FSB (Subject-Specific Provisions) for the Physics International Master of Science Degree Programme (120 ECTS credits)

at Julius-Maximilians-Universität Würzburg

of 06.02.2019

While we have made every effort to ensure that all the information provided in this document is accurate and up to date, we do not warrant its accuracy, correctness or completeness. The English text in this document is intended solely as a convenience to non-German-reading students and staff members. Any discrepancies or differences that may arise in the translation of the official German version shall not be legally binding. In the event of a conflict between the information provided here and the information provided in the official publications of the University of Würzburg, the official publications shall prevail.

Article 13 Subarticle 1 Sentence 2 in conjunction with Article 58 Subarticle 1 and Article 61 Subarticle 2 Sentence 1 *Bayerisches Hochschulgesetz* (Bavarian Higher Education Act, BayHSchG) dated 23 May 2006 (*Bayerisches Gesetz- und Verordnungsblatt* (Bavarian Law and Ordinance Gazette, GVBI, p. 245, *Bayerische Rechtssammlung* (Collection of Bavarian Laws, BayRS) 2210-1-1-WFK) as amended from time to time forms the framework for the following subject-specific provisions decreed by Julius-Maximilians-Universität Würzburg.

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Part 1: General Provisions

Section 1 Scope

These subject-specific provisions (FSB) shall supplement the ASPO (General Academic and Examination Regulations) for the Bachelor's and Master's Degree Programmes Offered by the Julius-Maximilians-Universität Würzburg (JMU) dated 1 July 2015 as amended from time to time.

Section 2 Aims and Objectives of the Degree Programme, Learning Outcomes

(1) ¹The Physics International programme leading to the degree of Master of Science (MSc) is offered by the Faculty of Physics and Astronomy at JMU as a research-based course in the framework of a consecutive Bachelor's/Master's model. ²The degree of Master of Science is a postgraduate degree ; it has a research focus and qualifies graduates to enter a profession. ³The objective of the degree programme is to give students an in-depth understanding of the mathematical and theoretical fundamentals of physics and of interdisciplinary contexts as well as to teach them sound knowledge of theoretical and experimental methods for gaining new insights, including the necessary capacity for abstract and analytical thinking, excellent problemsolving skills and the ability to structure complex contexts, so that they can work responsibly and successfully as physicists in interdisciplinary and in particular international and English-speaking teams of (natural) scientists and/or engineers in research, industry and business.

(2) ¹The overall programme is designed as an English-taught course. ²Most of the modules are therefore held in English, taking into account the rules of Section 12 Subsection 3 and Section 19 Subsection 5 ASPO.

Section 3 Start, Structure and Standard Length of Programme

(1) In accordance with Section 7 ASPO, the Physics International programme shall offer both winter and summer intake in any given academic year.

(2) ¹The programme is structured as follows:

Area or sub-area	EC	TS credits	
Mandatory electives	60		
Sub-area "Physics"		Min. 55	
Advanced Laboratory Course			Min. 9
Advanced Seminar			Min. 5
Experimental Physics			Min. 10
Theoretical Physics			Min. 10
Sub-area "Non-Physics Minor Subject"		Max. 5	
Area of degree finalisation	60		
Total	120		

²Students shall thereby successfully complete modules with graded assessments on a scale of at least 40 ECTS credits in the sub-area "Physics".

(3) The standard length of programme for the Physics International programme leading to the degree of "Master of Science" shall be four semesters, in which students shall earn a total of 120 ECTS credits.

Section 4 Prerequisites for Admission to the Programme, Recommended Fundamental Knowledge and Skills

(1) Admission to the Physics International programme shall be conditional on the following prerequisites (to be met cumulatively):

- a) A Bachelor's degree (180 ECTS credits) completed at JMU or another higher education institution in Germany or abroad or an equivalent German or foreign qualification (e.g. State Examination) and
- b) Proof of
 - aa) Competences on a scale totalling at least 24 ECTS credits from modules in the following sub-areas of experimental physics: Mechanics, electromagnetism, optics, thermodynamics, atomic und molecular physics, solid state physics, nuclear and elementary particle physics,
 - bb) Competences on a scale of at least 22 ECTS credits from modules in the following sub-areas of theoretical physics: Theoretical mechanics, quantum mechanics, theoretical electrodynamics, statistical mechanics, thermodynamics,
 - cc) Competences on a scale of at least 22 ECTS credits from modules in the following sub-areas of mathematics: Analysis, linear algebra, differential equations, complex analysis,
 - dd) Competences on a scale of at least 12 ECTS credits from physics laboratory courses in the following sub-areas: Mechanics, thermodynamics, electrics, atomic and nuclear physics, optics, computer systems and metrology,
 - ee) Competences on a scale of at least a further 30 ECTS credits from modules in the overall field of physics or minor subjects related to physics, and
 - ff) A thesis on a scale of at least 10 ECTS credits on a topic from a sub-area of physics or in the case of an interdisciplinary thesis on a topic in which physics methods are essentially applied,

according to the ECTS credits scheme used at JMU for the BSc in Physics or – in the case of programmes not modularised within the meaning of the ECTS – competences on the corresponding scale (as a rule acquired in the framework of the first degree indicated under Letter a)). The required competences are taught at JMU in particular in the framework of the BSc in Physics (180 ECTS credits); and

- c) Proof of English language proficiency to Level B2 of the Common European Framework of Reference for Languages (CEFR), for example:
 - aa) Test of English as a Foreign Language (TOEFL) with at least 72 internet-based TOEFL points or at least 550 paper-based TOEFL points, or
 - bb) International English Language Test System (IELTS) with a result of 6.0 or higher, or
 - cc) Cambridge First Certificate in English (FCE), or
 - dd) A grade in English of at least 'Satisfactory' (*befriedigend*; equivalent to at least 7 out of 15 points) as part of a German higher education entrance qualification or

A foreign higher education entrance qualification with proof of English language proficiency which is at least equivalent to the above-mentioned higher education entrance qualification, or ee) Proof that training (in particular in the framework of the first degree indicated under a)) has been or is being completed, in which English language skills on the level specified in aa) to dd) are taught.

(2) ¹Applications for admission to the Physics International programme (MSc) for the respective following semester shall be submitted to the chairperson of the examination committee (cf. Subection 4) for the Physics International programme in the form and by the closing date specified, i.e. by 15 July (for the winter semester) or 15 January (for the summer semester); in particular, an electronic application procedure via the relevant JMU websites may be foreseen here. ²Should there be reasons beyond the applicant's control, the documents referred to in Subsection 3 No. 1 Letter a) may be submitted later and by 15 September at the latest (for the winter semester) or 15 March (for the summer semester) in order to be granted final admission to the Physics International programme. ³In the event that the applicant cannot meet this closing date (e.g. because the Bachelor's degree certificate has not yet been issued), the only remaining option shall be admission subject to a resolutive condition in accordance with Subsection 7.

- (3) ¹Applications shall include:
 - 1. Academic achievements from the first degree as specified in Subsection 1 Letter a)
 - a) Proof of a university degree or an equivalent qualification (in the case of applications for final admission to the Master's programme) or
 - b) Proof of 150 ECTS credits or in the case of programmes not modularised within the meaning of the ECTS – academic achievements on a corresponding scale (in the case of applications for admission to the Master's programme subject to a resolutive condition).
 - 2. Previous study and examination achievements
 - a) An overview of previous study and examination achievements (transcript of records) detailing the modules passed which are relevant to the Physics International programme and the examination achievements attributed to them, including the ECTS credits and grades awarded as well, if applicable, as accredited examination achievements or
 - b) In the case of applications for admission to the Master's programme subject to a resolutive condition, a provisional overview of previous study and examination achievements with the details referred to above.
 - 3. In the case of applications for admission to the Master's programme subject to a resolutive condition, proof that a thesis is required for the successful completion of the undergraduate degree in accordance with Subsection 1.
 - 4. Proof of English language skills as specified in Subsection 1 Letter c).

²At the request of the examination committee, further proof of the competences in accordance with Subsection 1 Letter b), e.g. module descriptions, shall be submitted if necessary.

(4) ¹The examination committee for the Physics International programme shall decide whether the requirements set out in Subsection 1 Letter a) and the required minimum competences (Subsection 1 Letter b)) are met. ²The provisions of Section 14 ASPO shall apply mutatis mutandis. ³When deciding on the equivalence of first degrees with the above-mentioned reference qualification as well as for verifying the required minimum competences and their scale (in particular in the case of non-modularised programmes), the principle of reverse burden of proof and the obligation to establish equivalence shall apply in accordance with Article 63 *Bayerisch*-

es Hochschulgesetz (Bavarian Higher Education Act, BayHSchG), insofar as there are no significant differences with regard to the competences acquired (learning outcomes). ⁴Even if the requirements in accordance with Subsection 1 Letter a) and b) are met, the examination committee may recommend in individual cases that an applicant completes further modules at Bachelor level. ⁵Admission to the programme shall not depend on whether the applicant follows such a recommendation.

(5) ¹In the case that the requirements set out in Subsection 1 Letter a) and/or b) are not met, admission to the Physics International programme shall not be possible, unless admission to the Master's programme is possible in accordance with Subsection 7. ²In the case of non-admission, applicants shall receive corresponding notification stating the reasons for the decision and instructions on the available legal remedies.

(6) If the requirements set out in Subsection 1 Letter a) and b) are met, the applicant shall be admitted to the Physics International programme.

(7) ¹In order to facilitate an uninterrupted transition from a Bachelor's degree to the Master's programme, applicants who are not yet able to produce corresponding proof of the degree required in accordance with Subsection 1 Letter a) at the time of application may be admitted to the Master's programme in the semester immediately following, subject to a resolutive condition as follows:

- a) Proof at the time of application of at least 150 ECTS credits or in the case of programmes not modularised within the meaning of the ECTS – academic achievements on a corresponding scale in the first degree required in accordance with Subsection 1 Letter a).
- b) Proof of the competences indicated in Subsection 1 Letter b) Points aa) to ee) according to the ECTS credits scheme used at JMU for the BSc in Physics or in the case of programmes not modularised within the meaning of the ECTS competences on the corresponding scale (as a rule acquired in the framework of the first degree indicated under Letter a)). The required competences are taught at JMU in particular in the framework of the BSc in Physics (180 ECTS credits).
- c) Proof in accordance with Subsection 3 Sentence 1 No. 3.
- d) Proof of English language skills in accordance with Subsection 1 Letter c).

²In the event that the resolutive condition takes effect, i.e. that proof of the first degree specified in Subsection 1 Letter a) is not produced at the latest by the end of the re-enrolment period for the third subject semester of the Physics International programme leading to the degree of Master of Science, the applicant is to be disenrolled at the end of the second subject semester. ³In the event that the resolutive condition does not take effect, final admission to programme shall be possible.

(8) ¹It is recommended that applicants who have not obtained their higher education entrance qualification or a relevant first degree at a German-speaking institution acquire sufficient knowledge of the German language in the course of the first study year (e.g. Level B2 of the Common Framework of Reference for Languages (CEFR)). ²Proof of German language proficiency is not required for admission to the Physics International programme.

Section 5 Minimum ECTS Score Requirement

These FSB do not prescribe a minimum ECTS score requirement as described in Section 13 Subsection 5 ASPO.

Section 6 Examination Committee

(1) ¹By way of derogation from Section 14 Subsection 1 Sentence 3 ASPO, the examination committee for the Physics International programme shall comprise seven members, of which five with voting rights and two in an advisory capacity. ²The examination committee shall include both a representative of the full-time academic staff or of the full-time teaching staff assigned to special tasks as well as a representative of the student body without voting rights as advisory members. ³The members of the examination committee shall be elected by the Faculty Board of the Faculty of Physics and Astronomy.⁴Only the members with voting rights and not the advisory members shall take part in the election of the chairperson of the examination committee.

(2) The examination committee shall include at least three full-time university professors from the Faculty of Physics and Astronomy as members with voting rights; the chairperson must be a full-time university professor at the Faculty of Physics and Astronomy.

(3) The examination committee may bring in additional members for consultation and advice, including, but not limited to, course advisors; these members shall be non-voting.

Part 2: Assessments

Section 7 Other Subject-Specific Assessments

- (1) Supplementary to the other examinations indicated in Section 24 ASPO, the following other subject-specific assessments shall be foreseen for the Physics International programme:
 - Pre-experiment examinations, post-experiment examinations and assessment of laboratory work as well as logs from modules run by the Faculty of Chemistry and Pharmacy
 - Special rules for modules run by the Faculty of Physics and Astronomy.

(2) ¹Pre-experiment examinations: Pre-experiment examinations shall be conducted immediately prior to the practical parts of the respective course. ²First, the examinee shall be given instructions and information on the forthcoming practical work. ³This may also be done by making reference to corresponding teaching materials. ⁴Instructions and information may also be made available to the examinee in electronic form only. ⁵After a reasonable period of time for preparation, a short oral examination shall take place. ⁶The purpose of this oral examination shall be to determine whether the examinee has understood the instructions and information mation and is able to commence the practical part of the course.

(3) ¹Post-experiment examinations: Assessments in the shape of post-experiment examinations shall be conducted after the respective practical part of the course. ²A post-experiment examination shall comprise a written log of the practical work undertaken and a short oral examination. ³Examinees shall demonstrate through the log that they are capable of summarising and presenting the practical work undertaken in an appropriate form. ⁴Examinees shall demonstrate in the oral examination that they are capable of explaining their observations from the laboratory work as recorded in the log. ⁵Details of the type of examination achievements to be produced and the scale are specified in the SFB in the appendix. ⁶The number of examination parts to be completed shall depend on the number of experiments to be conducted and shall be announced by the respective module leader at the latest one week after the start of the laboratory course.

(4) ¹Assessment of laboratory work: This shall be done by inspecting the examinee's laboratory work on the basis of random checks. ²The aim here shall be to determine whether the examinee has worked on the tasks assigned in the framework of the course under consideration of safety aspects, with the necessary care and attention and using scientific methods.

(5) Logs in modules run by the Faculty of Chemistry and Pharmacy: Logs are written examination achievements intended to demonstrate that the examinee is capable of reproducing the contents of a course or activities undertaken in a laboratory course in a structured and appropriate way.

(6) ¹Other subject-specific assessments are foreseen for laboratory courses for individual modules run by the Faculty of Physics and Astronomy.

²To gain a "Pass" in a laboratory course, the following must be successfully completed: Test preparation, successful test implementation, logging of the measurement results and, if applicable, evaluation, including error analysis, and presentation of the results in a report. ³Further details shall be governed by the SFB and the respective module description.

⁴The purpose of a project report shall be to verify that the examinee is capable of working on a clearly defined thematic task or a (research) project using scientific methods as well as of developing problem-solving approaches and concepts and of presenting these in written form.

Section 8 Area of Degree Finalisation: Master's Thesis and Master's Defence

(1) ¹The Master's thesis shall be worth 30 ECTS credits. ²The time allowed for completion of the thesis shall be six months. ³Topics shall only be assigned to examinees once a total of at least 40 ECTS credits have been earned in the mandatory electives. ⁴In individual and justified cases, the examination committee may allow exceptions. ⁵It shall also be possible for the supervisor of the Master's thesis to make the assignment of the topic for that thesis dependent on proof of successful participation in specific modules relevant to the respective topic. ⁶In particular modules 11-FS-P-Int und 11-MP-P-Int, the purpose of which is to acquire the necessary specialist knowledge and professional practical skills in preparation for the Master's thesis in terms of content; they shall therefore be completed before starting the Master's thesis. ⁷The examinee shall provide the supervisor with proof of successful participation in the latest at the signing of the confirmation in accordance with Section 26 Subsection 3 Sentence 5 ASPO. ⁸Without such proof, the topic for the Master's thesis shall not be assigned to the examinee.

(2) ¹Upon written justification and application by the examinee and with the consent of the chairperson of the examination committee, the Master's thesis may be produced at an institution outside the Faculty of Physics and Astronomy. ²Such consent shall only be given if the examination committee has satisfied itself beforehand that sufficient supervision is guaranteed at that institution; in particular, the person at that institution responsible for the local supervision of the examinee shall at least hold a university degree in the subject concerned or a related subject. ³If the Master's thesis is produced at an institution outside the Faculty of Physics and Astronomy or is supervised by a person not employed full-time at the Faculty of Physics and Astronomy, the examination committee shall appoint as supervisor a full-time member of JMU who is entitled to administer examinations; in this case, a university professor shall as a rule be nominated, who generally shall be a member of the Faculty of Physics and Astronomy. ⁴The person supervising the work shall assist the JMU supervisor in their assessment of the work by commenting on it in the shape of a review. ⁵The Master's thesis shall be paginated and include a title page, a table of contents and a summary. ⁶The written version must be bound and submitted in duplicate. ⁷The Master's thesis shall additionally be submitted electronically in the form and format and by the means of transmission specified by the examination committee; examinees shall be informed of these specifications when registering their Master's thesis. ⁸Upon substantiated request, the examination committee shall permit a regulation deviating from the provisions of Sentence 7.

(3) By way of derogation from Section 26 Subsection 9 Sentence 1 ASPO, the Master's thesis shall be presented in English.

(4) At least one of the two reviewers must be a full-time university professor at the Faculty of Physics and Astronomy.

(5) There shall be no oral defence.

Section 9 Overall Grade, Grade in Degree Subject and Grades Awarded for Individual Areas

¹A student's overall grade shall be calculated in accordance with the provisions of Section 35 Subsection 1 ASPO. ²The grade for the degree subject (Physics International) shall be calculated in accordance with Section 35 Subsection 2 ASPO, the grades for the individual areas shall be calculated in accordance with Section 35 Subsection 3 to 5 ASPO.

³When calculating the grades for the individual areas, the "basket model" described in Section 35 Subsection 5 Sentence 7 and 8 ASPO shall apply. ⁴The grade for the mandatory electives shall be calculated from the respective best graded modules in the "Advanced Seminar", "Experimental Physics" and "Theoretical Physics" on a scale of 40 ECTS credits under consideration of the provisions of Section 35 Subsection 4 ASPO. ⁵The modules in the sub-area "Non-Physics Minor Subject" shall not count towards the grade for the degree subject.

⁶The grade for the area of degree finalisation shall be the grade awarded for the Master's thesis.

⁷When calculating the grade for the degree subject and the overall grade, the individual areas shall be assigned the following weight values:

				We	eight value	for
Area or sub-area		ECTS ci	redits	Area	Grade in degree subject	Overall grade
Mandatory electives	60					
Sub-area "Physics"						
Advanced Laboratory Course						
Advanced Seminar					60/120	
Experimental Physics						120/120
Theoretical Physics						
Sub-area "Non-Physical Minor Subject"						
Area of degree finalisation	60				60/120	
Total	120					

Part 3: Final Provisions

Section 10 Entry into Force

¹These FSB shall enter into force on the day following their announcement. ²They shall apply to all students enrolled in the Physics International programme that leads to the award of the degree of Master of Science (120 ECTS credits) who commence studies in that programme at JMU in the 2020/2021 winter semester or later and whose programmes are governed by the ASPO (General Academic and Examination Regulations) for the Bachelor's and Master's Degree Programmes Offered by Julius-Maximilians-Universität Würzburg dated 1 July 2015 as amended from time to time.

Appendix SFB





Annex SFB

Studienfachbeschreibung (subject description, SFB) for the subject Physics International as a Master's with 1 major with the degree "Master of Science" (120 ECTS credits)

Responsible: Faculty of Physics and Astronomy Examination regulations version: 2020 Abbreviations used: Course types: $\mathbf{E} = \text{field trip}$, $\mathbf{K} = \text{colloquium}$, $\mathbf{O} = \text{conversatorium}$, $\mathbf{P} = \text{placement/lab course}$, $\mathbf{R} = \text{project}$, $\mathbf{S} = \text{seminar}$, $\mathbf{T} = \text{tutorial}$, $\mathbf{\ddot{U}} = \text{exercise}$, \mathbf{V} = lecture Term: **SS** = summer semester, **WS** = winter semester Methods of grading: NUM = numerical grade, B/NB = (not) successfully completed Regulations: (L)ASPO = general academic and examination regulations (for teaching-degree programmes), FSB = subject-specific provisions, SFB = list of modules Other: A =thesis, LV =course(s), PL =assessment(s), TN =participants, VL =prerequisite(s) Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not cre-Conventions for the modules in this SFB: ditable for bonus. Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the me-Information on thod of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the assessment procedures: customary manner. Should a module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below. Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

In accordance with the general regulations governing the degree subject described in this module catalogue:

ASPO2015

associated official publications (FSB (subject-specific provisions)/SFB (list of modules)):

06-Feb-2020 (2020-16)

This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.

Every module will be described using the following form:

Abbreviation	Module title							
	ECTS		Duration	(in semesters)	Method of grading		Module level	
	Courses		To be sp	ecified in the form X	(y) with course type >	abbreviated as specified abo	ve and number of we	ekly contact hours y
	Method of as	ssessme	ent					
	Only after su completion of		l if applica	ble				
	Other prereq	uisites	if applica	ıble				
	Participants on of places		ocati- if applica	ble				
	Additional in	formatio	on if applica	ıble				
	Referred to in	n LPO I	if applica	ble (examination re	gulations for teachin	g-degree programmes)		

Electives Field (60	ECTS cro	edits)											
Subfield Physics (mindest	ens 55 E	CTS cred	ts)									
Advanced Laborate	ory Cour	ses (mir	ndestens	9 ECTS	5 credits)								
11-P-FM1-Int-201-	Advan	ced Lab	oratory Co	ourse	urse Master Part 1								
m01	ECTS	3	Duratio		1 semester Method of grading (not) successfully completed Modul level graduate								
	Course	25		P (3) Modi	P (3) Module taught in: English								
	Metho	d of ass	essment	Stude an ex perin mode	practical examination Students must successfully prepare, perform, document (lab notebook) and evaluate (in the form of a scientific publication) an experiment to be considered to have successfully completed this experiment. Students must successfully complete two ex- periments to be considered to have successfully completed this module. Detailed regulations are laid down in the respective module description. Language of assessment: English								
	other p	orerequi	sites	Prepa	aration and safety	y brie	fing.						
11-P-FM2-Int-201-	Advan	ced Lab	oratory Co	ourse	Master Part 2								
m01	ECTS	3	Duratio	n	1 semester		Method of grading	(not) succes	ssfully completed	Modul level	graduate		
	Course	es		P (3) Modi	Module taught in: English								
	Metho	Method of assessment			practical examination Students must successfully prepare, perform, document (lab notebook) and evaluate (in the form of a scientific publication) an experiment to be considered to have successfully completed this experiment. Students must successfully complete two ex periments to be considered to have successfully completed this module. Detailed regulations are laid down in the respective module description. Language of assessment: English						nust successfully complete two ex-		
	other p	orerequi	sites	Prepa	aration and safety	y brie	fing.						
11-P-FM3-Int-201-	Advan	ced Lab	oratory Co	ourse	Master Part 3								
m01	ECTS	3	Duratio	n	1 semester		Method of grading	(not) succes	ssfully completed	Modul level	graduate		
	Course	es	-,,,	P (3) Modi	ule taught in: Eng	lish				·			
	Method of assessment			Stude an ex perin mode	practical examination Students must successfully prepare, perform, document (lab notebook) and evaluate (in the form of a scientific publication) an experiment to be considered to have successfully completed this experiment. Students must successfully complete two ex- periments to be considered to have successfully completed this module. Detailed regulations are laid down in the respective module description. Language of assessment: English								
	other prerequisites			Prepa	Preparation and safety briefing.								
Master's with 1 major Ph	nysics Intern	ational (20	20)					JMU Würzb	urg • generated 02-Jun-2	2020 • exam. reg. data	record 88 j44 - - H 2020 page 3 / 43		

11-P-FM4-Int-201-	Advanc	ed Labo	ratory Co	ourse N	laster Part 4							
m01	ECTS	3	Duration	ı	1 semester	Method of grading	(not) successfully completed	Modul level	graduate			
	Course	S		P (3) Modu	P (3) Module taught in: English							
		Atthod of assessment practical examination Students must successfully prepare, perform, document (lab notebook) and evaluate (in an experiment to be considered to have successfully completed this experiment. Student periments to be considered to have successfully completed this module. Detailed regulat module description. Language of assessment: English							ust successfully complete two ex-			
	other prerequisites Preparation and safety briefing.											
Advanced Seminar	(mindes	tens 5 E	CTS cred	its)								
11-0SP-A-Int-201-	Advanc	anced Seminar Physics A										
m01	ECTS	5	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S		S (2) Modu	S (2) Module taught in: German or English							
	Methoo	l of asse	essment		ith discussion (30 to age of assessment:							
11-0SP-B-Int-201-	Advanc	ed Semi	inar Phys	ics B								
m01	ECTS	5	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S	,	S (2) Module taught in: German or English								
	Methoo	l of asse	essment		ith discussion (30 to age of assessment:	9 45 minutes) German and/or Engl	ish					

11-BSV-Int-201-	Image	and Sig	nal Proce	ssing in Physics						
m01	ECTS	6	Duratio	n 1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	es	_	V (2) + Ü (2) Module taught in: English						
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English 						
11-0HL-Int-201-	Organ	ic Semio	onductor	5						
m01	ECTS 6 Duratio		Duratio	n 1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	25		V (3) + R (1) Module taught in: Er	glish					
	Method of assessment			 b) oral examination of c) oral examination i d) project report (appert) or constant of the presentation/talk lf a written examination of an oral examination of an oral examination of the lecturer must information. 	ination of one candidate ea orm students about this by In the semester in which t	orox. 30 minutes) or rox. 30 minutes per ca of assessment, this m ach or an oral examina four weeks prior to the	hay be changed and as tion in groups. If the m e original examination			

11-PMM-Int-201-	Physics	s of Advand	ed Materia	lls							
m01	ECTS	6 D	uration	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S) + R (1) dule taught in: Englisł	1						
	Method	l of assess	b) o c) o d) p e) p If a form the Asse	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English 							
11-SPI-Int-201-m01	Spintronics										
	ECTS	6 D	uration	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S) + R (1) Jule taught in: Englisł	1						
	Method	l of assess	b) o c) o d) p e) p If a form the Asse	roject report (approx. resentation/talk (app written examination v n of an oral examinati lecturer must inform s	e candidate each (ap oups (groups of 2, ap 8 to 10 pages) or rox. 30 minutes). vas chosen as metho on of one candidate students about this b ne semester in which	prox. 30 minutes) or prox. 30 minutes per ca d of assessment, this r each or an oral examin y four weeks prior to th	nay be changed and ass				

11-FK2-Int-201-m01	Solid S	tate Ph	ysics 2								
	ECTS	8	Duration	n 1 semest	er	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (4) + R (2) Module taught i	n: English						
	Methoo	d of asse	essment	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English							
11-FKS-Int-201-m01		rerequis			xaminatio	on committee require	d.				
		6	Duration		er	Method of grading	numerical grade	Modul level	graduate		
	Course	S	,	V (3) + R (1) Module taught i	n: English			I			
	Methoo	d of ass	essment	b) oral examina c) oral examinat d) project report e) presentation, If a written exan form of an oral e the lecturer mus	tion of one tion in gro t (approx. /talk (app nination w examination st inform s ered: In th	ups (groups of 2, ap 8 to 10 pages) or rox. 30 minutes). vas chosen as metho on of one candidate students about this b e semester in which	prox. 30 minutes) or prox. 30 minutes per c d of assessment, this each or an oral examir y four weeks prior to t	may be changed and as			

11-MAG-Int-201-	Magnetism											
m01	ECTS	6	Duration	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S			V (3) + R (1) Module taught in: English							
11-HNS-Int-201				b) ora c) ora d) pro e) pre lf a wi form o the le Asses Langu	Il examination of or l examination in gr ject report (approx sentation/talk (app ritten examination of an oral examinat cturer must inform ssment offered: In t uage of assessment	. 8 to 10 pages) or prox. 30 minutes). was chosen as metho ion of one candidate students about this b he semester in which t: English	prox. 30 minutes) or prox. 30 minutes per ca d of assessment, this m each or an oral examina y four weeks prior to th	nay be changed and ass				
11-HNS-Int-201-		-			ductor Nanostructu							
m01	ECTS	6	Duration	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	Courses			V (3) + R (1) Module taught in: English							
	Methoo	d of ass	essment	b) ora c) ora d) pro e) pre If a wi form o the le Asses	Il examination of or l examination in gr oject report (approx sentation/talk (app ritten examination of an oral examinat cturer must inform	. 8 to 10 pages) or prox. 30 minutes). was chosen as metho ion of one candidate students about this b he semester in which	prox. 30 minutes) or prox. 30 minutes per ca d of assessment, this m each or an oral examina y four weeks prior to th	nay be changed and ass				

11-HPH-Int-201-	Semiconductor Physics													
m01	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate						
	Course	S		V (3) + R (1) Module taught in: English										
	Method	l of asse	k c e l f t	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is ch the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English 										
11-QTR-Int-201-	-	um Trans	port											
m01	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate						
	Course	S		V (3) + R (1) Module taught in: Engl	ish									
	Methoo	l of asse	k c e l f t	b) oral examination of e c) oral examination in g d) project report (appro e) presentation/talk (a If a written examination form of an oral examination the lecturer must inforr	pprox. 30 minutes). h was chosen as metho ation of one candidate n students about this b the semester in which	pprox. 30 minutes) or prox. 30 minutes per ca d of assessment, this r each or an oral examina y four weeks prior to th	nay be changed and as							

11-NOP-Int-201-	Nano-C	Nano-Optics												
m01	ECTS	6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Course	S			+ R (1) Ile taught in: Engli	sh			_					
11 DTS Int 201	Metho	d of ass	essment	b) ora c) ora d) pro e) pro If a w form the le Asses) written examination (approx. 90 to 120 minutes) or) oral examination of one candidate each (approx. 30 minutes) or) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or) project report (approx. 8 to 10 pages) or) presentation/talk (approx. 30 minutes). a written examination was chosen as method of assessment, this may be changed and assessment may instead take the orm of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, ne lecturer must inform students about this by four weeks prior to the original examination date at the latest. ssessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: English									
11-PTS-Int-201-	Phenor	menolo	gy and Th	eory o	f Superconductivi	y								
m01	ECTS	6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Course	S			V (3) + R (1) Module taught in: English									
	Metho	d of ass	essment	c) ora d) pro e) pro If a w form the le Asses	 b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may inster form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English 									
08-PCM4-161-mo	u Ultrafa	st spec	troscopy	and qu	antum-control									
	ECTS	5	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate					
	Course	-		S (2) + Ü (1) Module taught in: German or English										
			essment	a) written examination (approx. 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) talk (approx. 30 minutes) Language of assessment: German and/or English										
	other p	orerequi	sites	Prior	completion of mod	lules o8-PCM1a and o8-	PCM1b recommended.							

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11-CSFM-Int-201-	Advand	Advanced Topics in Solid State Physics											
m01	ECTS	6	Duration	n	1 semester	Method of grading numerical grade	Modul level	graduate					
	Course	!S	_	V (3) + R (1) Module taught in: English									
				 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English 									
	other prerequisites			Approval from examination committee required.									
11-ASM-Int-201-			servation		· · · · · · · · · · · · · · · · · · ·								
m01	ECTS	6	Duration		1 semester	Method of grading numerical grade	Modul level	graduate					
	Course	2S		V (3) + R (1) Module taught in: English									
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English 									

11-TPE-Int-201-mo	1 Experii	mental I	Particle P	hysics	,							
	ECTS	6	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course			Modu	+ R (1) Ile taught in: English							
	Metho	d of ass	essment	oral e oral e projec If a w form o the le Asses	ritten examination (approx. 90 to 120 minutes) or ral examination of one candidate each (approx. 30 minutes) or ral examination in groups (groups of 2, approx. 30 minutes per candidate) or roject report (approx. 8 to 10 pages) or presentation/talk (approx. 30 minutes). a written examination was chosen as method of assessment, this may be changed and assessment may instead take th rm of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is change e lecturer must inform students about this by four weeks prior to the original examination date at the latest. assessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: English							
11-ASP-Int-201-			Space P	hysics								
m01	ECTS	6	Duratio	-	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S			V (3) + R (1) Module taught in: English							
				b) ora c) ora d) pro e) pre If a w form of the le Asses Langu	Il examination in gro oject report (approx. esentation/talk (app ritten examination w of an oral examinati ecturer must inform s	one candidate each (approx. 30 minutes) or groups (groups of 2, approx. 30 minutes per candidate) or ox. 8 to 10 pages) or upprox. 30 minutes). n was chosen as method of assessment, this may be changed and assessment may instr- ation of one candidate each or an oral examination in groups. If the method of assessment m students about this by four weeks prior to the original examination date at the latest. In the semester in which the course is offered and in the subsequent semester						
11-MAS-Int-201-			gth Astro	· · ·	1							
m01	ECTS Course	6 s	Duration	V (3) ·	1 semester + R (1) Ile taught in: English	Method of grading	numerical grade	Modul level	graduate			
	Metho	d of ass	essment	b) ora c) ora d) pro e) pre If a w form of the le	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take th form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is change the lecturer must inform students about this by four weeks prior to the original examination date at the latest. 							

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11-CSAM-Int-201-	Advanc	ed Topi	cs in Astı	ophys	ics						
m01	ECTS 6 Duratio			n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S			V (3) + R (1) Module taught in: English						
	Methoo	d of ass	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English 							
	other p	rerequi	sites	Appro	val from examinatio	on committee require	d.				
11-MRI-Int-201-	Advanced Magnetic Resonance Imaging										
m01	ECTS 6 Duratio			n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (3) + R (1) Module taught in: English							
	Methoo	d of ass	essment	b) ora c) ora d) pro e) pre If a wi form o the le Asses	l examination of one l examination in gro ject report (approx. sentation/talk (app itten examination w of an oral examinatio cturer must inform s	8 to 10 pages) or rox. 30 minutes). vas chosen as method on of one candidate e students about this by e semester in which	prox. 30 minutes) or prox. 30 minutes per candidate) d of assessment, this may be cl	hanged and ass groups. If the m al examination (ethod of assessment is changed, date at the latest.		

11-SSC-Int-201-	Surfac	e Scienc	ce								
m01	ECTS	6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	:S		V (3) + R (1) Module taught in: English							
	Metho	d of ass	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English 							
11-BIC-Int-201-m01	Basic Imaging Concepts										
	ECTS	6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	:S		V (3) + R (1) Module taught in: English							
	Metho	d of ass	essment	b) ora c) ora d) pro e) pre If a w form the le	al examination of Il examination in Dject report (appro- esentation/talk (a ritten examinatio of an oral examin	ox. 8 to 10 pages) or approx. 30 minutes). on was chosen as methon nation of one candidate of m students about this b	pprox. 30 minutes) or prox. 30 minutes per canc d of assessment, this may	y be changed and ass on in groups. If the m	sessment may instead take the ethod of assessment is changed, date at the latest.		

11-IRP-Int-201-m01	Basic I	maging	Reconstr	uction	and Processing							
	ECTS	6	Duration	n	1 semester	Method of grading numerical grade		Modul level	graduate			
	Course	S			V (3) + R (1) Module taught in: English							
	Methoo	d of ass	sessment	b) ora c) ora d) pro e) pre If a w form of the le	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English 							
11-CAP-Int-201-		<u> </u>	/ Astrophy									
m01	ECTS	6	Duration		1 semester	Method of grading numerical grade		Modul level	graduate			
	Course			Modu	V (3) + R (1) Module taught in: English							
	Method of assessment			b) ora c) ora d) pro e) pre If a w form of the le Langu	 b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessmer form of an oral examination of one candidate each or an oral examination in groups. If the method o the lecturer must inform students about this by four weeks prior to the original examination date at t Language of assessment: English 				ethod of assessment is changed,			
11-AAI-Int-201-m01	Advand	ed Ast	ro Imaging	3								
	ECTS	6	Duration		1 semester	Method of grading numerical grade		Modul level	graduate			
	Course			Modu	+ R (1) Ile taught in: Englis							
	Methoo	d of ass	sessment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English 								

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11-CTA-Int-201-	Advanced Computer Tomography										
m01	ECTS	6	Duratio	n	1 semester Method of grading numerical grade Modul level graduate						
	Course	!S			+ R (1) ule taught in: Englisl	h					
	Metho	d of ass	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English 							
11-EIM-Int-201-	Electron and Ion Microscopy										
m01	ECTS	6	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	2S		V (3) + R (1) Module taught in: English							
	Method of assessment			b) ora c) ora d) pro e) pre If a w form the le	al examination of on al examination in gro oject report (approx. esentation/talk (app ritten examination v of an oral examinati	prox. 30 minutes). was chosen as method of assessment, this may be ion of one candidate each or an oral examination i students about this by four weeks prior to the origi	e changed and ass in groups. If the m	nethod of assessment is changed,			

11-SPT-Int-201-	Scannir	Scanning Probe Technologies											
m01	ECTS	6	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Courses	5		V (3) + R (1) Module taught in: English									
	Method	of asse	essment	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may inste form of an oral examination of one candidate each or an oral examination in groups. If the method of assessme the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English									
11-FPA-Int-201-m01	Visiting	Resea	rch										
	ECTS	10	Duration	n		Method of grading	numerical grade	Modul level	graduate				
	Courses	5		R (o) Module taught in: English									
	Method	ofasse	essment	project report (10 to 20 pages) Language of assessment: English									
	other pi	rerequis	sites	Approval from examination committee required.									
11-EXE5-Int-201-	Current	Topics	in Experi	imental Physics									
m01	ECTS	5	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Courses	5		V (2) + R (2) Module taught in: English									
	Method	of asse	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English 									
	other p	rerequis	sites	Appro	val from examination	on committee require	d.						
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11-EXE6-Int-201-	Current Topics in Experimental Physics										
m01	ECTS	6	Duration	ו 1	semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S	_	V (3) + R (1) Module taught in: English							
	Method	l of ass	essment	 b) oral ex c) oral ex d) project e) present lf a writtee form of at the lecture 	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English 						
	other prerequisites			Approval from examination committee required. mental Physics							
11-EXE7-Int-201-			<u> </u>		•						
m01	ECTS	7	Duration		semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (3) + R (1) Module taught in: English							
	Methoo	l of ass	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English 							
	other p	rerequi	sites	Approva	l from examinatio	n committee require	d.				

11-EXE8-Int-201-	Current	t Topics	in Experi	menta	Physics						
m01	ECTS	8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S			V (4) + R (2) Module taught in: English						
	Methoo	d of ass	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English 							
	other p	rerequi	sites	Appro	Approval from examination committee required.						
11-EXE6A-Int-201-	Current Topics in Experimental Physics										
m01	ECTS 6 Duratio		Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (3) + R (1) Module taught in: English							
	Methoo	d of ass	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English 							
	other p	rerequi	sites	Appro	Approval from examination committee required.						

11-EXP6-Int-201-	Current	Current Topics in Physics												
m01	ECTS 6 Duration		1	1 semester	Method of grading	numerical grade	Modul level	graduate						
	Courses			V (3) +	- R (1)	·		•						
	Methoo	d of ass	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English 										
Theoretical Physic		rerequi			val from examinati	on committee require	ed.							
11-QM2-Int-201-			nanics II	uits)										
m01		8	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Courses			V (4) + R (2) Module taught in: English										
	Methoo	d of ass		b) ora c) oral d) pro e) pre If a wr form c the lee Asses	l examination of or l examination in gro ject report (approx sentation/talk (app itten examination v of an oral examinat cturer must inform	8 to 10 pages) or prox. 30 minutes). was chosen as metho ion of one candidate students about this b ne semester in which	pprox. 30 minutes) or prox. 30 minutes per candidate d of assessment, this may be a	changed and ass groups. If the m nal examination of						

11-RTT-Int-201-m01	1 Theory	of Rela	tivity									
	ECTS	6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	!S			V (3) + R (1) Module taught in: English							
	Metho	d of asso	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester 								
11-RMFT-Int-201-	Renormalization Group Methods in Field Theory											
m01	ECTS	8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			V (4) + R (2) Module taught in: English								
	Metho	d of ass	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: Once a year as announced 								

11-PKS-Int-201-	Physics of Complex Systems												
m01	ECTS	6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	S	-	V (2) + R (2) Module taught in: English									
				 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester 									
11-QIC-IIII-201-III01	ECTS		Duratio	antum Computing and Quantum Information n 1 semester Method of grading numerical grade Modul level graduate									
	Courses			V (3) -		<u> </u>							
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English 									

11-TFK-Int-201-m01	Theoretical Solid State Physics												
	ECTS	8	Duratior	ı	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Courses			V (4) + Modu	- R (2) le taught in: Englis	h							
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English 									
11-TFK2-Int-201-	Theoretical Solid State Physics 2												
m01	ECTS	8	Duratior	ı		Method of grading	numerical grade	Modul level	graduate				
	Courses			V (2) + R (2) Module taught in: English									
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester 									

11-TEFK-Int-201-	Topological Effects in Solid State Physics												
m01	ECTS	8	Duration	n	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Courses				+ R (2) ule taught in: Englisl	h							
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English 									
11-FFK-Int-201-m01	1 Field Theory in Solid State Physics												
	ECTS	8	Duration	n	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Courses			V (4) + R (2) Module taught in: English									
	Metho	d of asso	essment	b) ora c) ora d) pro e) pre If a w form the le Asses	al examination of or al examination in gro oject report (approx esentation/talk (app rritten examination v of an oral examinati ecturer must inform	. 8 to 10 pages) or prox. 30 minutes). was chosen as method ion of one candidate e students about this b he semester in which	prox. 30 minutes) or prox. 30 minutes per candidat d of assessment, this may be	changed and ass n groups. If the m nal examination o					

11-AKTF-Int-201-	Selecte	ed Topio									
m01	ECTS	6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S			V (3) + R (1) Module taught in: English						
	Metho	d of ass	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English 							
11-CMS-Int-201-	Computational Materials Science (DFT)										
m01	ECTS	ECTS 8 Duratio		n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses			V (2) + R (2) Module taught in: English							
	Metho	d of ass	essment	b) ora c) ora d) pro e) pre If a w form the le Lange	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester						

11-KFT-Int-201-m01	Conformal Field Theory											
	ECTS	6	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			V (3) + R (1) Module taught in: English								
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester 								
11-KFT2-Int-201-	Conformal Field Theory 2											
m01	ECTS 6 Duratio		Duratio	ı	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			V (3) + R (1) Module taught in: English								
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester 								

11-GRTM-Int-201-	Group	Theory									
m01	ECTS	ECTS 6 Duratio			1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	!S			V (3) + R (1) Module taught in: English						
	Metho	d of asse	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester 							
	other p	orerequis	sites	Appro	val from examination	on committee require	d.	·			
11-TPSM-Int-201-	Particl	e Physic	s (Standa	ard Mo	del)						
m01	ECTS				1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	Courses			V (3) + R (1) Module taught in: English						
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester 							
	other p	orerequis	sites	Appro	val from examination	on committee require	d.				

11-CRP-Int-201-	Renorm	alizati	on Group a	and Cr	itical Phenomena	,					
m01	ECTS	6	Duratior	า	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses	5		V (3) · Modu	+ R (1) lle taught in: Engli	sh					
	Method	of ass		b) ora c) ora d) pro e) pre If a w form of the le Langu	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). f a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester						
11-BWW-Int-201-	Bosonis	sation a	and Intera	ctions	in One Dimensio	1					
m01	ECTS	6	Duratior	ı	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses	5		V (3) · Modu	+ R (1) lle taught in: Engli	sh					
	Method	of ass		b) ora c) ora d) pro e) pre If a w form of the le Langu	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). f a written examination was chosen as method of assessment, this may be changed and assessment may instead take the orm of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is change he lecturer must inform students about this by four weeks prior to the original examination date at the latest. anguage of assessment: English 						
11-GGD-Int-201-			o Gauge/G		r ř						
m01		8	Duratior		1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses			V (4) + R (2) Module taught in: English							
	Method	of ass		 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester 							

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11-AKM-Int-201- m01	Cosmo	logy										
	ECTS	6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S			V (3) + R (1) Module taught in: English							
	Methoo	l of asse	essment	b) ora c) ora d) pro e) pre If a wi form o the le Langu	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
11-AST-Int-201-	Theoretical Astrophysics											
m01	ECTS	6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			V (2) + R (2) Module taught in: English								
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester 								

11-EPP-Int-201-	Introduction to	Introduction to Plasma Physics											
m01	ECTS 6	Duration	1	1 semester	Method of grading numerical grade	Modul level	graduate						
	Courses		V (2) + R (2) Module taught in: English										
		b c c e l l f f t L L A	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester										
11-APL-Int-201-	High-Energy A		5										
m01	ECTS 6	Duration		1 semester	Method of grading numerical grade	Modul level	graduate						
	Courses	Ν	Nodule	(3) + R (1) odule taught in: English									
	Method of ass	b c c li f f t L	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester 										
11-NMA-Int-201-	Computationa												
m01	ECTS 6	Duration		1 semester	Method of grading numerical grade	Modul level	graduate						
	Courses		V (3) + R (1) Module taught in: English										
	Method of ass	b c c ll f f t L	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester 										

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11-QFT1-Int-201-	Quantu	Quantum Field Theory I												
m01	ECTS	8	Duratior	n	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Course	S		V (4) + R (2) Module taught in: English										
	Method	d of asse		b) oral c) oral d) proj e) pres If a wri form o the leo Langu	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester									
11-QFT2-Int-201-	other prerequisites Quantum Field Theory I			Approval from examination committee required.										
mo1			<u> </u>					Modul level	graduate					
	ECTS 8 Duratio			V (4) + Modul a) writ b) oral d) proj e) pres If a wri form o the leo Langu	R (2) ten examination (a l examination of on examination in gro ject report (approx. sentation/talk (app itten examination v of an oral examination cturer must inform age of assessment	h pprox. 90 to 120 minute candidate each (ap pups (groups of 2, app 8 to 10 pages) or prox. 30 minutes). vas chosen as methor ion of one candidate e students about this b : English	utes) or prox. 30 minutes) or prox. 30 minutes per can d of assessment, this m	ndidate) or nay be changed and ass ation in groups. If the m e original examination	sessment may instead take the ethod of assessment is changed, date at the latest.					

11-TEP-Int-201-m01	Theore	tical Ele	ementary l	Particle Physic	S						
	ECTS	8	Duratior	1 seme	ster	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (4) + R (2) Module taugh	t in: Engl	ish					
				b) oral examin c) oral examin d) project repo e) presentatio If a written exa form of an ora the lecturer m Language of a Assessment o	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). f a written examination was chosen as method of assessment, this may be changed and assessment may instead take the orm of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, he lecturer must inform students about this by four weeks prior to the original examination date at the latest. anguage of assessment: English 						
11-ATTP-Int-201-		-		retical Element	tary Parti						
m01	ECTS	6	Duratior		ster	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (3) + R (1) Module taugh	/ (3) + R (1) Module taught in: English						
				a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
11-BSM-Int-201-		-	1	Î		ary Particle Physics		1			
m01	ECTS	6	Duratior		ster	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (3) + R (1) Module taught in: English							
	Metho	d of ass		 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester 							

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11-STRG1-Int-201-	String	Theory :	1			,						
m01	ECTS	8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S			/ (4) + R (2)							
					le taught in: Englis							
	Method	d of ass	essment			approx. 90 to 120 mini ne candidate each (an						
					b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or							
					d) project report (approx. 8 to 10 pages) or							
					sentation/talk (apprint ten examination)		d of assessment this m	hav be changed and ass	essment may instead take the			
									ethod of assessment is changed,			
				the le	cturer must inform	students about this b		e original examination o				
					lage of assessment		the course is offered ar	nd in the subsequent se	mostor			
11-STRG2-Int-201-	String [*]	Theory	2	Asses			the course is offered at		lilestei			
m01	ECTS	6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course		aratio		(3) + R(1)							
		-			Module taught in: English							
	Method	d of ass	essment	a) written examination (approx. 90 to 120 minutes) or								
				b) ora	b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or							
					d) project report (approx. 8 to 10 pages) or							
				e) pre	e) presentation/talk (approx. 30 minutes).							
					If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the							
					form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest.							
				Langu	Language of assessment: English							
				Asses	sment offered: In t	he semester in which	the course is offered ar	nd in the subsequent se	mester			
11-FPA-Int-201-m01			1		1			1				
	ECTS	10	Duratio			Method of grading	numerical grade	Modul level	graduate			
	Course	S		R (o)	le taught in: Englis	·h						
	Method	1 of acc	essment		ct report (10 to 20 p							
	Method	1 01 055	essment		lage of assessmen							
	other p	rerequi	sites			ion committee require	d.					
	other prerequisites											

11-EXT7-Int-201-	Current Topics of Theoretical Physics												
m01	ECTS	7	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Course	S		/ (3) + R (1)		·							
				Module taught in: English									
	Methoo	d of asse		a) written examination (a									
				b) oral examination of on		prox. 30 minutes) or prox. 30 minutes per candidate) or						
				d) project report (approx.) 01						
			e	e) presentation/talk (app	rox. 30 minutes).								
						d of assessment, this may be cl		sessment may instead take the ethod of assessment is changed,					
						y four weeks prior to the origina							
				anguage of assessment		,							
	other p	rerequis	sites A	Approval from examination committee required.									
11-EXT5-Int-201-	Current	Tonics	of Theoret	etical Physics									
mo1		5	Duration										
	Course	-		/(2) + R(2)	method of Studing	numerical grade	modulievel	Sidduite					
	course	5		Module taught in: English									
	Method	ofasse		a) written examination (approx. 90 to 120 minutes) or									
				b) oral examination of one candidate each (approx. 30 minutes) or									
				c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or									
				d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes).									
			It	If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the									
				form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed,									
				the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English									
	other p	rerequis		Approval from examination		d.							
	parts p		,	-FE - For the statistication									

11-EXT6-Int-201-	Current	t Topics	of Theoret	tical Physics								
m01	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	S		V (3) + R (1)								
				Module taught in: English								
	Method	d of asse		a) written examination (
				b) oral examination of o		prox. 30 minutes) or prox. 30 minutes per candidate) or					
				d) project report (approx	(, 8 to 10 pages) or	prox. 30 minutes per candidate	.) 01					
				e) presentation/talk (ap	prox. 30 minutes).							
						d of assessment, this may be c						
								ethod of assessment is changed,				
				the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English								
	other p	rerequis		Approval from examinat		ed.						
		•										
11-EXT8-Int-201-	Current Topics of Theoretical Physics											
m01	ECTS 8 Duratio											
	Course	S		V (4) + R (2) Medule taught in: English								
	Matha			Module taught in: English a) written examination (approx. 90 to 120 minutes) or								
	Method	L OF asse		b) oral examination of o								
						prox. 30 minutes per candidate) or					
				d) project report (approx. 8 to 10 pages) or								
				e) presentation/talk (approx. 30 minutes).								
				If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed,								
				the lecturer must inform students about this by four weeks prior to the original examination date at the latest.								
				Language of assessment: English								
	other p	rerequis	sites /	Approval from examination committee required.								

11-EXT6A-Int-201-	Current Topic	s of Theore	etical P	hysics				
m01	ECTS 6	Duration	า	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses		V (3) + Modul	· R (1) le taught in: Engli	sh			
	Method of as	sessment	b) oral c) oral d) pro e) pres If a wr form o the leo	l examination of o examination in g ject report (appro sentation/talk (ap itten examinatior of an oral examination	x. 8 to 10 pages) or oprox. 30 minutes). was chosen as methe ation of one candidate n students about this	pprox. 30 minutes) or oprox. 30 minutes per o od of assessment, this each or an oral examin	may be changed and ass	sessment may instead take the ethod of assessment is changed, date at the latest.
	other prerequ	uisites	Appro	val from examina	tion committee requir	ed.		
11-EXP6A-Int-201-	Current Topic	s in Physic	s					
m01	ECTS 6	Duration	n	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses		V (3) + Modul	· R (1) le taught in: Engli	sh			
	Method of as	sessment	b) oral c) oral d) pro e) pres If a wr form o the leo	l examination of o examination in g ject report (appro sentation/talk (ap itten examinatior of an oral examination	x. 8 to 10 pages) or oprox. 30 minutes). was chosen as methe ation of one candidate n students about this	pprox. 30 minutes) or oprox. 30 minutes per o od of assessment, this each or an oral examin	may be changed and ass	sessment may instead take the ethod of assessment is changed, date at the latest.
	other prerequ			val from examina	tion committee requir	ed.		
Subfield Non-Phys		-						
10-M-OR- Saf-152-m01				nts of other subje				
3al-152-1101	ECTS 10	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses Method of as	sessment	V (4) + Ü (2) a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 mi- nutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English creditable for bonus					

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10-M-VAN-152-m01	Advan	ced Anal	ysis						
	ECTS	7	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Course	es		V (4) +	- Ü (2)				
	Metho	d of asse		nutes) Langu) or c) oral examinat		s of 2, 10 to 15 minutes per ca		f one candidate each (15 to 30 mi-
10-M=AAA-	Applie	d Analys	is						
Nin-152-m01	ECTS	10	Duration		1 semester	Method of grading	numerical grade	Modul level	graduate
	Course	25		V (4) + Modu	- Ü (2) le taught in: English				
	Metho	d of asse		minut Asses Langu	es) or c) oral examir	nation in groups (gro e semester in which	utes, usually chosen) or b) ora ups of 2, 15 minutes per candi the course is offered and in th	date)	f one candidate each (approx. 20 emester
10-M=ADG-	Differe	ntial Ge	ometry						
Min-152-m01	ECTS	10	Duration		1 semester	Method of grading	numerical grade	Modul level	graduate
	Course	es			- Ü (2) le taught in: English				
	Metho	d of asse		minut Asses Langu	es) or c) oral examir	nation in groups (gro e semester in which	utes, usually chosen) or b) ora ups of 2, 15 minutes per candi the course is offered and in th	date)	f one candidate each (approx. 20 emester
10-M=AFT-	Compl	ex Analy	sis						
Hin-152-m01	ECTS	10	Duration		1 semester	Method of grading	numerical grade	Modul level	graduate
	Course	25		V (4) + Modu	- Ü (2) le taught in: English				
	Metho	d of asse		minut Asses Langu	es) or c) oral examir	nation in groups (gro e semester in which	utes, usually chosen) or b) ora ups of 2, 15 minutes per candi the course is offered and in th	date)	f one candidate each (approx. 20 emester

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10-M=AL-	Lie The	eory								
THin-152-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical gra	ıde	Modul level	graduate	
	Course	S			+ Ü (2) ıle taught in: Englis	h				
	Metho	d of ass	essment	minu Asse Lang	tes) or c) oral exam	pprox. 90 to 120 minutes, usually ch nation in groups (groups of 2, 15 min he semester in which the course is o : English	nutes per candid	late)		
10-M=ATO-	Topolo	gy								
Pin-152-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical gra	ıde	Modul level	graduate	
	Course	S			+ Ü (2) ıle taught in: Englis	h		*		
	Metho	d of ass	essment	minu Asse: Lang	tes) or c) oral exam	approx. 90 to 120 minutes, usually ch nation in groups (groups of 2, 15 min he semester in which the course is o :: English	nutes per candid	late)		
10-M=AZTHin-152-	Numbe	r Theor	у							
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical gra	ıde	Modul level	graduate	
	Course	S			+ Ü (2) ıle taught in: Englis	h				
	Metho	d of ass	essment	minu Asse Lang	tes) or c) oral exam	approx. 90 to 120 minutes, usually ch nation in groups (groups of 2, 15 min he semester in which the course is o : English	nutes per candid	late)		
10-M=VGD-	Groups	and th	eir Repres	sentat	ions					
Sin-152-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical gra	ıde	Modul level	graduate	
	Course	S		V (4) + Ü (2) Module taught in: English						
	Method of assessment			minu Asse Lang	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English creditable for bonus					

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10-M=VGE-	Geome	trical <i>I</i>	Nechanics								
Min-152-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade		Modul level	graduate		
	Course	es.			V (4) + Ü (2) Module taught in: English						
	Metho	d of as	sessment	minu Asse Lang	tes) or c) oral exa	(approx. 90 to 120 minutes, usually chos nination in groups (groups of 2, 15 minute the semester in which the course is offer nt: English	es per candida	ite)			
10-M=VN-	Numer	ic of Pa	rtial Diffe	rentia	Equations						
PEin-152-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade		Modul level	graduate		
	Course	S			+ Ü (2) Jle taught in: Engl	ish					
	Metho	d of ass	sessment	minu Asse Lang	tes) or c) oral exa	(approx. 90 to 120 minutes, usually chos mination in groups (groups of 2, 15 minute the semester in which the course is offer nt: English	es per candida	ite)			
10-M=VDI-	Discrete Mathematics										
Min-152-m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical grade		Modul level	graduate		
	Course	S			+ Ü (1) ıle taught in: Engl	ish					
	Metho	d of ass	sessment	minu Asse Lang	tes) or c) oral exa	(approx. 60 to 90 minutes, usually chose nination in groups (groups of 2, approx. 1 the semester in which the course is offer nt: English	10 minutes per	candidate)			
10-M=VM-	Select	ed Topi	cs in Math	emati	cal Physics						
PHin-152-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade		Modul level	graduate		
	Course	S			+ Ü (2) Jle taught in: Engl	ish					
	Metho	d of ass	sessment	minu Asse Lang	tes) or c) oral exa	(approx. 90 to 120 minutes, usually chos nination in groups (groups of 2, 15 minute the semester in which the course is offer nt: English	es per candida	ite)			

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10-M=VPD-	Partia	Differer	ntial Equa	tions o	of Mathematical Ph	ysics			
Pin-152-m01	ECTS	10	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate
	Course	25			⊦ Ü (2) le taught in: Englis	h			
	Metho	d of asso	essment	minut Asses Langu	es) or c) oral exam	ination in groups (gro he semester in which	utes, usually chosen) or b) oral ups of 2, 15 minutes per candic the course is offered and in the	late)	one candidate each (approx. 20 emester
10-M=V-	Pseud	o Riema	nnian and	l Riema	annian Geometry				
PRGin-152-m01	ECTS	10	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate
	Course	es			⊦ Ü (2) le taught in: Englis	h			
			essment	minut Asses Langu	es) or c) oral exam	ination in groups (gro he semester in which	utes, usually chosen) or b) oral ups of 2, 15 minutes per candic the course is offered and in the	late)	one candidate each (approx. 20 emester
10-l=DB-161-m01	Databa	ases							
	ECTS	5	Duratio		1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Course	es		V (2) -					
	Metho	d of asso	essment	lf ann of one date). Separ Langu	ounced by the lect e candidate each (a ate written examin		of the course, the written exam r an oral examination in groups dents.		replaced by an oral examination 5 (approx. 15 minutes per candi-
	Additio	onal Info	rmation	Focus	es available for stu	idents of the Master's	programme Informatik (Compu	uter Science, 120	e ECTS credits): SE, IS, HCI.
10-I=PA-161-m01	Analys	is and D	esign of	Progra	ms				
	ECTS	5	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate
	Course			V (2) -					
	Metho	d of ass	essment	lf ann of one date). Langu	ounced by the lect e candidate each (a		of the course, the written exam r an oral examination in groups		replaced by an oral examination 5 (approx. 15 minutes per candi-

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10-I-RAK-152-m01	Computer Arcl	nitecture					
	ECTS 5	Duration	1	1 semester	Method of grading numerical grade	Modul level	undergraduate
	Courses		V (2) -	+ Ü (2)			
	Method of ass	essment			ox. 60 to 120 minutes).		
					rer at the beginning of the course, the written exan		
			of one date).		pprox. 20 minutes) or an oral examination in group	s of 2 candidate	s (approx. 15 minutes per candi-
			· · ·		German and/or English		
				able for bonus	, 0		
	Referred to in	LPO I		Nr. 1c: Rechnerarch	itektur		
			-	l Nr. 3b		1	
10-I-APR-172-m01	Advanced Prog						
	ECTS 5	Duration		1 semester	Method of grading numerical grade	Modul level	graduate
	Courses		V (2) -	+ Ü (2)			
	Method of ass	essment			ox. 60 to 120 minutes).		
					rer at the beginning of the course, the written exan		
			date).		pprox. 20 minutes) or an oral examination in group	s of 2 candidates	s (approx. 15 minutes per candi-
					German and/or English		
			credit	able for bonus			
10-I-BS-191-m01	Operating Sys	tems					
	ECTS 5	Duration		1 semester	Method of grading numerical grade	Modul level	undergraduate
	Courses			+ Ü (2)			
				le taught in: English			
	Method of ass	essment			ox. 60 to 120 minutes).	· · · · · · · · · · · · · · · · · · ·	
					rer at the beginning of the course, the written exan oprox. 20 minutes) or an oral examination in group		
			date).				s (approx. 15 minutes per candi
			Langu	age of assessment:	German and/or English		
			credit	able for bonus			
10-I=KI1-161-m01	Artificial Intell	igence 2					
	ECTS 5	Duration		1 semester	Method of grading numerical grade	Modul level	graduate
	Courses		V (2) -				
	Method of ass	essment			ox. 60 to 120 minutes).		
					rer at the beginning of the course, the written exan		
			date).		pprox. 20 minutes) or an oral examination in group	s of 2 candidates	s (approx. 15 minutes per candi-
					German and/or English		
				able for bonus			

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08-FU-SAM-161-	Sensor and Actor Materials - Functional Ceramics and Magnetic Particles										
m01	ECTS 5 Duration		n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			V (2)	+ P (2)						
	Method o	of asse	essment	a) written examination (approx. 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral ex- amination in groups (groups of 2, approx. 30 minutes per candidate) Assessment offered: Once a year, summer semester Language of assessment: German and/or English P: creditable for bonus							
08-FU-EEW-152-	Electrochemical Energy Storage and Conversion										
m01	ECTS 5	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses			V (2)	+ P (1) + E (1)						
	Method			a) assessment and b) Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log ap- prox. 5 to 10 pages each) and assessment of practical assignments (2 to 4 random examinations), weighted 7:3 Assessment offered: Once a year, summer semester Language of assessment: German and/or English							
08-FU-MW-161-	Structure and Properties of Modern Materials: Experiments vs. Simulations										
m01	ECTS 5 Duratio				1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses			V (2)	V (2) + S (1)						
	Method o			a) talk (approx. 30 minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups of 2 (approx. 30 minutes total) Assessment offered: Once a year, winter semester Language of assessment: German and/or English							
11-EXNP6-Int-201-	Nonphys		inor Subj	ect							
m01	ECTS 6	6	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses			V (3) + R (1) Module taught in: English							
	Method of assessment			a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: English Approval from examination committee required.							

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Master Project Modules (60 ECTS credits)										
11-FS-P-Int-201- mo1	Professional Specialization Physics International									
	ECTS	15	Duration		1 semester	Method of grading	(not) successfully completed	Modul level	graduate	
	Courses			S (4) Module taught in: English						
			essment	talk with discussion (30 to 45 minutes) Language of assessment: English						
11-MP-P-Int-201- mo1	Scientific Methods and Project Management Physics International									
	ECTS 15 Duratio		n	1 semester	Method of grading	(not) successfully completed	Modul level	graduate		
	Courses			R (4) Module taught in: English						
	Methoo	d of asse	essment	talk with discussion (30 to 45 minutes) Language of assessment: English						
11-MA-P-Int-201- mo1	Master Thesis Physics International									
	ECTS 30 Duratio		n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S								
	Method of assessment			Master's thesis (750 to 900 hours total) Language of assessment: English						
	Additio	nal Info	rmation	Bearbeitungszeit: 6 Monate						