MSc Embedded Systems: Welcome

Summer Semester, 01.04.2025
Martina Maggio

UNIVERSITÄT
DES
SAARLANDES

SIC Saarland Informatics Campus

Program Objectives and Career Opportunities

- Build on **mathematical** and **scientific** foundations to develop *advanced*, *innovative* solutions for technical problems

- Graduates become **highly qualified professionals** for careers in industry, research, and business sectors

- Emphasis on **theoretical** and *practical* aspects, bridging classical engineering disciplines and general computer science

- Career skills development (communication, teamwork, self-learning)

Interdisciplinary and Industry-Relevant Curriculum

Combines *deep theoretical knowledge* with *practical engineering and computer science* skills

Core lectures include important topics like Computer Architecture, Cyber-Physical Systems, Signal Processing, High-Speed Electronics, and Telecommunications

Comprehensive Support and International Environment

Flexible study plan with diverse elective opportunities, preparing students comprehensively for global careers

Clear guidance provided through structured academic advising and explicit guidelines on scientific integrity, fostering a responsible, ethical, and professional academic community

Strong Emphasis on Research and Innovation

The program is integrated with world-leading research institutions, such as DFKI, MPIs, and CISPA, allowing students to engage in state-of-the-art research projects

Students graduate with advanced competencies in scientific methodologies, innovation, and original research

Program Structure & Duration

- Duration: 4 semesters
- Total credits: 120 ECTS

- **Mandatory elective modules** (total at least 78 ECTS)**:**
  - Core lectures
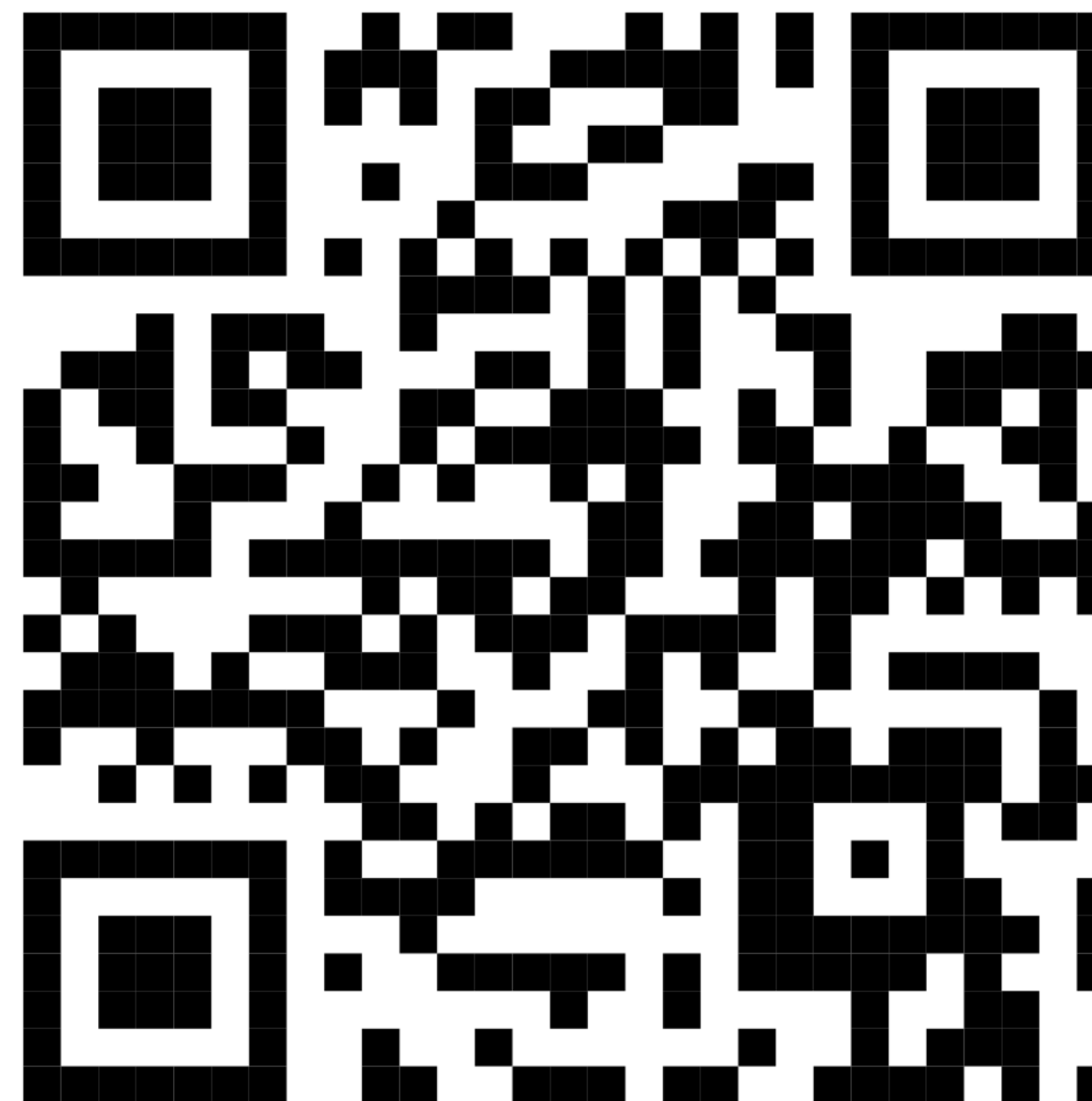 - Advanced lectures
  - Seminars

- **Freely selectable modules** (at least 17 credits ungraded)**:**
  - Language courses
  - Tutoring
  - Soft skills
  - Internships, etc.

- **Compulsory modules:**
  - Master's Seminar (12 ECTS)
  - Master's Thesis (30 ECTS)

Regulations

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LAST EDITED BY
Rami Ahmad
11/18/2024

Embedded Systems

Study Programme Documents (Downloads)

> Examination regulations: german / english

Bachelor Eingebettete Systeme / Embedded Systems

> Subject-specific regulations and study regulations: german / english
> Module guide: german

Master Eingebettete Systeme / Embedded Systems

> Subject-specific regulations and study regulations: german / english
> Module guide: german

General Informations

Studying and Taking Exams

> The 'failed first attempt' rule (only in Bachelor's degree programmes)
> Plagiarism
> Recognition of study and examination achievements
> Applying for an examination certificate

Studiengänge
- Actuarial and Financial Mathe...
- AMASE
- ATLANTIS
- Biophysik
- Biotechnologie
- Chemie
- Computer Science (German)
- Computer Science (English)
- Cybersicherheit / Cybersecurity
- DSAI
- EEIGM
- Embedded Systems
- Entrepreneurial Cybersecurity
- Human- and Molekularbiologie
- Maschinenbau
- MWWT
- Mathematik

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Subject-Specific Regulations for the Bachelor's and Master's Degree Programmes in Embedded Systems at Saarland University Supplementing the Joint Examination Regulations for the Bachelor's and Master's Degree Programmes of Faculty 6 (Natural Science and Technology Faculty I – Mathematics and Computer Science)

2 June 2016

Pursuant to Section 59 of the Saarland University Act of 23 June 2004 (Official Gazette of Saarland, p. 1782) as amended by the Act of 14 October 2014 (Official Gazette, p. 406) and pursuant to the Joint Examination Regulations for the Bachelor's and Master's Degree Programmes of Faculty 6 (Natural Science and Technology Faculty I – Mathematics and Computer Science) of 2 July 2015 (Official Bulletin No. 72, p. 616) as amended by the Ordinance to Amend the Joint Examination Regulations for the Bachelor's and Master's Degree Programmes of Faculty 6 (Natural Science and Technology Faculty I – Mathematics and Computer Science) of 28 April 2016 (Official Bulletin No. 47, p. 404) and with the consent of the Saarland University Senate and the University Board, Faculty 6 (Natural Science and Technology Faculty I – Mathematics and Computer Science) at Saarland University hereby issues the following Subject-Specific Regulations for the Bachelor's and Master's Degree Programmes in Embedded Systems at Saarland University.

Section 27
Scope
(cf. Sec. 1 of the Joint Examination Regulations)

These subject-specific regulations apply to the Bachelor's and Master's degree programmes in Embedded Systems at Saarland University. The Faculty of Mathematics and Computer Science is responsible for organizing the teaching, study curriculum and examinations relating to these programmes.

Section 28
General information
(cf. Sec. 2 of the Joint Examination Regulations)

The Faculty of Mathematics and Computer Science at Saarland University shall confer either a Bachelor of Science degree (B.Sc.) or a Master of Science degree (M.Sc.) on students who have successfully completed the respective programme in accordance with the assessment and examination procedures set out in these examination regulations.

Section 29
Types of degree programmes
(cf. Sec. 3 of the Joint Examination Regulations)

The Bachelor's and Master's degree programmes in Embedded Systems are single-subject degree programmes within the meaning of the Framework Examination Regulations for Bachelor's and Master's Degree Programmes at Saarland University (BMPRO).

Section 30
Student workload
(cf. Sec. 4 of the Joint Examination Regulations)

Course attendance may be compulsory for certain introductory seminars, seminars and practical skills classes. Students will be notified of this by the instructor at the beginning of the course.
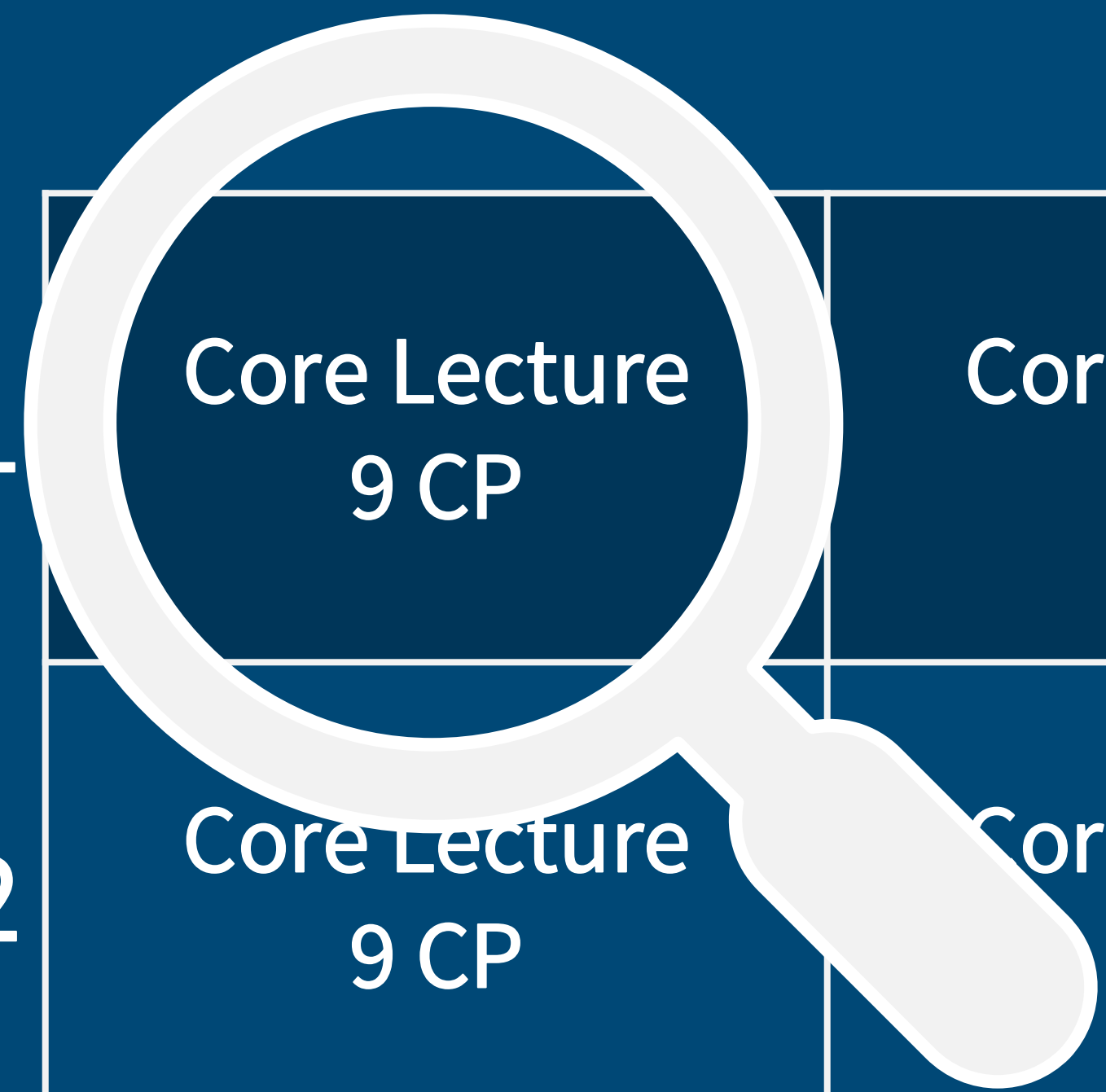
#1	Core Lecture 9 CP	Core Lecture 9 CP	Seminar 7 CP	Language Course 6 CP	31 CP
#2	Core Lecture 9 CP	Core Lecture 9 CP	Advanced Lecture 6 CP	Tutoring 4 CP	28 CP
#3	Advanced Lecture 6 CP	Advanced Lecture 6 CP	Seminar 7 CP	Master Seminar 12 CP	31 CP
#4	Thesis 30 CP				30 CP

#1	Core Lecture 9 CP
#2	Core Lecture 9 CP
#3	Advanced Lect 6 CP
#4	

Credit Points Calculation

- 1 CP = 30 hours of work
- 30 CP = 900 hours of work
- 900/40* = 22.5 weeks of *full-time* work

* Assuming 40 hours of work per week

#1	Core Lecture 9 CP	Core Lecture 9 CP	Seminar 7 CP	Language Course 6 CP	31 CP
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#4	Thesis 30 CP				30 CP

Core Lecture
9 CP

Core Lecture
9 CP

Advanced Lect
6 CP

Core Lectures #1

- **Electronic Assembly and Surface-Mounting Technology 1** *(4 credits)*
- **Automation Systems** *(4 credits)*
- **Compiler Construction** *(9 credits)*
- **Computational Electromagnetics 1** *(4 credits)*
- **Computational Electromagnetics 2** *(4 credits)*
- **Computer Architecture** *(9 credits)*
- **Data Networks** *(9 credits)*
- **Digital Signal Processing** *(6 credits)*
- **Distributed Systems** *(9 credits)*
- **Introduction to Electromagnetic Field Simulation** *(4 credits)*
- **Electrical Drive Systems** *(4 credits)*
- **Measurement, Instrumentation and Sensor Technology** *(6 credits)*
- **Electronics / Components** *(3 credits)*
- **High-Speed Electronics** *(4 credits)*
- **High-Frequency Engineering** *(4 credits)*
- **Cyber-Physical Systems** *(9 credits)*
- **Future Media Internet** *(9 credits)*

#1

Core Lecture
9 CP

#2

Core Lecture
9 CP

#3

Advanced Lect
6 CP

#4

Core Lectures #2

- **Image Processing and Computer Vision** *(9 credits)*
- **Microelectronics 2** *(4 credits)*
- **Microelectronics 3** *(4 credits)*
- **Microelectronics 4** *(4 credits)*
- **Micromechanical Components** *(4 credits)*
- **Microfabrication** *(4 credits)*
- **Pattern and Speech Recognition** *(6 credits)*
- **Operating Systems** *(9 credits)*
- **Security** *(9 credits)*
- **Software Engineering** *(9 credits)*
- **Statistical Natural Language Processing** *(6 credits)*
- **Systems Theory and Control Engineering 1** *(6 credits)*
- **Systems Theory and Control Engineering 2** *(5 credits)*
- **Telecommunications 1** *(9 credits)*
- **Telecommunications 2** *(9 credits)*
- **Electrical Engineering Theory 2** *(5 credits)*
- **Verification** *(9 credits)*

#1	Core Lecture 9 CP	Core Lecture 9 CP	Seminar 7 CP	Language Course 6 CP	**31** CP
#2	Core Lecture 9 CP	Core Lecture 9 CP	Advanced Lecture 6 CP	Tutoring 4 CP	**28** CP
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#4	Thesis 30 CP				**30** CP

#1 Core L... 9 C

#2 Core L... 9 C

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#4 Thesis 30 CP

30 CP

Browser: lsf.uni-saarland.de

Tatort: Das Ende der Nacht | Goethe | Articles in German Grammar | German tests | JobMonitoring

U – Course Overview Universität des Saarlandes

UNIVERSITÄT DES SAARLANDES — HIS LSF — POS

Hinweis: Der vollständige Funktionsumfang ist nur aus dem Uninetzwerk bzw. mit VPN nutzbar

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Course Overview
Search for Lectures
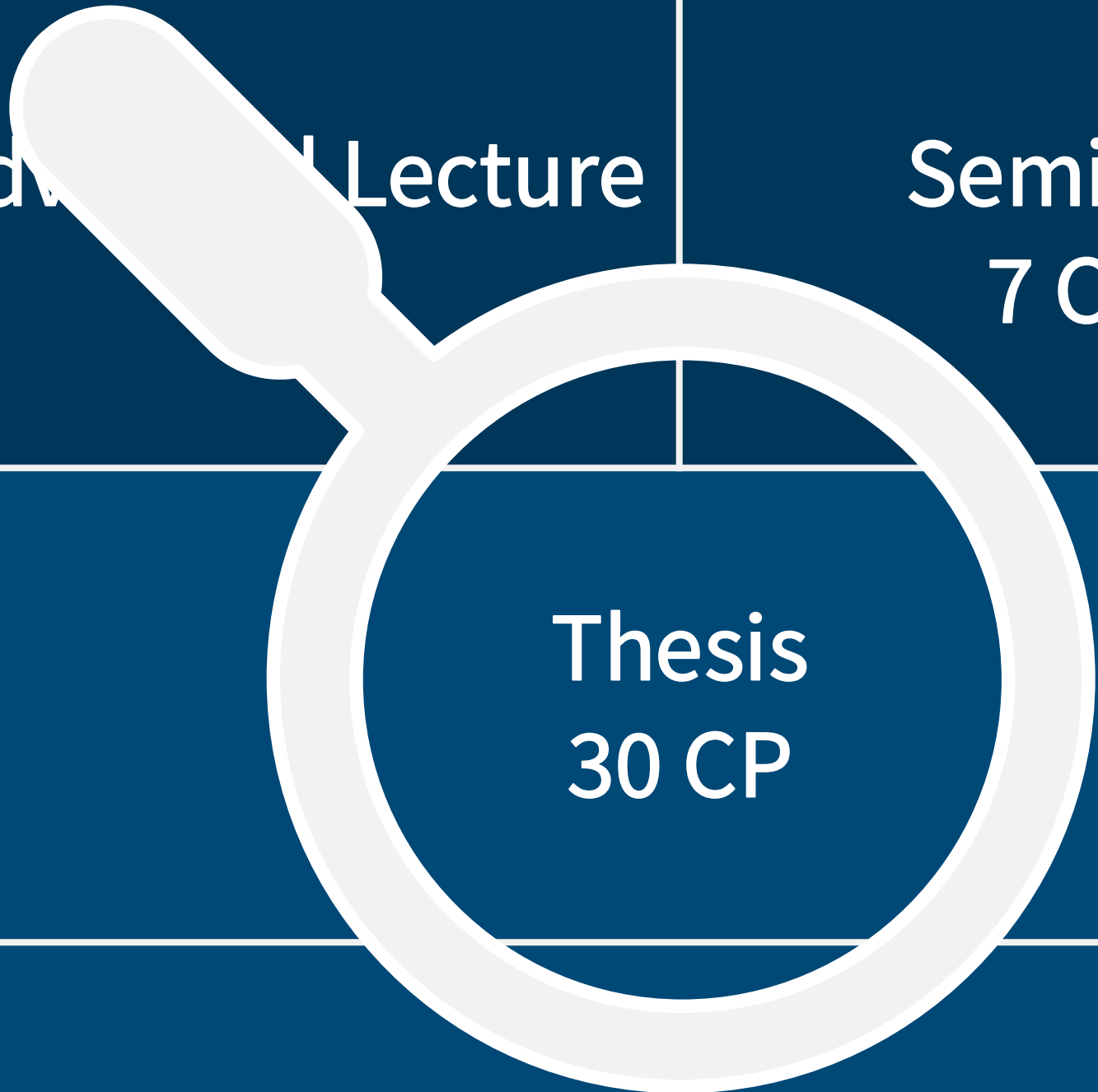Lectures today
Lectures cancelled today
Search for Lectures
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Course Overview (SoSe 2025)

ⓘ Vorlesungsverzeichnis
→ ⓘ Mathematics and Computer Science
→ ⓘ Computer Science
→ ⓘ Courses on Embedded Systems
→ ⓘ Master
→ ⓘ Core Lectures
→ ⓘ Advanced Lectures
→ ⓘ Seminars
→ ⓘ Freely chosen points

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Course Overview

Search for Lectures

Lectures today

Lectures cancelled today

Search for Lectures

Hide menu

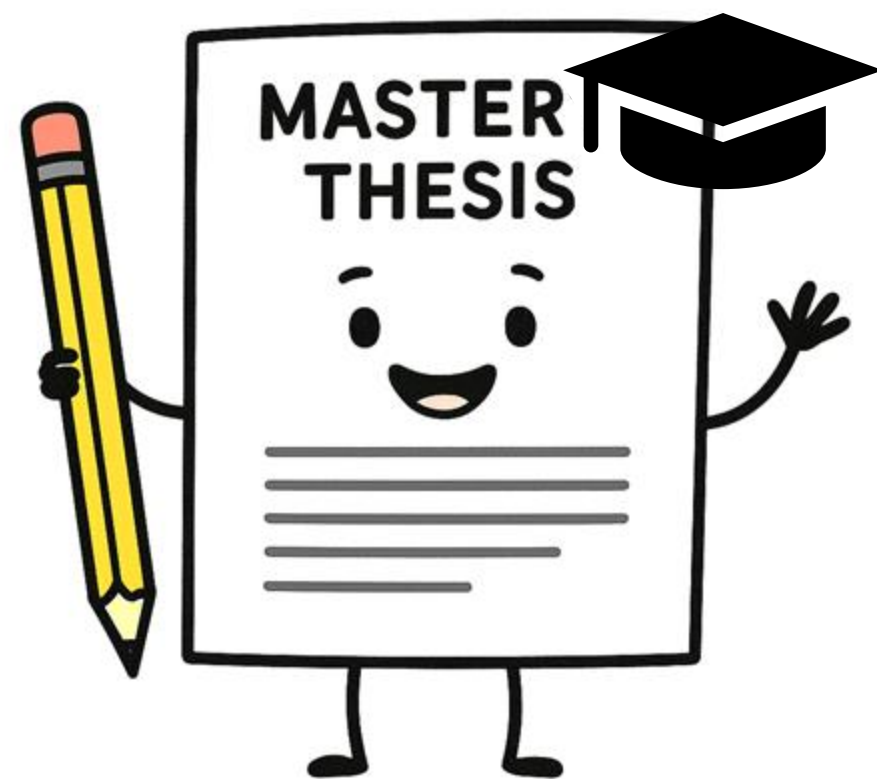## Course Overview (SoSe 2025)

View: → **short** → medium → long

ⓘ **Vorlesungsverzeichnis**

→ ⓘ **Mathematics and Computer Science**

→ ⓘ **Computer Science**

→ ⓘ **Courses on Embedded Systems**

→ ⓘ **Master**

→ ⓘ **Advanced Lectures**

Lect.-No.	Lecture	Type	Activity
155767	Antenna Theory 1 - Dyczij-Edlinger	Lecture / Exercise/problem-solving class	
156438	Cryptography - Hanzlik, Döttling	Lecture / Exercise/problem-solving class	
156439	Introduction to Computational Logic - Smolka	Lecture /	

Core L...
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Core L...
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6 C...

Thesis
30 CP

#1
#2
#3
#4

30 CP

#1	Core Lecture 9 CP	Core Lecture 9 CP	Seminar 7 CP	Language Course 6 CP	31 CP
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#3	Advanced Lecture 6 CP	Advanced Lecture	Seminar 7 CP	Master Seminar 12 CP	31 CP
#4		Thesis 30 CP			CP

# Master seminar & Master thesis

Master Seminar (12 ECTS)

Objective: Prepares students for their Master's Thesis by introducing them to independent research and topic presentation

Requirements:

- *Presentation:* Students must give an oral presentation clearly outlining their intended thesis topic
- *Written Proposal:* A written description specifying the problem, objectives, and methodology must accompany the presentation

Timeline: The Master's thesis topic must be registered within one semester after successfully completing the Master Seminar; failure to meet this deadline will require attendance in a new seminar

Master seminar & Master thesis
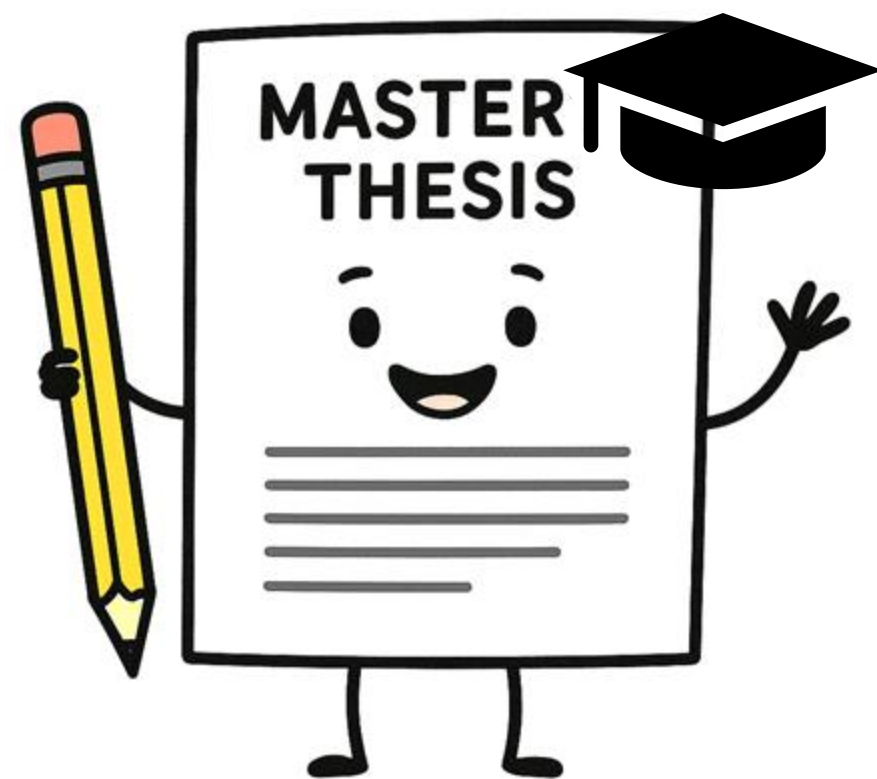
Master Thesis (30 ECTS)

<u>Objective:</u> Demonstrates the student's ability to independently solve complex problems in *Embedded Systems* through original scientific work

<u>Duration:</u> The thesis must be completed within six months after official registration

<u>Colloquium:</u> A mandatory 30-minute colloquium (oral defense) must be completed within six weeks after thesis submission, validating the thesis as the student's own original work

<u>Assessment and Grading:</u> The thesis and colloquium are graded, significantly contributing to the overall Master's degree grade

Assessment and examination: academic integrity & original work

Written exams, oral exams, seminar presentations, and project work

➢ possibility to retake core lecture exams <u>once</u>, <u>in the same semester</u> to improve your grade

- **Originality:** All submitted work, particularly projects, theses, and seminar assignments, must reflect your own thoughts, analyses, and conclusions

- **Proper Citation:** Always acknowledge sources of ideas, data, code, images, or direct quotations clearly in accordance with academic standards

- **Zero Tolerance for Plagiarism:** Plagiarism can lead to severe academic penalties, including failing grades, suspension, or expulsion

Plagiarism: Complete or partial imitation of another author's work without proper citation

Key Requirements:

• Your thesis must be **original**, produced entirely by you, and contribute new knowledge

• Clearly cite all external sources (texts, ideas, figures, code, data, etc.)

Unacceptable Practices:

• Copying texts, ideas, or figures without citation

• Self-plagiarism (reusing your own previous work without clear acknowledgment)

• Using ghostwriters or submitting translated texts without citation

Proper Citation:

• Clearly distinguish between your work and others'

• Provide precise, easily verifiable references

• Cite internet sources with URLs and access dates

Sanctions for Plagiarism:

• Thesis graded as "*failed*"

• Severe cases may result in the loss of examination rights or degree revocation

Welcome!