

# Module Catalogue

for the Subject

# Didactics in Physics (Middle School)

as Didaktikfach

with the degree "Erste Staatsprüfung für das Lehramt an Mittelschulen"

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

JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record L7|873|-|-|H|2020



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## The subject is divided into

section / sub-section	ECTS credits	starting page
Compulsory Courses	20	6
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## **Learning Outcomes**

UNIVERSITÄT

WÜRZBURG

German contents and learning outcome available but not translated yet.

## Wissenschaftliche Befähigung

- Die Absolventinnen und Absolventen verstehen die Grundlagen der Physik und können diese anwenden.
- Die Absolventinnen und Absolventen können unter Anleitung Experimente durchführen, analysieren und die erhaltenen Ergebnisse darstellen und bewerten.
- Die Absolventinnen und Absolventen besitzen ein grundlegendes Abstraktionsvermögen und die Fähigkeit, komplexe Zusammenhänge zu strukturieren.

## Befähigung zur Aufnahme einer Erwerbstätigkeit

- Die Absolventinnen und Absolventen können fachliche Inhalte und ihre Erkenntnisse didaktisch aufbereiten und adressatengerecht vermitteln.
- Die Absolventinnen und Absolventen kennen Konzepte, Prinzipien, Methoden und evidenzbasierte Erkenntnisse aus dem Bereich der Physikdidaktik und können diese zur ziel- und adressatengerechten Ausgestaltung von Lehr/Lern-Settings anwenden.
- Die Absolventinnen und Absolventen können den Einsatz von Experimenten und Medien im Physikunterricht und die Betreuung von Schülerinnen und Schülern an ausgewählten Lehr-Lernsituationen wissenschaftlich fundiert reflektieren.

#### Persönlichkeitsentwicklung

- Die Absolventinnen und Absolventen kennen die Regeln guter wissenschaftlicher Praxis und beachten sie.
- Die Absolventinnen und Absolventen können ihr Wissen und ihre Erkenntnisse in einer Lehrsituation angemessen und selbstbewusst darstellen.
- Die Absolventinnen und Absolventen besitzen die Fähigkeit didaktisches Wirken in einer Lehr-/ Lernsituation angemessen zu reflektieren und passende Schlussfolgerungen zu ziehen.

## Befähigung zum gesellschaftlichen Engagement

- Die Absolventinnen und Absolventen haben ihr Wissen bezüglich wirtschaftlicher, gesellschaftlicher, naturwissenschaftlicher, kultureller etc. Fragestellungen erweitert (z.B im Hinblick auf Bildung für nachhaltige Entwicklung) und können begründet Position beziehen.
- Die Absolventinnen und Absolventen entwickeln die Bereitschaft und Fähigkeit, ihre Kompetenzen in partizipative Prozesse einzubringen und aktiv an Entscheidungen mitzuwirken.



## 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.



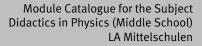


# **Compulsory Courses**

(20 ECTS credits)

Successful completion of modules worth 20 ECTS credits in each subject selected as Didaktikfach (subject studied with a focus on teaching methodology) is a prerequisite for admission to the Erste Staatsprüfung (First State Examination) in the subject Didaktiken einer Fächergruppe der Mittelschule (Didactics of a Group of Subjects of Mittelschule).

Module title Abbreviation						
Physics	s Teach	ing Concepts			11-L-PD-172-m01	
Module	e coord	inator		Module offered by		
holder	of the C	Chair of Physics and its	Didactics	dactics Faculty of Physics and Astronomy		
ECTS Method of grading Only after succ. compl. of module(s)						
5	numerical grade					
Duration Module level Other prerequisites						
2 seme	2 semester undergraduate					
Conten	ts					
of the d subject sics con typical these; o the scie	legree   ; comp ntent; r learnin dealing ence of ed learn	programme. Justification etence models and ed nethods and media in g difficulties in the sub with student perception physics, including his <b>hing outcomes</b>		ics teaching; educat ementarisation and eir use to promote le elevant to teaching a nes to the structure a	ional objectives of p didactic reconstruct earning; student perc nd teaching concept nd cognitive/workin	hysics as a ion of phy- ceptions and ts based on g methods of
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		e <b>essment</b> (type, scope, lang le for bonus)	uage — if other than German,	examination offered — if no	t every semester, informati	on on whether
b) oral c) oral e d) term	examin examin paper		each (approx. 15 minu 5 of 2, approx. 15 minut			
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
150 h						
Teachir	ng cycl	e				
Referre	d to in	LPO I (examination regulati	ons for teaching-degree progra	immes)		
§ 36   N § 38   N § 53   N § 77   N	lr. 1 r. 2 r. 2					
Module						
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LA Mittelscl School) (20		actics in Physics (Middle		enerated 19-Apr-2025 • exam ittelschulen (Didaktikfach) Pr	*	page 7 / 39



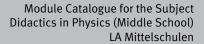
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Module	e title				Abbreviation		
Physic	s 1 for F	Primary and Secondary G	ieneral School		11-L-SP1-152-m01		
Module	e coord	inator		Module offered by	Г		
holder	of the (	Chair of Physics and its D	vidactics	Faculty of Physics a	and Astronomy		
ECTS Method of grading Only after succ. compl. of module(s)							
5	1	rical grade					
Duratio		Module level					
1 seme		undergraduate					
Conten			<u> </u>				
Physica	al conte	ents (mechanics, thermo- und- and Hauptschule.	dynamics) relevant to	classes in Natural S	Sciences or technical-natural		
		ning outcomes					
classes demon	s in Gru stratior	nd- and Hauptschule; kn n and pupils experiments	iowledge of typical ap 5.	pproaches to the imp	scientific or technical-scientific olementation and evaluation of		
		number of weekly contact hours,	language — If other than Ger -	iiidil)			
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Module	e title				Abbreviation		
Physic	s 2 for P	Primary and Secondary (	General School		11-L-SP2-152-m01		
Module	e coordi	nator		Module offered by			
holder	of the C	hair of Physics and its D	oidactics	Faculty of Physics a	ind Astronomy		
ECTS Method of grading Only after succ. compl. of module(s)							
		ical grade					
5 Duratio	<u> </u>	Module level	Other prerequisites				
	emester undergraduate						
		undergraduate					
Conten							
			y, electronics) relevar	nt to classes in Natu	ral Sciences or technical-natura		
		und- and Hauptschule.					
Intende	ed learn	ing outcomes					
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		umber of weekly contact hours,	anguage — II other than Ger	iiiaii)			
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		<b>essment</b> (type, scope, langua e for bonus)	age — if other than German, o	examination offered — if no	ot every semester, information on whether		
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		ation of one candidate e		tes) or			
		ation in groups (groups (		tes per candidate)			
Langua	ge of as	ssessment: German and	/or English				
Allocat	ion of p	laces					
Additio	onal info	ormation					
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Worklo	ad						
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	ng cycle	2					
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	e title				Abbreviation	
Physics	s 3 for l	Primary and Secondary (	General School		11-L-SP3-152-m01	
Module	e coord	inator		Module offered by	• 	
holder	of the (	Chair of Physics and its D	oidactics	Faculty of Physics a	and Astronomy	
ECTS	CTS Method of grading Only after succ. compl. of module(s)					
5		rical grade				
Duratio		Module level	Other prerequisites			
1 semes		undergraduate				
		undergraduate	<u> </u>			
Conten						
		ents (optics, acoustics, A sciences in Grund- and H		nysics) relevant to cl	asses in Natural Sciences or tech	
		ning outcomes				
					scientific or technical-scientific	
				pproaches to the imp	plementation and evaluation of	
		n and pupils experiments				
		number of weekly contact hours,	language — if other than Ge	rman)		
V (3) + I	Ü (1)					
		<b>sessment</b> (type, scope, langua le for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether	
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		nation of one candidate e		ites) or		
				-		
	chainin		of 2 approx 15 minu	tes ner candidate)		
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# **Extra Skills** (ECTS credits)

Teaching degree students must take modules worth a total of 15 ECTS credits in the area Freier Bereich (general as well as subject-specific electives) (Section 9 LASPO (general academic and examination regulations for teaching-degree programmes)). To achieve the required number of ECTS credits, students may take any modules from the areas below.

Freier Bereich -- interdisciplinary: The interdisciplinary additional offer for a teaching degree can be found in the respective Annex "Ergänzende Bestimmungen für den "Freien Bereich" im Rahmen des Studiums für ein Lehramt".





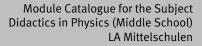
# **Physics** (ECTS credits)

(Freier Bereich (general as well as subject-specific electives) -- subject specific)

Teachi	e title				Abbreviation			
Teaching Seminar Fundamental Principles       11-L-EL1-152-m01					11-L-EL1-152-m01			
Module	e coord	linator		Module offered by	<u>I</u>			
holder of the Chair of Physics and its Didactics Facult				Faculty of Physics a	and Astronomy			
ECTS Method of grading Only after succ. compl. of module(s)								
3	1	successfully completed						
Duration Module level Other prerequisites								
1 seme	ster	undergraduate						
Conten	ts	<u> </u>	,					
ceptior sed on	ns and specifi	interdisciplinary aspects typical learning difficultion ic contents of physics ed experiments and suitable	es, elementarisation a ucation, verbalisatior	and didactic reconst	ruction of physical c	ontents ba-		
Intend	ed lear	ning outcomes						
studen	t preco	alitative knowledge of so nceptions and special m iversity and school regard	edia on relevant topi	cs; awareness of the				
Course	<b>S</b> (type, 1	number of weekly contact hours,	language — if other than Ge	rman)				
S (2)								
a) term b) pres c) writte	s creditat paper entatic en exa	sessment (type, scope, langua ole for bonus) (approx. 8 pages) or on (approx. 45 minutes) o mination (approx. 45 min nation of one candidate e	nr nutes) or		n every semester, informati			
		nation in groups (groups assessment: German and		tes per candidate)				
Allocat								
		places						
		places						
 Additio		places formation						
 Additio 								
 Additio  Worklo	onal inf							
	onal inf							
 Worklo	onal inf oad	formation						
 <b>Worklo</b> 90 h	onal inf oad	formation						
 Worklo 90 h Teachin	onal inf oad ng cycl	formation		ımmes)				
 Worklo 90 h Teachin	nal inf nad ng cycl ed to in Nr. 1 h) Nr. 2 f)	e						
 90 h Teachin  8 22      8 22	onal inf oad ng cycl ed to in Nr. 1 h) Nr. 2 f) Nr. 3 f)	ormation e LPOI (examination regulation		ummes)				
 <b>Worklo</b> 90 h <b>Teachin</b>  <b>Referre</b> § 22 II I § 22 II I § 22 II I § 22 II I First sta First sta First sta First sta First sta First sta First sta First sta	ed to in Nr. 1 h) Nr. 2 f) Nr. 3 f) e appea ate exa ate exa ate exa ate exa ate exa ate exa ate exa	ormation e LPOI (examination regulation	s for teaching-degree progra g degree Grundschule g degree Grundschule g degree Realschule F g degree Gymnasium g degree Sonderpäda g degree Mittelschule	e Physics (2015) e Didactics in Physic Physics (2015) Physics (2015) gogik Didactics in Pl e Physics (2015)	nysics (Middle Schoo	ol) (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 (Middle School) (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 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)

Module title Abb					Abbreviation		
Selecte	ed Topi	cs in Physics Didactics			11-L-EL2-152-m01		
Module	e coord	inator		Module offered by			
		f examination committe	e	Faculty of Physics a			
ECTS	1	od of grading	Only after succ. con	· · ·	,		
-	3     (not) successfully completed        Duration     Module level     Other prerequisites						
	1 semester undergraduate						
Conten							
		in physics education.					
		ning outcomes	_				
		have knowledge of a cu e according to subject-s				y the acqui-	
Course	<b>S</b> (type, r	number of weekly contact hours	, language — if other than Ge	rman)			
S (2)							
	d of ass	sessment (type, scope, langu	lage — if other than German.	examination offered — if no	t everv semester, informati	on on whether	
		le for bonus)	,				
a) term	paper	(approx. 8 pages) or					
		on (approx. 45 minutes)					
		mination (approx. 45 mi		t			
		nation of one candidate nation in groups (groups					
		ssessment: German and		les per canuluale)			
	tion of						
Allocal		Jaces					
Additio	onal Inf	ormation					
Worklo							
90 h			_				
Teachi	ng cycl	e					
Referre	ed to in	LPO I (examination regulatio	ns for teaching-degree progra	immes)			
-	Nr. 1 h)						
§ 22							
§ 22							
	e appea						
		mination for the teachir		-		`	
		mination for the teachir			s (Primary School) (2	.015)	
		mination for the teachir		• •			
		mination for the teachir mination for the teachir		•	nysics (Middle Schor	) (2015)	
		mination for the teachir	,			10 (2015)	
		mination for the teachir		-	(Middle School) (20	015)	
		mination for the teachir		•		<i></i>	
		mination for the teachir		•	s (Primary School) (2	.018)	
1		mination for the teachir					
LA Mittalaa	hulon Did	actics in Physics (Middle	MIL Mürzburg • «	enerated 19-Apr-2025 • exam	reg data re-	page 16 / 39	
School) (20		actics in Engliss (Midule		ittelschulen (Didaktikfach) Pr	-	page 10 / 39	



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

	e title				Abbreviation		
MINT P	repara	tory Course Mathematic	al Methods of Physic	S	11-P-VKM-202-m01		
Module coordinator Module offered by					<u> </u>		
Managi	ing Dir	ectors of the Institute of <i>I</i> of Theoretical Physics and		Faculty of Physics a	and Astronomy		
ECTS	r	od of grading	Only after succ. compl. of module(s)				
3							
Duration Module level Other prerequisites							
1 semester undergraduate							
Conten		undergraduate	1				
introdu 1. Basic quantit	ction a geom ies, 5.	nd preparation for the m etry and algebra, 2. diffe coordinate systems, 6. c	odules of experiment rential calculus and s	tal and theoretical p	dge from school, especially as an hysics. culus, 4. vectors – directional		
		ning outcomes					
		in command of knowledg successful start into the			ls in elementary calculus as re-		
•				· · ·	Juysics.		
V (1) + Ú		number of weekly contact hours,	language — If other than Ge	iiiafi)			
• •	• •	t in: German or English					
	_		age — if other than German	examination offered — if no	ot every semester, information on whether		
		ble for bonus)	, , , , , , , , , , , , , , , , , , ,				
b) talk	(appro ment o	successful completion of x. 15 minutes) Iffered: Once a year, wint		ox. 6 exercise sheet	5) or		
		places					
		places					
 Additio							
 Additio		places					
	onal inf						
 Worklo	onal inf						
 <b>Worklo</b> 90 h	onal inf ad	ormation					
 Worklo 90 h Teachir	onal inf ad ng cycl	ormation	estor				
 Worklo 90 h Teachir Teachir	nal inf ad ng cycl	<b>ormation</b> <b>e</b> e: every year, winter sem					
 Worklo 90 h Teachir Teachir Referre	ad ng cycl ng cycl ng cycl	e e e: every year, winter sem		ammes)			
 Worklo 90 h Teachir Teachir Referre § 22 II N	ad ng cycl ng cycl ng cycl d to in Nr. 1 h)	e e e: every year, winter sem		ammes)			
 Worklo 90 h Teachir Teachir Referre	nal inf ad ng cycl ng cycl ed to in Nr. 1 h)	e e e: every year, winter sem		ımmes)			
 <b>Worklo</b> 90 h <b>Teachir</b> Teachir <b>Referre</b> § 22    1 § 22    1	nal inf ad ng cycl ng cycl ed to in Nr. 1 h) Nr. 2 f) Nr. 3 f)	e e: every year, winter sem LPOI (examination regulation		ammes)			
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 90 h Teachin Teachin Referre § 22    1 § 22    1 § 22    1 § 22    1 Bachelo	nal inf ad ng cycl ng cycl ed to in Nr. 2 f) Nr. 3 f) e appea or's de	e e: every year, winter sem LPOI (examination regulation	os for teaching-degree progra				
 90 h <b>Teachin</b> Teachin Referre § 22    1 § 22    1 § 22    1 Bachelo Bachelo Bachelo	ad ng cycl ng cycl d to in Nr. 1 h) Nr. 2 f) Nr. 3 f) e appea or's de or's de or's de	e e: every year, winter sem LPOI (examination regulation ars in gree (1 major) Physics (2 gree (1 major) Nanostruc gree (1 major) Mathemat	o20) ture Technology (202 ical Physics (2020)				
 90 h Teachir Teachir Referre § 22    1 § 22    1 § 22    1 Bachele Bachele Bachele	nal inf ad ng cycl ng cycl ed to in Nr. 1 h) Nr. 2 f) Nr. 3 f) e appea or's de or's de or's de or's de	e e: every year, winter sem LPO I (examination regulation gree (1 major) Physics (2 gree (1 major) Nanostruc gree (1 major) Mathemat gree (1 major, 1 minor) Pl	o20) ture Technology (202 ical Physics (2020) hysics (Minor, 2020)	o)			
 <b>Worklo</b> 90 h <b>Teachir</b> Teachir <b>Referre</b> § 22    1 § 22    1 § 22    1 <b>Bachelo</b> Bachelo Bachelo Bachelo First sta	ad ng cycl ng cycl ng cycl ed to in Nr. 2 f) Nr. 3 f) e appea or's de or's de or's de or's de or's de	e e: every year, winter sem LPO I (examination regulation gree (1 major) Physics (2 gree (1 major) Nanostruc gree (1 major) Mathemat gree (1 major, 1 minor) Pl mination for the teaching	ozo) ture Technology (202 ical Physics (2020) hysics (Minor, 2020) g degree Grundschule	o) e Didactics in Physic	s (Primary School) (2020)		
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 90 h Teachir Teachir Referre § 22 II N § 22 I	nal inf ad ng cycl ng cycl d to in Nr. 1 h) Nr. 2 f) Nr. 3 f) e appea or's de or's de or's de or's de or's de ate exa ate exa ate exa ate exa	e e e: every year, winter sem LPO I (examination regulation gree (1 major) Physics (2 gree (1 major) Nanostruc gree (1 major) Mathemat gree (1 major, 1 minor) Pl mination for the teaching mination for the teaching mination for the teaching mination for the teaching mination for the teaching	o20) ture Technology (202 ical Physics (2020) hysics (Minor, 2020) g degree Grundschule g degree Grundschule g degree Realschule F	o) e Didactics in Physic e Physics (2020) Physics (2020) Physics (2020)	s (Primary School) (2020)		



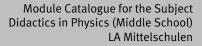


First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020) First state examination for the teaching degree Mittelschule Physics (2020) Bachelor's degree (1 major) Quantum Technology (2021) Bachelor's degree (1 major) Mathematical Physics (2024)

Student Lab Supervision (Physics)       11-1-13B-152-m01         Module continuation       Module offered by         Module offered by       Faculty of Physics and Astronomy         ECTS       Method of grading       Only after succ. compl. of module(s)         2       (no0) successfully completed       -         Duration       Module level       Other prerequisites         1 semester       undergraduate       -         Contents       The tacking elearning laboratory.       Intended learning outcomes         The students learn to classify different groups of pupils according to their subject-specific and experimental level of performance, to support the pupils according to their needs and age and to help them during independent experimenting outcomes         The students learn to classify different groups of pupils according to their needs and age and to help them during independent experimenting (supervision competencies in open classroom studions). The students are able to methodical trans by repeatedly working on the same topic with different groups of pupils (reflection competencies and self-control competencies).         Courses (upp, number of weekly contact hour, language – if other than German)       P         P (a)       Intende learnination in groups (groups of 2, approx. 10 minutes) or 0) or 0 examination on groups (groups of 2, approx. 10 minutes) or 0) or 0 examination in groups (groups of 2, approx. 10 minutes) or 0) or 0 examination in groups (groups of 2, approx. 10 minutes) or 0) or 0 examination of net caching degree Grundschule Physics (2015)	Module	Module title Abbreviation					
holder of the Chair of Physics and its Didactics       Faculty of Physics and Astronomy         ECTS       Method of grading       Only after succ. compl. of module(s)         2       (not) successfully completed	Studen						
ECTS         Method of grading         Only after succ. compl. of module(s)           2         (not) successfully completed	Module coordinator			Module offered by			
2       (not) successfully completed          Duration       Module level       Other prerequisites         1 semester       undergraduate          Contents           Contents           The module provides an introduction to successful supervision of pupils independently carrying out experiments in the teaching-learning-laboratory.          Interded learning outcomes           The students learn to classify different groups of pupils according to their needs and age and to help them during independent experimenting (supervision competencies in open classroom situations). The students to avoid negati-ty and critically evaluate their own actions. A lecturer gives individual feedback to the students to avoid negati-ty by and critically evaluate their own actions. A lecturer gives individual feedback to the students to avoid negati-ty benchestated working on the same topic with different groups of pupils (reflection competencies and self-control competencies).         Courses (spor, number of evecky contact hours, language – if other than German)       P(2)         Method of assessment (type, scope, language – if other than German, examination offered – I'not every semester, information on whether module is creditable for bonus)       a) written examination in groups (groups of 2, approx. 10 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes) or c) oral examination of places	holder of the Chair of Physics and its Didactics Fa			Faculty of Physics a	nd Astronomy		
Duration         Module level         Other prerequisites           1 semester         undergraduate	ECTS	ECTS Method of grading Only after succ. compl. of module(s)					
1 semester undergraduate	2	2 (not) successfully completed					
Contents         The module provides an introduction to successful supervision of pupils independently carrying out experiments in the teaching-learning-laboratory.         Intended learning outcomes         The students learn to classify different groups of pupils according to their subject-specific and experimental level of performance, to support the pupils according to their needs and age and to help them during independent experimenting (supervision competencies in open classroom situations). The students are able to methodically and critically evaluate their own actions. A lecturer gives individual feedback to the students to avoid negative behaviour patterns and to support the students' strengths. The students develop professional behaviour patterns by repeatedly working on the same topic with different groups of pupils (reflection competencies and self-control competencies).         Courses (type, number of weekly contact hours, language – if other than German)       P(2)         Method of assessment (type, scope, language – if other than German)       P(2)         Method of assessment (type, scope, language – if other than German)       P(2)         Method of assessment (type, scope, language – if other than German)       P(2)         Method of assessment (type, scope, language – if other than German)       P(2)         Method of assessment (type, scope, language – if other than German)       P(2)         Method of assessment (type, scope, language – if other than German)       P(2)         Method of assessment (type, scope, language – if other than German)       P(2)         Method of assessmet	Duration Module level Other prerequisites						
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In the teaching-learning-laboratory. Intended learning outcomes The students learn to classify different groups of pupils according to their subject-specific and experimental le- vel of performance, to support the pupils according to their needs and age and to help them during independent experimenting (supervision competencies in open classroom situations). The students are able to methodical- ly and critically evaluate their own actions. A lecturer gives individual feedback to the students to avoid negati- ve behaviour patterns and to support the students' strengths. The students develop professional behaviour pat- terns by repeatedly working on the same topic with different groups of pupils (reflection competencies and self- control competencies). Courses (type, number of weekly contact hours, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of assessment (type, scope, language – if other than German) P (2) Method of asses							
The students learn to classify different groups of pupils according to their subject-specific and experimental level of performance, to support the pupils according to their needs and age and to help them during independent experimenting (supervision competencies in open classroom situations). The students are able to methodically and critically evaluate their own actions. A lecturer gives individual feedback to the students are able to methodically and critically evaluate their own actions. A lecturer gives individual feedback to the students are able to methodically and critically evaluate their own actions. A lecturer gives individual feedback to the students are able to methodically and critically evaluate their own actions. A lecturer gives individual feedback to the students are able to methodical.  Ye and critically evaluate their own actions. A lecturer gives individual feedback to the students are able to methodical.  Sources (type, number of weakly contact hours, language – if other than German) P (2)  Method of assessment (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is celtable for bonus) 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. 10 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) or d) term paper (approx. 8 pages)  Allocation of places				to successful supervis	ion of pupils indepe	ndently carrying out	experiments
vel of performance, to support the pupils according to their needs and age and to help them during independent experimenting (supervision competencies in open classroom situations). The students are able to methodical- by and critically evaluate their own actions. A lecturer gives individual feedback to the students to avoid negati- ive behaviour patterns and to support the students' strengths. The students develop professional behaviour pat- terns by repeatedly working on the same topic with different groups of pupils (reflection competencies and self- control competencies). <b>Courses</b> (type, number of weekly contact hours, language – if other than German) P (2) <b>Method of assessment</b> (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus) 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. 10 minutes) provide examination of places <b>Additional information</b> This module is designed for students studying at least one subject in the natural sciences. <b>Workload</b> 60 h <b>Teaching cycle</b> <b>Referred to in LPO1</b> (examination regulations for teaching degree programmes) § 22 II Nr. 1h) § 22 II Nr. 2 f) § 22 II Nr. 2 f) § 22 II Nr. 2 f) <b>Source examination</b> for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Physics (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 Mittelschule Physics (2015) F	Intend	ed learr	ning outcomes				
P (2)  Method of assessment (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus) 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. 10 minutes) or d) term paper (approx. 8 pages)  Allocation of places Additional information This module is designed for students studying at least one subject in the natural sciences. Workload 60 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 22 II Nr. 1 h) § 22 II Nr. 2 f) § 22 II Nr. 2 f) § 22 II Nr. 3 f) Module appears in First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Grundschule Physics (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 Mittelschule Physics (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 Mittelschule Physics (2015) First state examination for the teaching degree Mittelschule Physics (2015) First state examination for the teaching degree Mittelschule Physics (Middle School) (2015) LA Mittelschule Didactis	vel of p experir ly and ve beh terns b	performating menting criticall aviour p y repea	ance, to support the pup (supervision competen y evaluate their own act patterns and to support tedly working on the sa	bils according to their cies in open classroo ions. A lecturer gives the students' strength	needs and age and t m situations). The st ndividual feedback is. The students deve	o help them during i udents are able to m to the students to av elop professional be	independent iethodical- oid negati- haviour pat-
Method of assessment (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus)         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. 10 minutes) or         c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) or         d) term paper (approx. 8 pages)         Allocation of places            Additional information         This module is designed for students studying at least one subject in the natural sciences.         Workload         60 h         Teaching cycle            Referred to in LPO I (examination regulations for teaching-degree programmes)         § 22 Il Nr. 1 h)         § 22 Il Nr. 2 f)         § 22 Il Nr. 3 f)         Module appears in         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degr	Course	<b>S</b> (type, n	umber of weekly contact hours,	language — if other than Gei	man)		
module is creditable for bonus)         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. 10 minutes) or         c) oral examination in groups (groups of 2, approx. 10 minutes) or         c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) or         d) term paper (approx. 8 pages)         Allocation of places            Additional information         This module is designed for students studying at least one subject in the natural sciences.         Workload         60 h         Teaching cycle            Referred to in LPO I (examination regulations for teaching-degree programmes)         § 22 ll Nr. 1 h)         § 22 ll Nr. 2 f)         § 22 ll Nr. 3 f)         Module appears in         First state examination for the teaching degree Grundschule Physics (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 Mittelschule Physics (2015)         First state examination for the teaching degree Mittelschule Physics (2015)         First state examination for the teaching degree Mittelschule Physics	P (2)						
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This module is designed for students studying at least one subject in the natural sciences.          Workload         60 h         Teaching cycle            Referred to in LPO I (examination regulations for teaching-degree programmes)         § 22 II Nr. 1 h)         § 22 II Nr. 2 f)         § 22 II Nr. 3 f)         Module appears in         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (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 Mittelschule Physics (2015)         First state examination for the teaching degree Mittelschule Physics (2015)         First state examination for the teaching degree Mittelschule Didac	Allocat	ion of p	olaces				
This module is designed for students studying at least one subject in the natural sciences.          Workload         60 h         Teaching cycle            Referred to in LPO I (examination regulations for teaching-degree programmes)         § 22 II Nr. 1 h)         § 22 II Nr. 2 f)         § 22 II Nr. 3 f)         Module appears in         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (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 Mittelschule Physics (2015)         First state examination for the teaching degree Mittelschule Physics (2015)         First state examination for the teaching degree Mittelschule Didac				-			
Workload         60 h         Teaching cycle            Referred to in LPO I (examination regulations for teaching-degree programmes)         § 22 II Nr. 1 h)         § 22 II Nr. 2 f)         § 22 II 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 Gymnasium 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 Mittelschule 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)         LA Mittelschulen Didactics in Physics (Middle         JMU Würzburg • generated 19-Apr-2025 • exam. reg. data re-       page 20 / 39	Additio	onal info	ormation				
60 h         Teaching cycle            Referred to in LPO I (examination regulations for teaching-degree programmes)         § 22 II Nr. 1 h)       § 22 II Nr. 2 f)         § 22 II 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 Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule Physics (2015)         First state examination for the teaching degree Grundschule 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 Mittelschule Didactics in Physics (Middle School) (2015)         LA Mittelschulen Didactics in Physics (Middle         JMU Würzburg • generated 19-Apr-2025 • exam. reg. data re-       page 2	This m	odule is	designed for students	studying at least one	subject in the natura	l sciences.	
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			actics in Physics (Middle				page 20 / 39

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 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 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)

Module	Module title Abbreviation							
Low Co	st - Hig	h Impact. Low-budget E	experiments for Science	e Courses (Phy-	11-MIND-Ph1-152-m	01		
sics)			•					
Module	coord	inator		Module offered by				
holder	of the C	hair of Physics and its I	Didactics	Faculty of Physics a	nd Astronomy			
ECTS Method of grading Only after succ. compl. of module(s)								
2	(not) successfully completed							
Duration Module level Other prerequisites								
Conten	1 semester   undergraduate							
		1 1: 1: C :			· · · · · ·			
		nd realisation of experim and secondary level I.	iental stations with or	ainary and inexpens	ive consumables for	classes of		
		ning outcomes						
		levelop simple scientifi	- ovnovimonting statio	no to use for the tree	acition from primon.	ta cacanda		
ry level	l for sn	nall groups from different ant to the curriculum in	nt types of schools. In	doing so, they learn	,			
Course	<b>S</b> (type, n	umber of weekly contact hours,	language — if other than Ger	man)				
S (2)	.,,,,	, , ,						
	l of acc	essment (type, scope, langu		warmination offered if no	t ovoru comostor informati	on on whothor		
		le for bonus)	age — II other than German, e	szammation önered — if no	it every semester, monnati	on on whether		
		nination (approx. 45 mi						
		ation of one candidate		-				
		ation in groups (groups (approx. 8 pages)	of 2, approx. 20 minu	tes) or				
Allocati			_					
	•							
Additio	nal info	ormation						
		designed for students		subiect in the natura	l sciences.			
Worklo								
60 h								
Teachir		<b>h</b>	_					
Teacini	ig cycu	5						
 Deferme	d 4 a 1 m							
		LPO I (examination regulatio	ns for teaching-degree progra	mmes)				
§ 22    N § 22    N								
§ 22								
Module		rs in						
		mination for the teachin	g degree Grundschule	Physics (2015)				
		mination for the teachin		• -	s (Primary School) (2	015)		
		mination for the teachin			, (			
		mination for the teachin		-				
		mination for the teachin			nysics (Middle Schoo	ol) (2015)		
First sta	ate exa	mination for the teachin	g degree Mittelschule	Physics (2015)				
First sta	ate exa	mination for the teachin	g degree Mittelschule	Didactics in Physics	(Middle School) (20	o15)		
		mination for the teachin						
First sta	ate exa	mination for the teachin	g degree Grundschule	Didactics in Physics	s (Primary School) (2	018)		
First sta	ate exa	mination for the teachin	g degree Realschule P	hysics (2018)				
LA Mittelsch School) (20		actics in Physics (Middle		enerated 19-Apr-2025 • exam ttelschulen (Didaktikfach) Pr	-	page 22 / 39		



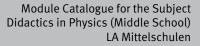
First state examination for the teaching degree Gymnasium Physics (2018) First state examination for the teaching degree Mittelschule Physics (2018) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2018) First state examination for the teaching degree 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 Realschule Physics (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (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 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	
Teachir	ng Scie	nce with Hands-on-Exhi	bits (Physics)		11-MIND-Ph2-152-m	01
Module	coord	inator		Modulo offered by	<u> </u>	
			Nida ati sa	Module offered by		
		Chair of Physics and its [		Faculty of Physics a	nd Astronomy	
ECTS		od of grading	Only after succ. compl. of module(s)			
2	(not) s	successfully completed				
Duratio	Ouration Module level Other prerequisites					
1 semester undergraduate						
Conten	ts					
Designi	ing and	l creating hands-on exhi	bits for STEM subjects	5.		
	-	ning outcomes				
tents in	and o	evaluate the advantages ut of school. They plan a vork with pupils of seco	nd implement an inte			
Courses	<b>S</b> (type, n	umber of weekly contact hours,	language — if other than Ger	man)		
S (2)						
		s <b>essment</b> (type, scope, langu le for bonus)	age — if other than German, e	examination offered — if no	t every semester, informati	on on whether
c) oral e	examin paper	ation of one candidate o ation in groups (groups (approx. 8 pages) <b>places</b>				
Additio	nal inf	ormation				
This mo	odule is	designed for students	studying at least one s	subject in the natura	l sciences.	
Worklo		0	, , ,	,		
60 h						
Teachir	ng cycl	٩				
	<u></u>	•				
Deferre	d to in			<b>`</b>		
		LPO I (examination regulation	ns for teaching-degree progra	mmes)		
§ 22    N § 22    N § 22    N	Nr. 2 f)					
		ors in				
	ate exa	mination for the teachin				
First sta	ate exa	mination for the teachin mination for the teachin mination for the teachin	g degree Realschule F	hysics (2015)	s (Phillary School) (2	015)
First sta	ate exa	mination for the teachin mination for the teachin	g degree Mittelschule	Physics (2015)		_
First sta First sta First sta	ate exa ate exa ate exa	mination for the teachin mination for the teachin mination for the teachin mination for the teachin mination for the teachin	g degree Grundschule g degree Grundschule g degree Realschule F	Physics (2018) Didactics in Physics Physics (2018)		-
LA Mittelscł School) (20		actics in Physics (Middle		enerated 19-Apr-2025 • exam ttelschulen (Didaktikfach) Pł	-	page 24 / 39

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 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 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		
Astroph	Astrophysics 11-AP-152-m01						
Module	coord	inator		Module offered by			
Managing Director of the Institute of Th and Astrophysics			Theoretical Physics	Faculty of Physics and Astronomy			
ECTS Method of grading Only after succ. compl. of module(s)							
6	nume	rical grade					
Duratio	n	Module level	Other prerequisites				
1 semes	ster	undergraduate					
Conten	ts						
telesco um, mo lactic ni	History of astronomy, coordinates and time measurement, the Solar System, exoplanets, astronomical scales, telescopes and detectors, stellar structure and atmospheres, stellar evolution and end stages, interstellar medi- um, molecular clouds, structure of the milky way, the local universe, the expanding universe, galaxies, active ga- lactic nuclei, large-scale structures, cosmology.						
		ning outcomes					
physica	l obse	are familiar with the mo rvations and evaluatior familiar with the physic	ns. They are able to use	e these methods to p	lan and analyse owr	n observati-	
Courses	<b>5</b> (type, n	umber of weekly contact hours	s, language — if other than Ge	rman)			
V (2) + I Module		t in: German or English					
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)						ion on whether	
<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes)</li> <li>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.</li> <li>Language of assessment: German and/or English</li> </ul>							
Allocati	ion of p	olaces					
Additio	nal inf	ormation					
Worklo	ad						
180 h							
Teachin	ıg cycl	е					
Referre	d to in	LPO I (examination regulation	ons for teaching-degree progra	ammes)			
§ 22    N § 22    N § 22    N	Nr. 2 f)						
Module		irs in					
		actics in Physics (Middle	IMI Würzburg • g	enerated 19-Apr-2025 • exam	reg data re-	page 26 / 39	
School) (20		actics in Engliss (Mildule		ittelschulen (Didaktikfach) Ph	-	puge 20 / 39	

#### UNIVERSITÄT WÜRZBURG



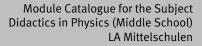
Bachelor's degree (1 major) Physics (2015) Bachelor's degree (1 major) Mathematical Physics (2015) Bachelor's degree (1 major) Aerospace Computer Science (2015) Bachelor's degree (1 major, 1 minor) Physics (Minor, 2015) First state examination for the teaching degree Grundschule Physics (2015) First 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)

Module title					Abbreviation		
Princip	Principles of Energy Technologies 11-ENT-152-m01						
Module	e coord	inator		Module offered by			
Managing Director of the Institute of Applie			Applied Physics	Faculty of Physics and Astronomy			
ECTS	Metho	od of grading	Only after succ. cor	npl. of module(s)			
6	nume	rical grade					
Duration Module level Other prerequisites							
1 seme	ster	graduate					
Conten	Contents						
as rene ting ma student verters. Electric Intende	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 Intended learning outcomes						
port an	d stora	know the principles of c ge. They understand th	e structures of corresp	onding installations			
V (3) +		number of weekly contact hours	, tanguage — it other than Ge	iiiidii)			
		t in: German or English					
		sessment (type, scope, langule for bonus)	uage — if other than German,	examination offered — if no	t every semester, informati	ion on whether	
<ul> <li>b) oral a</li> <li>c) oral a</li> <li>d) projection</li> <li>e) pressection</li> <li>lf a write</li> <li>stead ta</li> <li>of assection</li> <li>Langua</li> <li>Assessection</li> </ul>	<ul> <li>a) written examination (approx. 90 to 120 minutes) or</li> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes)</li> <li>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.</li> <li>Language of assessment: German and/or English</li> <li>Assessment offered: Once a year, winter semester</li> </ul>						
Allocat	ion of p	olaces					
Additio	nal inf	ormation					
 Worklo	ad		_				
180 h							
Teaching cycle							
Referre	d to in	LPOI (examination regulation	ns for teaching-degree progra	ammes)			
§ 22      § 22      § 22	Nr. 1 h) Nr. 2 f)						
Module	e appea	urs in					
LA Mittelscl School) (20		actics in Physics (Middle		enerated 19-Apr-2025 • exam ittelschulen (Didaktikfach) Pr	-	page 28 / 39	

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Bachelor's degree (1 major) Physics (2015) 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)

Module title Abbreviation											
Current Topics of Teaching Concepts in Physics					11-L-APD-152-m01						
Module	e coord	inator		Module offered by							
chairpe	erson o	f examination committe	Faculty of Physics a	nd Astronomy							
ECTS Method of grading Only after succ. cor				,							
	1	rical grade									
3 Duratio		Module level Other prerequisites									
1 seme		undergraduate									
Contents											
		in physics education.									
		ning outcomes				<b>.</b>					
		nave knowledge of a cu e according to subject-				ly the acqui-					
Course	<b>S</b> (type, r	umber of weekly contact hours	s, language — if other than Ger	rman)							
S (2) Module	e taugh	t in: German or English									
		essment (type, scope, lang	uppo if other there Comer	avamination offered if a	touoni comostor informat	ion on whether					
		le for bonus)	uage — II other than German, (	examination offered — if no	every semester, informat	ion on whether					
	-	mination (approx. 45 m	inutes) or								
		ation of one candidate		ites) or							
		ation in groups (groups		-							
		(approx. 8 pages) or									
		5 minutes) with discus	sion								
Allocat	tion of <sub>l</sub>	olaces									
Additio	onal inf	ormation									
Worklo	ad										
90 h											
Teachi	ng cycl	e									
Referre	ed to in	LPO I (examination regulation	ons for teaching-degree progra	immes)							
§ 22	Nr. 1 h)					Referred to in LPO I (examination regulations for teaching-degree programmes)         § 22 II Nr. 1 h)					
§ 22    Nr. 1   ) § 22    Nr. 2 f)											
-	§ 22    Nr. 3 f)										
-	Nr. 3 f)										
§ 22	Nr. 3 f) e appea	irs in									
§ 22    Module	e appea	n <b>rs in</b> mination for the teachi	ng degree Grundschule	Physics (2015)							
§ 22 II Module First sta	<b>e appea</b> ate exa			-	s (Primary School) (2	2015)					
§ 22 II Module First sta First sta First sta	<b>e appea</b> ate exa ate exa ate exa	mination for the teachi mination for the teachi mination for the teachi	ng degree Grundschule ng degree Realschule F	e Didactics in Physics Physics (2015)	s (Primary School) (2	2015)					
§ 22 II Module First sta First sta First sta First sta	e appea ate exa ate exa ate exa ate exa	mination for the teachi mination for the teachi mination for the teachi mination for the teachi	ng degree Grundschule ng degree Realschule F ng degree Gymnasium	e Didactics in Physics Physics (2015) Physics (2015)		-					
§ 22 II Module First sta First sta First sta First sta First sta	e appea ate exa ate exa ate exa ate exa ate exa	mination for the teachi mination for the teachi mination for the teachi mination for the teachi mination for the teachi	ng degree Grundschule ng degree Realschule F ng degree Gymnasium ng degree Sonderpäda	e Didactics in Physics Physics (2015) Physics (2015) gogik Didactics in Ph		-					
§ 22 II <b>Module</b> First sta First sta First sta First sta First sta First sta	e appea ate exa ate exa ate exa ate exa ate exa ate exa	mination for the teachi mination for the teachi	ng degree Grundschule ng degree Realschule F ng degree Gymnasium ng degree Sonderpäda ng degree Mittelschule	e Didactics in Physics Physics (2015) Physics (2015) gogik Didactics in Ph Physics (2015)	nysics (Middle Schoo	ol) (2015)					
§ 22 II <b>Module</b> First sta First sta First sta First sta First sta First sta First sta	e appea ate exa ate exa ate exa ate exa ate exa ate exa ate exa	mination for the teachi mination for the teachi	ng degree Grundschule ng degree Realschule F ng degree Gymnasium ng degree Sonderpäda ng degree Mittelschule ng degree Mittelschule	e Didactics in Physics Physics (2015) Physics (2015) gogik Didactics in Ph Physics (2015) Didactics in Physics	nysics (Middle Schoo	ol) (2015)					
§ 22 II <b>Module</b> First sta First sta First sta First sta First sta First sta First sta First sta First sta First sta	e appea ate exa ate exa ate exa ate exa ate exa ate exa ate exa ate exa	mination for the teachi mination for the teachi	ng degree Grundschule ng degree Realschule F ng degree Gymnasium ng degree Sonderpäda ng degree Mittelschule ng degree Mittelschule ng degree Grundschule	e Didactics in Physics Physics (2015) Physics (2015) gogik Didactics in Physics (2015) Physics (2015) Didactics in Physics Physics (2018)	nysics (Middle Schoo (Middle School) (20	ol) (2015) 015)					
§ 22 II <b>Modula</b> First sta First sta	e appea ate exa ate exa ate exa ate exa ate exa ate exa ate exa ate exa ate exa	mination for the teachi mination for the teachi	ng degree Grundschule ng degree Realschule F ng degree Gymnasium ng degree Sonderpäda ng degree Mittelschule ng degree Mittelschule ng degree Grundschule ng degree Grundschule	e Didactics in Physics Physics (2015) Physics (2015) gogik Didactics in Ph Physics (2015) Didactics in Physics Physics (2018) Didactics in Physics	nysics (Middle Schoo (Middle School) (20	ol) (2015) 015)					
§ 22 II <b>Module</b> First sta First sta	e appea ate exa ate exa ate exa ate exa ate exa ate exa ate exa ate exa ate exa	mination for the teachi mination for the teachi	ng degree Grundschule ng degree Realschule F ng degree Gymnasium ng degree Sonderpäda ng degree Mittelschule ng degree Mittelschule ng degree Grundschule ng degree Grundschule	e Didactics in Physics Physics (2015) Physics (2015) gogik Didactics in Ph Physics (2015) Didactics in Physics Physics (2018) Didactics in Physics	nysics (Middle Schoo (Middle School) (20	ol) (2015) 015)					



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 Realschule Physics (2020) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (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 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						
Scienti	Scientific Work in Teaching Concepts 11-L-WPD-152-mo1					
Module	e coord	inator		Module offered by		
Managing Director of the Institute of App		pplied Physics	Faculty of Physics a	nd Astronomy		
ECTS Method of grading		Only after succ. con				
3 (not) successfully completed						
Duration Module level Other prerequisites						
1 seme	1 semester undergraduate					
Conten	Its		_			
Current	t topics	in scientific work in phy	vsics education			
Intend	ed lear	ning outcomes				
		have knowledge of a cur ucation on the basis of s		physics education ar	nd are able to proces	s questions
		number of weekly contact hours,		rman)		
	<b>5</b> (type, 1	iumber of weekly contact hours,	Tanguage — If other than Ger	illidi)		
S (2)	o taugh	t in: German or English				
		<b>sessment</b> (type, scope, langu Ile for bonus)	age — if other than German,	examination offered — if no	t every semester, informati	on on whether
		minutes)				
Allocat	ion of p	olaces				
			_			
Additio	onal inf	ormation				
Worklo	ad					
90 h						
-	ng cycl	Δ				
reaction	ing cyce					
			-			
	-	LPO I (examination regulation	ns for teaching-degree progra	ummes)		
-	Nr. 1 h)					
§ 22    § 22						
_						
	e appea		a da ana comunicata da da da			
		mination for the teachin mination for the teachin			(Driman School) (a	04 <i>5</i> )
		mination for the teachin			s (Filling School) (2	015)
		mination for the teachin				
		mination for the teachin			nysics (Middle Schoo	ol) (2015)
		mination for the teachin	,			· · · (= <b>)</b> /
		mination for the teachin		-	(Middle School) (20	015)
		mination for the teachin		•		
First st	ate exa	mination for the teachin	g degree Grundschule	e Didactics in Physics	s (Primary School) (2	018)
		mination for the teachin		•		
		mination for the teachin		-		
		mination for the teachin		-		
		mination for the teachin				
First st	ate exa	mination for the teachin	g degree Mittelschule	Didactics in Physics	6 (Middle School) (20	018)
LA Mittelsc School) (20		actics in Physics (Middle		enerated 19-Apr-2025 • exam ittelschulen (Didaktikfach) Ph	_	page 32 / 39

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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 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-m01						
Module	e coord	inator		Module offered by		
chairperson of examination committee Faculty of Physics and Astronomy						
ECTS Method of grading Only after succ. compl. of module(s)						
6	numerical grade					
Duratio						
1 seme	ster	undergraduate		ination committee re	equired.	
	Contents					
		in physics.				
		ning outcomes				
		have knowledge of a cu		Dhusics and underst	and the measuring a	nd/or colou
lation r	nethod	is necessary to acquire lication areas.				
Course	<b>S</b> (type, r	number of weekly contact hour	s, language — if other than Gei	man)		
V (3) +	R (1)					
		<b>sessment</b> (type, scope, lang le for bonus)	uage — if other than German,	examination offered — if no	t every semester, informati	on on whether
<ul> <li>b) oral examination of one candidate each (approx. 30 minutes) or</li> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes)</li> <li>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.</li> <li>Language of assessment: German and/or English</li> </ul> Allocation of places Additional information						
Worklo	ad					
180 h						
Teachi	ng cycl	e				
	<u> </u>					
Poforro	d to in	IPOL (avamination regulati	and for toaching degree progra	mmoc)		
Referred to in LPO I (examination regulations for teaching-degree programmes) § 22 II Nr. 1 h) § 22 II Nr. 2 f) § 22 II Nr. 3 f)						
Module	e appea	ars in				
First sta First sta First sta First sta First sta	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)					
LA Mittelsc School) (20		actics in Physics (Middle		enerated 19-Apr-2025 • exam ittelschulen (Didaktikfach) Ph	-	page 34 / 39



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 Realschule Physics (2018) First state examination for the teaching degree Gymnasium 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 Mittelschule Physics (2018) First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2018) First state examination for the teaching degree Grundschule 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 Grundschule 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 Realschule Physics (2020) First state examination for the teaching degree Mittelschule Physics (2020) First state examination for the teaching degree Mittelschule Physics (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		
Selected Topics of Physics 11-LCS6-152-m01							
Module	coord	inator		Module offered by			
chairperson of examination committee		e	Faculty of Physics a	nd Astronomy			
ECTS Method of grading Only after s			Only after succ. con	npl. of module(s)			
4	nume	rical grade					
Duration Module level Other prerequisites							
1 seme	1 semester undergraduate Approval from examination committee required.						
Conten	Contents						
Current study a	•	in experimental physic	s. Credited academic a	achievements, e.g. ir	η case of change of ι	iniversity or	
Intende	ed lear	ning outcomes					
sics of tunders	the Bao tand th	have advanced compet chelor's programme. Th e measuring and/or ev bject-specific contexts	ey have knowledge of aluation methods nece	a current subdiscipli essary to acquire this	ne of Experimental F	Physics and	
Course	<b>S</b> (type, r	number of weekly contact hours	s, language — if other than Gei	rman)			
V (2) +	R (1)						
		<b>sessment</b> (type, scope, lang le for bonus)	uage — if other than German,	examination offered — if no	t every semester, informat	ion on whether	
<ul> <li>c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or</li> <li>d) project report (approx. 8 to 10 pages) or</li> <li>e) presentation/talk (approx. 30 minutes)</li> <li>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.</li> <li>Language of assessment: German and/or English</li> </ul>							
Allocat	ion of p	olaces					
Additio	nal inf	ormation					
Worklo	ad						
120 h							
Teachir	ıg cycl	e					
		LPO I (examination regulation	ons for teaching-degree progra	mmes)			
§ 22    Nr. 1 h) § 22    Nr. 2 f) § 22    Nr. 3 f)							
	-	urs in					
First sta First sta First sta First sta	Module appears inFirst 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)						
LA Mittelscl School) (20		actics in Physics (Middle		enerated 19-Apr-2025 • exam ittelschulen (Didaktikfach) Pr	•	page 36 / 39	



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) 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)





## 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 title Abb					Abbreviation
Thesis in Physics Secondary General School11-L-HA-MS-DF-152-m01					11-L-HA-MS-DF-152-m01
Module coordinator Module offered				Module offered by	
chairperson of examination committee				Faculty of Physics a	and Astronomy
ECTS	TS Method of grading Only after succ. co			npl. of module(s)	
10	nume	rical grade			
Duratio	Duration Module level Other prerequisites				
1-2 semester undergraduate					
Conten	Its				
Indepe	ndent p	processing of a topic of P	hysics and/or Didact	ics of Physics, chose	en in consultation with a lecturer.
Intend	ed leari	ning outcomes			
and me due co	ethods nsidera	acquired in the teaching tion of didactic aspects.	degree programme.	They are able to pres	while applying the knowledge sent their results in written form in
Course	<b>S</b> (type, n	umber of weekly contact hours, l	anguage — if other than Gei	rman)	
No cou	rses as	signed to module			
		s <b>essment</b> (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether
prox. 4 Langua	o page: age of a	s)	-	-	eaching-degree programmes) (ap- on 4 LPO I (examination regulati-
Allocat	ion of p	olaces			
Additio	onal inf	ormation			
Worklo	ad				
300 h					
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulations	s for teaching-degree progra	immes)	
§ 29					
-	e appea	irs in			
<b>Module appears in</b> First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2015) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2018) First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020)					