

Annex SFB

Studienfachbeschreibung (subject description, SFB) for the subject Physics as a Bachelor's with 1 major with the degree "Bachelor of Science" (180 ECTS credits)

Responsible: Faculty of Physics and Astronomy

Examination regulations version: 2015

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:

ASP02015

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

22-Jul-2015 (2015-40) except for mandatory elective 11-KDS-152 added in Fast Track procedure at a later time

14-Mar-2018 (2018-16)

12-Dec-2018 (2018-63)

12-Jun-2024 (2024-73)

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 s	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 as	ssessm	ent								
	Only after su completion of		ıl if appli	if applicable							
	Other prereq	uisites	if appli	if applicable							
	Participants and allocation of places		ocati- if appli	if applicable							
	Additional information		ion if appli	if applicable							
	Referred to i	n LPO I	if appli	if applicable (examination regulations for teaching-degree programmes)							

Compulsory Cours	Compulsory Courses (129 ECTS credits)											
Module Group Exp	Module Group Experimental Physics											
Classical Physics (16 ECTS credits)												
11-E-M-152-m01	Classical Physics 1 (Mechanics)											
	ECTS 8 Dura	tion	1 semester	Method of grading	numerical grade		Modul level	undergraduate				
	Courses		V (4) + Ü (2) Module taught in: Ü: German or English									
	Method of assessme		written examination (approx. 120 minutes) Language of assessment: German and/or English									
	other prerequisites	succ	Admission prerequisite to assessment: completion of exercises (approx. 13 exercise sheets per semester). Students who successfully completed approx. 50% of exercises will qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the semester.									
	Additional Informati	cons neral the q stude for al sessi	Registration: If a student registers for the exercises and obtains the qualification for admission to assessment, this will be considered a declaration of will to seek admission to assessment pursuant to Section 20 Subsection 3 Sentence 4 ASPO (general academic and examination regulations). If the module coordinators subsequently find that the student has obtained the qualification for admission to assessment, they will put the student's registration for assessment into effect. Only those students that meet the respective prerequisites can successfully register for an assessment. Students who did not register for an assessment or whose registration for an assessment was not put into effect will not be admitted to the respective assessment. If a student takes an assessment to which he/she has not been admitted, the grade achieved in this assessment will not be considered.									
	Referred to in LPO I		§ 53 Nr. 1 a) § 77 Nr. 1 a)									

11-E-E-152-m01	Classic	cal Phy	sics 2 (Hea	at and	- Electromagnetism)					'			
	ECTS	8	Duratio	n	1 semester	Method of grading	numerical grade		Modul level	undergraduate			
	Course	!S			+ Ü (2) ıle taught in: Ü: Ger	man or English							
	Metho	d of ass	sessment		written examination (approx. 120 minutes) Language of assessment: German and/or English								
	other prerequisites			succe	Admission prerequisite to assessment: completion of exercises (approx. 13 exercise sheets per semester). Students who successfully completed approx. 50% of exercises will qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the semester.								
	Addition	onal Info	ormation	consi neral the q stude for ar sessr	Registration: If a student registers for the exercises and obtains the qualification for admission to assessment, this will be considered a declaration of will to seek admission to assessment pursuant to Section 20 Subsection 3 Sentence 4 ASPO (general academic and examination regulations). If the module coordinators subsequently find that the student has obtained the qualification for admission to assessment, they will put the student's registration for assessment into effect. Only those students that meet the respective prerequisites can successfully register for an assessment. Students who did not register for an assessment or whose registration for an assessment was not put into effect will not be admitted to the respective assessment. If a student takes an assessment to which he/she has not been admitted, the grade achieved in this assessment will not be considered.								
	Referred to in LPO I				§ 53 Nr. 1 a) § 77 Nr. 1 a)								
Optics and Quantu	m Physi	cs I (6 I	ECTS credi	ts)	s)								
11-E-OAV-152-m01	Optics	and Qu	ıantum Ph	ysics									
	ECTS	6	Duratio	n	2 semester	Method of grading	numerical grade		Modul level	undergraduate			
	Course	25		V (4)	+ V (4)	`							
	Metho	d of ass	sessment			candidate each (appr t: German and/or Eng							
Optics and Quantu	m Physi	cs II (10	ECTS cre	dits)									
11-E-OA-152-m01	Optics	and Wa	aves - Exe	rcises									
	ECTS	5	Duratio	1	1 semester	Method of grading	numerical grade		Modul level	undergraduate			
	Course	!S		Ü (2) Modı	ıle taught in: Ü: Ger	man or English							
	Metho				written examination (approx. 120 minutes) Language of assessment: German and/or English								
				§ 53 Nr. 1 a) § 77 Nr. 1 a)									

11-E-AA-152-m01	Atoms and Quanta - Exercises											
	ECTS 5	Duratio	n 1 semester	Method of grading	numerical grade	Modul level	undergraduate					
	Courses		Ü (2)									
			Module taught in: Ü: German or English									
	Method of as	sessment	written examination (approx. 120 minutes) Language of assessment: German and/or English									
	<u> </u>		Language of assessmen	Language of assessment. Definal ana/of Linguish								
Structure of Matter												
11-E-F-152-m01												
	ECTS 8 Duration			Method of grading	numerical grade	Modul level	undergraduate					
	Courses		V (4) + Ü (2)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,								
	NA - 411 - 6		Module taught in: Ü: Ge									
	Method of as	sessment	written examination (approx. 120 minutes) Language of assessment: German and/or English									
11-E-T-152-m01	Nuclear and I	Flementary	Particle Physics	a derman ana, or Engli	311	1						
	ECTS 6	Duration		Method of grading	numerical grade	Modul level	undergraduate					
	Courses		V (3) + Ü (1)	[1	a managa ana ana a					
			Module taught in: Ü: Ge	rman or English								
	Method of as	sessment	written examination (ap									
			Language of assessmen	t: German and/or Engli	sh							
Module Group Theo	oretical Physic	:s										
Mechanics and Qua	antum Mechan	ics (16 ECT	rs credits)									
11-T-M-152-m01	Theoretical N	retical Mechanics										
	ECTS 8	Duratio		Method of grading	numerical grade	Modul level	undergraduate					
	Courses		V (4) + Ü (2) Module taught in: Ü: Ge	rman or English								
	Method of as	sessment	written examination (approx. 120 minutes)									
			Language of assessmen	t: German and/or Engli	sh							
	other prerequ	uisites	Admission prerequisite to assessment: completion of exercises (approx. 13 exercise sheets per semester). Students who successfully completed approx. 50% of exercises will qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the semester.									
	Additional Information		considered a declaration neral academic and exathe qualification for adn students that meet the for an assessment or who have the students that meet the students that meet the students are students.	n of will to seek admiss mination regulations). nission to assessment, respective prerequisite nose registration for an	sion to assessment pur If the module coordina they will put the stude s can successfully regis assessment was not p	rsuant to Section 20 Su ators subsequently find ent's registration for ass ster for an assessment. out into effect will not be	on to assessment, this will be bsection 3 Sentence 4 ASPO (gethat the student has obtained essment into effect. Only those Students who did not register admitted to the respective asde achieved in this assessment					

11-T-Q-152-m01	Quantum Mechanics											
	ECTS 8	Duratio	n 1 semester	Method of grading numerical grade	Modul level	undergraduate						
	Courses		V (4) + Ü (2) Module taught in: Ü: Ge	rman or English								
	Method of as	sessment	written examination (approx. 120 minutes) Language of assessment: German and/or English									
	other prerequ	uisites	successfully completed	Admission prerequisite to assessment: completion of exercises (approx. 13 exercise sheets per semester). Students who successfully completed approx. 50% of exercises will qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the semester. Registration: If a student registers for the exercises and obtains the qualification for admission to assessment, this will be considered a declaration of will to seek admission to assessment pursuant to Section 20 Subsection 3 Sentence 4 ASPO (general academic and examination regulations). If the module coordinators subsequently find that the student has obtained the qualification for admission to assessment, they will put the student's registration for assessment into effect. Only those students that meet the respective prerequisites can successfully register for an assessment. Students who did not register for an assessment or whose registration for an assessment was not put into effect will not be admitted to the respective assessment. If a student takes an assessment to which he/she has not been admitted, the grade achieved in this assessment will not be considered.								
	Additional Inf	formation	considered a declaration neral academic and exathe qualification for adrestudents that meet the for an assessment or who have the statement of the									
Statistical Physics	and Electrody	namics I (6	ECTS credits)									
11-T-SE-152-m01	Statistical Physics and Electrodynamics											
	ECTS 6	Duratio	n 2 semester	Method of grading numerical grade	Modul level	undergraduate						
	Courses	,	V (4) + V (4)		·							
	Method of as	sessment	oral examination of one Language of assessmer	oral examination of one candidate each (approx. 30 minutes) Language of assessment: German and/or English								
Statistical Physics	and Electrody	namics II (:	10 ECTS credits)									
11-T-SA-152-m01	Statistical Ph	nysics - Exe	ercises									
	ECTS 5	Duratio		Method of grading numerical grade	Modul level	undergraduate						
	Courses		Ü (2) Module taught in: Ü: Ge	rman or English								
	Method of as	sessment	written examination (ap Language of assessmer	prox. 120 minutes) nt: German and/or English								
11-T-EA-152-m01	Electrodynam	nics - Exerc	ises									
	ECTS 5	Duratio		Method of grading numerical grade	Modul level	undergraduate						
	Courses		Ü (2) Module taught in: Ü: Ge	rman or English								
	Method of as	sessment	written examination (approx. 120 minutes) Language of assessment: German and/or English									

Module Group Mathematics												
Mathematics 1 and	Mathematics 1 and 2 (16 ECTS credits) 10-M-PHY1-152- Mathematics 1 for Students of Physics and Nanostructure Technology											
10-M-PHY1-152-	Mathematics 1	for Stud	ents of	Physics and Nanos	tructure Technology							
mo1	ECTS 8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses			V (5) + Ü (2) Module taught in: Ü: German or English								
	Method of ass	essment	b) ora c) ora Langu	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) canguage of assessment: German and/or English creditable for bonus								
10-M-PHY2-152-	Mathematics :	for Stud	ents o	f Physics and Nanos	structure Technology							
mo1	ECTS 8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses			V (5) + Ü (2) Module taught in: Ü: German or 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) Language of assessment: German and/or English creditable for bonus									
Mathematics 3 and	d 4 (16 ECTS cree	dits)										
11-M-D-152-m01	Mathematics 3	for Stud	ents of	f Physics and relate	d Disciplines (Differe	ntial Equations)						
	ECTS 8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses			+ Ü (2) ıle taught in: Ü: Geri	man or English							
	Method of ass	essment		en examination (appuage of assessment	orox. 120 minutes) : German and/or Eng	lish						
11-M-F-152-m01	Mathematics A	4 for Stud	ents of	Physics and relate	d Disciplines (Compl	ex Analysis)	,					
	ECTS 8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses		V (4) + Ü (2) Module taught in: Ü: German or English									
	Method of assessment		written examination (approx. 120 minutes) Language of assessment: German and/or English									

Module Group Lab Course Physics												
Laboratory Course Physics (19 ECTS credits)												
11-P-PA-152-m01	Labora	tory Co	ırse Phys	ics A (Mechanics, Heat, Ele	ectromagnetism)						
	ECTS	3	Duration	n	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate			
	Courses			P (2)	P (2)							
	method of assessment			Prepa pleted comp sics-r	practical assignment with talk (approx. 30 minutes) Preparing, performing and evaluating (record of readings or lab report) the experiments will be considered successfully completed if a Testat (exam) is passed. Exactly one experiment that was not successfully completed can be repeated once. After completion of all experiments, talk (with discussion; approx. 30 minutes) to test the candidate's understanding of the physics-related contents of the module. Talks that were not successfully completed can be repeated once. Both components of the assessment have to be successfully completed.							
11-P-PB-152-m01	Laboratory Course Physics B (Classical Physics, Electricity, Circuits)											
	ECTS	8	Duration	n	2 semester	Method of grading	(not) successfully completed	Modul level	undergraduate			
	Course	S	•	P (2) -	+ P (2)			•				
	Method	d of asso	essment	Prepa pleted comp sics-r	practical assignment with talk (approx. 30 minutes) Preparing, performing and evaluating (record of readings or lab report) the experiments will be considered successfully completed if a Testat (exam) is passed. Exactly one experiment that was not successfully completed can be repeated once. After completion of all experiments, talk (with discussion; approx. 30 minutes) to test the candidate's understanding of the physics-related contents of the module. Talks that were not successfully completed can be repeated once. Both components of the assessment have to be successfully completed.							
	other p	rerequi	sites	Stude	Students are highly recommended to complete modules 11-P-PA and 11-P-FR1 prior to completing module 11-P-PB.							
11-P-PC-152-m01	Advanc	ed Labo	ratory Co	ourse F	hysics C (Modern Pl	nysics, Computer Aid						
	ECTS	8	Duratio	n	2 semester	Method of grading	(not) successfully completed	Modul level	undergraduate			
	Course	S		P (2) -	+ P (2)							
	P p c s		Prepa pleted comp sics-r	practical assignment with talk (approx. 30 minutes) Preparing, performing and evaluating (record of readings or lab report) the experiments will be considered successfully completed if a Testat (exam) is passed. Exactly one experiment that was not successfully completed can be repeated once. After completion of all experiments, talk (with discussion; approx. 30 minutes) to test the candidate's understanding of the physics-related contents of the module. Talks that were not successfully completed can be repeated once. Both components of the assessment have to be successfully completed.								
			Stude	ents are highly recom	mended to complete	e module 11-P-PB prior to comp	oleting module 1	1-P-PC.				

Compulsory Electives (21 ECTS credits)
In the area of mandatory electives, students must achieve no less than 12 ECTS credits in graded modules. In the area of mandatory electives, students must complete modules worth a total of no less than 21 ECTS credits

dules worth a total of no less than 21 ECTS credits.												
Module Group Cher	mistry, (Compute	er Science	, Math	ematics							
o8-AC-Ex-	Experi	mental C	hemistry	1								
Chem-152-m01	ECTS	5	Duration	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	:S		V (4)								
	Method of assessment				written examination (approx. 90 minutes) Language of assessment: German and/or English							
08-ACP-NF-152-	Genera	General and Analytical Chemistry for students of natural sciences (lab)										
mo1	ECTS	2	Duration	ı	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate			
	Courses			P (4)								
	Method of assessment			and as	Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical performance (2 to 4 random examinations) Language of assessment: German and/or English Assessment offered: Once a year, summer semester							
	Modules successfully completed			o8-AC	o8-AC-ExChem							
08-0C-NF-152-m01	Organic Chemistry for students of medicine, biomedicine, dental medicine and natural sciences											
	ECTS	3	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	Courses		V (2)								
	Method of assessment			Language of assessment: German and/or English								
10-I-EIN-152-m01	Introduction to Computer Science for Students of all Faculties											
	ECTS	10	Duration	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	S		V (4) +	- Ü (2)							
	Method	d of asse	essment			ox. 60 to 120 minute German and/or Engl						
10-M-COM-152-	Compu	tational	Mathema	atics								
mo1	ECTS	4	Duration	1	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate			
	Course	S		V (1) +	Ü (2)							
^	Method of assessment			project in the form of programming exercises (approx. 20 to 25 hours) Language of assessment: German and/or English Assessment offered: Once a year, winter semester								
	Referred to in LPO I			§ 22 II Nr. 3 f)								

10-M-NUM1af-152-	Nume	rical Mat	hematics	ematics 1 for students of other subjects								
mo1	ECTS	10	Duration	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Cours	es		V (4) -	$V(4) + \ddot{U}(2)$							
	Metho	od of asse	essment	b) ora c) ora Langu	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) c.anguage of assessment: German and/or English creditable for bonus							
10-M-NUM2af-152-	Nume	rical Mat	hematics	2 for s	students of other sul	ojects						
mo1	ECTS	10	Duration	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Cours	es		V (4) -	+ Ü (2)							
	Method of assessment			b) ora c) ora Langu	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) c.anguage of assessment: German and/or English creditable for bonus							
10-M-PRG-152-m01	Progr	amming o	course for	r stude	nts of Mathematics	and other subjects						
	ECTS	3	Duration		1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate			
	Cours			P (2)								
	Method of assessment				project in the form of programming exercises (approx. 20 to 25 hours) Language of assessment: German and/or English Assessment offered: Once a year, summer semester							
	Referr	ed to in L	PO I	§ 22 l	Nr. 3 f)							
10-M-MWR-152-	Mode	ling and	Computat	tional S	Science							
mo1	ECTS	8	Duration	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Cours	es		V (4) + Ü (2) Module taught in: German and/or English								
	Method of assessment			b) ora c) ora Langu	l examination of one l examination in gro	e candidate each (15	to 30 minutes) or to 15 minutes per candidate)					

11-GRT-152-m01	Group	Theory			,			1	"				
	ECTS	6	Duration	n	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	es	·		V (2) + R (2) Module taught in: German or English								
	Metho	d of ass	essment	b) ora c) ora d) pro e) pro If a w form the le	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 project report (approx. 8 to 10 pages) or presentation/talk (approx. 30 minutes). a written examination was chosen as method of assessment, this may be changed and assessment may instead take the orm of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, ne lecturer must inform students about this by four weeks prior to the original examination date at the latest.								
10-I-NPP-182-m01	Progra	mming	Course fo	r natuı	ral sciences								
	ECTS	5	Duration	n		Method of grading	(not) successfully completed	Modul level	undergraduate				
	Course	Courses											
	Metho	d of ass	essment	pract	ical examination (pr	ogramming exercises	, approx. 120 hours) and writte	n examination	(approx. 30 to 60 mir	nutes)			
10-I-GdP-172-m01	Funda	mentals	of Progra	mming									
	ECTS	5	Duration	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Course	Courses			+ Ü (2)								
	Metho	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). creditable for bonus								
	Referre	Referred to in LPO I			§ 49 Nr. 1 b) § 69 Nr. 1 b)								
Module Group App													
11-CP-152-m01	Compu	ıtationa	l Physics										
	ECTS	6	Duration	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Course	es			+ R (1) lle taught in: German	n or English							
	Metho	d of ass	essment	b) ora c) ora d) pro If a w form the le	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or 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: German and/or English Assessment offered: Once a year, winter semester								
Bachelor's with 1 major P	Physics (20:	15)					JMU Würzburg • generated 18-Apr-20	25 • exam. reg. data	record 82 128 - - H 2015	page 11 / 27			

11-EL-152-m01	Electronic	Circuits										
	ECTS 6	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate					
	Courses	·	V (3) +									
			Module taught in: German or English									
	Method of	assessment	b) oral	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 a approx. 30 minutes per candidate) or								
			d) proj e) pres If a wri form o the led Langu	c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). f a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English								
11-LMT-152-m01	Laborator	y and Measur			nce a year, summer semester	1						
11-LM1-152-M01	ECTS 6	Duratio			Mathad of grading numerical grade	Modul level	undorgraduato					
		Duratio		1 semester	Method of grading numerical grade	Modul level	undergraduate					
	Courses			V (3) + R (1) Module taught in: German or English								
			b) oral c) oral d) proj e) pres If a wri form o the led Langu Assess	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 chanthe lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: Once a year, winter semester								
11-LVW-152-m01		on to Labview										
	ECTS 6	Duratio		1 semester	Method of grading numerical grade	Modul level	graduate					
	Courses		V (1) + R (3) Module taught in: German or 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: German and/or English Assessment offered: Once a year, winter semester									

11-LMB-152-m01	Laborat	tory and	d Measure	ment Technology in B	Biophysics	'							
	ECTS	6	Duration	1 semester	Method of grading numerical grade	Modul level	graduate						
	Course	S		V (3) + R (1)									
				Module taught in: German or English									
	Method	d of ass	essment	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or									
				c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or									
				e) presentation/talk (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 info	rm students about this by four weeks prior to the								
					nent: German and/or English								
11-ZDR-152-m01	Assessment offered: Once a year, summer semester Principles of Two- and Three-Dimensional Röntgen Imaging												
11-2DK-152-11101		6	Duration		Method of grading numerical grade	Modul level	graduate						
	Course			V (3) + R (1)	Method of grading humerical grade	Modulitevel	graduate						
	Course.	3		V (3) + R (1) Module taught in: German or English									
	Method	of ass		a) written examination (approx. 90 to 120 minutes) or									
				b) oral examination of one candidate each (approx. 30 minutes) or									
				c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or									
				e) presentation/talk (approx. 30 minutes).									
				If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest.									
				Language of assessment: German and/or English									
				Assessment offered: Once a year, summer semester									
11-BMS-152-m01			_	Synchroton									
	ECTS	6	Duration		Method of grading numerical grade	Modul level	undergraduate						
	Course	S		V (3) + R (1)	e 11.1								
i	NA - 41	l - 6		Module taught in: German or English									
	Method	d of ass			n (approx. 90 to 120 minutes) or fone candidate each (approx. 30 minutes) or								
					groups (groups of 2, approx. 30 minutes per ca	indidate) 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: German and/or English Assessment offered: Once a year, summer semester									
				Assessment offered:	unce a year, summer semester								

11-ZMB-152-m01	Methods of Non-Destructive Material Testing											
	ECTS 4	Duration	1 semester	Method of grading numerical grade	Modul level	undergraduate						
	Courses		V (2) + R (1)		•							
			Module taught in: Ge									
	Method of a	ssessment		on (approx. 90 to 120 minutes) or of one candidate each (approx. 30 minutes) or								
				n groups (groups of 2, approx. 30 minutes) of								
			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 exami	ination of one candidate each or an oral exam	s may be changed and as: ination in groups. If the m	sessment may instead take the lethod of assessment is changed.						
			the lecturer must info	orm students about this by four weeks prior to								
				nent: German and/or English								
11 ACI 150 mo1	Assessment offered: Once a year, winter semester Imaging Sensors in Infrared											
11-ASI-152-m01		Duration		Method of grading numerical grade	Modul level	Lundorgraduato						
	ECTS 3	Duration	1 semester	Method of grading Humerical grade	Modul level	undergraduate						
	Courses			V (2) Module taught in: German or English								
	Method of a	ssessment	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 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.									
			anguage of assessment: German and/or English									
			Assessment offered: Once a year, summer semester									
11-EBV-152-m01	Principles of											
	ECTS 3	Duration		Method of grading numerical grade	Modul level	undergraduate						
	Courses		V (2)									
	Mathadafa		Module taught in: German or English a) written examination (approx. 90 to 120 minutes) or									
	Method of a	ssessment	b) oral examination of	on (approx. 90 to 120 minutes) or of one candidate each (approx. 30 minutes) or								
			c) oral examination in	n groups (groups of 2, approx. 30 minutes per								
				prox. 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: German and/or English Assessment offered: Once a year, winter semester								
			Assessment offered:	once a year, winter semester								

11-KVM-152-m01	Principles of Pa	attern Cla	ssifica	tion						
	ECTS 3	Duration	n	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Courses		V (2) Modu	le taught in: Germa	n or English					
	Method of asse		a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: Once a year, winter semester							
11-SDC-152-m01	Statistics, Data	a Analysis		and Computer Physics						
	ECTS 4	Duration	n	1 semester	Method of grading numerical grade	Modul level	graduate			
	Courses		V (2) + R (1) Module taught in: German or English							
	Method of asse		a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: Once a year, winter semester							

Module Group Ast	rophysics										
11-AP-152-m01	Astroph	ysics									
	ECTS	6	Duration	1	1 semester	Method of grading	numerical grade		Modul level	undergraduate	
	Courses	5			+ R (2) ule taught in: Gern	nan or English					
44 ADD 452 mod			essment	a) wr b) ora c) ora d) pro e) pro If a w form the lo	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: German and/or English						
	Referred to in LPO I Laboratory Course Ast			§ 22 § 22	§ 22 Nr. 1 h) § 22 Nr. 2 f) § 22 Nr. 3 f)						
11-APP-152-m01				<u> </u>	cs						
	ECTS 6 Duration				1 semester	Method of grading	g (not) successfully com	npleted	Modul level	graduate	
	Courses			P (4) Modu	ıle taught in: Gern	nan or English					
	Method	Method of assessment			 a) Preparing, performing and evaluating the experiments will be considered successfully completed if a Testa sed. Experiments that were not successfully completed can be repeated once or b) discussion to test the candidate's understanding of the physics-related contents and results of the experiminutes). Language of assessment: German and/or English 						
Module Group Par	ticle Phys	sics									
11-TPS-152-m01	Particle	Physic	cs (Standa	rd Mo	odel)						
		8	Duration		1 semester	Method of grading	numerical grade		Modul level	undergraduate	
	Courses				+ R (2) ule taught in: Gern	nan or 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: German and/or English							

11-DTS-152-m01	Particle Radia	tion Detec	tors									
	ECTS 4	Duration	n	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Courses		V (2) - Modu	+ R (1) le taught in: Germa	n or English							
	Method of ass	sessment	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: Once a year, summer semester									
11-RTTB-232-m01	Theory of Relativity											
	ECTS 6	Duration	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses		V (3) + R (1) Module taught in: German or English									
	Method of ass	sessment	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester									
	Additional Info	ormation	Appro	val from examination	on committee require	d						

Module Group Sem	iconduc	tor Phy	sics								
11-HLF-152-m01	Semico	nducto	r Lasers a	nd Ph	otonics						
	ECTS	6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S			V (3) + R (1) Module taught in: German or English						
	Method	d of ass	essment	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: Once a year, summer semester							
11-HLP-152-m01	Fundamentals of Semiconductor Physics										
	ECTS	6	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	S			+ R (1) lle taught in: Germar	n or English					
	Method	d of ass	essment	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: Once a year, summer semester							

11-SPD-152-m01	Physics	of Semicono	uctor De	vices							
	ECTS	6 Dura	tion	1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Courses	5		V (3) + R (1) Module taught in: German or English							
	Method	of assessme	nt a) wr b) or c) or d) pr e) pr If a w form the lo	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: German and/or English Assessment offered: Once a year, summer semester							
11-KDS-152-m01	Crystal	Growth, thin		vers and Lithography							
	ECTS	6 Dura	tion	1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Courses	5		V (3) + R (1) Module taught in: German or English							
	Method	of assessme	b) or c) or d) pr e) pr If a w form the lang	al examination of on al examination in gro oject report (approx esentation/talk (app rritten examination v of an oral examinati ecturer must inform uage of assessment		changed and ass groups. If the m	ethod of assessment is changed,				

11-NAN-152-m01	Nanoa	nalytics	<u> </u>									
	ECTS	6	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate				
	Course	es			V (3) + R (1)							
				Module taught in: German or English								
	Metho	d of ass	essment	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English								
				Asses	sment offered: One	ce a year, winter semester						
11-ENT-152-m01	Principles of Energy Technologies Compared to the property of											
	ECTS 6 Duration				1 semester	Method of grading numerical grade	Modul level	graduate				
	Course	es		V (3) + R (1) Module taught in: German or 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: German and/or English Assessment offered: Once a year, winter semester								
	Referre	ed to in	LPO I	§ 22 Nr. 1 h) § 22 Nr. 2 f) § 22 Nr. 3 f)								

Module Group Curi	ent Topi	cs in Ph	nysics								
11-BXE5-152-m01	Current	t Topics	in Experi	menta	al Physics						
	ECTS	5	Duration	1	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Course	S		V (2)	+ R (2)	<u> </u>	•	,			
				amin on/ta If a w form the le	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.						
						ent: German and/or English					
	other p					ation committee required.					
11-BXE6-152-m01	Current	t Topics	in Experi	menta	al Physics						
	ECTS	6	Duration	1	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Course	S		V (3)	+ R (1)		,				
	Method of assessment			amin on/ta If a w form the le Lang	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. Language of assessment: German and/or English						
	other prerequisites			Approval from examination committee required.							
11-BXE8-152-m01		t Topics	in Experi	menta	al Physics						
	ECTS	8	Duration	1	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Course	S		V (4)	+ R (2)						
	Method	d of ass	essment	amin on/ta If a w form the le	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. Language of assessment: German and/or English						
	other prerequisites			Appr	oval from examin	ation committee required.					

l	Current	t Topics	in Theore	etical	Physics		·				
	ECTS	5	Duration	1	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Course	S		V (2)	V(2) + R(2)						
				amin on/ta If a w form the le	vritten 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. Language of assessment: German and/or English						
	other p	other prerequisites			oval from examina	ation committee required.					
11-BXT6-152-m01	Current	t Topics	in Theore	etical	Physics		'				
	ECTS	6	Duration	1	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Course	S		V (3)	+ R (1)						
				on/ta If a w form the le	amination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or pon/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English						
	other p	rerequi	sites	Approval from examination committee required.							
11-BXT8-152-m01	Current	t Topics	in Theore	etical	Physics						
	ECTS	8	Duration	1	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Course	S		V (4) + R (2)							
	Method	d of ass	essment	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. Language of assessment: German and/or English							
	other p	rerequi	sites	Appr	oval from examina	ation committee required.					

<u> </u>	Selecte	d Topi	cs in Astro	physi	CS		1			
	ECTS	6	Duratio	1	1 semester	Method of grading numerical grade	Modul level	undergraduate		
	Course	S	•	V (3)	+ R (1)	·				
	Method	d of ass	sessment	amin on/ta If a w form the le	ation in groups (gro alk (approx. 30 minu ritten examination v of an oral examinati ecturer must inform	orox. 90 to 120 minutes) or oral examination of one ups of 2, approx. 30 minutes per candidate) or protes). was chosen as method of assessment, this may be on of one candidate each or an oral examination is students about this by four weeks prior to the orige: German and/or English	oject report (appro e changed and ass in groups. If the m	x. 8 to 10 pages) or presentati- sessment may instead take the ethod of assessment is changed,		
	other p	rerequi	isites	Appro	oval from examinati	on committee required.				
11-CST6-152-m01	Selecte	ed Topi	cs in Parti	cle Ph	ysics		'			
	ECTS 6 Duratio		Duratio	1	1 semester	Method of grading numerical grade	Modul level	undergraduate		
	Course	S		V (3)	+ R (1)					
				on/ta If a w form the le	amination 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. Language of assessment: German and/or English					
	other p	rerequi	isites	Approval from examination committee required.						
11-CSF6-152-m01	Selecte	ed Topi	cs in Solid	State	Physics					
	ECTS	6	Duratio		1 semester	Method of grading numerical grade	Modul level	undergraduate		
	Course			V(3) + R(1)						
	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. Language of assessment: German and/or English						
	other p	other prerequisites			oval from examinati	on committee required.				

11-CSTh6-152-m01	Selected Topics in Theoretical Physics											
11 651110 132 11101	ECTS 6	Duratio		emester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses	Duratio	V (3) + R (1		Method of grading	5 namenear grade	Modulitevel	undergraduate				
		ccoccmont			annroy oo to 120 minu	tos) or oral examination of one	candidate each	(approx. 30 minutes) or oral ex-				
	Metriou or a.	336331116111	amination 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. Language of assessment: German and/or English									
	other prereq	uisites	Approval f	rom examin	nation committee requi	red.						
Key Skills Area (20	ECTS credits)										
General Key Skills In addition to the m	(5 ECTS credi t nodules listed	ts) I below, stu	dents may a	also take mo	odules offered by JMU a	s part of the pool of general tra	nsferable skills	(ASQ).				
General Key Skills	(subject-spec	ific)										
11-P-VKM-152-m01	Preparatory	Course Mat	hematics									
	ECTS 2 Duratio		n 1 se	mester	Method of grading	(not) successfully completed	Modul level	undergraduate				
	Courses	,	T (2)		·	·						
	Method of a	ssessment	a) exercises (successful completion of approx. 50% of approx. 6 exercise sheets) or b) talk (approx. 15 minutes) Assessment offered: Once a year, winter semester									
	Referred to i	n LPO I	§ 22 Nr. 1 h) § 22 Nr. 2 f) § 22 Nr. 3 f)									
11-FFI-152-m01	Fit for Indus	try										
	ECTS 3	Duratio	n 1 se	mester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses	·	V (1) + R (1) Module taught in: German or English									
	Method of a	ssessment	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: German and/or English Assessment offered: Once a year, summer semester									

11-PMP-152-m01	Project	t Manag	ement in	Practio	 :e				_			
	ECTS	3	Duration	1	1 semester	Method of grading	(not) successfully completed	Modul level	graduate			
	Course	!S		V (1) +				,				
					Module taught in: German or English a) written examination (approx. 90 to 120 minutes) or							
	Metho	d of ass	essment	b) ora c) ora d) pro e) pre If a wi form o	Il examination of or I examination in gr Dject report (approx sentation/talk (appritten examination of an oral examinat	ne candidate each (ap oups (groups of 2, app . 8 to 10 pages) or orox. 30 minutes). was chosen as method ion of one candidate e	prox. 30 minutes) or prox. 30 minutes per candidate) d of assessment, this may be cheach or an oral examination in g	nanged and ass groups. If the m	sessment may instead take the ethod of assessment is changed,			
				Langu	ne lecturer must inform students about this by four weeks prior to the original examination date at the latest. anguage of assessment: German and/or English							
						he semester in which t	the course is offered and in the	subsequent se	mester			
11-BASQ5-152-mo1					1	1			1			
	ECTS	5	Duration		1 semester Method of grading numerical grade Modul level undergrad							
	Course			V (2) -								
	Metho	d of ass	essment	amina on/ta If a wi form of the le	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. Language of assessment: German and/or English							
	other p	rerequi	sites	Appro	val from examinati	on committee required	d.					
Subject-specific Ke	y Skills	(15 ECT	S credits)									
11-M-MR-152-m01	Mathe	matical	Methods	of Phy	sics							
	ECTS	6	Duration	<u> </u>	2 semester	Method of grading	(not) successfully completed	Modul level	undergraduate			
	Course	!S			$V(2) + \ddot{U}(1) + V(2) + \ddot{U}(1)$ Module taught in: German or English							
				b) tall	a) exercises (successful completion of approx. 50% of approx. 13 exercise sheets) or b) talk (approx. 15 minutes)							
				§ 53 Nr. 1 a) § 77 Nr. 1 a)								

11-HS-152-m01	Seminar Experimental/Theoretical Physics										
	ECTS 5 Duration)	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
				S (2) Module taught in: German or English							
	Method	of ass		talk with discussion (30 to 45 minutes)							
	other p			Admission prerequisite to assessment: regular attendance (minimum 85% of sessions).							
				Registration: If a student registers for the exercises and obtains the qualification for admission to assessment, this will be considered a declaration of will to seek admission to assessment pursuant to Section 20 Subsection 3 Sentence 4 ASPO (general academic and examination regulations). If the module coordinators subsequently find that the student has obtained the qualification for admission to assessment, they will put the student's registration for assessment into effect. Only those students that meet the respective prerequisites can successfully register for an assessment. Students who did not register for an assessment or whose registration for an assessment was not put into effect will not be admitted to the respective assessment. If a student takes an assessment to which he/she has not been admitted, the grade achieved in this assessment will not be considered.							
11-P-FR1-152-m01	Data and Error Analysis										
	ECTS	2	Duration)	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Courses	S		V (1) + Ü (1) Module taught in: Ü: German or English							
	Method	l of ass	essment								
	other p	rerequi		Admission prerequisite to assessment: completion of exercises (approx. 13 exercise sheets per semester). Students who successfully completed approx. 50% of exercises will qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the semester.							
	Additio	nal Info	ormation	Registration: If a student registers for the exercises and obtains the qualification for admission to assessment, this will be considered a declaration of will to seek admission to assessment pursuant to Section 20 Subsection 3 Sentence 4 ASPO (general academic and examination regulations). If the module coordinators subsequently find that the student has obtained the qualification for admission to assessment, they will put the student's registration for assessment into effect. Only those students that meet the respective prerequisites can successfully register for an assessment. Students who did not register for an assessment or whose registration for an assessment was not put into effect will not be admitted to the respective assessment. If a student takes an assessment to which he/she has not been admitted, the grade achieved in this assessment will not be considered.							
	Referre	d to in I		§ 53 Nr. 1 c) § 77 Nr. 1 d)							
11-P-FR2-152-m01	Advanc	ed and	Computat	ional Data Analysis							
	ECTS 2 Duratio)	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Courses	S		V (1) + Ü (1)							
	Method	l of ass	essment	Exercises (successful completion of approx. 50% of approx. 10 exercise sheets) Assessment offered: Once a year, summer semester							
	other p	rerequi	sites	Students are highly recommended to complete module 11-P-FR1 prior to completing module 11-P-FR2.							

Thesis (10 ECTS credits)												
11-BA-P-152-m01	Bachelor Thesis Physics											
	ECTS 10 Duration		ı	1 semester	Method of grading	numerical grade	Modul lev	el undergraduate				
	Method of assessment				No courses assigned to module							
					Bachelor's thesis (approx. 25 pages) Language of assessment: German or English							
	Additional Information Time to complete: 12 weeks.											