Study Regulations
Governing the Single-Subject Master's Degree Programme in Physics at Saarland University

6 June 2019

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 60 of the Saarland Higher Education Institutions Act (SHSG) (Official Gazette of Saarland I, p. 1080) most recently amended by the Act of 10 April 2019 (Official Gazette I, p. 412) and based on the Examination Regulations of the Faculty of Natural Sciences and Technology at Saarland University of 6 June 2019 governing the Master's degree programme in Physics (Official Bulletin, No. 50, p. 512) and with the consent of the Saarland University Senate, the Faculty of Natural Sciences and Technology at Saarland University hereby issues the following Study Regulations Governing the Single-Subject Master's Degree Programme in Physics.

Section 1
Scope

These study regulations govern the content and structure of the single-subject Master's degree programme in Physics based on the Examination Regulations of the Faculty of Natural Sciences and Technology at Saarland University of 6 June 2019 governing the Master's degree programme in Physics (Official Bulletin, No. 50, p. 512). The organization of the curriculum, teaching and examinations in this programme is the responsibility of the Faculty of Natural Sciences and Technology at Saarland University.

Section 2
Objectives of the degree programme and career relevance

The aim of the Master's degree programme in Physics is to provide students with a deeper understanding of the subject and to teach them the skills and methods needed for them to undertake independent scientific work, to critically appraise research findings, and to act responsibly. In addition to expanding and consolidating their understanding of the fundamentals of physics, students on the Master's programme develop their expertise in a specialist area through the Master's thesis project and the introductory modules associated with the chosen area of specialization. Graduates from the programme are ideally prepared for further scientific work, such as studying for a subsequent doctoral research degree in the natural sciences.

The Master's degree programme in Physics aims to prepare graduates to work as physicists in industry, research institutes and public bodies. Students therefore require not only a solid education in physics, but also insight into the content and methodology of neighbouring scientific disciplines. The mandatory elective modules in a non-physics subject enable students to establish a connection to a neighbouring

scientific discipline or to see how physics is applied in the engineering and life sciences or in the field of medicine.

The curriculum also includes interdisciplinary content, such as introducing students to the planning and coordination of scientific projects, or teaching the skills needed to communicate specialist scientific findings effectively. Students are also encouraged to make use of other academic modules offered at Saarland University in order to become acquainted with the academic content and methodological concepts in other scientific fields.

The broad education offered by the Master's degree programme enables graduates to access a diverse range of career paths in research and development as well as in other fields. For example, graduate physicists are increasingly finding employment in the area of risk optimization in the financial services industry or are being recruited by strategic management consultancies because of their analytical skills.

Section 3
Start of programme

Students can begin the programme at the beginning of the winter or summer semester of each year.

Section 4
Types of academic instruction

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

(1) Lectures (L) introduce students to a particular subject area and enable them to acquire a deeper understanding of the subject through supplementary self-directed study.
A lecture course in the field of experimental physics is usually supplemented by demonstrations and practical experimentation.

(2) Exercise and problem-solving classes (EP) are typically small-group sessions used to supplement and reinforce what was learned in lectures.
By working on representative problems students have the opportunity 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. Students may be required to successfully complete the assigned exercises and problems in order to register for an end-of-module assessment or examination.

(3) Seminars (S) 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) Practical skills classes (P) are a type of academic instruction in which students undertake experiments that introduce them to the specific approaches and methods used in a particular discipline or field of study.

Students acquire the theoretical knowledge that underlies the experiments by attending lectures and by studying the relevant scientific literature. The experiments are undertaken in a supervised environment and provide students, working either alone or in small groups, with the opportunity to gain practical experience with the typical instruments, laboratory equipment and systems used in this field of study. Students learn about the relationships between theory and practice not only through independent study and practice, but also through teamwork. An additional goal of the practical skills classes is to enable students to gain practical experience with computer-aided methods. Some of the specialist skills acquired in these practical classes can help prepare students for subsequent experimental research work. Participation in a particular practical skills class may depend on a student having first successfully completed a required course of lectures and exercise and problem-solving classes.

(5) Projects (PR) are a type of academic instruction in which students work under supervision to study and develop approaches to complex issues.
Projects enable students to gain the advanced methodologies required to conduct independent research activities. By encouraging a comprehensive review of the scientific literature, projects also enable students to acquire an overview of the current research being conducted in a specific area of physics.

Section 5
Structure and content of the programme

The Master's degree programme in Physics places greater emphasis on research and aims to complete the student's theoretical and experimental training in the fundamentals of physics. It has been designed to provide students with a broad general education in physics and neighbouring scientific disciplines. It also aims to provide students with a deeper understanding in selected specialist areas. The Master's degree programme is structured so that students acquire the skills necessary for independent scientific enquiry. The supervised scientific project, which forms part of the Master's thesis module, plays an important role in this regard.
Detailed information about the content of the individual modules and module elements 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 by the provisions of these regulations shall be reported to the Dean of Studies and documented appropriately.

Section 6
Academic assessments and grading scale

(1) Students on the single-subject Master's degree programme in Physics are required to earn coursework and examination credits totalling 120 ECTS credits.

(2) Of these 120 credits, students must earn 79 credits in total from the modules in the mandatory section of the curriculum, 8 credits in their chosen area of specialization (specialist section) and 33 credits from modules in the mandatory electives section.

(3) The mandatory electives section includes modules in the field of physics and in non-physics subjects and students are required to take modules from both

subsections. Students must acquire 15 credits from modules in the mandatory electives subsection ‘Physics Subjects’, of which at least 5 credits must be from graded assessments or examinations. In the mandatory electives subsection ‘Non-Physics Subjects’, they must earn 18 credits, of which at least 9 credits must be from graded assessments or examinations.
The mandatory electives subsection ‘Non-Physics Subjects’ also covers the acquisition of core skills, as defined in Section 9 of the Examination Regulations (e.g. voluntary work, official committee work, mentoring or tutoring activities). The total number of ECTS credits that can be earned from these core-skills modules shall not exceed 6 credits.

(4) Physics courses are taught in English. If only German-speaking students are in attendance, German may also be used as the language of instruction. This provision may not apply to courses taught in other subject areas or by other departments or faculties.

(5) Information about the modules in the mandatory electives subsections ‘Physics Subjects’ and ‘Non-Physics Subjects’ will be published and made available in appropriate form. Applications to include additional modules in the mandatory electives subsections ‘Physics’ and ‘Non-Physics Subjects’ may be submitted to the Examination Board for approval.

Module category	Usually completed in semester	Module elements	Type of course	credit hrs/wk	ECTS credits	Repeat cycle	Assessment graded / ungraded (g/u)
Seminar	2.	Experimental Physics Seminar / Theoretical Physics Seminar	S	2	4	WS + SS	Presentation (u)
Experimental Physics V	2.	Atomic Physics II	L+EP	3	8	WS	Written or oral examination (g)
		Solid-State Physics II	L+EP	3		SS	
Physics Lab Course for Advanced Students	2.	Advanced Lab Course IIa	P	4	7	WS	Initial and final discussion with supervisor, experimental work, record of findings, analysis and write-up, certificate of satisfactory completion (*Testat*) (u)
Research Seminar	3.	Research Seminar	PR	10	15	WS + SS	Presentation (u)
Lab Project	3.	Lab Project	PR	10	15	WS + SS	Report (u)
Final-year thesis project	4.	Master's thesis	Written thesis	20	30	WS + SS	Written thesis (g)
Total				48	79		

Area of specialization	Usually completed in semester	Modules	Type of course	credit hrs/wk	ECTS credits	Repeat cycle	Assessment graded / ungraded (g/u)
Specialist field: Experimental Physics	2.	Theoretical Physics Ve	L+EP	4	4	SS	Written or oral examination (g)
		Physics Lab Course for Advanced Students IIb	P	2	4	SS	Initial and final discussion with supervisor, experimental work, record of findings, analysis and write-up, certificate of satisfactory completion (*Testat*) and seminar presentation (g)
Specialist field: Theoretical Physics	2.	Theoretical Physics V	L/ EP	6	8	SS	Written or oral examination (g)
Total credits per areas of specialization					8		

Mandatory electives section	Usually completed in semester	Modules	Type of course	credit hrs/wk	ECTS credits	Repeat cycle	Assessment graded / ungraded (g/u)
Mandatory electives subsection: Non-Physics Subjects	2.	Modules in the mandatory electives subsection 'Non-Physics Subjects'	L / EP / P		18	WS + SS	Written or oral examination (at least 9 credits from graded assessments), exam admission prerequisites may also need to be met (see module descriptions)
Mandatory electives subsection: Physics	2.	Modules in the mandatory electives subsection 'Physics'	L / EP		15	WS + SS	Written or oral examination (at least 5 credits from graded assessments)
Total					33		

Section 7
Module prerequisites

Students wishing to take the modules ‘Research Seminar’ and ‘Lab Project’ must have earned at least 52 credits and must have successfully completed the module ‘Experimental Physics V’ and their chosen area of specialization.

Section 8
Studying abroad

All students on the single-subject Master’s degree programme in Physics are encouraged to spend part of the programme studying abroad. Students interested in studying abroad should seek advice from a relevant source and should clarify credit transfer arrangements in accordance with the examination regulations by completing a study abroad learning agreement. Academic credits earned from student assessments and examinations during a study abroad period shall be recognized in accordance with the examination regulations governing the Master’s degree programme in Physics at Saarland University, provided that there is no significant difference in academic content when compared with the modules for which transfer credits are being accepted. Information on study abroad opportunities, exchange programmes, scholarships and administrative formalities is available from Saarland University’s International Office or from the physics teaching staff. As foreign host universities and scholarship-awarding bodies often have early application deadlines and long application processing times, study abroad applications should normally be submitted before the student joins the Master’s programme.

Section 9
Study plan

The Dean of Studies shall compile a programme-specific study plan based on the study regulations. The study plan shall be appended to the study regulations as a recommendation for students on how to structure their studies effectively. The study plan will be made available in suitable form.

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 as well as with planning and organizing their studies.

(2) The Department of Physics 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.

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*). They are binding for all students who begin the Master's programme in Physics after that date.

Saarbrücken, 28 May 2020

President of Saarland University
(Univ.-Prof. Dr. Manfred Schmitt)