
6 Exams
3 Labs

Semester 5

Practical Placement (Internship in Industry) 95 days (24 CPs)	Practice Preparation and Practical Training Follow-Up 4 SWS (6 CPs)

First time WS 23/24
4 SWS
30 CPs

Focal Subjects of

Automation Technology

Semester 6

Automation Engineering 4 SWS (5 CPs)	Robotics 2 SWS (3 CPs)	Wireless Communication and Information Technology with Lab 3 + 1 SWS (5 CPs)	Physical Sensors 4 SWS (5 CPs)	Theory of Digital Systems 4 SWS (4 CPs)
Automation Engineering Lab 2 SWS (2 CPs)	Robotics Lab 2 SWS (2 CPs)			Bus Systems 2 SWS (2 CPs)

First time SS 24
24 SWS
28 CPs
6 Exams
3 Labs

Information Technology

Sensor Technology

Semester 7

Industrial Internet of Things 2 SWS (3 CPs)	Project (7 CPs)	Bachelor-Thesis (12 CPs)	Final Presentation (3 CPs)
Process Control Systems 2 SWS (2 CPs)			
Stud. Generale 2 SWS (3 Cps)			

First time WS 24/25
6 SWS
30 CPs
3 Exams

# Impression of projects

Master programme Sensor Systems Technology

Top facts:

- Established, long experience with international students. Support by International Office
- Dual degree programs, students from all over the world, 25 places/year
- Attractive combination of Natural Sciences and Electrical Engineering
- Best job chances in Germany and abroad – most of our alumni stay
- Future-proof and crisis-proof broad field of studies
- No prerequisites of German language knowledge!
- 4 Semesters: (Starting March each year)

See website of department: **https://www.h-ka.de/en/sstm**
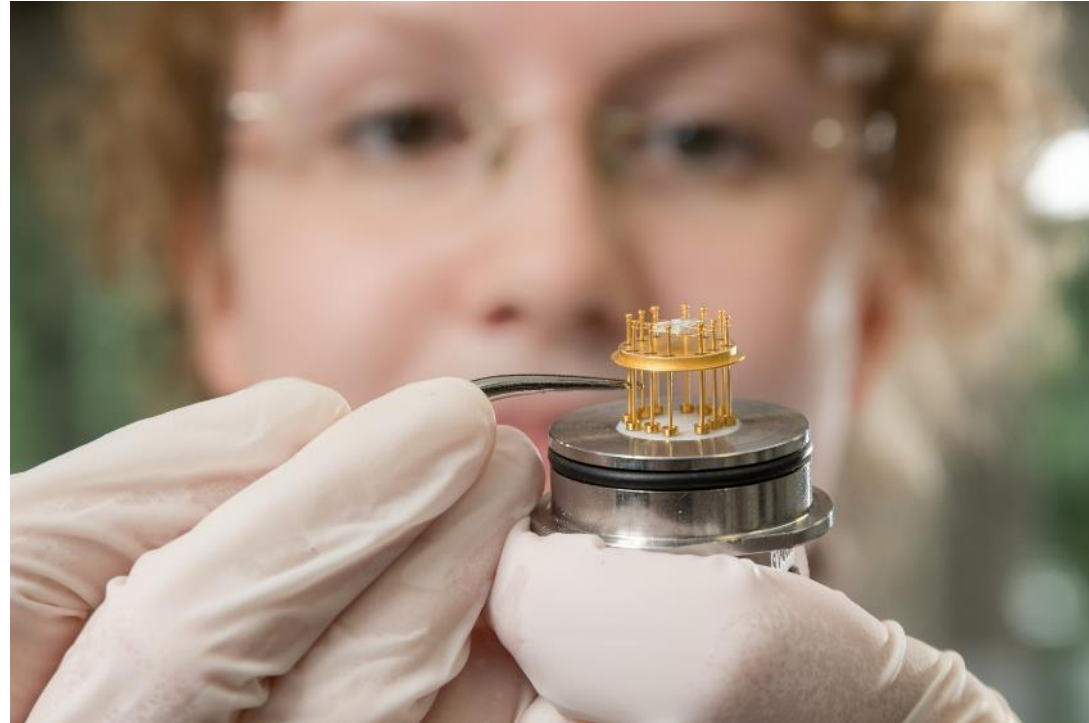
Facts for your application:

Application deadline:

- non-EU citizens and EU citizens: **15th September**

Where to apply:

https://www.h-ka.de/en/discover/application/applying-for-bachelor/application

How to contact us:

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