

Subdivided Module Catalogue for the Subject

Didactics in Physics (Middle School)

as Didaktikfach

with the degree "Erste Staatsprüfung für das Lehramt für Sonderpädagogik"

> Examination regulations version: 2020 Responsible: Faculty of Physics and Astronomy

JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record L6|873|-|-|H|2020

Abbreviations used

Course types: \mathbf{E} = field trip, \mathbf{K} = colloquium, \mathbf{O} = conversatorium, \mathbf{P} = placement/lab course, \mathbf{R} = project, \mathbf{S} = seminar, \mathbf{T} = tutorial, $\ddot{\mathbf{U}}$ = exercise, \mathbf{V} = lecture

Term: **SS** = summer semester, **WS** = winter semester

Methods of grading: **NUM** = numerical grade, **B**/**NB** = (not) successfully completed

Regulations: **(L)ASPO** = general academic and examination regulations (for teaching-degree programmes), **FSB** = subject-specific provisions, **SFB** = list of modules

Other: **A** = thesis, **LV** = course(s), **PL** = assessment(s), **TN** = participants, **VL** = prerequisite(s)

Conventions

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

Notes

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 the 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:

LASPO2015

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

19-Feb-2020 (2020-20)

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.

The subject is divided into

Abbroviation	Abbreviation Module title		Method of	
ADDIEVIALION		credits	grading	page
Compulsory Courses (20 EC	TS credits)			
cus on teaching methodolo	odules worth 20 ECTS credits in each subject selected as Didaki gy) is a prerequisite for admission to the Erste Staatsprüfung (Fi rgruppe der Mittelschule (Didactics of a Group of Subjects of Mit	st State Ex	oject studied w amination) in t	ith a fo- he sub-
11-L-PD-172-m01	Physics Teaching Concepts	5	NUM	18
11-L-SP1-152-m01	Physics 1 for Primary and Secondary General School	5	NUM	20
11-L-SP2-152-m01	11-L-SP2-152-mo1 Physics 2 for Primary and Secondary General School		NUM	21
11-L-SP3-152-m01	Physics 3 for Primary and Secondary General School	5	NUM	22
Extra Skills	·			·
To achieve the required num Freier Bereich interdisciplir nex "Ergänzende Bestimmun	on 9 LASPO (general academic and examination regulations for the of ECTS credits, students may take any modules from the are nary: The interdisciplinary additional offer for a teaching degree of gen für den "Freien Bereich" im Rahmen des Studiums für ein Le	as below. can be four		
Physics (Freier Bereich (general as v	vell as subject-specific electives) subject specific)			
11-L-EL1-152-m01	Teaching Seminar Fundamental Principles	3	B/NB	12
11-L-EL2-152-m01	Selected Topics in Physics Didactics	3	B/NB	14
11-P-VKM-202-m01	MINT Preparatory Course Mathematical Methods of Physics	3	B/NB	31
11-L-L3B-152-m01	Student Lab Supervision (Physics)	2	B/NB	16
11-MIND-Ph1-152-m01	Low Cost - High Impact. Low-budget Experiments for Science Courses (Physics)	2	B/NB	27
11-MIND-Ph2-152-m01	Teaching Science with Hands-on-Exhibits (Physics)	2	B/NB	29
11-AP-152-m01	Astrophysics	6	NUM	4
11-ENT-152-m01	Principles of Energy Technologies	6	NUM	6
11-L-APD-152-m01	Current Topics of Teaching Concepts in Physics	3	NUM	8
11-L-WPD-152-m01	Scientific Work in Teaching Concepts	3	B/NB	23
	1	i	1	i
11-LX6-152-m01	Current Topics in Physics	6	NUM	25

Thesis (10 ECTS credits)

Preparation of a written Hausarbeit (thesis) in accordance with the provisions of Section 29 LPO I (examination regulations for teaching-degree programmes) is a prerequisite for teaching degree students to be admitted to the Erste Staatsprüfung (First State Examination). In accordance with the provisions of Section 29 LPO I, students studying for a teaching degree Mittelschule may write this thesis in the subject Didaktik einer Fächergruppe der Mittelschule (Didactics of a Group of Subjects of Mittelschule), in the subject they selected as Unterrichtsfach (subject studied with a focus on the scientific discipline) or in the subject Erziehungswissenschaften (Educational Science). Pursuant to Section 29 Subsection 1 Sentence 2 LPO I, students may also choose to write an interdisciplinary thesis.

Module	Module title Abbreviation					
Astrop	Astrophysics 11-AP-152-mo1					
Module	e coord	inator		Module offered by		
Managi and As		ector of the Institute of sics	Theoretical Physics	Faculty of Physics a	and Astronomy	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
6	nume	rical grade				
Duratio	on	Module level	Other prerequisites	i		
1 seme	ster	undergraduate				
Conten	ts					
telesco um, mo	pes an plecula	onomy, coordinates an d detectors, stellar stru r clouds, structure of th arge-scale structures, c	icture and atmosphere e milky way, the local	s, stellar evolution a	nd end stages, inter	stellar medi-
Intende	ed lear	ning outcomes				
The students are familiar with the modern world view of Astrophysics. They know methods and tools for astro- physical observations and evaluations. They are able to use these methods to plan and analyse own observati- ons. They are familiar with the physics and development of the main astrophysical objects such as stars and ga- laxies.					n observati-	
Course	Courses (type, number of weekly contact hours, language — if other than German)					
	V(2) + R(2)					
	Module taught in: German or English					
		essment (type, scope, on on whether module			ition offered — if not	every seme-
a) writt	en exai	mination (approx. 90 to	120 minutes) or			
		ation of one candidate				
		ation in groups (groups		tes per candidate) o	r	
		ort (approx. 8 to 10 pag n/talk (approx. 30 min				
		amination was chosen		ent, this may be cha	nged and assessme	nt may in-
stead t	ake the	e form of an oral examir	nation of one candidate	e each or an oral exa	mination in groups.	If the method
		t is changed, the lectur	er must inform studen	ts about this by four	weeks prior to the o	riginal exami-
		the latest. ssessment: German an	d/or English			
Allocat	<u> </u>					
Allocal		Jaces				
Additio	onat ini	ormation				
Worklo	ad					
180 h						
Teachi	ng cycl	e				
	-	LPOI (examination reg	guiations for teaching-	uegree programmes)		
§ 22 § 22						
§ 22 § 22	-					
Module	-	urs in				
		gree (1 major) Physics (2015)			
		Didactics in Physics (Middle		ated 10-Apr 2025 • over	data record Labr	page / / 22
LA Sonderp School) (20		Didactics in Physics (Mildule		ated 19-Apr-2025 • exam. reg gik (Mittelschule-Didaktikfacl		page 4 / 32

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Subdivided Module Catalogue for the Subject Didactics in Physics (Middle School) LA Sonderpädagogik

Bachelor's degree (1 major) Mathematical Physics (2015) Bachelor's degree (1 major) Aerospace Computer Science (2015) Bachelor's degree (1 major, 1 minor) Physics (Minor, 2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2015) First state examination for the teaching degree Realschule Physics (2015) First state examination for the teaching degree Gymnasium Physics (2015) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2015) First state examination for the teaching degree Mittelschule Physics (2015) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2015) Bachelor's degree (1 major) Mathematical Physics (2016) Master's degree (1 major) Nanostructure Technology (2016) Bachelor's degree (1 major) Aerospace Computer Science (2017) First state examination for the teaching degree Grundschule Physics (2018) First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2018) First state examination for the teaching degree Realschule Physics (2018) First state examination for the teaching degree Gymnasium Physics (2018) First state examination for the teaching degree Mittelschule Physics (2018) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2018) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2018) Master's degree (1 major) Nanostructure Technology (2020) Bachelor's degree (1 major) Physics (2020) Bachelor's degree (1 major) Mathematical Physics (2020) Bachelor's degree (1 major, 1 minor) Physics (Minor, 2020) Bachelor's degree (1 major) Aerospace Computer Science (2020) First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2020) First state examination for the teaching degree Grundschule Physics (2020) First state examination for the teaching degree Gymnasium Physics (2020) First state examination for the teaching degree Realschule Physics (2020) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Physics (2020) Master's degree (1 major) Quantum Technology (2021) exchange program Physics (2023) Bachelor's degree (1 major) Mathematical Physics (2024)

Modul	e title				Abbreviation
-		nergy Technologies			11-ENT-152-m01
Modul	e coord	inator		Module offered by	
Manag	ing Dire	ector of the Institute of Ap	plied Physics	Faculty of Physics a	nd Astronomy
ECTS	Metho	od of grading	Only after succ. con	pl. of module(s)	
6	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	graduate			
Conter	Its				
Physical principles of energy conservation and energy conversion, energy transport and energy storage as well as renewable resources of energy. We also discuss aspects of optimising materials (e.g. nanostructured insula- ting materials, selective layers, highly activated carbons). The course is especially suitable for teaching degree students. Energy conservation via thermal insulation. Thermodynamic energy efficiency. Fossil fired energy con- verters. Nuclear power plants. Hydroelectricity. Wind turbines. Photovoltaics. Solar thermal: Heat. Solar thermal Electricity. Biomass. Geothermal energy. Energy storage. Energy transport					als (e.g. nanostructured insula- lly suitable for teaching degree ficiency. Fossil fired energy con-
Intend	ed learr	ning outcomes			
The students know the principles of different methods of energy technology, especially energy conversion, trans- port and storage. They understand the structures of corresponding installations and are able to compare them.					
Course	s (type,	, number of weekly conta	ct hours, language –	- if other than Germa	n)
V (3) + R (1) Module taught in: German or English					
Metho	d of ass	essment (type, scope, la	nguage — if other th	an German, examina	tion offered — if not every seme-
ster, in	formati	on on whether module ca	an be chosen to earn	a bonus)	
 b) oral c) oral d) proj e) pres lf a wri stead t of asse nation Langua 	examin examin ect repo entatio tten exa ake the essment date at age of a	form of an oral examinat	ach (approx. 30 minu of 2, approx. 30 minu o) or es) method of assessme tion of one candidate must inform student /or English	tes per candidate) o ent, this may be char e each or an oral exa	r nged and assessment may in- mination in groups. If the method weeks prior to the original exami-
Allocat	ion of p	olaces			
Additio	onal info	ormation			
Worklo	ad				
180 h					
Teachi	ng cycl	e			
Referre	ed to in	LPOI (examination regu	lations for teaching-	degree programmes)	
§ 22 § 22 § 22					
_	e appea	rs in			
		gree (1 major) Physics (20	015)		

UNIVERSITÄT WÜRZBURG

Bachelor's degree (1 major) Nanostructure Technology (2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2015) First state examination for the teaching degree Realschule Physics (2015) First state examination for the teaching degree Gymnasium Physics (2015) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2015) First state examination for the teaching degree Mittelschule Physics (2015) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2015) Master's degree (1 major) Functional Materials (2016) First state examination for the teaching degree Grundschule Physics (2018) First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2018) First state examination for the teaching degree Realschule Physics (2018) First state examination for the teaching degree Gymnasium Physics (2018) First state examination for the teaching degree Mittelschule Physics (2018) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2018) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2018) Bachelor's degree (1 major) Physics (2020) Bachelor's degree (1 major) Nanostructure Technology (2020) First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2020) First state examination for the teaching degree Grundschule Physics (2020) First state examination for the teaching degree Gymnasium Physics (2020) First state examination for the teaching degree Realschule Physics (2020) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Physics (2020) Bachelor's degree (1 major) Quantum Technology (2021) Master's degree (1 major) Functional Materials (2022) exchange program Physics (2023) Master's degree (1 major) Functional Materials (2025)

Modul	Module title Abbreviation					
Curren	t Topics	s of Teaching Concepts	in Physics		11-L-APD-152-m01	
Modul	e coord	inator		Module offered by	<u> </u>	
		f examination committe	20	-	and Actronomy	
ECTS			Only after succ. con	Faculty of Physics a	ind Astronomy	
		od of grading rical grade				
3	·	-				
Duration 1 seme		Module level undergraduate	Other prerequisites			
Conter		undergraduate				
	-	in physics advection				
		in physics education.				
		ning outcomes				
		nave knowledge of a cu e according to subject-				y the acqui-
Course	es (type	, number of weekly con	tact hours, language –	- if other than Germa	ın)	
S (2)						
Modul	e taugh	t in: German or English				
		s essment (type, scope, on on whether module			tion offered — if not	every seme-
-		mination (approx. 45 m				
		ation of one candidate	-	ıtes) or		
		ation in groups (group	s of 2, approx. 10 minu	tes per candidate) o	r	
	• •	(approx. 8 pages) or				
		5 minutes) with discus	ssion			
Alloca	tion of p	olaces				
Additi	onal inf	ormation				
Worklo	oad					
90 h						
Teachi	ing cycl	e				
Referr	ed to in	LPOI (examination reg	gulations for teaching-	degree programmes)		
	Nr. 1 h)					
-	Nr. 2 f)					
	Nr. 3 f)					
Modul	e appea	ars in				
First st	ate exa	mination for the teachi	ng degree Grundschule	e Physics (2015)		
First st	ate exa	mination for the teachi	ng degree Grundschule	e Didactics in Physics	s (Primary School) (2	2015)
		mination for the teachi		,		
		mination for the teachi	,	• •		
		mination for the teachi	,		nysics (Middle Schoo	ol) (2015)
		mination for the teachi		• -)
		mination for the teachi			6 (IVIIIaale School) (20	J15J
		mination for the teachi mination for the teachi		•	(Drimony School) (a	2018)
		mination for the teachi		•	s (Finiary School) (2	.010)
		mination for the teachi		•		
				•		·
LA Sonder School) (2		Didactics in Physics (Middle		ated 19-Apr-2025 • exam. reg gik (Mittelschule-Didaktikfacł		page 8 / 32

Module title				Abbreviation	
Selected Topi	ics of Physics			11-LCS6-152-m01	
Module coord			Module offered by		
	of examination committ		Faculty of Physics a	ind Astronomy	
	od of grading	Only after succ. con	npl. of module(s)		
· .	erical grade				
Duration	Module level	Other prerequisites			
1 semester	undergraduate	Approval from exam	ination committee re	equired.	
Contents					
Current topics study abroad		cs. Credited academic a	achievements, e.g. ir	n case of change of u	university or
Intended lear	ning outcomes				
sics of the Ba understand th	chelor's programme. The measuring and/or ev	tencies corresponding t hey have knowledge of valuation methods nece s and know the applicat	a current subdiscipli essary to acquire this	ine of Experimental I	Physics and
Courses (type	, number of weekly co	ntact hours, language –	- if other than Germa	in)	
V (2) + R (1)					
		, language — if other the can be chosen to earn		tion offered — if not	every seme-
If a written ex stead take the of assessmen nation date a Language of a	e form of an oral exami it is changed, the lectu t the latest. assessment: German a	as method of assessme nation of one candidate rer must inform student	e each or an oral exa	mination in groups.	If the method
Allocation of	places				
Additional inf	formation				
Workload					
120 h					
Teaching cycl	e				
Referred to in	LPOI (examination re	gulations for teaching-	degree programmes)		
§ 22 Nr. 1 h) § 22 Nr. 2 f) § 22 Nr. 3 f)					
Module appea	ars in				
		ing degree Grundschule	Physics (2015)		
First state exa	amination for the teach amination for the teach	ing degree Gundschule ing degree Realschule F ing degree Gymnasium ing degree Sonderpäda	Physics (2015)		-



First state examination for the teaching degree Mittelschule Physics (2015) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2015) First state examination for the teaching degree Grundschule Physics (2018) First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2018) First state examination for the teaching degree Realschule Physics (2018) First state examination for the teaching degree Gymnasium Physics (2018) First state examination for the teaching degree Mittelschule Physics (2018) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2018) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2018) First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2020) First state examination for the teaching degree Grundschule Physics (2020) First state examination for the teaching degree Gymnasium Physics (2020) First state examination for the teaching degree Realschule Physics (2020) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Physics (2020)

Teachi	e title			Abbreviation	
	ng Seminar Fundamental Prin	ciples		11-L-EL1-152-m01	
Module	e coordinator		Module offered by		
holder	of the Chair of Physics and its	Didactics	Faculty of Physics a	nd Astronomy	
ECTS	Method of grading	Only after succ. con	npl. of module(s)		
3	(not) successfully completed				
Duratio	on Module level	Other prerequisites			
1 seme	ester undergraduate				
Conten	nts				
ception sed on pical se	al and interdisciplinary aspect ns and typical learning difficul specific contents of physics e chool experiments and suitabl	ties, elementarisation a ducation, verbalisation	and didactic reconst	uction of physical co	ontents ba-
Intend	ed learning outcomes				
studen Physics	ced, qualitative knowledge of s at preconceptions and special s at university and school rega es (type, number of weekly con	media on relevant topi rding contents and me	cs; awareness of the thods.	differences betweer	
S (2)					
	d of assessment (type, scope, formation on whether module			tion offered — if not	every seme-
Langua	examination in groups (group: age of assessment: German an t ion of places		tes per candidate)		
Additio	onal information				
Additio	onal information				
 Worklo 90 h					
 Worklo 90 h	pad				
 Worklo 90 h Teachin	oad ng cycle	gulations for teaching-	degree programmes)		
 Worklo 90 h Teachin	ng cycle ed to in LPO I (examination reg Nr. 1 h) Nr. 2 f)	gulations for teaching-	degree programmes)		
 90 h Teachin § 22 II § 22 II § 22 II	ng cycle ed to in LPO I (examination reg Nr. 1 h) Nr. 2 f)	gulations for teaching-o	degree programmes)		
 90 h Teachin § 22 II § 22 II § 22 II § 22 II § 22 II § 22 II	oad ng cycle ed to in LPO I (examination reg Nr. 1 h) Nr. 2 f) Nr. 3 f)				
 90 h Teachin § 22 II § 22 II § 22 II § 22 II § 22 II First sta First sta	ng cycle ed to in LPO I (examination reg Nr. 1 h) Nr. 2 f) Nr. 3 f) e appears in ate examination for the teachi ate examination for the teachi	ng degree Grundschule ng degree Grundschule	e Physics (2015) Didactics in Physics	; (Primary School) (2	015)
 90 h Teachin § 22 II § 22 II § 22 II § 22 II § 22 II First sta First sta First sta	ng cycle ed to in LPO I (examination reg Nr. 1 h) Nr. 2 f) Nr. 3 f) e appears in ate examination for the teachi ate examination for the teachi ate examination for the teachi	ng degree Grundschule ng degree Grundschule ng degree Realschule F	e Physics (2015) e Didactics in Physics Physics (2015)	; (Primary School) (2	015)
 90 h Teachi Referre § 22 II § 22 II § 22 II First st. First st. First st. First st.	ad ng cycle ed to in LPO I (examination reg Nr. 1 h) Nr. 2 f) Nr. 3 f) e appears in ate examination for the teachi ate examination for the teachi ate examination for the teachi ate examination for the teachi	ng degree Grundschule ng degree Grundschule ng degree Realschule F ng degree Gymnasium	e Physics (2015) Didactics in Physics Physics (2015) Physics (2015)		
 90 h Teachin § 22 II § 22 II § 22 II § 22 II First sta First sta First sta First sta First sta	ng cycle ed to in LPO I (examination reg Nr. 1 h) Nr. 2 f) Nr. 3 f) e appears in ate examination for the teachi ate examination for the teachi ate examination for the teachi ate examination for the teachi ate examination for the teachi	ng degree Grundschule ng degree Grundschule ng degree Realschule F ng degree Gymnasium ng degree Sonderpäda	e Physics (2015) e Didactics in Physics Physics (2015) Physics (2015) gogik Didactics in Ph		-
 90 h Teachin Referre § 22 II § 22 II § 22 II § 22 II First sta First sta First sta First sta First sta First sta First sta First sta	ng cycle ed to in LPO I (examination reg Nr. 1 h) Nr. 2 f) Nr. 3 f) e appears in ate examination for the teachi ate examination for the teachi	ng degree Grundschule ng degree Grundschule ng degree Realschule F ng degree Gymnasium ng degree Sonderpäda ng degree Mittelschule	e Physics (2015) e Didactics in Physics Physics (2015) Physics (2015) gogik Didactics in Ph Physics (2015)	ysics (Middle Schoo	ol) (2015)
 90 h Teachi Referre § 22 II § 22 II § 22 II § 22 II First st. First st.	ng cycle ed to in LPO I (examination reg Nr. 1 h) Nr. 2 f) Nr. 3 f) e appears in ate examination for the teachi ate examination for the teachi	ng degree Grundschule ng degree Grundschule ng degree Realschule F ng degree Gymnasium ng degree Sonderpäda ng degree Mittelschule ng degree Mittelschule	e Physics (2015) e Didactics in Physics Physics (2015) Physics (2015) gogik Didactics in Physics Physics (2015) Didactics in Physics	ysics (Middle Schoo	ol) (2015)
 Worklo 90 h Teachin Referre § 22 ll § 22 ll § 22 ll S 22 ll Modulo First sta First sta	ng cycle ed to in LPO I (examination reg Nr. 1 h) Nr. 2 f) Nr. 3 f) e appears in ate examination for the teachi ate examination for the teachi	ng degree Grundschule ng degree Grundschule ng degree Realschule F ng degree Gymnasium ng degree Sonderpäda ng degree Mittelschule ng degree Mittelschule ng degree Grundschule	e Physics (2015) e Didactics in Physics Physics (2015) Physics (2015) gogik Didactics in Physics Physics (2015) Didactics in Physics	ysics (Middle Schoo (Middle School) (20	ol) (2015)

First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2018) First state examination for the teaching degree Realschule Physics (2018) First state examination for the teaching degree Gymnasium Physics (2018) First state examination for the teaching degree Mittelschule Physics (2018) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2018) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2018) First state examination for the teaching degree Grundschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Grundschule Physics (2020) First state examination for the teaching degree Gymnasium Physics (2020) First state examination for the teaching degree Realschule Physics (2020) First state examination for the teaching degree Realschule Physics (2020) First state examination for the teaching degree Realschule Physics (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Physics (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020)

Modul	Module title Abbreviation					
Select	ed Topi	cs in Physics Didactics			11-L-EL2-152-m01	
Modul	e coord	inator		Module offered by	<u> </u>	
		f examination committ	<u>۹</u>	Faculty of Physics a	nd Astronomy	
ECTS	1	od of grading	Only after succ. con		and Astronomy	
3	1	successfully completed				
Duratio		Module level	Other prerequisites			
1 seme	_	undergraduate				
Conter	nts					
	-	in physics education.				
		ning outcomes				
				nhysics education a	nd are able to classif	fy the acqui-
			specific contexts and in			iy the acqui-
		·	itact hours, language –	•		
S (2)					,	
	d of ass	essment (type scope	language — if other th	an German, examina	tion offered — if not	everv seme-
			can be chosen to earn			. every seme
a) term	paper	(approx. 8 pages) or				
b) pres	entatio	n (approx. 45 minutes)				
		nination (approx. 45 m				
			e each (approx. 15 minu			
		ation in groups (group ssessment: German ar	s of 2, approx. 15 minu	tes per candidate)		
	tion of p					
Allocal		Jaces				
		ormation				
Additio		ormation				
Worklo	bad					
90 h						
Teachi	ng cycl	9				
Referre	ed to in	LPOI (examination re	gulations for teaching-	degree programmes)		
-	Nr. 1 h)					
§ 22						
§ 22						
	e appea					
			ng degree Grundschule		(Drimony Cohool) (a	
			ng degree Grundschule ng degree Realschule I	•	s (Primary School) (2	2015)
			ng degree Gymnasium	• •		
			ng degree Sonderpäda		nysics (Middle Scho	ol) (2015)
			ng degree Mittelschule		lysics (middle seno	00) (2013)
			ng degree Mittelschule	• -	s (Middle School) (20	015)
			ng degree Grundschule	•		-
First st	ate exa	mination for the teachi	ng degree Grundschule	e Didactics in Physics	s (Primary School) (2	2018)
			ng degree Realschule I	-		
First st	ate exa	mination for the teachi	ng degree Gymnasium	Physics (2018)		
		Didactics in Physics (Middle		ated 19-Apr-2025 • exam. reg		page 14 / 32
School) (20	020)		amt Sonderpädago	gik (Mittelschule-Didaktikfach	1) Physik - 2020	

Modul	e title				Abbreviation	
Studer	nt Lab S	upervision (Physics)		-	11-L-L3B-152-m01	
Modul	e coord	instor		Module offered by		
			·	· · · · ·		
		Chair of Physics and its D	í l	Faculty of Physics a	ind Astronomy	
ECTS	1	od of grading	Only after succ. con	ipl. of module(s)		
2		successfully completed				
Duratio		Module level	Other prerequisites			
1 seme		undergraduate				
Conter	_					-
		rovides an introduction t g-learning-laboratory.	o successful supervis	ion of pupils indepe	ndently carrying out	experiments
Intend	ed lear	ning outcomes				
vel of p experin ly and ve beh terns b control	perform menting criticall aviour y repea l compe	earn to classify different ance, to support the pup g (supervision competen y evaluate their own acti patterns and to support t itedly working on the sar etencies).	ils according to their cies in open classroo ons. A lecturer gives i he students' strength ne topic with differen	needs and age and t m situations). The st individual feedback is. The students devo t groups of pupils (re	to help them during udents are able to m to the students to av elop professional be eflection competenci	independent iethodical- void negati- haviour pat-
Course	Courses (type, number of weekly contact hours, language — if other than German)					
P (2)						
		sessment (type, scope, la on on whether module c			tion offered — if not	every seme-
b) oral c) oral d) term	examir examin 1 paper	mination (approx. 45 mir nation of one candidate e ation in groups (groups ((approx. 8 pages)	each (approx. 10 minu		r	
Allocat	tion of j	olaces				
Additio	onal inf	ormation				
This m	odule is	s designed for students s	tudying at least one	subject in the natura	l sciences.	
Worklo	oad					
60 h						
	ng cycl	۵				
reaction	ing cycl	6				
		LPOI (examination regu	llations for teaching-o	degree programmes)		
-	Nr. 1 h)					
§ 22	-					
§ 22						
	e appea					
		mination for the teaching		-		,
		mination for the teaching			s (Primary School) (2	.015)
		mination for the teaching		-		
		mination for the teaching mination for the teaching		•	nysics (Middle Schor)) (2015)
		mination for the teaching	,			50 (2015)
		mination for the teaching			(Middle School) (ac)1E)
		mination for the teaching				/-')/
		Didactics in Physics (Middle		ated 19-Apr-2025 • exam. reg	. data record Lehr-	page 16 / 32
School) (2		statetes in rigsles (midule		ik (Mittelschule-Didaktikfach		puge 10 / 32

First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2018) First state examination for the teaching degree Realschule Physics (2018) First state examination for the teaching degree Gymnasium Physics (2018) First state examination for the teaching degree Mittelschule Physics (2018) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2018) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2018) First state examination for the teaching degree Grundschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Grundschule Physics (2020) First state examination for the teaching degree Gymnasium Physics (2020) First state examination for the teaching degree Realschule Physics (2020) First state examination for the teaching degree Realschule Physics (2020) First state examination for the teaching degree Realschule Physics (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Physics (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020)

	Module title Abbreviation					
Physic	s Teach	ing Concepts			11-L-PD-172-m01	
Module	e coord	inator		Module offered by	<u> </u>	
holder	of the (Chair of Physics and its	Didactics	Faculty of Physics a	ind Astronomy	
ECTS	1	od of grading	Only after succ. con	· · ·		
5	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
2 seme	ester	undergraduate				
Conten	ts					
of the of subject sics co typical these; the sci	Teaching of basic concepts of physics education and didactic consolidation of subject-relevant scientific content of the degree programme. Justification/legitimation of physics teaching; educational objectives of physics as a subject; competence models and educational standards; elementarisation and didactic reconstruction of phy- sics content; methods and media in physics lessons and their use to promote learning; student perceptions and typical learning difficulties in the subject areas of physics relevant to teaching and teaching concepts based on these; dealing with student perceptions; teaching approaches to the structure and cognitive/working methods o the science of physics, including historical development; Intended learning outcomes					physics as a tion of phy- ceptions and ts based on
			ysics teaching concept			
			pects of physics lesson			
	familiar with subject-specific student conceptions and their significance for the students' learning process. They critically discuss specific teaching concepts against this background.					
	Courses (type, number of weekly contact hours, language — if other than German)					
	V (2) +	*				
			language — if other th	an German, examina	tion offered — if not	every seme-
ster, in	formati	on on whether module	can be chosen to earn	a bonus)		
b) oral c) oral d) term	examin examin ı paper		e each (approx. 15 minu s of 2, approx. 15 minu			
Allocat	ion of p	olaces				
Additio	onal info	ormation				
Worklo	ad					
150 h						
Teachi	ng cycl	e				
Referre	ed to in	LPOI (examination re	gulations for teaching-	degree programmes)		
§ 36 N § 38 N § 53 N § 77 N	Vr. 1 Vr. 2					
Module	e appea	in				
First st First st First st	ate exa ate exa ate exa	mination for the teachi mination for the teachi mination for the teachi	ng degree Grundschule ng degree Grundschule ng degree Realschule F ng degree Gymnasium	e Didactics in Physics Physics (2018) Physics (2018)		
LA Sonderp School) (20		Didactics in Physics (Middle		ated 19-Apr-2025 • exam. reg gik (Mittelschule-Didaktikfach		page 18 / 32

Module	e title				Abbreviation
Physics	s 1 for F	Primary and Secondary G	eneral School		11-L-SP1-152-m01
Module	a coord	inator		Module offered by	
		Chair of Physics and its D	idactics	Faculty of Physics a	and Astronomy
ECTS		od of grading	Only after succ. con		ind Astronomy
5		rical grade			
Duratio	·	Module level	Other prerequisites		
1 seme		undergraduate			
Conten	ts	0	<u> </u>		
Physica	al conte	ents (mechanics, thermoo und- and Hauptschule.	dynamics) relevant to	classes in Natural S	Sciences or technical-natural
Intende	ed learı	ning outcomes			
classes demon	s in Gru stratior	nd- and Hauptschule; kn n and pupils experiments	owledge of typical ap	proaches to the imp	scientific or technical-scientific olementation and evaluation of
		, number of weekly conta	ct hours, language –	· if other than Germa	in)
V (3) +					
		essment (type, scope, la on on whether module ca			tion offered — if not every seme-
	ge of a	ation in groups (groups o ssessment: German and, blaces		es per candidate)	
 Additio	nal inf	ormation	·		
Auuitio					
Worklo					
	au				
150 h		-			
Teachi	ng cycl	8			
 D-(· · · · · · · · · · · · · · · · · · ·	
		LPOI (examination regu	lations for teaching-c	legree programmes)	
§ 36 N § 38 N	-				
Module					
First sta First sta First sta First sta First sta First sta First sta	ate exa ate exa ate exa ate exa ate exa ate exa ate exa	mination for the teaching mination for the teaching	g degree Sonderpäda g degree Mittelschule g degree Grundschule g degree Sonderpäda g degree Mittelschule g degree Grundschule g degree Sonderpäda	gogik Didactics in Ph Didactics in Physics Didactics in Physics gogik Didactics in Ph Didactics in Physics Didactics in Physics gogik Didactics in Physics	s (Primary School) (2018) nysics (Middle School) (2018) s (Middle School) (2018) s (Primary School) (2020) nysics (Middle School) (2020)

Module	e title				Abbreviation
Physics	s 2 for l	Primary and Secondary G	ieneral School		11-L-SP2-152-m01
Module	- coord	inator		Module offered by	<u> </u>
			idactics	•	and Astronomy
ECTS	r	Chair of Physics and its D od of grading	Only after succ. com	Faculty of Physics a	and Astronomy
5		rical grade			
Duratio	L	Module level	Other prerequisites		
1 seme		undergraduate			
Conten	ts				
Physica	al conte	ents (science of electricity und- and Hauptschule.	, electronics) relevar	nt to classes in Natur	ral Sciences or technical-natural
Intende	ed learı	ning outcomes			
classes	s in Gru		owledge of typical ap		scientific or technical-scientific plementation and evaluation of
Course	s (type	, number of weekly conta	ct hours, language —	if other than Germa	ın)
V (3) +	Ü (1)				
		e ssment (type, scope, la on on whether module ca			tion offered — if not every seme-
c) oral	examin ige of a	ation of one candidate e ation in groups (groups o ssessment: German and, places	of 2, approx. 15 minut		
Additio	onal info	ormation			
Worklo	ad				
150 h					
Teachi	ng cycl	9			
Referre	ed to in	LPOI (examination regu	lations for teaching-c	legree programmes)	
§ 36 N § 38 N	-				
Module	e appea	in in			
First sta First sta First sta First sta First sta First sta First sta	ate exa ate exa ate exa ate exa ate exa ate exa ate exa	mination for the teaching mination for the teaching	g degree Sonderpädag g degree Mittelschule g degree Grundschule g degree Sonderpädag g degree Mittelschule g degree Grundschule g degree Sonderpädag	gogik Didactics in Ph Didactics in Physics Didactics in Physics gogik Didactics in Ph Didactics in Physics Didactics in Physics gogik Didactics in Ph	s (Primary School) (2018) hysics (Middle School) (2018) s (Middle School) (2018) s (Primary School) (2020) hysics (Middle School) (2020)

Module	e title				Abbreviation
Physic	s 3 for	Primary and Secondary G	ieneral School		11-L-SP3-152-m01
Module		•		Mandala afferraditor	
				Module offered by	
		Chair of Physics and its D		Faculty of Physics a	and Astronomy
ECTS		od of grading	Only after succ. com	ipl. of module(s)	
5	I	rical grade			
Duratio		Module level	Other prerequisites		
1 seme		undergraduate			
Conten					
		ents (optics, acoustics, A sciences in Grund- and Ha		ysics) relevant to cla	asses in Natural Sciences or tech-
Intende	ed lear	ning outcomes			
classes	s in Gru		owledge of typical ap		scientific or technical-scientific olementation and evaluation of
Course	s (type	, number of weekly conta	ict hours, language —	if other than Germa	in)
V (3) +	Ü (1)				
		sessment (type, scope, la ion on whether module ca			tion offered — if not every seme-
Langua Allocat		ssessment: German and, blaces	/or English		
Additio	nal inf	ormation	-		
Worklo	ad				
	au				
150 h					
reachi	ng cycl	e	-		
		LPOI (examination regu	liations for teaching-c	iegree programmes)	
§ 36 N § 38 N	-				
Module	e appea	ars in			
		mination for the teaching mination for the teaching		•	s (Primary School) (2015)

Modul	e title	Abbreviation				
Scient	Scientific Work in Teaching Concepts 11-L-WPD-152-mo1					
Module coordinator			Module offered by			
ECTS	Method of grading	Only after succ. con	npl. of module(s)			
-	3 (not) successfully completed					
Durati		Other prerequisites				
1 seme		<u> </u>				
	Contents					
	t topics in scientific work in phy	rsics education				
Intend	ed learning outcomes					
	udents have knowledge of a cur sics education on the basis of s		physics education ar	nd are able to proces	ss questions	
Course	es (type, number of weekly cont	act hours, language –	- if other than Germa	n)		
S (2)	· · · · ·			-		
	e taught in: German or English					
	d of assessment (type, scope, l nformation on whether module o			tion offered — if not	every seme-	
talk (3	o to 45 minutes)					
	tion of places					
	· · ·					
Additi	onal information	_				
		_				
Workle						
90 h						
-	ng cycle	_				
Referr	ed to in LPO I (examination reg	ulations for teaching-	degree programmes)			
	Nr. 1 h)					
, u	Nr. 2 f)					
§ 22 Nr. 3 f)						
Module appears in						
First state examination for the teaching degree Grundschule Physics (2015)						
First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2015)						
First state examination for the teaching degree Realschule Physics (2015)						
First state examination for the teaching degree Gymnasium Physics (2015)						
First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2015)						
First state examination for the teaching degree Mittelschule Physics (2015)						
First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2015)						
First state examination for the teaching degree Grundschule Physics (2018)						
First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2018)						
First state examination for the teaching degree Realschule Physics (2018)						
First state examination for the teaching degree Gymnasium Physics (2018)						
First state examination for the teaching degree Mittelschule Physics (2018)						
First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2018)						
	First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2018)					
First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2020)						
	pädagogik Didactics in Physics (Middle		ated 19-Apr-2025 • exam. reg		page 23 / 32	
School) (2			gik (Mittelschule-Didaktikfach			

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First state examination for the teaching degree Grundschule Physics (2020) First state examination for the teaching degree Gymnasium Physics (2020) First state examination for the teaching degree Realschule Physics (2020) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Physics (2020)

Module title		Abbreviation				
Current Topics in Physics 11-LX6-152-mo1						
Module coordinator			Module offered by			
chairperson of examination committee			· ·	and Actronomy		
· · ·		ttee Faculty of Physics and Astronomy Only after succ. compl. of module(s)				
	od of grading	Only after succ. col	npl. of module(s)			
6 numerical grade						
Duration Module level Other prerequisites						
1 semester undergraduate Approval from examination committee required.						
Contents						
Current topic	s in physics.					
Intended lear	ning outcomes					
The students have knowledge of a current subdiscipline of Physics and understand the measuring and/or calcu- lation methods necessary to acquire this knowledge. They are able to classify the subject-specific contexts and know the application areas.						
Courses (type	e, number of weekly con	itact hours, language -	– if other than Germa	n)		
V (3) + R (1)						
	sessment (type, scope, ion on whether module			tion offered — if not	every seme-	
 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 						
Allocation of	places					
Additional in	formation					
Workload						
Workload						
180 h						
Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)						
§ 22 Nr. 1 h) § 22 Nr. 2 f) § 22 Nr. 3 f)						
Module appears in						
First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2015) First state examination for the teaching degree Realschule Physics (2015) First state examination for the teaching degree Gymnasium Physics (2015)						
First state examination for the teaching degree Gymnastam Physics (2015) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2015) First state examination for the teaching degree Mittelschule Physics (2015) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2015)						
A Sonderpädagogik Didactics in Physics (Middle JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record Lehr- page 25 / 32					1 .	
School) (2020)		amt Sonderpädago				

First state examination for the teaching degree Grundschule Physics (2018) First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2018) First state examination for the teaching degree Realschule Physics (2018) First state examination for the teaching degree Gymnasium Physics (2018) First state examination for the teaching degree Mittelschule Physics (2018) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2018) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2018) First state examination for the teaching degree Grundschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Grundschule Physics (2020) First state examination for the teaching degree Grundschule Physics (2020) First state examination for the teaching degree Gymnasium Physics (2020) First state examination for the teaching degree Realschule Physics (2020) First state examination for the teaching degree Realschule Physics (2020) First state examination for the teaching degree Realschule Physics (2020) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020)

Low Co	le title				Abbreviation		
Low Cost - High Impact. Low-budget Experiments for Science Courses (Ph			ce Courses (Phy-	11-MIND-Ph1-152-m	01		
sics)							
Module coordinator				Module offered by			
holder of the Chair of Physics and its Dida							
ECTS	_	od of grading	Only after succ. con	npl. of module(s)			
2		successfully completed					
			Other prerequisites				
	1 semester undergraduate						
Conter							
		nd realisation of experim and secondary level I.	nental stations with or	dinary and inexpens	sive consumables for	r classes of	
Intend	led lear	ning outcomes					
ry leve	el I for si	develop simple scientifi mall groups from differen /ant to the curriculum in	nt types of schools. In	doing so, they learn			
Course	es (type	, number of weekly cont	act hours, language –	– if other than Germa	an)		
S (2)							
ster, ir	nformat	sessment (type, scope, l ion on whether module	can be chosen to earn		ition offered — if not	every seme-	
b) oral c) oral	l examiı examir	mination (approx. 45 mi nation of one candidate nation in groups (groups (approx. 8 pages)	each (approx. 10 minu				
	tion of						
Alloca			_				
		ormation					
		s designed for students	studying at least one	subject in the natura	il sciences.		
Worklo	oad		_				
60 h							
	•						
Teachi	ing cyc	е					
	ing cycl	e					
Teachi 		e LPO I (examination reg	ulations for teaching-	degree programmes)			
Teachi Referre		LPOI (examination reg	ulations for teaching-	degree programmes)			
Teachi <u>Referra</u> § 22 § 22	ed to in Nr. 1 h) Nr. 2 f)	LPOI (examination reg	ulations for teaching-	degree programmes))		
Teachi § 22 § 22	ed to in Nr. 1 h)	LPOI (examination reg	ulations for teaching-	degree programmes)	ı		
Teachi § 22 § 22 § 22 § 22 Modul	ed to in Nr. 1 h) Nr. 2 f) Nr. 3 f) le appe	LPOI (examination reg			,		
Teachi Referra § 22 § 22 § 22 Modul First st	ed to in Nr. 1 h) Nr. 2 f) Nr. 3 f) le appea tate exa tate exa tate exa tate exa tate exa tate exa tate exa	LPOI (examination reg ars in mination for the teachin mination for the teachin	ig degree Grundschuld ig degree Grundschuld ig degree Realschule I ig degree Gymnasium ig degree Sonderpäda ig degree Mittelschuld	e Physics (2015) e Didactics in Physic Physics (2015) Physics (2015) igogik Didactics in P e Physics (2015)	s (Primary School) (2 hysics (Middle Schoo	ol) (2015)	
Teachi Referration § 22 § 22 § 22 Modul First st First st	ed to in Nr. 1 h) Nr. 2 f) Nr. 3 f) le appea tate exa tate exa	LPOI (examination reg ars in mination for the teachin mination for the teachin	g degree Grundschule g degree Grundschule g degree Grundschule I g degree Gymnasium g degree Sonderpäda g degree Mittelschule g degree Grundschule g degree Grundschule g degree Realschule I g degree Gymnasium	e Physics (2015) e Didactics in Physic Physics (2015) Physics (2015) gogik Didactics in P e Physics (2015) e Didactics in Physics e Physics (2018) e Didactics in Physic Physics (2018)	s (Primary School) (2 hysics (Middle Schoo s (Middle School) (20 s (Primary School) (2	ol) (2015) 015)	

Module title			· · · · · · · · · · · · · · · · · · ·	Abbreviation		
Teaching Scie	ence with Hands-on-Exh	11-MIND-Ph2-152-m	101			
AA - J	•					
Module coordinator			Module offered by	· · · ·		
	Chair of Physics and its	l l	Faculty of Physics a	and Astronomy		
	ECTS Method of grading Only after succ. compl. of module(s)					
	(not) successfully completed					
Duration Module level Other prerequisites						
1 semester undergraduate						
Contents						
Designing and creating hands-on exhibits for STEM subjects.						
Intended lear	ning outcomes					
tents in and o ject-oriented	evaluate the advantages ut of school. They plan a work with pupils of seco	and implement an intendary level I and II.	rdisciplinary science	e exhibition as an ex		
	, number of weekly cont	act hours, language –	- if other than Germa	an)		
S (2)						
	sessment (type, scope, l ion on whether module o			ntion offered — if not	every seme-	
a) written examination (approx. 45 minutes) or b) oral examination of one candidate each (approx. 10 minutes) or c) oral examination in groups (groups of 2, approx. 20 minutes) or d) term paper (approx. 8 pages)						
Allocation of						
	Jaces					
Additional inf						
1	s designed for students	studying at least one	subject in the natura	il sciences.		
Workload						
60 h						
Teaching cycl	е					
Referred to in LPO I (examination regulations for teaching-degree programmes)						
§ 22 Nr. 1 h) § 22 Nr. 2 f) § 22 Nr. 3 f)						
Module appears in						
First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2015) First state examination for the teaching degree Realschule Physics (2015) First state examination for the teaching degree Gymnasium Physics (2015) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2015) First state examination for the teaching degree Mittelschule Physics (2015) First state examination for the teaching degree Mittelschule Physics (2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Physics (2018) First state examination for the teaching degree Grundschule Physics (2018) First state examination for the teaching degree Grundschule Physics (2018) First state examination for the teaching degree Grundschule Physics (2018) First state examination for the teaching degree Realschule Physics (2018) First state examination for the teaching degree Realschule Physics (2018) First state examination for the teaching degree Grundschule Physics (2018) First state examination for the teaching degree Mittelschule Physics (2018) First state examination for the teaching degree Gymnasium Physics (2018)						
A Sonderpädagogik School) (2020)	Didactics in Physics (Middle		ated 19-Apr-2025 • exam. reg gik (Mittelschule-Didaktikfacl		page 29 / 32	

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First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2018) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2018) First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2020) First state examination for the teaching degree Grundschule Physics (2020) First state examination for the teaching degree Gymnasium Physics (2020) First state examination for the teaching degree Realschule Physics (2020)

First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Physics (2020)

Module title					Abbreviation	
MINT Preparatory Course Mathematical Methods of Physic				5	11-P-VKM-202-m01	
Module coordinator				Module offered by		
			oplied Physics and	Faculty of Physics a	ind Astronomy	
		f Theoretical Physics and				
ECTS	1	od of grading	Only after succ. com	pl. of module(s)		
3	(not) s	successfully completed				
Duratio	on	Module level	Other prerequisites			
1 semester undergraduate						
Conten	ts					
introdu 1. Basio	iction a c geom	nd preparation for the m	odules of experiment rential calculus and s	al and theoretical pl	dge from school, especially as an hysics. culus, 4. vectors – directional	
Intend	ed lear	ning outcomes				
		n command of knowledg successful start into the			s in elementary calculus as re- hysics.	
Course	s (type	, number of weekly conta	ct hours, language —	if other than Germa	n)	
V (1) +	Ü (2)		-			
Module	e taugh	t in: German or English				
		sessment (type, scope, la on on whether module ca			tion offered — if not every seme-	
		successful completion of	approx. 50% of appro	ox. 6 exercise sheets	s) or	
		x. 15 minutes) ffered: Once a year, winte	orcomostor			
Allocat						
Allocal		Jaces				
 Additia	nalinf	ormation				
Auditio	nat ini					
Worklo	ad					
90 h						
	ng cycl	۵				
Teaching cycle Teaching cycle: every year, winter semester						
		LPOI (examination regu		legree programmes)		
	-					
§ 22 Nr. 1 h) § 22 Nr. 2 f)						
§ 22 II Nr. 3 f)						
Module	e appea	in and a second s				
		gree (1 major) Physics (20				
Bachelor's degree (1 major) Nanostructure Technology (2020)						
Bachelor's degree (1 major) Mathematical Physics (2020)						
Bachelor's degree (1 major, 1 minor) Physics (Minor, 2020) First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2020)						
First state examination for the teaching degree Grundschule Physics (2020)						
First state examination for the teaching degree Gymnasium Physics (2020)						
First state examination for the teaching degree Realschule Physics (2020)						
First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2020)						
		Didactics in Physics (Middle		ited 10-Apr-2025 • exam reg	data record Lehr-	



First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Physics (2020) Bachelor's degree (1 major) Quantum Technology (2021) Bachelor's degree (1 major) Mathematical Physics (2024)