

**Study Regulations Governing the Master's Degree Programme in Systems Engineering at
Saarland University
23 April 2015**

Note: This translation is provided for information purposes only. In the event of any discrepancy between the translation and the original German version published in the Official Bulletin (*Dienstblatt der Hochschulen des Saarlandes*), the provisions of the latter shall take precedence.

Pursuant to Section 54 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 with the consent of the University Senate, Faculty 7 (Natural Science and Technology Faculty II – Physics and Mechatronics) at Saarland University hereby issues the following study regulations based on the examination regulations of 23 April 2015 for the Master's degree programme in Systems Engineering (Official Bulletin of the Institutions of Higher Education in Saarland, p. 526).

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I. General provisions

Section 1 – Scope

These study regulations govern the content and structure of the Master's degree programme in Systems Engineering based on the examination regulations for the Master's degree programme in Systems Engineering of 23 April 2015.

Section 2 – Objectives of the degree programme and career relevance

(1) The Master's degree programme in Systems Engineering aims to provide a more research-oriented education in a chosen area of specialization within the field of systems engineering, with particular importance placed on developing an interdisciplinary approach to systems design. The programme teaches students the methods and techniques used in scientific research and enables them to acquire an understanding of the deeper principles and key research results in the chosen areas of study.

(2) The Master's programme prepares students for challenging research and development work in the field of systems engineering.

Section 3 – Curricular content

To achieve the objectives set out in Section 2 above, the programme provides students with a deeper insight into the central elements of systems engineering. The majority of ECTS credits (often referred to in Germany as ‘credit points’ and abbreviated as ‘CP’) are awarded in the core and supplementary areas (departmental terminology: core and enhancement courses) of the student’s area of specialization. The modules offered in the categories ‘General electives’ (departmental terminology: supplementary courses), ‘Organization and management’ and ‘Other university courses’ provide additional opportunities for students to improve their knowledge and practical skills in specialist technical areas and to acquire additional interdisciplinary academic skills. Project seminars and a work placement/internship stage help students develop group-work and interpersonal skills and to consolidate the theoretical knowledge acquired in the programme through practical application. The Master’s seminar, the Master’s thesis project and other elective seminars allow students to conduct supervised scientific research.

Section 4 – Start of programme

As a rule, students begin studying at the start of the winter semester of each year.

II. Study programme

Section 5 – Types of academic instruction

The curriculum content is taught using the following types of academic instruction:

1. **Lecture courses:** Lectures serve to introduce a particular subject area and also provide an overview of the relevant theoretical concepts and principles, methodologies and skills, technologies and practical implementations that are common to the subject. Lecture courses provide suggestions for further reading on a topic and open the way to acquiring a deeper understanding of an area through subsequent exercise and problem-solving classes, practical skills classes and self-directed study.
2. **Exercise and problem-solving classes:** Exercise and problem-solving classes are small-group sessions used primarily to supplement and reinforce what was learned in the lectures. Students work on representative problems as this provides an opportunity for them to apply and deepen the knowledge they acquired in the lectures, to assess their personal understanding of a specific area and to clarify any questions that they may have.
3. **Seminars:** Seminars are a type of academic instruction with a limited number of participants in which students actively collaborate to generate results or share their results by participating in discussions or by giving presentations. Seminars aim to deepen student understanding of an academic field, help students acquire the skills needed for the effective presentation of scientific and academic content, and encourage students to engage in critical analysis and discussion of research results.
4. **Project seminars:** Project seminars provide an opportunity for students to learn a systematic approach to solving engineering problems in a supervised environment and as part of a team. Depending on the specific problem being addressed, students become acquainted with the different phases of a typical development process, from compiling an initial list of requirements to building and testing prototypes. Students are required to keep regular records of the different operational steps taken, to search and review the relevant literature, read scientific articles and research papers and to present the results in a seminar.

Section 6 – Programme structure

(1) The Master's programme in Systems Engineering requires students to accumulate a total of 120 ECTS credits. The programme consists of modules in a number of different categories. With the exception of the work placement/internship and the modules in the category 'Other university courses', all modules in the programme are graded. The ECTS credits that students are required to earn in the various module categories are shown in Table 1. The module catalogue and the study plan provide details of the modules and module elements offered in the different module categories as well as information on the type of academic instruction used, the number of credit hours per week and the ECTS credits earned, the module frequency and the semester in which the module or module element is normally completed, the type of academic assessment/examination used and grading information. The most recent versions of both documents are published on the Department of Mechatronics webpage.

Table 1: Module categories and ECTS credits

Module category	Total credits earned
1. Core modules (departmental terminology: core courses) in chosen area of specialization	at least 20
2. Supplementary modules (departmental terminology: enhancement courses) in chosen area of specialization	at least 20
3. Organization and management	at most 12
4. Electives (departmental terminology: supplementary courses)	at most 26
5. Seminars and project seminars	at least 3, at most 12
6. Other university courses	at most 5
7. industrial work placement/internship	9
8. Master's seminar	12
9. Master's thesis	30
Total	120

(2) Students shall select at least five core modules (departmental terminology: core courses) in their chosen area of specialization worth at least 20 credits in total. The modules are generally offered once a year, are usually worth 4 credits and typically have a student workload requirement of 3 hours per week. They usually comprise a lecture course and an exercise or problem-solving class and conclude with an oral or written examination. The core modules offered in the different areas of specialization are listed in the study plan on the departmental webpage.

(3) Students shall select supplementary modules (departmental terminology: enhancement courses) in their chosen area of specialization worth at least 20 credits in total. Students are also permitted to include additional, previously unselected core modules (departmental terminology: core courses) from their chosen area of specialization. Note: It is recommended that these additional previously unselected courses are core modules. The modules are generally offered once a year, are usually worth 4 credits and typically have a student workload requirement of 3 hours per week. They usually comprise a lecture course and an exercise or problem-solving class and conclude with an oral or written examination. The supplementary modules offered in the different areas of specialization are listed in the study plan on the departmental webpage.

(4) In the module category 'Organization and Management' students may select modules worth up to 12 credits in total irrespective of their chosen area of specialization. These modules are

generally offered once a year and are usually worth either 3 credits with a workload requirement of 2 hours per week or 6 credits with a workload of 4 hours per week. They usually comprise a lecture course and an exercise or problem-solving class and conclude with an oral or written examination.

(5) Students shall select elective modules (departmental terminology: supplementary courses) or previously unselected core or supplementary modules (departmental terminology: core or enhancement courses) from their chosen area of specialization (recommended) or core or supplementary modules from the other areas of specialization worth up to 26 credits in total. Elective modules (departmental terminology: supplementary courses) are generally offered once every two years, are usually worth 4 credits and typically have a student workload requirement of 3 hours per week. They usually comprise a lecture course and an exercise or problem-solving class and conclude with an oral or written examination. The Dean of Studies will ensure that a sufficient number of courses and modules are offered each year. The recommended electives (departmental terminology: supplementary courses) for each of the different areas of specialization are listed in the study plan on the departmental webpage.

(6) Seminars and project seminars are generally offered once a year. Students are required to earn at least 3 but no more than 12 credits in this category. Typically, a seminar is worth 3 credits and the associated student workload is normally 2 hours per week; a project seminar is typically worth 3–6 credits and the student workload is normally 2–4 hours per week. Seminars and project seminars usually conclude with a colloquium in which students present and discuss their work.

(7) The modules offered in the category 'Other university courses' include language courses, key soft skills courses, voluntary student participation on/in university committees/bodies, tutoring. Students may earn up to 5 credits in this category. Students who undertake tutoring activities earn 2 credits if they teach for one class hour per week throughout the semester. Up to 4 credits may be earned from tutoring activities. Students who voluntarily participate in university governance (e.g. involvement in university-related administrative activities) or who take courses to acquire core competencies may earn up to 3 credits in this category. Applications to have such activities recognized shall be submitted to the Examination Board.

(8) The industrial work placement/internship phase is subject to the provisions of Section 19 of the Examination Regulations Governing the Master's Degree Programme in Systems Engineering of 23 April 2015 (Official Bulletin, p. 526).

(9) The Master's degree programme concludes with the Master's seminar (12 credits, completion period: 9 weeks) and the Master's thesis project (30 credits, completion period: 6 months). It is recommended that students take a Master's seminar that is thematically related to their Master's thesis project and that both seminar and thesis project are completed at approximately the same time and at the same research group within the Department of Mechatronics.

(10) The language of instruction is normally German. To ensure that the degree programme can be studied by international students, the Dean of Studies shall make certain that at least one of the areas of specialization can be studied completely in English.

(11) The range of modules offered in the different module categories may be broadened for one or more semesters by adding other modules or module elements that have been previously approved by the Examination Board and that are documented in the module catalogue. These additional modules or module elements, their weighting in ECTS credits and their classification within the different module categories will be announced before the semester begins.

(12) Detailed information regarding the content of modules and module elements and the type of assessment or examination associated with a particular module or module element is provided in the module catalogue that will be made available in suitable form. Any changes or amendments

to the information in the module catalogue that are not covered in these regulations shall be reported to the Dean of Studies and documented appropriately.

Section 7 – Module prerequisites

Students who act as tutors (as detailed in Section 6(2) above) must have successfully completed the module element that they will be supervising.

Section 8 – Area of specialization

Students are required to select an area of specialization. The structure and content of an area of specialization has to be approved by the Examination Board. Following approval, the Dean of Studies shall be notified and shall publish the details of the area of specialization in suitable form. The study plans for the different areas of specialization will be published in suitable form on the departmental webpage.

Section 9 – Study plan

The Dean of Studies shall compile a study plan based on these study regulations that includes details of the type and scope of the module elements offered and includes recommendations on how students can organize and structure their studies efficiently. The study plan will be made available in suitable form. The range of module elements offered in the different module categories in a particular semester will be published in the Saarland University course catalogue for that semester.

Section 10 – Study counselling

(1) The Central Student Advisory Service (*Zentrale Studienberatung*) at Saarland University provides counselling and guidance to prospective students and enrolled students concerning the content, structure and requirements of academic study at Saarland University. It can also advise and assist students with respect to their study options and with planning and organizing their studies.

(2) The Department of Mechatronics shall designate members of professorial staff or non-professorial academic staff to provide programme-related advice during the specified office hours. Questions relating to individual modules can be addressed to the respective module coordinators (departmental terminology: responsible lecturers).

III. Final provision

Section 11 – Commencement

These regulations shall come into force on the day after they are announced in the Official Bulletin of the Institutions of Higher Education in Saarland (*Dienstblatt der Hochschulen des Saarlandes*). These regulations are binding on all students who commence the Master's degree programme in Systems Engineering after this date.

Saarbrücken, **29 September 2015**

President of Saarland University

Univ.-Prof. Dr. Volker Linneweber

Appendix A: Study plan

Study plan for the Master's degree programme in Systems Engineering

Semester			
1	2	3	4
Core area (departmental terminology: core courses) (4 credits)	Core or supplementary area (departmental terminology: core or enhancement courses) (4 credits)	Project seminar (3 credits)	Master's thesis (30 credits)
Core area (departmental terminology: core courses) (4 credits)	Core or supplementary area (departmental terminology: core or enhancement courses) (4 credits)	Seminar/Other univ. courses (3 credits)	
Core area (departmental terminology: core courses) (4 credits)	Supplementary area (departmental terminology: enhancement courses) (4 credits)	Organization and management (3 credits)	
Core area (departmental terminology: core courses) (4 credits)	Supplementary area or electives (departmental terminology: enhancement or supplementary courses) (4 credits)	Industrial work placement/internship (9 credits)	
Core area (departmental terminology: core courses) (4 credits)	Supplementary area or electives (departmental terminology: enhancement or supplementary courses) (4 credits)	Master's seminar (12 credits)	
Supplementary area (departmental terminology: enhancement courses) (4 credits)	Supplementary area or electives (departmental terminology: enhancement or supplementary courses) (4 credits)		
Supplementary area (departmental terminology: enhancement courses) (4 credits)	Supplementary area or electives (departmental terminology: enhancement or supplementary courses) (4 credits)		
	Supplementary area or electives (departmental terminology: enhancement or supplementary courses) (4 credits)		
28 credits	32 credits	30 credits	30 credits