

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, GVBl, 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 problem-solving 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:

<i>Area or sub-area</i>	<i>ECTS credits</i>		
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		
<i>Total</i>	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 and 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. Subsection 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 resolute 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 resolute 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 resolute 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 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, which is to be carried out as an independent research project, are to be aligned with the topic of 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 these modules at 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:

<i>Area or sub-area</i>	<i>ECTS credits</i>			<i>Weight value for</i>		
				<i>Area</i>	<i>Grade in degree subject</i>	<i>Overall grade</i>
Mandatory electives	60				60/120	120/120
Sub-area "Physics"						
Advanced Laboratory Course						
Advanced Seminar						
Experimental Physics						
Theoretical Physics						
Sub-area "Non-Physical Minor Subject"						
Area of degree finalisation	60				60/120	
<i>Total</i>	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: **E** = field trip, **K** = colloquium, **O** = conversatorium, **P** = placement/lab course, **R** = project, **S** = seminar, **T** = tutorial, **Ü** = exercise, **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)

Conventions for the modules in this SFB: Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not creditable for bonus.

Information on assessment procedures: Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method 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 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)):

o6-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 specified in the form X (y) with course type X abbreviated as specified above and number of weekly contact hours y				
	Method of assessment						
	Only after successful completion of		if applicable				
	Other prerequisites		if applicable				
	Participants and allocation of places		if applicable				
	Additional information		if applicable				
	Referred to in LPO I		if applicable (examination regulations for teaching-degree programmes)				

Electives Field (60 ECTS credits)							
Subfield Physics (mindestens 55 ECTS credits)							
Advanced Laboratory Courses (mindestens 9 ECTS credits)							
11-P-FM1-Int-201-m01	Advanced Laboratory Course Master Part 1						
	ECTS	3	Duration	1 semester	Method of grading	(not) successfully completed	Modul level graduate
	Courses	P (3) Module taught in: English					
	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 experiments 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	Preparation and safety briefing.					
11-P-FM2-Int-201-m01	Advanced Laboratory Course Master Part 2						
	ECTS	3	Duration	1 semester	Method of grading	(not) successfully completed	Modul level graduate
	Courses	P (3) Module taught in: English					
	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 experiments 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	Preparation and safety briefing.					
11-P-FM3-Int-201-m01	Advanced Laboratory Course Master Part 3						
	ECTS	3	Duration	1 semester	Method of grading	(not) successfully completed	Modul level graduate
	Courses	P (3) Module taught in: English					
	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 experiments 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	Preparation and safety briefing.					

11-P-FM4-Int-201-m01	Advanced Laboratory Course Master Part 4							
	ECTS	3	Duration	1 semester	Method of grading	(not) successfully completed	Modul level	graduate
	Courses	P (3) Module taught in: English						
	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 experiments 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	Preparation and safety briefing.							
Advanced Seminar (mindestens 5 ECTS credits)								
11-OSP-A-Int-201-m01	Advanced Seminar Physics A							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	S (2) Module taught in: German or English						
Method of assessment	talk with discussion (30 to 45 minutes) Language of assessment: English							
11-OSP-B-Int-201-m01	Advanced Seminar Physics B							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	S (2) Module taught in: German or English						
Method of assessment	talk with discussion (30 to 45 minutes) Language of assessment: German and/or English							

Experimental Physics (mindestens 10 ECTS credits)							
11-BSV-Int-201-m01	Image and Signal Processing in Physics						
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level graduate
	Courses	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-OHL-Int-201-m01	Organic Semiconductors						
	ECTS	6	Duration	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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English					

11-PMM-Int-201-mo1	Physics of Advanced Materials							
	ECTS	6	Duration	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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						
11-SPI-Int-201-mo1	Spintronics							
	ECTS	6	Duration	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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						

11-FK2-Int-201-m01	Solid State Physics 2							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						
other prerequisites	Approval from examination committee required.							
11-FKS-Int-201-m01	Solid State Spectroscopy							
	ECTS	6	Duration	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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						

11-MAG-Int-201-mo1	Magnetism							
	ECTS	6	Duration	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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						
11-HNS-Int-201-mo1	Optical Properties of Semiconductor Nanostructures							
	ECTS	6	Duration	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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						

11-HPH-Int-201-mo1	Semiconductor Physics							
	ECTS	6	Duration	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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						
11-QTR-Int-201-mo1	Quantum Transport							
	ECTS	6	Duration	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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						

11-NOP-Int-201-mo1	Nano-Optics							
	ECTS	6	Duration	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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						
11-PTS-Int-201-mo1	Phenomenology and Theory of Superconductivity							
	ECTS	6	Duration	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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						
o8-PCM4-161-mo1	Ultrafast spectroscopy and quantum-control							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	S (2) + Ü (1) Module taught in: German or English						
	Method of assessment	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 prerequisites	Prior completion of modules o8-PCM1a and o8-PCM1b recommended.						

11-CSFM-Int-201-mo1	Advanced Topics in Solid State Physics							
	ECTS	6	Duration	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						
other prerequisites	Approval from examination committee required.							
11-ASM-Int-201-mo1	Methods of Observational Astronomy							
	ECTS	6	Duration	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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						

11-TPE-Int-201-m01	Experimental Particle Physics							
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses		V (3) + R (1) Module taught in: English					
Method of assessment		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). 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-ASP-Int-201-m01	Introduction to Space Physics							
	ECTS	6	Duration	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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						
11-MAS-Int-201-m01	Multi-wavelength Astronomy							
	ECTS	6	Duration	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						

11-CSAM-Int-201-mo1	Advanced Topics in Astrophysics							
	ECTS	6	Duration	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						
	other prerequisites	Approval from examination committee required.						
11-MRI-Int-201-mo1	Advanced Magnetic Resonance Imaging							
	ECTS	6	Duration	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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						
	other prerequisites							

11-SSC-Int-201-m01	Surface Science							
	ECTS	6	Duration	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. 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	Duration	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						

11-IRP-Int-201-mo1	Basic Imaging Reconstruction and Processing							
	ECTS	6	Duration	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						
11-CAP-Int-201-mo1	Contemporary Astrophysics							
	ECTS	6	Duration	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						
11-AAI-Int-201-mo1	Advanced Astro Imaging							
	ECTS	6	Duration	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						

11-CTA-Int-201-m01	Advanced Computer Tomography							
	ECTS	6	Duration	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						
11-EIM-Int-201-m01	Electron and Ion Microscopy							
	ECTS	6	Duration	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						

11-SPT-Int-201-m01	Scanning Probe Technologies							
	ECTS	6	Duration	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						
11-FPA-Int-201-m01	Visiting Research							
	ECTS	10	Duration		Method of grading	numerical grade	Modul level	graduate
	Courses	R (0) Module taught in: English						
	Method of assessment	project report (10 to 20 pages) Language of assessment: English						
other prerequisites	Approval from examination committee required.							
11-EXE5-Int-201-m01	Current Topics in Experimental Physics							
	ECTS	5	Duration	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						
other prerequisites	Approval from examination committee required.							

11-EXE6-Int-201-mo1	Current Topics in Experimental Physics							
	ECTS	6	Duration	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						
other prerequisites	Approval from examination committee required.							
11-EXE7-Int-201-mo1	Current Topics in Experimental Physics							
	ECTS	7	Duration	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						
other prerequisites	Approval from examination committee required.							

11-EXE8-Int-201-mo1	Current Topics in Experimental Physics							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + 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						
	other prerequisites	Approval from examination committee required.						
11-EXE6A-Int-201-mo1	Current Topics in Experimental Physics							
	ECTS	6	Duration	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						
	other prerequisites	Approval from examination committee required.						

11-EXP6-Int-201-mo1	Current Topics in Physics							
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (3) + R (1)						
	Method of assessment	<p>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).</p> <p>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.</p> <p>Language of assessment: English</p>						
other prerequisites	Approval from examination committee required.							
Theoretical Physics (mindestens 10 ECTS credits)								
11-QM2-Int-201-mo1	Quantum Mechanics II							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + R (2) Module taught in: English						
	Method of assessment	<p>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).</p> <p>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.</p> <p>Assessment offered: In the semester in which the course is offered and in the subsequent semester</p> <p>Language of assessment: English</p>						

11-RTT-Int-201-m01	Theory of Relativity							
	ECTS	6	Duration	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-RMFT-Int-201-m01	Renormalization Group Methods in Field Theory							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + 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: Once a year as announced						

11-PKS-Int-201-m01	Physics of Complex Systems							
	ECTS	6	Duration	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-QIC-Int-201-m01	Advanced Theory of Quantum Computing and Quantum Information							
	ECTS	6	Duration	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. 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	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						
11-TFK2-Int-201-m01	Theoretical Solid State Physics 2							
	ECTS	8	Duration		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-mo1	Topological Effects in Solid State Physics							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						
11-FFK-Int-201-mo1	Field Theory in Solid State Physics							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						

11-AKTF-Int-201-m01	Selected Topics of Theoretical Solid State Physics							
	ECTS	6	Duration	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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English						
11-CMS-Int-201-m01	Computational Materials Science (DFT)							
	ECTS	8	Duration	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-KFT-Int-201-mo1	Conformal Field Theory							
	ECTS	6	Duration	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-mo1	Conformal Field Theory 2							
	ECTS	6	Duration	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-mo1	Group Theory							
	ECTS	6	Duration	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						
	other prerequisites	Approval from examination committee required.						
11-TPSM-Int-201-mo1	Particle Physics (Standard Model)							
	ECTS	6	Duration	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						
	other prerequisites	Approval from examination committee required.						

11-CRP-Int-201-mo1	Renormalization Group and Critical Phenomena							
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (3) + R (1) Module taught in: English						
11-BWW-Int-201-mo1	Bosonisation and Interactions in One Dimension							
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (3) + R (1) Module taught in: English						
11-GGD-Int-201-mo1	Introduction to Gauge/Gravity Duality							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + 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-AKM-Int-201-m01	Cosmology							
	ECTS	6	Duration	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-AST-Int-201-m01	Theoretical Astrophysics							
	ECTS	6	Duration	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-m01	Introduction to Plasma Physics							
	ECTS	6	Duration	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-APL-Int-201-m01	High-Energy Astrophysics							
	ECTS	6	Duration	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-NMA-Int-201-m01	Computational Astrophysics							
	ECTS	6	Duration	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-QFT1-Int-201-m01	Quantum Field Theory I							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + 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						
other prerequisites	Approval from examination committee required.							
11-QFT2-Int-201-m01	Quantum Field Theory II							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + 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-TEP-Int-201-m01	Theoretical Elementary Particle Physics							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + 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-ATTP-Int-201-m01	Selected Topics of Theoretical Elementary Particle Physics							
	ECTS	6	Duration	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-BSM-Int-201-m01	Models Beyond the Standard Model of Elementary Particle Physics							
	ECTS	6	Duration	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-STRG1-Int-201-m01	String Theory 1							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + 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-STRG2-Int-201-m01	String Theory 2							
	ECTS	6	Duration	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-FPA-Int-201-m01	Visiting Research							
	ECTS	10	Duration		Method of grading	numerical grade	Modul level	graduate
	Courses	R (0) Module taught in: English						
	Method of assessment	project report (10 to 20 pages) Language of assessment: English						
	other prerequisites	Approval from examination committee required.						

11-EXT7-Int-201-m01	Current Topics of Theoretical Physics							
	ECTS	7	Duration	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						
other prerequisites	Approval from examination committee required.							
11-EXT5-Int-201-m01	Current Topics of Theoretical Physics							
	ECTS	5	Duration	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						
other prerequisites	Approval from examination committee required.							

11-EXT6-Int-201-mo1	Current Topics of Theoretical Physics							
	ECTS	6	Duration	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						
other prerequisites	Approval from examination committee required.							
11-EXT8-Int-201-mo1	Current Topics of Theoretical Physics							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + 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						
other prerequisites	Approval from examination committee required.							

11-EXT6A-Int-201-m01	Current Topics of Theoretical Physics							
	ECTS	6	Duration	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						
other prerequisites	Approval from examination committee required.							
11-EXP6A-Int-201-m01	Current Topics in Physics							
	ECTS	6	Duration	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						
other prerequisites	Approval from examination committee required.							
Subfield Non-Physical Minors (0-5 ECTS credits)								
10-M-OR-Saf-152-m01	Operations Research for students of other subjects							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V (4) + Ü (2)						
Method of assessment	a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) 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							

10-M-VAN-152-m01	Advanced Analysis							
	ECTS	7	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V (4) + Ü (2)						
	Method of assessment	a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus						
10-M=AAA-Nin-152-m01	Applied Analysis							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + Ü (2) Module taught in: English						
	Method of assessment	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						
10-M=ADG-Min-152-m01	Differential Geometry							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + Ü (2) Module taught in: English						
	Method of assessment	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						
10-M=AFT-Hin-152-m01	Complex Analysis							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + Ü (2) Module taught in: English						
	Method of assessment	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						

10-M=AL- THin-152-m01	Lie Theory							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + Ü (2) Module taught in: English						
	Method of assessment	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						
10-M=ATO- Pin-152-m01	Topology							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + Ü (2) Module taught in: English						
	Method of assessment	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						
10-M=AZTHin-152- m01	Number Theory							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + Ü (2) Module taught in: English						
	Method of assessment	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						
10-M=VGD- Sin-152-m01	Groups and their Representations							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + Ü (2) Module taught in: English						
	Method of assessment	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						

10-M=VGE- Min-152-m01	Geometrical Mechanics							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + Ü (2) Module taught in: English						
	Method of assessment	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						
10-M=VN- PEin-152-m01	Numeric of Partial Differential Equations							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + Ü (2) Module taught in: English						
	Method of assessment	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						
10-M=VDI- Min-152-m01	Discrete Mathematics							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (3) + Ü (1) Module taught in: English						
	Method of assessment	a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 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						
10-M=VM- PHin-152-m01	Selected Topics in Mathematical Physics							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + Ü (2) Module taught in: English						
	Method of assessment	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						

10-M=VPD-Pin-152-m01	Partial Differential Equations of Mathematical Physics							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + Ü (2) Module taught in: English						
	Method of assessment	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						
10-M=V-PRGin-152-m01	Pseudo Riemannian and Riemannian Geometry							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (4) + Ü (2) Module taught in: English						
	Method of assessment	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						
10-l=DB-161-m01	Databases							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V (2) + Ü (2)						
	Method of assessment	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Separate written examination for Master's students. Language of assessment: German and/or English creditable for bonus						
	Additional Information	Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE, IS, HCI.						
10-l=PA-161-m01	Analysis and Design of Programs							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (2) + Ü (2)						
	Method of assessment	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus						

10-I-RAK-152-m01	Computer Architecture							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V (2) + Ü (2)						
	Method of assessment	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus						
Referred to in LPO I	§ 69 I Nr. 1c: Rechnerarchitektur § 22 II Nr. 3b							
10-I-APR-172-m01	Advanced Programming							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (2) + Ü (2)						
	Method of assessment	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus						
10-I-BS-191-m01	Operating Systems							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V (2) + Ü (2) Module taught in: English						
	Method of assessment	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus						
10-I-KI1-161-m01	Artificial Intelligence 2							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (2) + Ü (2)						
	Method of assessment	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus						

o8-FU-SAM-161-mo1	Sensor and Actor Materials - Functional Ceramics and Magnetic Particles							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (2) + P (2)						
	Method of assessment	a) written examination (approx. 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination 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						
o8-FU-EEW-152-mo1	Electrochemical Energy Storage and Conversion							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses	V (2) + P (1) + E (1)						
	Method of assessment	a) assessment and b) Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 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						
o8-FU-MW-161-mo1	Structure and Properties of Modern Materials: Experiments vs. Simulations							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses	V (2) + S (1)						
	Method of assessment	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-mo1	Nonphysical Minor Subject							
	ECTS	6	Duration	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						
	other prerequisites	Approval from examination committee required.						

Master Project Modules (60 ECTS credits)								
11-FS-P-Int-201-m01	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					
	Method of assessment		talk with discussion (30 to 45 minutes) Language of assessment: English					
11-MP-P-Int-201-m01	Scientific Methods and Project Management Physics International							
	ECTS	15	Duration	1 semester	Method of grading	(not) successfully completed	Modul level	graduate
	Courses		R (4) Module taught in: English					
	Method of assessment		talk with discussion (30 to 45 minutes) Language of assessment: English					
11-MA-P-Int-201-m01	Master Thesis Physics International							
	ECTS	30	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses							
	Method of assessment		Master's thesis (750 to 900 hours total) Language of assessment: English					
	Additional Information		Bearbeitungszeit: 6 Monate					