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MSc Embedded Systems: Welcome

Winterterm 2025/26
Thorsten Herfet



UNIVERSITÄT
DES
SAARLANDES

SIC Saarland Informatics
Campus



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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)

PS MINT

Search...

Home

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

programmes / es

PAGE CONTENTS

> Study Programme Documents (D...

> General Informations

> Studying and Taking Exams

> Internships/Tutor Activity

> Thesis

> FAQ

> Contact

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](#)

Regulations



642

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.

What the ... are all those rules?

- The BMRPO:
 - Saarland University has a so-called ***system accreditation***. All study programs need to follow a basic framework.
- The department specific RPO:
 - This is the ***department specific*** framework. Should be self-contained, but I advise to also read the BMRPO!
- The subject-specific regulations:
 - This is the ***program specific*** detailing of the regulations. Not self-contained but just details the RPO!
- The study regulations:
 - This shows ***how to build your program*** following the rules.

And finally

- The module handbook:
 - This is the description of all available modules.

Study Regulations 2016 for Master's programme Embedded Systems

1. **27 - 31 graded credits** in the category of core lectures in embedded systems
2. **27 - 31 graded credits** in the categories of core lectures, advanced lectures, or seminars in embedded systems (here: at most 1 seminar!)
3. **7 graded credits** in the category of seminars in embedded systems
4. At least **17 ungraded credits** must be acquired by:
 - Further core, advanced courses, or seminars in embedded systems
 - Internship in a company (max. 6 CP); approved by the examination board
 - Leading a tutorial (tutor)
 - Language courses (max. 6 CP, living language)
 - Courses from other departments, which have been applied for and approved by the examination board (e.g. in mathematics or business informatics)
5. **12 graded credits** for the Master's seminar and **30 CP** for the Master's thesis

Sum = 120 credits in total.

#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}
#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

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 Lecture
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}
#3	Advanced Lecture 6 CP	Advanced Lecture 6 CP	Seminar 7 CP	Master Seminar 12 CP	31 _{CP}
#4	Thesis 30 CP				30 _{CP}

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

[Home](#) | [Logout](#) | Mr. Thorsten Herfet | You are logged in as: thhe001 | acting as: Employee | Winter 2025/26 | / | [Sitemap](#)

My Functions

Courses

Facilities

Members

You are here: [Home](#) → [Courses](#) → [Course Overview](#)

Course Overview

Search for Lectures

Lectures today

Lectures cancelled today

Search for Lectures

Hide menu


Course Overview (WiSe 2025/26)

View: → short → medium → long

  [Vorlesungsverzeichnis](#)

➔ ⓘ Mathematics and Computer Science




→ ⓘ PDF Computer Science

→ ⓘ  Courses on Embedded Systems

→ ⓘ PDF Master

→ ⓘ PDF Core Lectures

→ ⓘ pdf Advanced Lectures

-   Seminars
-   Feedback

Freely chosen points

[Imprint and privacy](#) | [Print](#)

Service & Support

Bei Fragen, Fehlermeldungen oder
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Thesis

30 CP

30CP

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

My Functions

Courses

Organizational units

Facilities

Members

You are here: [Home](#) → [Courses](#) → [Course Overview](#)

Course Overview

Search for Lectures

Lectures today



Lectures cancelled today





Search for Lectures



Hide menu

Course Overview (WiSe 2025/26) View: → [short](#) → [medium](#) → [long](#)

View: [→ short](#) [→ medium](#) [→ long](#)

  Vorlesungsverzeichnis

-   Mathematics and Computer Science
-   Computer Science

-   Courses on Embedded Systems

- ⓘ PDF Master
- ⓘ PDF Advanced Lectures

Advanced Lectures

Lect. No.	Lecture	Type	Activity
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158655	<u>Statistics with R</u> - Demberg , Ellsiepen , Pissani	Lecture / Exercise/problem-solving class	
158863	<u>AI in Automation (Soft Control)</u> - Frey	Lecture / Exercise/problem-solving class	
158990	<u>Einführung in die Quanteninformationsverarbeitung - Theoretisch</u> <u>Physikalisches Wahlpflichtfach</u> - Wilhelm-Mauch	Lecture / Exercise/problem-solving class	
159845	<u>Quantum Artificial Intelligence</u> - Klusch , Macaluso	Advanced lecture	
159850	<u>Reinforcement Learning</u> - Wolf	Advanced lecture	
159923	<u>Artificial Intelligence</u> - Hoffmann	Lecture / Exercise/problem-solving class	

Thesis

30 CP

30CP

#1

Core Lecture
9 CP

Core Lecture
9 CP

Seminar
7 CP

Language Course
6 CP

31CP

#2

Core Lecture
9 CP

Core Lecture
9 CP

Advanced Lecture
6 CP

Tutoring
4 CP

28CP

#3

Advanced Lecture
6 CP

Advanced Lecture
9 CP

Seminar
7 CP

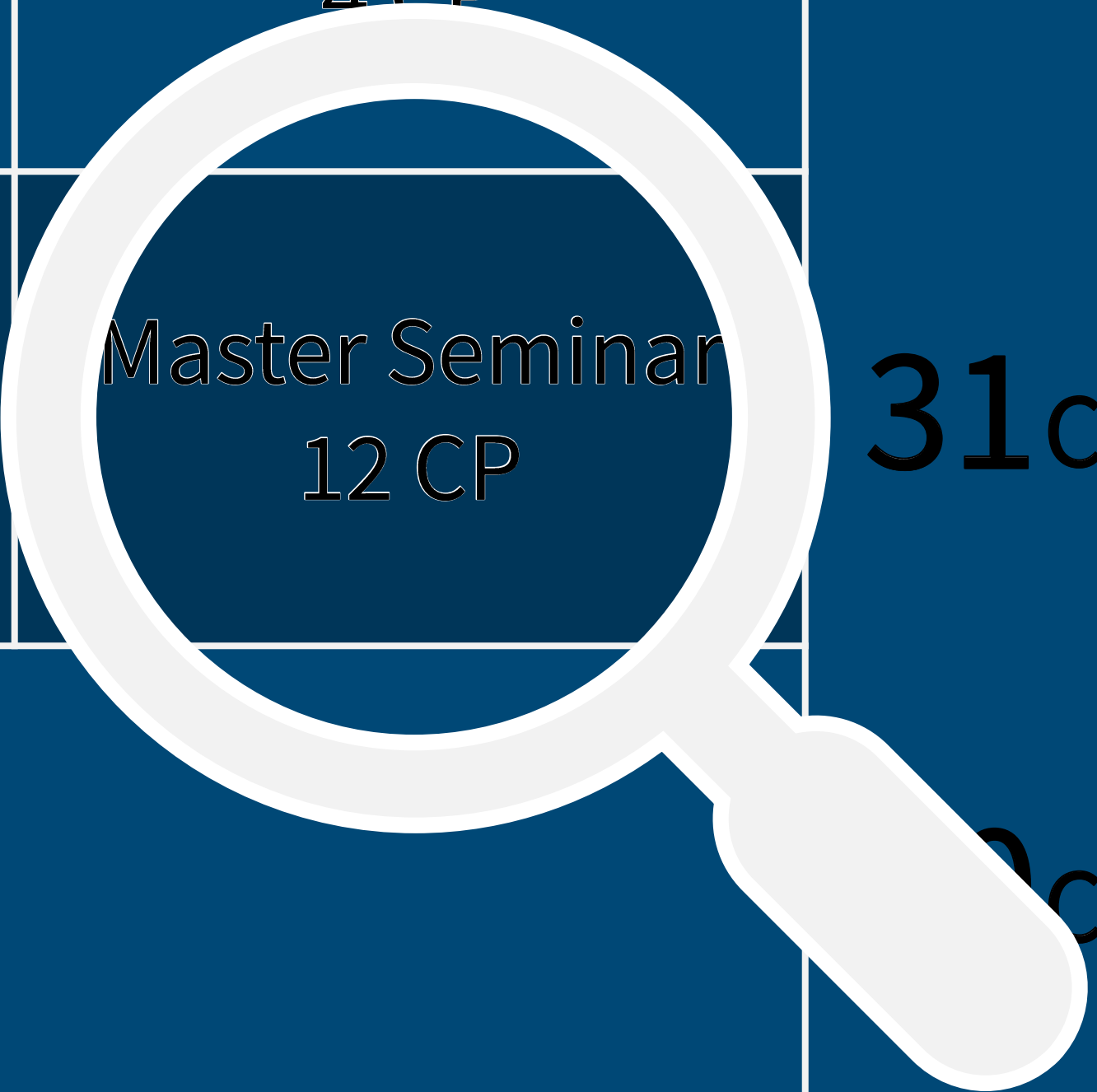
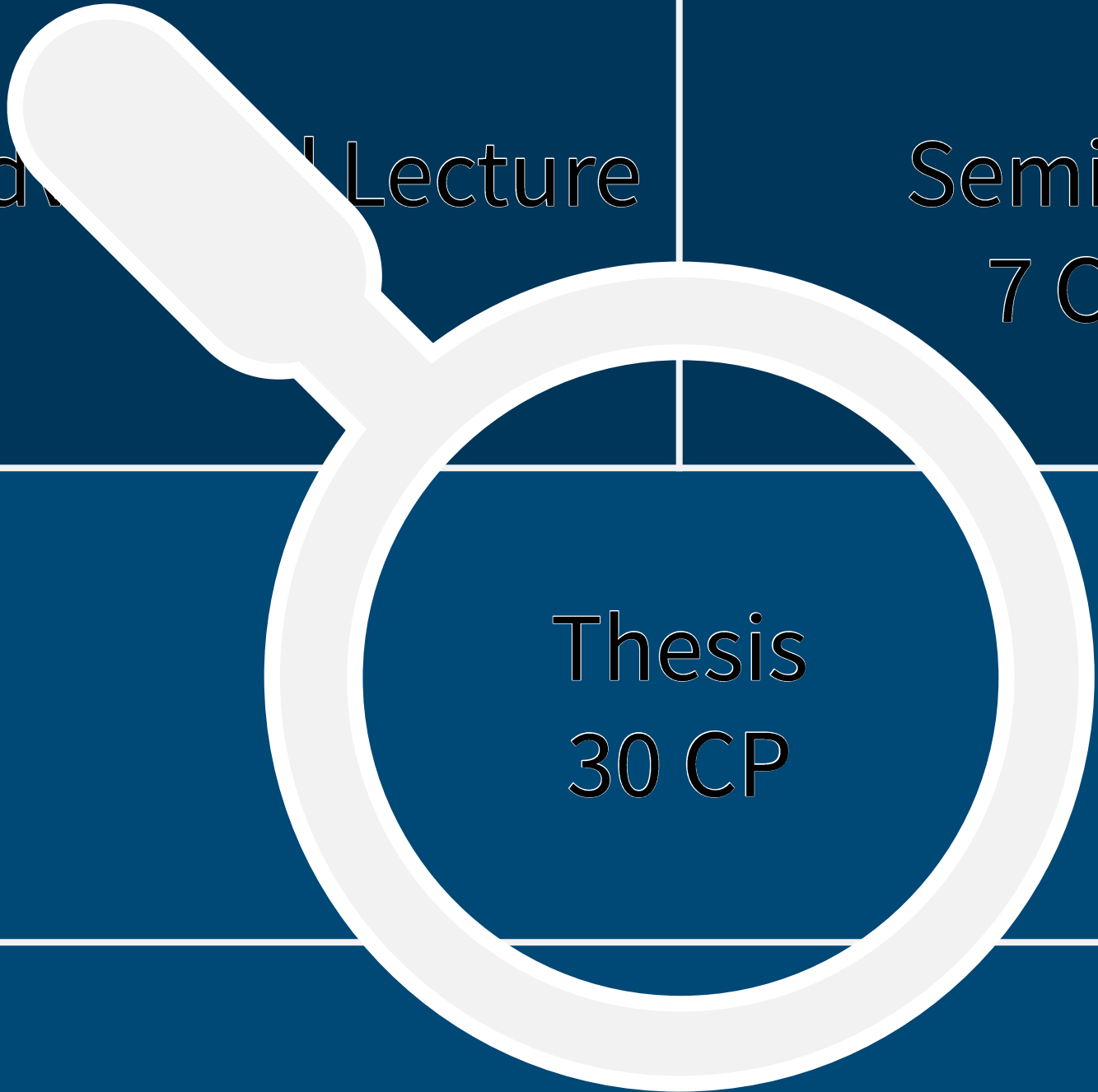
Master Seminar
12 CP

31CP

#4

Thesis
30 CP

30CP



Control of progress

Full-time students are expected to deliver the following minimum requirements in the Master course of study:

- At least 9 credits after 1 semester
- At least 30 credits after 2 semesters
- At least 60 credits after 4 semesters
- At least 90 credits after 6 semesters

In case a student does not meet the minimum requirements for the second time, he/she shall **lose the right to participate in examinations**.

Students shall be given the opportunity to make a written statement before the examination board makes the final decision in the matter.

Examination registration

Please notice: For all examinations you have to register in LSF one week before the exam at the latest (final exam and/or re-exam)! **A delayed registration is not allowed!**

A withdrawal is possible **one week** before the respective exam at the latest; later only with a medical certificate!

Only for core lectures: You can improve a grade in a core course if you pass the final exam and take part in the re-exam in the same exam period. The better grade counts.

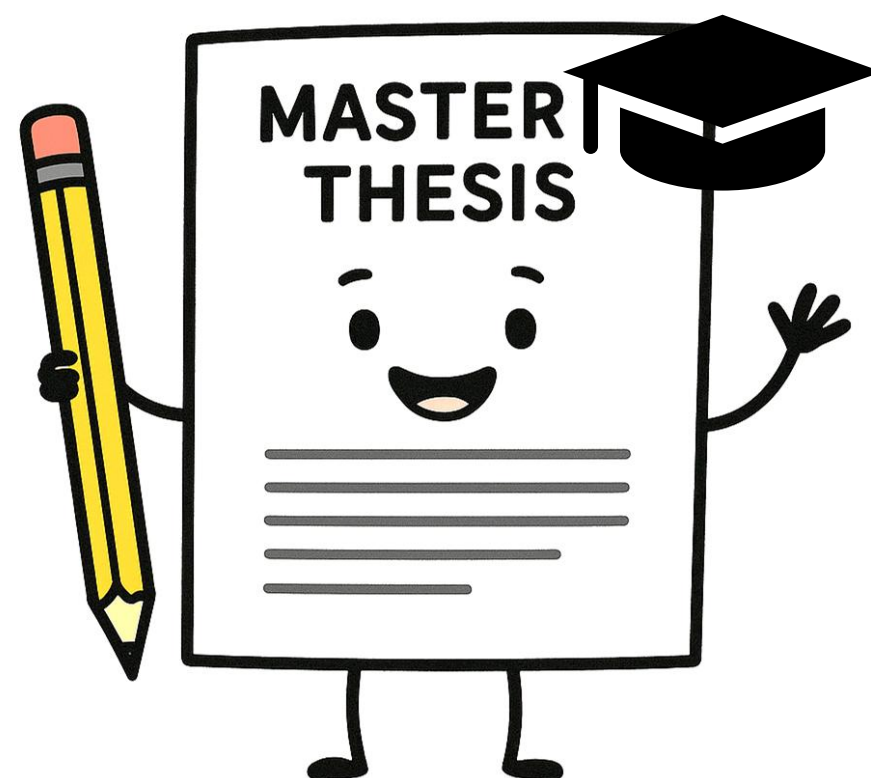
For some courses e.g. seminars you also have to register before the course starts (limited number of participants): Please have a look at the respective website because of the conditions for registration.

Seminar registration: <https://seminars.cs.uni-saarland.de/>

A withdrawal from a seminar registration is only possible three weeks after getting the topic for presentation.

Problems? Please contact the study coordination!

Master seminar & Master thesis



Master Seminar (12 ECTS)

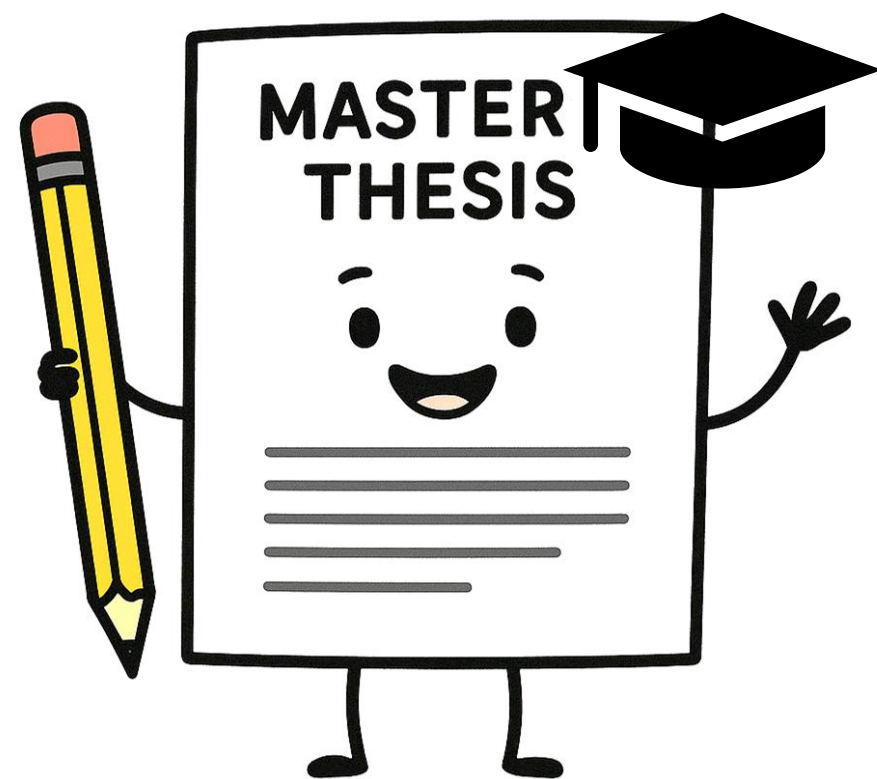
Objective: Prepares students for their Master's Thesis by introducing them to independent research and topic presentation

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)

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

Duration: The thesis must be completed within six months after official registration

Colloquium: 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

Assessment and Grading: 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 once,
in the same semester 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



Your toolbox

- Intranet ([CS](#) and [PS-MINT](#))
 - Information within department
- [LSF](#) (Modules and Exam registration)
 - Find courses & (de-)register for exams
- [CMS](#) and/or [Moodle](#)
 - Register for and participate in courses
- [Seminars](#)
 - Register for seminars
- [Teams](#) and/or [Zoom](#)
 - Hybrid participation where allowed

Welcome!



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