

Subdivided Module Catalogue for the Subject

Technology of Functional Materials

as a Bachelor's with 1 major with the degree "Bachelor of Science" (180 ECTS credits)

Examination regulations version: 2010 Responsible: Faculty of Chemistry and Pharmacy

JMU Würzburg • generated 26-Aug-2024 • exam. reg. data record 82|177|-|-|H|2010

Course of Studies - Contents and Objectives

The Bachelor of Science program (Technology of) Functional Materials at the faculty of Chemistry and Pharmacy prepares students for research and development occupations of both a scientific and a practical nature in the field of materials and natural sciences. Students learn the basic methodical principles of scientific work. The study program's interdisciplinary focus enables students to obtain extensive fundamental knowledge of the fields of chemistry, physics and mathematics. In addition, they acquire expert knowledge of the following engineering and natural sciences subjects: electronics, engineering mechanics, materials science, molecular materials, and compound materials. Close cooperation with the Fraunhofer Institute for Silicate Research ISC, Würzburg-Schweinfurt University of Applied Sciences, the Bavarian Center for Applied Energy Research and the SKZ plastics center guarantees an interdisciplinary education. Thanks to this, students are introduced to multifaceted topics relating to modern functional materials. By means of their bachelor's thesis, students show that they have the ability to act largely independently to solve a specific, time-limited experimental or theoretical assignment of engineering or natural sciences tasks. The results of the bachelor's thesis are presented and defended in a colloquium. The Bachelor of Science degree qualifies students for an occupation of both a scientific and a practical nature in the field of materials and natural sciences in general and of functional materials in particular. However, this generally requires a further qualification to be acquired either through practical experience in industry or through a consecutive master's degree.

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:

ASPO2007

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

29-Apr-2010 (2010-22)

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

Abbreviation	Module title	ECTS credits	Method of grading	page
Compulsory Courses (143	3 ECTS credits)			
08-IAC-062-m01	Experimental Chemistry, General and analytical laboratory course for engineering students	10	NUM	14
99-TM-062-m01	Fundamentals of Engineering Mechanics	5	NUM	57
11-MPI3-062-m01	Mathematics 3 for students of Physics and Engineering	8	NUM	47
11-ENNF1-062-m01	Introduction to Physics Part 1 for students of Physics Related Minor Subjects	7	NUM	45
11-ENNF2-062-m01	Introduction to Physics Part 2 for students of Physics Related Minor Subjects	7	NUM	46
11-PNNF-062-m01	Physics Laboratory Course for students of Physics Related Mi- nor Subjects	3	B/NB	50
08-BKOLL-062-m01	Bachelor Thesis' Colloquium	3	NUM	9
10-M-TFU1-091-m01	Mathematics 1 for students of Technology of Functional Materi- als	10	NUM	43
08-IPC-091-m01	Physical Chemistry for engineering students (lecture and labo- ratory course)	18	NUM	18
99-EL1-091-m01	Basics of Electronics 1	5	NUM	54
99-EL2-091-m01	Basics of Electronics 2	5	NUM	55
99-CA-091-m01	Computer-based Construction and Assembly (CAD/CAM)	6	NUM	53
99-IP-091-m01	Laboratory Course on Engineering (mechanical and electrical engineering)	6	B/NB	56
11-PPT-091-m01	Laboratory course on Physical Technology of Material Synthe- sis	5	B/NB	51
08-MAM-091-m01	Modern Analytical Methods (lecture and laboratory course)	5	NUM	20
10-M-TFU2-101-m01	Mathematics 2 for students of Technology of Functional Mate- rials	8	NUM	44
08-IOC-101-m01	Organic Chemistry for engineering students (lecture and labo- ratory course)	12	NUM	16
08-CT-101-m01	Molecular Materials (lecture and laboratory course)	10	NUM	11
11-TMS-101-m01	Introduction to the Physics of Functional Materials	5	NUM	52
03-TV-101-m01	Technology of Composite Materials (lecture and laboratory course)	5	NUM	7
Compulsory Electives (5	ECTS credits)			
10-I-EPIN-062-m01	Introduction to computer science of all faculties	5	NUM	30
10-I-DB-072-m01	Data bases	5	NUM	29
11-N1-072-m01	Basics of NanostructureTechnology	6	NUM	49
10-M-ODE-082-m01	Ordinary Differential Equations	5	NUM	39
08-PKC-092-m01	Programming course for Chemistry Majors	5	B/NB	22
03-TF-FBM-101-m01	Functional Biomaterials for students of Technology of Functio- nal Materials. Lectures, laboratory course		NUM	6
08-NT-101-m01	Chemically and biologically inspired Nanotechnology for Mate- rials Synthesis		NUM	21
08-BC-TF-082-m01	Biochemistry for Engineering Majors	3	NUM	8
achelor's with 1 major Technology Jaterials (2010)	of Functional JMU Würzburg • generated 26-Aug-2024 • exam. reg. d Bachelor (180 ECTS) Technologie der Funktionswerkstr		pag	e 4 / 57

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10-M-FAN-072-m01	Introduction to Functional Analysis	5	NUM	33			
10-M-NM1-082-m01	Numerical Mathematics 1	8	NUM	35			
10-M-NM2-082-m01	Numerical Mathematics 2	5	NUM	37			
10-M-PRG-082-m01	Programming course for students of Mathematics and other subjects	3	B/NB	41			
10-M-COM-082-m01	Computeroriented Mathematics	3	B/NB	31			
09-AG-102-m01	Analysis of Geomaterials	5	NUM	23			
09-WG-102-m01	Economic Geology	5	NUM	28			
09-SE-102-m01	Stratigraphy and Earth History	5	NUM	27			
09-PT-102-m01	Petrology	5	NUM	26			
09-GW-102-m01	Geochemistry and Geohydrology	5	NUM	25			
09-GM-102-m01	Rock Identification under the Microscope	5	NUM	24			
Thesis (12 ECTS credits)							
08-BT-062-m01	Bachelor's Thesis	12	NUM	10			
Subject-specific Key Skills	Subject-specific Key Skills (10 ECTS credits)						
08-FS1-101-m01	Materials Science 1 (Basic Introduction)		NUM	12			
08-FS2-101-m01	Materials Science 2 (The Major Material Groups)	5	NUM	13			

Modul	e title				Abbreviation
Functional Biomaterials for students of Technology of Functional Materials. 03-TF-FBM-101-m01					
Lectur	es, labo	oratory course			
Modul	e coord	inator		Module offered by	
holder	ofthe	Chair of Functional Mate	rials in Medicine and	Faculty of Medicin	e
Dentis	1 ´		·		
ECTS	1	od of grading	Only after succ. con	npl. of module(s)	
5		rical grade			
Durati		Module level	Other prerequisites		
1 seme	ester	undergraduate			
Conter	nts		_		
		principles and specific k ication and characterisa		in natural sciences	s in the field of biomaterials with
Intend	ed lear	ning outcomes			
Studer	nts have	e developed an advance	d knowledge in the fie	eld of biomaterials f	for use in implants.
Course	es (type	, number of weekly cont	act hours, language –	- if other than Germ	an)
V + P (no infor	mation on SWS (weekly	contact hours) and co	ourse language avai	ilable)
		sessment (type, scope, l ion on whether module o			ation offered — if not every seme-
		oort / fieldwork report / i ical course (approx. 10 p			actical course / project report / re- 60 minutes)
Alloca	tion of _l	places			
Additio	onal inf	ormation			
Worklo	bad				
			_		
Teachi	ng cycl	e			
	- /				
Referre	ed to in	LPOI (examination reg	ulations for teaching-	degree programmes	5)
		(3		,
Modul	e appea	ars in			
		ree (1 major) Technology	of Functional Materia	als (2010)	

Module title				Abbreviation
Technology o	f Composite Materials (I	ecture and laboratory	course)	03-TV-101-m01
Module coord	linator		Module offered by	<u> </u>
holder of the	Chair of Functional Mate	rials in Medicine and	Faculty of Medicine	
Dentistry				
	od of grading rical grade	Only after succ. com	ipl. of module(s)	
Duration	Module level	Other prerequisites		
1 semester	undergraduate			
Contents	•	_		
Theoretical ar sandwich ma	•	l knowledge of the fab	rication and evaluat	tion of composite respectively
Intended lear	ning outcomes			
	e developed a knowledg ich materials.	e of the theoretical an	d practical foundati	ons of the fabrication and evalua-
Courses (type	, number of weekly cont	act hours, language —	if other than Germa	an)
component. • 03-TV-1	-091: V (no information o -101: P (no information o	on SWS (weekly contac	ct hours) and course	
	sessment (type, scope, l ion on whether module			ation offered — if not every seme-
	tated otherwise, success			e components as specified be- successful completion of all indi-
 3 ECTS, written Assessment i 2 ECTS, 	n module component og Method of grading: num examination (60 minute n module component og Method of grading: (not amination (approx. 15 mi	nerical grade s) - TV-2-101: Technology) successfully complet	of Composite Mate	
Allocation of	places			
Additional inf	ormation			
		_		
Workload				
Teaching cyc	e			
Referred to in	LPOI (examination reg		legree programmes	
Module appe	ars in			

Module	e title				Abbreviation	
Bioche	Biochemistry for Engineering Majors 08-BC-TF-082-m01					
Module	e coord	inator	Module offered by			
holder	of the (Chair of Biochemistry		Chair of Biochemist	try	
ECTS	r	od of grading	Only after succ. con	npl. of module(s)	,	
3	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
Compri mistry.	-	ctures and exercises, this	s module acquaints s	tudents with the fun	damental principles of bioche-	
Intende	ed lear	ning outcomes				
		e become familiar with th cal processes in cellular s		ples of biochemistry	r. They are able to describe the	
Course	s (type	, number of weekly conta	ct hours, language —	- if other than Germa	n)	
V + Ü (r	no infoi	rmation on SWS (weekly	contact hours) and co	ourse language avail	able)	
		sessment (type, scope, la ion on whether module ca			tion offered — if not every seme-	
written	exami	nation (60 minutes)				
Allocat	ion of _l	olaces				
Additio	onal inf	ormation				
	_					
Worklo	ad					
Teachi	ng cycl	e				
Referre	ed to in	LPOI (examination regu	lations for teaching-o	degree programmes)		
Module	e appea	ars in				
	-	ree (1 major) Technology ree (1 major) Technology		-		

Modul	e title				Abbreviation	
Bachel	Bachelor Thesis' Colloquium 08-BKOLL-062-mo1					
Modul	e coord	inator		Module offered by		
Dean c	of Studi	es Funktionswerkstoffe (I	Functional Materials)		echnology of Material Synthesis	
ECTS		od of grading	Only after succ. com			
3	nume	rical grade		-		
Duratio	on	Module level	Other prerequisites			
1 seme	ester	undergraduate				
Conter	nts					
Bachel	lor's the	esis defence.				
Intend	ed lear	ning outcomes				
Studer	nts are a	able to orally defend thei	r Bachelor's thesis.			
Course	es (type	, number of weekly conta	ct hours, language –	- if other than Germa	n)	
K (no i	nformat	tion on SWS (weekly cont	act hours) and cours	e language available	2)	
ster, in	Iformat	sessment (type, scope, la ion on whether module ca um (60 minutes)			tion offered — if not every seme-	
	tion of					
Allocu						
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	ed to in	LPOI (examination regu	lations for teaching-o	degree programmes)		
Modul	e appea	ars in				
Bachel	lor' deg	ree (1 major) Technology	of Functional Materia	als (2009)		
Bachel	lor' deg	ree (1 major) Technology	of Functional Materia	als (2010)		
Bachel	lor' deg	ree (1 major) Technology	of Functional Materia	als (2006)		

Module	e title				Abbreviation
Bachel	or's Th	esis			08-BT-062-m01
Module	e coord	inator		Module offered by	<u> </u>
			unctional Materials)		echnology of Material Synthesis
ECTS	1	od of grading	Only after succ. com		
12	1	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate	Registration for asse supervisor.	essment on a contin	uous basis as agreed upon with
Conten	Its				
		ives students the opport scientific methods they h			problem within a given time frame
Intende	ed lear	ning outcomes			
		able to conduct research to present the results of t			the principles of good scientific
Course	s (type	, number of weekly conta	ct hours, language —	if other than Germa	in)
no cou	rses as	signed			
		sessment (type, scope, la ion on whether module ca			tion offered — if not every seme-
written Langua		ssessment: German or Er	nglish		
Allocat	ion of _l	olaces			
Additio	onal inf	ormation			
Worklo	ad				
Teachi	ng cycl	e			
Referre	ed to in	LPOI (examination regu	lations for teaching-o	legree programmes)	
Module	e appea	ars in			
Bachel	or' deg	ree (1 major) Technology ree (1 major) Technology ree (1 major) Technology	of Functional Materia	lls (2010)	

Module title	Abbreviation						
Molecular Materials (lecture and labor	atory course)		08-CT-101-m01				
Module coordinator		Module offered by					
Dean of Studies Funktionswerkstoffe (I	Functional Materials)	Chair of Chemical T	echnology of Material Synthesis				
ECTS Method of grading	Only after succ. con	pl. of module(s)					
10 numerical grade							
Duration Module level	Other prerequisites						
1 semester undergraduate							
Contents							
This module discusses the theoretical	and practical princip	es of molecular and	soft materials.				
Intended learning outcomes							
Students have developed a knowledge that knowledge to research problems.	of the principles of r	nolecular and soft m	aterials and are able to apply				
Courses (type, number of weekly conta	ict hours, language —	if other than Germa	n)				
This module comprises 2 module comp component. • 08-CT-1-101: V + Ü (no informatio							
• 08-CT-2-101: P (no information of		-					
Method of assessment (type, scope, la ster, information on whether module c			tion offered — if not every seme-				
Assessment in this module comprises low. Unless stated otherwise, success vidual assessments.							
 Assessment in module component o8-CT-1-101: Molecular Materials (Lecture) Molecular Materials (Lecture) 5 ECTS, Method of grading: numerical grade presentation (approx. 30 minutes) and a) 1 to 3 written examinations (1 written examination: 90 minutes; 2 written examinations: 60 or 90 minutes each; 3 written examinations: 60 minutes each) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes) Assessment in module component o8-CT-2-101: Principles of Inorganic Chemistry for Mathematics Majors 5 ECTS, Method of grading: (not) successfully completed Vortestate (pre-experiment exams, approx. 15 minutes each), logs (approx. 5 pages each), Nachtestate (post-experiment exams, approx. 15 minutes) 							
Allocation of places							
Additional information							
Workload	-						
Teaching cycle							
Deferred to in LDO L (examination regulations for teaching degree programmer)							
	Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module appears in							
	Bachelor' degree (1 major) Technology of Functional Materials (2010)						
		ıls (2010)					

Module					Abbreviation	
Materials Science 1 (Basic Introduction) 08-FS1-101-m01					08-FS1-101-m01	
Module coordinator Module offered by						
			Functional Materials)	,	echnology of Material Synthesis	
ECTS		od of grading	Only after succ. com		echnology of Material Synthesis	
5		rical grade				
Duratio	L	Module level	Other prerequisites			
1 seme		undergraduate				
Conten	ts		L			
		iscusses the fundamenta rties of materials.	al relations between o	chemical bonding, th	ne structure, the microstructure	
Intende	ed learı	ning outcomes				
					al bonding, the structure, the to apply them to research pro-	
Course	s (type	, number of weekly conta	ct hours, language —	if other than Germa	in)	
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)	
		s essment (type, scope, la on on whether module ca			tion offered — if not every seme-	
written	examiı	nation (90 minutes)				
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	d to in	LPOI (examination regu	lations for teaching-c	legree programmes)		
Module	e appea	ars in				
Bachel	or' deg	ree (1 major) Technology	of Functional Materia	ls (2010)		
	Bachelor' degree (1 major) Nanostructure Technology (2010)					
Master	's degr	ee (1 major) Chemistry (2	010)			

Module	e title				Abbreviation
Materials Science 2 (The Major Material Groups) 08-FS2-101-m01					08-FS2-101-m01
Module coordinator Module offered by					
Dean o	f Studi	es Funktionswerkstoffe (F	- Functional Materials)	Chair of Chemical T	echnology of Material Synthesis
ECTS	Metho	od of grading	Only after succ. con	pl. of module(s)	
5	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	Its				
This m	odule d	leals with the fabrication	and properties of the	e main material grou	ps.
Intend	ed lear	ning outcomes			
		e developed a knowledge knowledge to research pr		d properties of the n	nain material groups and are able
Course	s (type	, number of weekly conta	ct hours, language —	if other than Germa	n)
V + Ü (I	no infoi	rmation on SWS (weekly o	contact hours) and co	ourse language avail	able)
		sessment (type, scope, la ion on whether module ca			tion offered — if not every seme-
written	exami	nation (approx. 90 minut	es)		
Allocat	ion of j	olaces			
Additio	onal inf	ormation			
Worklo	ad				
Teachi	ng cycl	е			
Referre	ed to in	LPOI (examination regu	lations for teaching-o	legree programmes)	
Module	e appea	ars in			
	-	ree (1 major) Technology			
	-	ree (1 major) Nanostructu ee (1 major) Chemistry (2)	

Module title					Abbreviation		
-		Chemistry, General and a	08-IAC-062-m01				
ring stu							
Module				Module offered by			
lecture: Chemis		ture "Experimentalchemie	e" (Experimental	Institute of Inorgani	ic Chemistry		
ECTS		od of grading	Only after succ. com	npl. of module(s)			
10		rical grade					
Duratio		Module level	Other prerequisites				
1 seme	ster	undergraduate					
Conten	ts						
les, me module exercise autono ques, th opportu Intende Studen	This module provides students with an overview of the fundamental principles of chemistry. It focuses on partic- les, metals, acid-base reactions, the periodic table, chemical equilibrium and complexometry. In addition, the module introduces fundamental models of chemistry and principles of inorganic chemistry. It includes practical exercises based on the lecture on experimental chemistry and its extension. After a safety briefing, the students autonomously conduct experiments in the laboratory. The course focuses on laboratory safety, simple lab techni- ques, the synthesis of simple substances and analyses of unknown substances. In addition, students have the opportunity to advance their laboratory knowledge. Intended learning outcomes Students are able to explain the principles of the periodic table and to extract information from it. They are ab-						
mical fo are able are able loped th approp	ormulas e to des e to ide he abil riate m	s to describe chemical re scribe the main quantitat entify fundamental proble ity to perform the necess anner, both in written an	actions and to interp ive and qualitative and ems in chemistry and ary stoichiometric ca d oral form.	ret them by identifyin nalytical methods ar perform experiment lculations and descr	bility to use the language of che- ng the type of reaction. Students nd their application areas. They s to solve them. They have deve- ibe the chemical processes in an		
Course	s (type,	, number of weekly conta	ct hours, language —	if other than Germa	n)		
compoi • o	nent. 8-IAC-1	omprises 2 module comp 1-062: V (no information o 2-062: P (no information o	on SWS (weekly conta	act hours) and cours			
		s essment (type, scope, la on on whether module ca			tion offered — if not every seme-		
	less st	ated otherwise, successf			e components as specified be- successful completion of all indi-		
• 5 • w Assess • 5 • V	 Assessment in module component o8-IAC-1-o62: Experimental Chemistry 5 ECTS, Method of grading: numerical grade written examination (approx. 90 minutes) Assessment in module component o8-IAC-2-o62: General and analytical Chemistry Lab for engineering students 5 ECTS, Method of grading: (not) successfully completed Vortestate (pre-experiment exams, approx. 15 minutes each), assessment of practical performance, Nachtestate (post-experiment exams, approx. 15 minutes each) 						
Allocat	ion of p	olaces					
Additio	nal info	ormation					
Worklo	ad						

Teaching cycle

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor' degree (1 major) Technology of Functional Materials (2009) Bachelor' degree (1 major) Technology of Functional Materials (2010) Bachelor' degree (1 major) Technology of Functional Materials (2006)

Module				-	Abbreviation
Organic Chemistry for engineering students (lecture and la				boratory course)	08-IOC-101-m01
Module coordinator				Module offered by	<u> </u>
lab course supervisor "Organisch-chemisches Praktikum				Institute of Organic	: Chemistry
für Stuc	diereno	le der Ingenieurwissenso			
ECTS		od of grading	Only after succ. con	npl. of module(s)	
12		rical grade			
Duratio		Module level	Other prerequisites		
1 seme:	ster	undergraduate	By way of exception assessments.	ı, additional prerequ	isites are listed in the section of
Conten	ts				
		provides students with ar e fundamental technique			organic chemistry. In addition, i
		ning outcomes			
		e become familiar with th problems in chemistry ar			nistry. They are able to identify
Course	s (type	, number of weekly conta	act hours, language –	- if other than Germa	an)
ster, in Assess	format ment i	ion on whether module c n this module comprises	an be chosen to earn the assessments in t	a bonus) he individual modul	ation offered — if not every seme e components as specified be- successful completion of all ind
ring Ors 5 6 a 2 Assess • 2 • V te Assess • 5 • a 9 (a	ment i ganic C ECTS,) 1 to 3 es each o minu ment i ECTS, ortesta estate ment i ECTS,) 1 to 3 o minu approx	n module component of hemistry - Laboratory co Method of grading: num- written examinations (1 v a; 3 written examinations utes) or c) oral examination module component of Method of grading: (not) ate (pre-experiment exams, n module component of Method of grading: num- written examinations (1 utes each; 3 written exam . 20 minutes) or c) oral e	urse for students of e erical grade written examination: 60 minutes each) or on in groups (groups - IOC-3-101: Tutorial o successfully comple s, approx. 15 minutes approx. 15 minutes erical grade written examination: inations: 60 minutes xamination in groups	engineering 90 minutes; 2 writter b) oral examination of 2, approx. 30 min n the Organic Chemi ted each), assessment of each) Chemistry 1 Organic approx. 90 minutes each) or b) oral exam 6 (groups of 2, approx	stry for students of engineering of practical performance, Nach- Chemistry 1 ; 2 written examinations: 60 or nination of one candidate each
re C	espect	ive classes as specified a ted) as well as regular at	t the beginning of the	course (usually 70%	of exercises to be successfully m of 2 incidents of unexcused
Allocat	ion of	places			
Additio	nal inf	ormation			

Bachelor's with 1 major Technology of Functional Materials (2010)

Workload

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

§ 62 (1) 2. Chemie "Organische und Bioorganische Chemie"

Module appears in

Bachelor' degree (1 major) Technology of Functional Materials (2010)

Module title					Abbreviation		
Physical Chemistry for engineering students (lecture and la				aboratory course)	08-IPC-091-m01		
Module coordinator				Module offered by			
			hemie für Studieren-	· · ·	l and Theoretical Chemistry		
		eurwissenschaften, Prakt			· · · · · · · · · · · · · · · · · · ·		
ECTS		od of grading	Only after succ. con	npl. of module(s)			
18		rical grade					
Duratio		Module level	Other prerequisites				
1 seme		undergraduate					
Conten				vetical avianiales of	n hundianal ala amaintean du andalitican dit		
		e fundamental technique			physical chemistry. In addition, it		
		ning outcomes		., a taz coaloci			
			e fundamental princi	ples of physical cher	mistry. They are able to identify		
		problems in chemistry an					
Course	s (type	, number of weekly conta	act hours, language –	- if other than Germa	n)		
		omprises 3 module comp	oonents. Information	on courses will be li	sted separately for each module		
compo		a (a) V. Ü (na informat	ion on CMC (wooldware				
					ourse language available) ourse language available)		
		3-091: P (no information of					
		sessment (type, scope, la ion on whether module c			tion offered — if not every seme-		
	iless st	ated otherwise, successf			e components as specified be- successful completion of all indi-		
troscop gineerin 8 • w Assess enginee • 5 • w Assess • 5	 Assessment in module component o8-IPC-2-o62: Physical Chemistry 2 (basics of quantum mechanics and spectroscopy) for engineering students Physical Chemistry 2 (basics of quantum mechanics and spectroscopy) for engineering students 8 ECTS, Method of grading: numerical grade written examination (approx. 90 minutes) Assessment in module component o8-IPC-1-o91: Physical Chemistry 1 (thermodynamics, electrochemistry) for engineering students 0 of grading: numerical grade written examination (approx. 90 minutes) Assessment in module component o8-IPC-3-o91: Physical Chemistry for engineering students, laboratory course 5 ECTS, Method of grading: (not) successfully completed Vortestate (pre-experiment exams, approx. 15 minutes each), assessment of practical performance, Nach-						
Allocat	ion of p	olaces					
			-				
Additio	nal inf	ormation					
Worklo	ad		-				
 Teachiı	ng cycl	e					

Referred to in LPO I (examination regulations for teaching-degree programmes)

Module appears in

Bachelor' degree (1 major) Technology of Functional Materials (2009) Bachelor' degree (1 major) Technology of Functional Materials (2010)

Module	e title				Abbreviation	
Moder	n Analy	tical Methods (lecture ar	nd laboratory course)		08-MAM-091-m01	
Module coordinator				Module offered by	<u> </u>	
Dean o	fStudie	es Funktionswerkstoffe (F	unctional Materials)	•	echnology of Material Synthesis	
ECTS		od of grading	Only after succ. com			
5	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
		ciples, gravimetric methon, fluorescence, NMR etc.			opic methods (UV-VIS, IR, Ra-	
Intende	ed learı	ning outcomes				
Studen	its have	e developed modern anal	ytics expertise.			
Course	s (type	, number of weekly conta	ct hours, language —	if other than Germa	n)	
• c Methor ster, in Assess	8-MAN 8-MAN d of ass formati ment ir nless st	on on whether module ca n this module comprises ated otherwise, successf	n on SWS (weekly con nguage — if other tha an be chosen to earn the assessments in th	tact hours) and cou In German, examina a bonus) ne individual module		
• 3 • w Assess • 2 • V (ECTS, vritten e ment in ECTS, ortesta post-ex	periment exams, approx.	erical grade) MAM-2-091: Modern successfully complet is, approx. 15 minute	Analytics (practical ed	course) x. 5 pages each), Nachtestate	
Allocat	ion of p	olaces				
Additio	onal info	ormation				
Worklo	ad					
Teaching cycle						
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module	e appea	irs in				
Bachel	Bachelor' degree (1 major) Technology of Functional Materials (2009) Bachelor' degree (1 major) Technology of Functional Materials (2010)					

Module	Module title			Abbreviation			
Chemica	ally and	d biologically inspired	Nanotechnology for N	aterials Synthesis	08-NT-101-m01		
Module	coordi	nator		Module offered by			
holder o thesis	holder of the Chair of Chemical Technology of Material Syn- thesis						
ECTS	Metho	d of grading	Only after succ. con	pl. of module(s)			
5	numer	ical grade					
Duration		Module level	Other prerequisites				
1 semes	ster	undergraduate					
Content	s						
of analy	sis use		enerated materials. It	also discusses the fu	istry and discusses the methods undamental principles of biomi- ynthesis.		
Intende	d learn	ing outcomes					
Student	s have	developed an advance	d knowledge of sol-ge	l chemistry and bior	nineralisation.		
Courses	s (type,	number of weekly cont	act hours, language –	- if other than Germa	in)		
compon • o8	nent. 8-NT-1-	omprises 2 module con 101: V (no information o 101: V (no information o	on SWS (weekly contac	ct hours) and course			
		essment (type, scope, on on whether module			tion offered — if not every seme-		
low. Unl vidual a	less sta Issessn	ated otherwise, success nents.	sful completion of the	module will require :	e components as specified be- successful completion of all indi- pired Nanotechnology for Materi-		
• or Assessn thesis • 3	ECTS, <i>I</i> ral exar ment in ECTS, <i>I</i>	Method of grading: nun nination (approx. 15 mi module component of Method of grading: nun nination (approx. 20 m	nutes) B-NT-2-101: From Biom nerical grade	ineralisation to biolo	ogically inspired Materials Syn-		
Allocatio	on of p	laces					
Additior	nal info	ormation					
Workloa							
Worktoo							
 T h !							
Teaching	Teaching cycle						
Referred	Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module	Module appears in						
	Bachelor' degree (1 major) Technology of Functional Materials (2010)						
	-	ee (1 major) Nanostruc)			
Master's	s degre	ee (1 major) Chemistry (2010)				
Bachelor's w Materials (20		or Technology of Functional		erated 26-Aug-2024 • exam. Technologie der Funktionsw			

Module title Abbreviation						
Progra	Programming course for Chemistry Majors				08-PKC-092-m01	
Modul	e coord	inator		Module offered by		
lecture	er of lec	ture "Programmierkurs fü	r Chemiker"	Institute of Physica	l and Theoretical Chemistry	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
5	(not)	successfully completed				
Duratio	on	Module level	Other prerequisites			
1 seme	ester	undergraduate				
Conten	nts					
		rovides an introduction t d to problems in chemist		of a programming lar	nguage and discusses how they	
Intend	ed lear	ning outcomes				
Studer chemis		able to describe the fund	amentals of the prog	ramming language a	nd to apply them to problems in	
Course	es (type	, number of weekly conta	ct hours, language –	- if other than Germa	ın)	
V + Ü (I	no info	rmation on SWS (weekly o	contact hours) and co	ourse language avail	able)	
		sessment (type, scope, la ion on whether module ca			tion offered — if not every seme-	
		nination: completion of p ime as specified at the be			on of algorithms used (length/ex-	
Allocat	tion of _l	olaces				
	_					
Additio	onal inf	ormation				
Worklo	bad					
	1					
Teachi	ng cycl	e				
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module	e appea	ars in				
Bachel	lor' deg	ree (1 major) Chemistry (2	2009)			
	-	ree (1 major) Technology		-		
Bachel	lor' deg	ree (1 major) Technology	of Functional Materia	als (2010)		

Module title Abbreviation				
Analys	is of Geomaterials			09-AG-102-m01
Module	e coordinator		Module offered by	<u> </u>
holder search	of the Chair of Geodynamics	s and Geomaterials Re-	Institute of Geograp	bhy and Geology
ECTS	Method of grading	Only after succ. cor	npl. of module(s)	
5	numerical grade			
Duratio	on Module level	Other prerequisites	5	
1 seme	ster undergraduate			
Conten	ts			
metry. tical fu	As far as possible, practical nctionality, in the respective	tutorials/demonstration		roprobe-analytics, mass spectro- next to the explanation of theore-
Intende	ed learning outcomes			
	ts possess the basic knowle c composition of minerals a		al methods in order	to determine the chemical and
Course	s (type, number of weekly c	ontact hours, language -	– if other than Germa	ın)
V + Ü (r	no information on SWS (wee	kly contact hours) and c	ourse language avail	able)
	d of assessment (type, scop formation on whether modu			tion offered — if not every seme-
written	or oral examination of one	candidate each or presei	ntation (30 minutes e	each)
Allocat	ion of places			
Additio	nal information			
Worklo	ad			
Teachi	ng cycle			
Referre	ed to in LPO I (examination	regulations for teaching-	degree programmes)	
		·		
Module	e appears in			
Bachel	or' degree (1 major) Technol	ogy of Functional Materi	als (2010)	

Module title Abbreviation					Abbreviation		
Rock Identification under the Microscope09-GM-102-m01					09-GM-102-m01		
Module	e coord	inator		Module offered by	<u> </u>		
holder search		Chair of Geodynamics a	nd Geomaterials Re-	Institute of Geogra	phy and Geology		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)			
5	nume	rical grade					
Duratio	on	Module level	Other prerequisites				
1 seme	ster	undergraduate					
Conten	ts						
transm	itted lig	ght microscope, studen	ts learn the ropes of cr	ystal-optical princip	microscope. In order to use a les. On this basis, the most im- al features in the thin section.		
Intend	ed lear	ning outcomes					
minera dies of	ls unde Petrolo		oscope. This module p logy.	rovides students wit	the most important rock-forming h crucial basics of advanced stu-		
V + Ü (ı	no infoi	rmation on SWS (weekl	y contact hours) and co	ourse language avai	lable)		
		sessment (type, scope, ion on whether module			ation offered — if not every seme-		
written	or oral	examination of one ca	ndidate each (30 minu	tes each)			
Allocat	ion of j	olaces					
Additio	onal inf	ormation					
Worklo	ad						
Teachi	ng cycl	e					
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module appears in							
Bachelor' degree (1 major) Technology of Functional Materials (2010)							

Module title Abbreviation					Abbreviation	
Geochemistry and Geohydrology				_	09-GW-102-m01	
Modul	e coord	inator		Module offered by	<u> </u>	
holder search		Chair of Geodynamics an	d Geomaterials Re-	Institute of Geogra	phy and Geology	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
5	nume	rical grade				
Duratio	on	Module level	Other prerequisites	5		
1 seme	ester	undergraduate				
Conter	nts					
cesses ning th	and th	us, also on common hyd r contamination.			nain focus will be on aquatic pro- ter storage and problems concer-	
		ning outcomes				
					ocesses, particularly in the Earth's ciences and hydrogeology.	
		, number of weekly conta				
V + Ü (no info	rmation on SWS (weekly	contact hours) and co	ourse language avail	lable)	
Metho	d of ass	sessment (type, scope, la	anguage — if other th	an German, examina	ation offered — if not every seme-	
ster, in	format	ion on whether module c	an be chosen to earn	a bonus)		
written	or oral	examination of one can	didate each or preser	ntation (30 minutes e	each)	
Allocat	tion of _l	places				
Additio	onal inf	ormation				
Worklo	bad					
Teachi	ng cycl	e				
Referre	ed to in	LPOI (examination regu	llations for teaching-	degree programmes)		
	e appea					
Bachel	Bachelor' degree (1 major) Technology of Functional Materials (2010)					

Module title Abbrev					Abbreviation		
Petrolo	gy				09-PT-102-m01		
Module	e coord	inator		Module offered by			
holder rials Re		Professorship of Geodyna	amics and Geomate-	Institute of Geograp	bhy and Geology		
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)			
5	nume	rical grade					
Duratio	n	Module level	Other prerequisites				
1 seme	ster	undergraduate					
Conten	ts						
which r ween th stantly, are con	nake u ne rock , will be tained eration	p a significant part of the formation (petrogenesis e made. This includes an in rocks, about pressure s, practical observations	modern Earth's crus) and the geodynami introduction to mode , temperature and po	t and Earth's surface cal processes of the rn methods in order int of time of the roc	igneous and metamorphic rocks, c. Further, the connection bet- planet Earth, which change con- to quantify information, which k formation. Next to theoretical sation microscope will be of gre-		
Intende	ed learı	ning outcomes					
Studen	ts poss	sess the basic knowledge	of igneous and meta	amorphic Petrology.			
Course	s (type	, number of weekly conta	ct hours, language —	if other than Germa	n)		
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)		
		sessment (type, scope, la on on whether module ca			tion offered — if not every seme-		
written	or oral	examination of one cand	lidate each or presen	tation (30 minutes e	ach)		
Allocat	ion of p	olaces					
Additio	nal inf	ormation					
Worklo	ad						
Teachi	ng cycl	е					
Referre	d to in	LPOI (examination regu	lations for teaching-o	legree programmes)			
Module	e appea	ars in					
Bachel	Bachelor' degree (1 major) Technology of Functional Materials (2010)						

Module title Abbreviation						
Stratig	raphy a	and Earth History			09-SE-102-m01	
Module	coord	inator		Module offered by	<u>, </u>	
holder rials Re		Professorship of Geodyna	amics and Geomate-	Institute of Geogra	bhy and Geology	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
5	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
ons, the sition of	e devel of "strat	opment of life and the re igraphy" and plate tector	lated possibility of a	relative ageing of st	g former environmental conditi- ratigraphic deposits, the compo- on to the absolute age dating	
Intende	ed lear	ning outcomes				
Studen	ts poss	sess the required basics of	of the Earth's history,	stratigraphic metho	ods and age dating of rocks	
Course	s (type	, number of weekly conta	ct hours, language –	- if other than Germa	in)	
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)	
		sessment (type, scope, la on on whether module ca			tion offered — if not every seme-	
written	or oral	examination of one cand	lidate each or preser	ntation (30 minutes e	each)	
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ıg cycl	e				
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module	Module appears in					
Bachel	or' deg	ree (1 major) Technology	of Functional Materia	als (2010)		

Module coordinator Module offered by holder of the Professorship of Geodynamics and Geomate- rials Research Institute of Geography and Geology ECTS Method of grading Only after succ. compl. of module(s)	Module title					Abbreviation	
holder of the Professorship of Geodynamics and Geomate- rials Research Institute of Geography and Geology ECTS Method of grading Only after succ. compl. of module(s) 5 numerical grade Duration Module level Other prerequisites undergraduate Contents Exploitation and use of mineral resources are essential economic geographic parameters, which, among others, influence the economic, geological principles, a simple classification of deposit types according to geographic parameters, which, among others, influence the economic geological principles, a simple classification of deposit types according to geographic parameters, which, among others, influence the economic geological principles, a simple classification of deposit types according to geographic parameters, which, among others, influence the evaluation of mineral deposits. For chosen and current examples, students will acquire a view on the availability and world market situation of essential mineral resources. Intended learning outcomes Students possess the basic knowledge of economic geological analysis of selected mineral raw materials. Courses (type, number of weekly contact hours, language — if other than German) S (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination of flered — if not every semester, information on whether module can be chosen to earn a bonus) workload	Economic Geology					09-WG-102-m01	
rials Research	Modul	e coord	inator		Module offered by		
5 numerical grade Duration Module level Other prerequisites 1 semester undergraduate Contents Exploitation and use of mineral resources are essential economic geographic parameters, which, among others, influence the economic, political and social relations between nations strongly. Main topics of this module component are fundamental economic geological principles, a simple classification of deposit types according to genetic aspects and the evaluation of mineral deposits. For chosen and current examples, students will acquire a view on the availability and world market situation of essential mineral resources. Intended learning outcomes Students possess the basic knowledge of economic geological analysis of selected mineral raw materials. Courses (type, number of weekly contact hours, language — if other than German) S (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus) written or oral examination of one candidate each or presentation (30 minutes each) Allocation of places Workload Teaching cycle Referred to in LPO 1 (examin				amics and Geomate-	Institute of Geograp	bhy and Geology	
Duration Module level Other prerequisites 1 semester undergraduate Contents Exploitation and use of mineral resources are essential economic geographic parameters, which, among others, influence the economic, political and social relations between nations strongly. Main topics of this module component are fundamental economic geological principles, a simple classification of deposit types according to genetic aspects and the evaluation of mineral deposits. For chosen and current examples, students will acquire a view on the availability and world market situation of essential mineral resources. Intended learning outcomes Students possess the basic knowledge of economic geological analysis of selected mineral raw materials. Courses (type, number of weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German) S (no information on SWS (weekly contact hours) and course language available) Method of places	ECTS			Only after succ. com	npl. of module(s)		
1 semester undergraduate Contents Exploitation and use of mineral resources are essential economic geographic parameters, which, among others, influence the economic, political and social relations between nations strongly. Main topics of this module component are fundamental economic geological principles, a simple classification of deposit types according to genetic aspects and the evaluation of mineral deposits. For chosen and current examples, students will acquire a view on the availability and world market situation of essential mineral resources. Intended learning outcomes Students possess the basic knowledge of economic geological analysis of selected mineral raw materials. Courses (type, number of weekly contact hours, language — if other than German) S (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus) written or oral examination of one candidate each or presentation (30 minutes each) Allocation of places Morkload Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	5	nume	rical grade				
Contents Exploitation and use of mineral resources are essential economic geographic parameters, which, among others, influence the economic, political and social relations between nations strongly. Main topics of this module component are fundamental economic geological principles, a simple classification of deposit types according to genetic aspects and the evaluation of mineral deposits. For chosen and current examples, students will acquire a view on the availability and world market situation of essential mineral resources. Intended learning outcomes Students possess the basic knowledge of economic geological analysis of selected mineral raw materials. Courses (type, number of weekly contact hours, language — if other than German) S (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus) written or oral examination of one candidate each or presentation (30 minutes each) Allocation of places	Duratio	on		Other prerequisites			
Exploitation and use of mineral resources are essential economic geographic parameters, which, among others, influence the economic, political and social relations between nations strongly. Main topics of this module com- ponent are fundamental economic geological principles, a simple classification of deposit types according to ge- netic aspects and the evaluation of mineral deposits. For chosen and current examples, students will acquire a view on the availability and world market situation of essential mineral resources. Intended learning outcomes Students possess the basic knowledge of economic geological analysis of selected mineral raw materials. Courses (type, number of weekly contact hours, language — if other than German) S (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) written or oral examination of one candidate each or presentation (30 minutes each) Allocation of places 	1 seme	ester	undergraduate				
influence the economic, political and social relations between nations strongly. Main topics of this module com- ponent are fundamental economic geological principles, a simple classification of deposit types according to ge- netic aspects and the evaluation of mineral deposits. For chosen and current examples, students will acquire a view on the availability and world market situation of essential mineral resources. Intended learning outcomes Students possess the basic knowledge of economic geological analysis of selected mineral raw materials. Courses (type, number of weekly contact hours, language — if other than German) S (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) written or oral examination of one candidate each or presentation (30 minutes each) Allocation of places 	Conter	nts					
Students possess the basic knowledge of economic geological analysis of selected mineral raw materials. Courses (type, number of weekly contact hours, language — if other than German) S (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) written or oral examination of one candidate each or presentation (30 minutes each) Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	ponent netic a view of	t are fui spects n the av	ndamental economic geo and the evaluation of mi vailability and world mark	logical principles, a s neral deposits. For ch	simple classification osen and current ex	of deposit types according to ge- amples, students will acquire a	
Courses (type, number of weekly contact hours, language — if other than German) S (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) written or oral examination of one candidate each or presentation (30 minutes each) Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	Intend	ed lear	ning outcomes				
S (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) written or oral examination of one candidate each or presentation (30 minutes each) Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	Studer	nts poss	sess the basic knowledge	e of economic geologi	ical analysis of selec	ted mineral raw materials.	
Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) written or oral examination of one candidate each or presentation (30 minutes each) Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	Course	es (type	, number of weekly conta	ict hours, language —	- if other than Germa	n)	
ster, information on whether module can be chosen to earn a bonus) written or oral examination of one candidate each or presentation (30 minutes each) Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	S (no i	nformat	tion on SWS (weekly cont	act hours) and cours	e language available	2)	
Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in						tion offered — if not every seme-	
Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	written	or oral	examination of one cano	didate each or presen	tation (30 minutes e	each)	
Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	Allocat	tion of _l	places				
Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in							
Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	Additio	onal inf	ormation				
Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in							
Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	Worklo	bad		-			
Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in							
Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	Teachi	ng cycl	e				
Module appears in							
Module appears in	Referre	Referred to in LPO L (examination regulations for teaching-degree programmes)					
	Modul	e appea	ars in				
				of Functional Materia	als (2010)		

Module title				Abbreviation		
Data bases					10-I-DB-072-m01	
Module	e coord	inator		Module offered by		
Dean o	f Studie	es Informatik (Computer S	Science)	Institute of Compute	er Science	
ECTS		od of grading	Only after succ. com	pl. of module(s)		
5	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
	-	ebra and complex SQL stagement.	atements; database p	planning and normal	forms; xml data modelling; tran-	
Intende	ed learı	ning outcomes				
		oossess a knowledge abo g in XML.	out database modelli	ng and queries in SC	L, transactions as well as easy	
Course	s (type	, number of weekly conta	ct hours, language —	if other than Germa	n)	
		mation on SWS (weekly o				
		essment (type, scope, la on on whether module ca			tion offered — if not every seme-	
		nation (50 minutes) or ora 5 minutes)	al examination (one c	andidate each: 15 m	inutes, groups of 2: 20 minutes,	
Allocat						
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	<u>a</u>				
	<u></u>	-				
Referre	d to in	LPOI (examination regu	lations for teaching-d	legree programmes)		
Kerene						
Module	annea	in in				
		ree (1 major) Computer Se	cience (2007)			
	Bachelor' degree (1 major) Mathematics (2008)					
	Bachelor' degree (1 major) Mathematics (2007)					
	Bachelor' degree (1 major) Technology of Functional Materials (2009)					
Bachel	or' deg	ree (1 major) Technology	of Functional Materia	ls (2010)		
Bachel	or' deg	ree (1 major) Business Inf	formation Systems (2	007)		
Bachel	or' deg	ree (1 major) Business Inf	formation Systems (2	009)		
Bachel	or' deg	ree (1 major) Business Inf	formation Systems (2	008)		
Bachel	or' deg	ree (1 major) Computation	nal Mathematics (200	9)		
Bachel	Bachelor' degree (1 major) Technology of Functional Materials (2006)					

Module	Module title Abbreviation					
Introdu	ction t	o computer science of all	faculties		10-I-EPIN-062-m01	
Module	coord	inator		Module offered by		
		es Informatik (Computer S	Science)	Institute of Comput	er Science	
ECTS		od of grading	Only after succ. com			
5		rical grade		,		
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
Represe	entatio	n of information and web	sites (HTML, XML, El	3NF), databases, pro	ogramming (Java).	
Intende	ed learı	ning outcomes				
		possess a basic knowled s and programming in Jav		ntation of informatio	on and websites (HTML, XML, EB-	
Courses	s (type	, number of weekly conta	ct hours, language —	· if other than Germa	in)	
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)	
		essment (type, scope, la on on whether module ca			tion offered — if not every seme-	
		nation (50 minutes) or ora 5 minutes)	al examination (one o	andidate each: 20 n	ninutes, groups of 2: 25 minutes,	
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teachir	ng cycl	e				
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module	Module appears in					
Bachelo	or' deg	ree (1 major) Technology	of Functional Materia	ils (2009)		
	-	ree (1 major) Technology				
Bachelo	Bachelor' degree (1 major) Technology of Functional Materials (2006)					

Modul	e title		Abbreviation				
Compu	Iterorie	nted Mathematics	10-M-COM-082-mo	1			
Madula coordinate:				Modulo offered by	<u> </u>		
Module coordinator			·····	Module offered by			
	Dean of Studies Mathematik (Mathematics) Institute of Mathematics Institute of grading Only after succ. compl. of module(s)			latics			
ECTS		successfully completed	Only after succ. compl. of module(s)				
3	<u> </u>	· ·					
Duration		Module level undergraduate	Other prerequisites Admission prerequisite to assessment: regular attendance of exercises				
1 semester		undergraduate	(attendance monitored, a maximum of one incident of unexcused ab- sence).				
Conten	nts						
merica 10-M-A	l compi NL) and	o modern mathematica utation (e.g. Matlab) to 1 10-M-LNA). Computer and integral calculus;	supplement the basic based solution of prob	modules in analysis blems in linear algeb	and linear algebra (((10-M-ANA or	
Intend	ed learı	ning outcomes					
		arns the use of advanc cation to solve mathem		cal software package	es, and is able to ass	sess their	
Course	es (type	, number of weekly con	tact hours, language –	- if other than Germa	ın)		
V + Ü (I	no infor	mation on SWS (weekl	y contact hours) and co	ourse language avail	able)		
ster, in project Assess	formati t in the sment o	sessment (type, scope, on on whether module form of programming e ffered: once a year, sur	<u>can be chosen to earn</u> xercises (as specified a nmer semester	a bonus) at the beginning of th		every seme-	
Langua	age of a	ssessment: German, Ei	nglish if agreed upon w	vith the examiner			
Allocat	tion of p	olaces					
Additio	onal inf	ormation					
Worklo	bad						
Teachi	ng cycl	6					
Referre	ed to in	LPOI (examination reg	gulations for teaching-	degree programmes)			
		hematik Angewandte N					
	e appea						
		ree (1 major) Computer	Science (2010)				
	-						
Bachelor' degree (1 major) Mathematics (2008) Bachelor' degree (1 major) Physics (2010)							
Bachelor' degree (1 major) Physics (2010)							
Bachelor' degree (1 major) Physics (2012)							
Bachelor' degree (1 major) Physics (2008)							
Bachelor' degree (1 major) Technology of Functional Materials (2009)							
Bachelor' degree (1 major) Technology of Functional Materials (2010)							
Bachelor' degree (1 major) Nanostructure Technology (2010)							
Bachelor' degree (1 major) Economathematics (2009) Bachelor' degree (1 major) Economathematics (2008)							
Bachelor's Materials (or Technology of Functional		erated 26-Aug-2024 • exam. Technologie der Funktionsw	-	page 31 / 57	

Julius-Maximilians-UNIVERSITÄT WÜRZBURG

Bachelor' degree (1 major) Mathematical Physics (2009) Bachelor' degree (1 major) Computational Mathematics (2009) Master's degree (1 major) Physics (2010) Master's degree (1 major) Technology of Functional Materials (2010) Master's degree (1 major) Technology of Functional Materials (2009) Master's degree (1 major) Functional Materials (2012) Bachelor's degree (1 major, 1 minor) Mathematics (Minor, 2008) First state examination for the teaching degree Gymnasium Mathematics (2009)

Module title		Abbreviation				
Introduction to Functional Analysis 10-M-FAN-072-m01						
Module coord	inator		Module offered by	,		
Dean of Studies Mathematik (Mathema		atics) Institute of Mathematics				
ECTS Meth	od of grading	Only after succ. compl. of module(s)				
5 nume	rical grade					
Duration	Duration Module level Other prerequisites					
1 semester	undergraduate	Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective deta at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment of the course of the semester, the lecturer will put their registration for a sessment into effect. Students who meet all prerequisites will be adm ted to assessment in the current or in the subsequent semester. For a				
		sessment at a later admission to assess	date, students will h sment anew.	ave to obtain the qu	alification for	
Contents						
Banach space	es and Hilbert spaces, bo	ounded operators, prin	nciples of functional	analysis.		
Intended lear	ning outcomes					
methods, is a broad applica Courses (type V + Ü (no info	nows the fundamental c ble to apply methods fro bility of the theory to oth , number of weekly cont rmation on SWS (weekly	om linear algebra and ner branches of mathe act hours, language – contact hours) and co	analysis to functiona ematics. - if other than Germa ourse language avail	al analysis, and reali n) able)	ses the	
	sessment (type, scope, l ion on whether module o			tion offered — if not	every seme-	
written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
Allocation of						
Additional inf	ormation					
Workload						
Teaching cycl	e					
Referred to in	LPOI (examination reg	ulations for teaching-	degree programmes)			
§ 73 (1) 1. Mat	hematik Analysis					
Module appea	ars in					
Bachelor' degree (1 major) Mathematics (2008) Bachelor' degree (1 major) Mathematics (2007) Bachelor' degree (1 major) Technology of Functional Materials (2009) Bachelor' degree (1 major) Technology of Functional Materials (2010)						
Bachelor's with 1 ma Materials (2010)	jor Technology of Functional		erated 26-Aug-2024 • exam. I Technologie der Funktionsw	-	page 33 / 57	

Julius-Maximilians-UNIVERSITÄT WÜRZBURG

Bachelor' degree (1 major) Economathematics (2009) Bachelor' degree (1 major) Economathematics (2008) Bachelor' degree (1 major) Mathematical Physics (2009) Bachelor' degree (1 major) Computational Mathematics (2009) Master's degree (1 major) Technology of Functional Materials (2010) Master's degree (1 major) Technology of Functional Materials (2009) Master's degree (1 major) Functional Materials (2012) Bachelor's degree (1 major, 1 minor) Mathematics (Minor, 2008) First state examination for the teaching degree Gymnasium Mathematics (2009) Bachelor' degree (1 major) Technology of Functional Materials (2006)

Module ti	tle	Abbreviation					
Numerica	l Mathematics 1		10-M-NM1-082-m01				
Module co	oordinator		Module offered by	<u> </u>			
Dean of Studies Mathematik (Mathema		atics)	Institute of Mathematics				
1	lethod of grading	Only after succ. com					
	umerical grade						
Duration	Duration Module level Other prerequisites						
1 semeste	<u> </u>	Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective detail at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment. If stu- dents have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for as sessment into effect. Students who meet all prerequisites will be admit ted to assessment in the current or in the subsequent semester. For as					
		sessment at a later	essment at a later date, students will have to obtain the qualification for				
		admission to assessment anew.					
Contents		-					
	of systems of linear equation polation with polynomials, s	• •			s of equati-		
Intended	learning outcomes						
	nt is acquainted with the fun al problems and knows abou			erical mathematics, a	applies them		
	type, number of weekly conta		••	n)			
	information on SWS (weekly						
Method o	f assessment (type, scope, la mation on whether module c	anguage — if other tha	an German, examina		every seme-		
written ex by an oral 2, approx	amination (approx. 90 minut examination of one candida . 30 minutes) of assessment: German, Eng	es); if announced by te each (approx. 20 n	the lecturer, the writ ninutes) or an oral ex		•		
Allocation	n of places						
Additiona	l information						
Workload							
Teaching	cycle						
Referred t	to in LPO I (examination regu	llations for teaching-o	legree programmes)				
	Mathematik Angewandte Ma	-					
Module appears in							
Bachelor' degree (1 major) Computer Science (2010) Bachelor' degree (1 major) Mathematics (2008) Bachelor' degree (1 major) Physics (2010) Bachelor' degree (1 major) Physics (2009)							
Bachelor's with Materials (2010			erated 26-Aug-2024 • exam. Technologie der Funktionsw	-	page 35 / 57		

UNIVERSITÄT WÜRZBURG

Bachelor' degree (1 major) Physics (2012) Bachelor' degree (1 major) Physics (2008) Bachelor' degree (1 major) Technology of Functional Materials (2009) Bachelor' degree (1 major) Technology of Functional Materials (2010) Bachelor' degree (1 major) Nanostructure Technology (2010) Bachelor' degree (1 major) Economathematics (2009) Bachelor' degree (1 major) Economathematics (2008) Bachelor' degree (1 major) Mathematical Physics (2009) Bachelor' degree (1 major) Computational Mathematics (2009) Bachelor' degree (1 major) Aerospace Computer Science (2009) Bachelor' degree (1 major) Aerospace Computer Science (2011) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Technology of Functional Materials (2010) Master's degree (1 major) Technology of Functional Materials (2009) Master's degree (1 major) Nanostructure Technology (2011) Master's degree (1 major) Nanostructure Technology (2010) Master's degree (1 major) Functional Materials (2012) Bachelor's degree (1 major, 1 minor) Mathematics (Minor, 2008) First state examination for the teaching degree Gymnasium Mathematics (2009)

Module	e title				Abbreviation	
Numeri	ical Ma	thematics 2			10-M-NM2-082-mo:	1
Module	e coord	inator		Module offered by		
		es Mathematik (Mathem	natics)	Institute of Mathematics		
ECTS		od of grading	Only after succ. compl. of module(s)			
5		rical grade				
Duratio	on	Module level	Other prerequisites			
1 semesterundergraduateCertain prerequisites must be met to qualify for admission sessment. The lecturer will inform students about the resp at the beginning of the course. Registration for the course sidered a declaration of will to seek admission to assess dents have obtained the qualification for admission to as the course of the semester, the lecturer will put their regis sessment into effect. Students who meet all prerequisites ted to assessment in the current or in the subsequent sen sessment at a later date, students will have to obtain the admission to assessment anew.		nts about the respection for the course wintsion to assessment r admission to assessment will put their registration t all prerequisites with e subsequent semestion	tive details Il be con- nt. If stu- ssment over tion for as- ill be admit- ster. For as-			
Conten	ts					
Solutio	n meth	ods and applications fo al equations, boundary		s, linear programmin	g, initial value probl	ems for ordi-
Intende	ed learr	ning outcomes				
about t	heir ad	able to draw a distincti vantages and limitation ng sciences and econon	s concerning the poss			
Course	s (type,	, number of weekly cont	act hours, language –	- if other than Germa	n)	
V + Ü (r	no infor	mation on SWS (weekly	contact hours) and co	ourse language avail	able)	
		essment (type, scope, l on on whether module o			tion offered — if not	every seme-
by an o 2, appr	oral exa ox. 30 i	nation (approx. 90 minu mination of one candida minutes) ssessment: German, En	ate each (approx. 20 n	ninutes) or an oral ex		
Allocat						
Additio	onal info	ormation				
			_			
Worklo	ad					
Teachir	ng cycl	9				
		LPOI (examination reg		degree programmes)		
	-	hematik Angewandte M	athematik			
Module						
Bachel	Bachelor' degree (1 major) Mathematics (2008) Bachelor' degree (1 major) Physics (2010) Bachelor' degree (1 major) Physics (2009)					
Bachelor's Materials (2		or Technology of Functional		erated 26-Aug-2024 • exam. I Technologie der Funktionsw	-	page 37 / 57

UNIVERSITÄT WÜRZBURG

Bachelor' degree (1 major) Physics (2012) Bachelor' degree (1 major) Physics (2008) Bachelor' degree (1 major) Technology of Functional Materials (2009) Bachelor' degree (1 major) Technology of Functional Materials (2010) Bachelor' degree (1 major) Nanostructure Technology (2010) Bachelor' degree (1 major) Economathematics (2009) Bachelor' degree (1 major) Economathematics (2008) Bachelor' degree (1 major) Mathematical Physics (2009) Bachelor' degree (1 major) Computational Mathematics (2009) Bachelor' degree (1 major) Aerospace Computer Science (2009) Bachelor' degree (1 major) Aerospace Computer Science (2011) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Technology of Functional Materials (2010) Master's degree (1 major) Technology of Functional Materials (2009) Master's degree (1 major) Nanostructure Technology (2011) Master's degree (1 major) Nanostructure Technology (2010) Master's degree (1 major) Functional Materials (2012) Bachelor's degree (1 major, 1 minor) Mathematics (Minor, 2008) First state examination for the teaching degree Gymnasium Mathematics (2009)

Ordinary Differential Equations 10-M-ODE-082-m01 Module coordinator Module of Mathematics ECTS Method of grading Only after succ. compl. of module(s) semester undergraduate Centain prerequisites a semester Undergraduate Centain prerequisites a semester Undergraduate Centain or will to seek achies and or will to seek achies and on assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek achies and or sessesment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment into effect. Students who meet all prerequisites will be admitted quatification for admission to assessment into admits. Students who meet all prerequisites will be admitted quatification for admission to assessment into effect. Students who meet all prerequisites will be admitted quatification for admission to assessment and the current or in the subsequent semester. For assessment into a fact. Students who meet all prerequisites will be admitted quations; matrix exononnitial series; linear differential equations of higher order. Interential equations; matrix exononnities terrer; continuous dependence of solutions on initial values; systems of linear differential equations of well work work wells or protein a demission to assessment and methods of the theory of ordinary differential equations on SWS (weekly contact hours) and course language available) Methend fa assessment (type, scope, language – if	Module	e title				Abbreviation	
Dean of Studies Mathematik (Mathematics) Institute of Mathematics Institute Institute Institute Institute Institute Institute Institematics Instit	Ordinary Differential Equations					10-M-ODE-082-m01	
Dean of Studies Mathematik (Mathematics) Institute of Mathematics Institute Institute Institute Institute Institute Institute Institematics Instit	Module	Module coordinator			Module offered by	<u> </u>	
ECTS Method of grading Only after succ. compl. of module(s) 5 inumerical grade				atics)			
j numerical grade Duration Module level Other prerequisites is semester undergraduate Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. The students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment or effect. Students who meet all prerequisites will be admitted to assessment at a later date, students will have to obtain the qualification for admission to assessment at a later date, students will have to obtain the qualification for admission. He current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission. He subsequent semester, for assessment is a qualited with the fundamental concepts and methods of the theory of ordinary differential equations. He/she is able to apply these methods to practical problems. Courses (type, number of weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German) V + 0 (no information on wither module can be chosen to earn a bonus) written examination of paces							
Duration Module level Other prerequisites 1 semester undergraduate Certain prerequisites must be met to qualify for admission to ass- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment at later date, students will have to obtain the qualification for admission to assessment are alter date, students will have to obtain the qualification for admission to assessment are alter date, students will have to obtain the qualification for admission to assessment are alter date, students will have to obtain the qualification for admission to assessment are alter date, students will have to obtain the qualification for admission to assessment are alter date, students will have to obtain the qualification for admission to assessment are alter date, students will have to obtain the qualification for admission to assessment are alter date, students will have to obtain the qualification for admission to assessment are alter date, students will have to obtain the qualification for admission to assessment are alter date, students and methods of the theory of ordinary differential equations. He/she is able to apply these methods to practical problems. Courses (type, number of weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on sWS (weekly contact hours) and course language available) Method of assessment: German, English if agreed upon with the examiner Allocation of places							
a semester undergraduate Certain prerequisites must be met to qualify for admission to as- sessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be con- sidered a declaration of will to seek admission to assessment over the course of the semester, the lecturer will put their registration for as- sessment in the fect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for admission to assessment anew. Contents Existence and uniqueness theorem; continuous dependence of solutions on initial values; systems of linear dif- ferential equations; matrix exponential series; linear differential equations of higher order. Intended learning outcomes The student is acquainted with the fundamental concepts and methods of the theory of ordinary differential equations. He/she is able to apply these methods to practical problems. Courses (type, number of weekly contact hours, language — if other than German) V + 0 (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) witten examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner Additional information 		·		Other prerequisites			
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sidered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment at a later date, students will have to obtain the qualification for admission to assessment and uniqueness theorem; continuous dependence of solutions on initial values; systems of linear differential equations; matrix exponential series; linear differential equations of higher order. Intended learning outcomes The student is acquainted with the fundamental concepts and methods of the theory of ordinary differential equations. He/she is able to apply these methods to practical problems. Courses (type, number of weekly contact hours), language — if other than German) V + 0 (no information on SWS (weekly contact hours), language — if other than German) V + 0 (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus) written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Z, approx. 30 minutes) If announced by the lecturer, the written examination can be replaced by an oral examination of ne candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Z. approx. 30 minutes) If announced by the exa					•		
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the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew. Contents Existence and uniqueness theorem; continuous dependence of solutions on initial values; systems of linear differential equations; matrix exponential series; linear differential equations of higher order. Intended learning outcomes The student is acquainted with the fundamental concepts and methods of the theory of ordinary differential equations. He/she is able to apply these methods to practical problems. Courses (type, number of weekly contact hours, language — if other than German) V + 0 (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination of one candidate each (approx. 20 minutes) or an oral examination ran be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Janguage of assessment: German, English if agreed upon with the examiner Adloitional information - - Morkload - - - Module appears in Bachelor degree (1 major) Computer Science (2007) Bachelor degree (1 major) Computer Science (2007)				sidered a declaratio	n of will to seek adm	nission to assessme	nt. If stu-
sessment into effect. Students who meet all prerequisites will be admit- ted to assessment in the current or in the subsequent semester. For as- sessment at a later date, students will have to obtain the qualification for admission to assessment anew. Contents Existence and uniqueness theorem; continuous dependence of solutions on initial values; systems of linear dif- ferential equations; matrix exponential series; linear differential equations of higher order. Intende learning outcomes The student is acquainted with the fundamental concepts and methods of the theory of ordinary differential equations. He/she is able to apply these methods to practical problems. Courses (type, number of weekly contact hours, language — if other than German) V + Û (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes): if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes): Language of assessment: German, English if agreed upon with the examiner Allocation of places				dents have obtained	d the qualification fo	r admission to asse	ssment over
ted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew. Contents Existence and uniqueness theorem; continuous dependence of solutions on initial values; systems of linear differential equations; matrix exponential series; linear differential equations of higher order. Intended learning outcomes The student is acquainted with the fundamental concepts and methods of the theory of ordinary differential equations. He/she is able to apply these methods to practical problems. Courses (type, number of weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on SWS (weekly contact hours) and course language available) written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes); anguage of assessment: German, English if agreed upon with the examiner Alditional information							
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Existence and uniqueness theorem; continuous dependence of solutions on initial values; systems of linear dif- ferential equations; matrix exponential series; linear differential equations of higher order. Intended learning outcomes The student is acquainted with the fundamental concepts and methods of the theory of ordinary differential equations. He/she is able to apply these methods to practical problems. Courses (type, number of weekly contact hours, language — if other than German) V + 0 (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner Allocation of places 	_			admission to assess	sment anew.		
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by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner Allocation of places 	ster, in	formati	on on whether module	can be chosen to earn	a bonus)		
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Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in Bachelor' degree (1 major) Computer Science (2007) Bachelor' degree (1 major) Computer Science (2010) Bachelor' degree (1 major) Physics (2008) Bachelor' degree (1 major) Technology of Functional Materials (2009)	2, appr	юх. 30 I	ninutes)			0,	
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Workload	Allocat	ion of p	laces	_			
Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in Bachelor' degree (1 major) Computer Science (2007) Bachelor' degree (1 major) Computer Science (2010) Bachelor' degree (1 major) Physics (2008) Bachelor' degree (1 major) Technology of Functional Materials (2009)							
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Bachelor' degree (1 major) Computer Science (2010) Bachelor' degree (1 major) Physics (2008) Bachelor' degree (1 major) Technology of Functional Materials (2009)				Science (2007)			
Bachelor' degree (1 major) Technology of Functional Materials (2009)							
		-					
achelor's with 1 major Technology of Functional JMU Würzburg • generated 26-Aug-2024 • exam. reg. data record page 39 / 57	Bachel	or' degi	ee (1 major) Technolog	y of Functional Materia	als (2009)		
Materials (2010) Bachelor (180 ECTS) Technologie der Funktionswerkstoffe - 2010			or Technology of Functional			-	page 39 / 57

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Bachelor' degree (1 major) Technology of Functional Materials (2010) Bachelor' degree (1 major) Economathematics (2009) Bachelor' degree (1 major) Economathematics (2008) Bachelor' degree (1 major) Aerospace Computer Science (2009) Bachelor' degree (1 major) Aerospace Computer Science (2011) Master's degree (1 major) Technology of Functional Materials (2010) Master's degree (1 major) Technology of Functional Materials (2009) Master's degree (1 major) Functional Materials (2012) Bachelor's degree (1 major, 1 minor) Mathematics (Minor, 2008) Bachelor' degree (1 major) Technology of Functional Materials (2006)

	le title				Abbreviation	
Progra	amming	course for students of	Mathematics and othe	er subjects	10-M-PRG-082-m01	
Modul	le coord	inator		Module offered b	y	
Dean o	of Studi	es Mathematik (Mathe	natics)	Institute of Mathe		
ECTS	1	od of grading	Only after succ. cor		indico	
3	_	successfully completed				
<u>)</u> Durati		Module level	Other prerequisites	•		
1 seme		undergraduate			: regular attendance (atte	ndanco
1 Senie	CSICI				t of unexcused absence).	muance
<i>c</i> .		L			t of unexcused absence).	
Conter						
Basics matics		odern programming lan	guage (e. g. C or Fortra	n) taking into acco	unt the particular needs i	n mathe-
Intend	led lear	ning outcomes				
The sti	udent is	able to work independ	lently on small prograr	nming exercises ar	d standard programming	problem
	thematio	•				
Course	es (type	, number of weekly cor	tact hours, language -	– if other than Gern	nan)	
		tion on SWS (weekly co				
		· · · · · · · · · · · · · · · · · · ·			nation offered — if not eve	erv seme-
		ion on whether module				serve serve
	,	form of programming e			the course)	
		ssessment: German, E				
	tion of p					
Alloca						
A J J 114						
Additio	onal inf	ormation				
Worklo	oad					
Teachi	ing cycl	e				
Referr	ed to in	LPOI (examination re	gulations for teaching-	degree programme	c)	
			Sulations for teaching			
5 -0 (1	1) 5. Mai	homotil Angowondto N	A a th a matile		3)	
		hematik Angewandte N	Nathematik		3)	
Modul	le appea	ars in			3)	
Modul Bache	lor' deg	ars in ree (1 major) Mathema	tics (2008)			
Modul Bache Bache	lor' deg lor' deg	ars in ree (1 major) Mathema ree (1 major) Physics (2	tics (2008) 2010)			
Modul Bache Bache Bache	elor' deg elor' deg elor' deg	ars in ree (1 major) Mathema ree (1 major) Physics (2 ree (1 major) Physics (2	tics (2008) 2010) 2009)			
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Modul Bache Bache Bache Bache Bache Bache Bache Bache Bache Bache	elor' deg elor' deg elor' deg elor' deg elor' deg elor' deg elor' deg elor' deg elor' deg elor' deg	ars in ree (1 major) Mathema ree (1 major) Physics (2 ree (1 major) Physics (2 ree (1 major) Physics (2 ree (1 major) Physics (2 ree (1 major) Technolog ree (1 major) Technolog ree (1 major) Nanostruc ree (1 major) Economat	tics (2008) 2010) 2009) 2012) 2008) 29 of Functional Materi 29 of Functional Materi 29 of Functional Materi 2010 2010 2010 2010 2010 2010 2010 201	als (2009) als (2010)		
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Master's degree (1 major) Functional Materials (2012) Bachelor's degree (1 major, 1 minor) Mathematics (Minor, 2008) First state examination for the teaching degree Gymnasium Mathematics (2009)

Module title Abbreviation					Abbreviation
Mathe	matics	1 for students of Technol	ogy of Functional Ma	terials	10-M-TFU1-091-m01
Module coordinator Module offered by					
Dean o	of Studio	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	1	od of grading	Only after succ. con	npl. of module(s)	
10	nume	rical grade			
Duratio		Module level	Other prerequisites		
1 seme	ester	undergraduate			
Conter	its				
		on numbers and functio aces, simple differential (eries, differential an	d integral calculus in one varia-
Intend	ed lear	ning outcomes			
to simp	ole prot				ne learns to apply these methods nnology of functional materials,
Course	s (type	, number of weekly conta	ct hours, language –	- if other than Germa	n)
V + Ü (no infoi	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
		essment (type, scope, la on on whether module ca			tion offered — if not every seme-
written	exami	nation (approx. 90 minut	es)		
Allocat	tion of p	olaces			
Additio	onal inf	ormation			
Worklo	ad				
Teachi	ng cycl	e			
Referre	ed to in	LPOI (examination regu	lations for teaching-	degree programmes)	
Modul	e appea	urs in			
	-	ree (1 major) Technology ree (1 major) Technology		-	
Jachel			e unetionat materia		

Module title					Abbreviation	
Mathematics 2 for students of Technology of Functional Materials					10-M-TFU2-101-m01	
Modul	e coord	inator		Module offered by	<u> </u>	
Dean o	of Studi	es Mathematik (Mather	natics)	Institute of Mathe	matics	
ECTS	Meth	od of grading	Only after succ. cor	npl. of module(s)		
8	nume	rical grade				
Duratio	on	Module level	Other prerequisites	j		
1 seme	ster	undergraduate				
Conter	Its					
		nd systems of linear eq variables, differential e			ory, differential and integral calcu-	
Intend	ed lear	ning outcomes				
se met	hods to		nd engineering science		atics. He/She learns to apply the- ne technology of functional materi-	
Course	s (type	, number of weekly con	tact hours, language –	– if other than Germ	nan)	
V + Ü (no info	rmation on SWS (weekly	y contact hours) and co	ourse language ava	ilable)	
		sessment (type, scope, ion on whether module			nation offered — if not every seme-	
written	exami	nation (approx. 90 minu	utes)			
Allocat						
Additio	onal inf	ormation				
Worklo	ad					
	au					
Tonch!						
Teachi 	ing cycl	e				
Referre	ed to in	LPO I (examination reg	gulations for teaching-	degree programme	s)	
Modul						
Bachel	or' deg	ree (1 major) Technolog	y of Functional Materia	als (2010)		

Module	e title				Abbreviation
Introdu	uction t	o Physics Part 1 for stud	ents of Physics Relat	ed Minor Subjects	11-ENNF1-062-m01
Module	e coord	inator		Module offered by	ļ
		ector of the Institute of Ap		Faculty of Physics a	and Astronomy
ECTS		od of grading rical grade	Only after succ. com	ipi. of module(s)	
7 Duratio		Module level			
1 seme		undergraduate	Other prerequisites		
		undergraduate	<u> </u>		
Conten					
		bration theory, thermody	namics.		
		ning outcomes			
The stu	udents l	nave basic knowledge of	physics for engineeri	ng students.	
Course	s (type	, number of weekly conta	ct hours, language —	· if other than Germa	an)
V + Ü (I	no infoi	mation on SWS (weekly	contact hours) and co	ourse language avail	able)
Metho	d of ass	essment (type, scope, la	inguage — if other tha	an German, examina	ition offered — if not every seme-
ster, in	formati	on on whether module c	an be chosen to earn	a bonus)	
written	exami	nation (approx. 120 minu	tes)		
Allocat	ion of p	olaces			
Only as	s part o	f pool of general key skill	s (ASQ): 20 places. P	laces will be allocat	ed by lot.
		ormation			·
Worklo	ad				
Toochi	ng aval	•			
Teacini	ng cycl	e			
Referre	ed to in	LPOI (examination regu	lations for teaching-o	legree programmes)	
Module	e appea	irs in			
	-	ree (1 major) Mathematic			
	-	ree (1 major) Mathematic			
	-	ree (1 major) Mathematic			
		ree (1 major) Mathematic			
	-	ree (1 major) Mathematic			
	-	ree (1 major) Technology		-	
		ree (1 major) Technology			
	-	ree (1 major) Computatio		-	
	-	ree (1 major) Computatio		•	
	-	ree (1 major) Computatio			
	-	ree (1 major) Computatio		-	
	-	ree (1 major) Aerospace (•	•	
	-	ree (1 major) Aerospace (•		
Dachal	Bachelor' degree (1 major) Aerospace Computer Science (2011)				
	Bachelor' degree (1 major) Functional Materials (2012)				
Bachel	-	ree (1 major) Functional <i>I</i> ree (1 major) Technology			

Module title				Abbreviation
Introduction	to Physics Part 2 for stud	ents of Physics Relat	ed Minor Subjects	11-ENNF2-062-m01
Module coor	dinator		Module offered by	
		aplied Dhusics	Faculty of Physics a	and Astronomy
	rector of the Institute of Ap rod of grading	Only after succ. com	· · ·	
	erical grade			
Duration	Module level	Other prerequisites		
1 semester	undergraduate			
Contents				
	ectricity, magnetism, opti	s Atomic Physics		
	rning outcomes	is, Atomic i hysics.		
	have basic knowledge of	· · · -	-	<u>х</u>
	e, number of weekly conta			
-	ormation on SWS (weekly			
	s sessment (type, scope, la tion on whether module c			tion offered — if not every seme-
written exam	iination (approx. 120 minu	tes)		
Allocation of	places			
Only as part	of pool of general key skil	s (ASQ): 20 places. P	laces will be allocat	ed by lot.
Additional in	Iformation			· · · · ·
Workload				
Teaching cyo				
 Deferred to i	nIDOI (avamination rag	lations for tooching a		
Referred to I	n LPO I (examination regu		legiee plogrammes)	
 Module appe	are in			
	gree (1 major) Mathematic	s (2008)		
	gree (1 major) Mathematic			
	gree (1 major) Mathematic	-		
	gree (1 major) Mathematic			
Bachelor' de	gree (1 major) Mathematic	s (2007)		
Bachelor' de	gree (1 major) Technology	of Functional Materia	ls (2009)	
Bachelor' de	gree (1 major) Technology	of Functional Materia	ls (2010)	
Bachelor' de	gree (1 major) Computatio	nal Mathematics (200	09)	
Bachelor' de	gree (1 major) Computatio	nal Mathematics (20:	14)	
Bachelor' de	gree (1 major) Computatio	nal Mathematics (20:	12)	
Bachelor' de	gree (1 major) Computatio	nal Mathematics (20:	13)	
	gree (1 major) Aerospace (-	
	gree (1 major) Aerospace (
	gree (1 major) Aerospace (911)	
	gree (1 major) Functional I			
Bachelor' de	gree (1 major) Technology	ot Functional Materia	ls (2006)	

Modul	e title				Abbreviation	
Mathematics 3 for students of Physics and Engineering				11-MPI3-062-m01		
Modul	e coord	inator		Module offered by		
			Theoretical Dhysics		and Actronomy	
-	trophys	ector of the Institute of sics	meoretical Physics	Faculty of Physics a	and Astronomy	
ECTS	<u> </u>	od of grading	Only after succ. cor	npl. of module(s)		
8	1	rical grade				
Duratio	on	Module level	Other prerequisites	;		
1 seme	ster	undergraduate	Admission prerequi	site to assessment:	successful completio	n of approx.
			-		must be met to qualif	•
					orm students about th	•
					e. Registration for the	
					ek admission to asse	
				•	n for admission to ass	
					turer will put their reg	
					neet all prerequisites v	
					n the subsequent sem	
					ll have to obtain the q	ualification
			for admission to as	sessment anew.		
Conter	Its					
Ordina	ry and	partial differential equa	ations in Physics.			
Intend	ed lear	ning outcomes				
		have basic mathematic	al knowledge of dynan	nic equations and so	olution methods for co	ommon and
•		ntial equations.	_			
	-	, number of weekly con				
V + Ü (no info	rmation on SWS (weekl	y contact hours) and c	ourse language avail	lable)	
		sessment (type, scope,			ation offered — if not e	every seme-
	-	ion on whether module		la Dollus)		
		nation (approx. 120 min	nutes)			
Allocat	ion of _l	places				
Additio	onal inf	ormation				
Worklo	ad					
	-					
Teachi	ng cycl	e				
	_					
Referre	ed to in	LPOI (examination reg	gulations for teaching-	degree programmes)		
Modul	e appea	ars in				
	-	ree (1 major) Physics (2				
	-	ree (1 major) Physics (2	•			
	-	ree (1 major) Physics (2		-1- ()		
	-	ree (1 major) Technolog		-		
	-	ree (1 major) Technolog ree (1 major) Nanostruc				
	Bachelor' degree (1 major) Nanostructure Technology (2010) achelor's with 1 major Technology of Functional JMU Würzburg • generated 26-Aug-2024 • exam. reg. data record page 47 / 57					
Bachelor's Materials (jor Technology of Functional		ierated 26-Aug-2024 • exam.) Technologie der Funktionsw	-	page 47 / 57

Julius-Maximilians-UNIVERSITÄT WÜRZBURG

Bachelor' degree (1 major) Nanostructure Technology (2012) Bachelor' degree (1 major) Nanostructure Technology (2008) Bachelor' degree (1 major) Nanostructure Technology (2007) Bachelor' degree (1 major) Functional Materials (2012) Bachelor' degree (1 major) Technology of Functional Materials (2006)

Module title				Abbreviation
Basics	of NanostructureTechnology		11-N1-072-m01	
Module	coordinator		Module offered by	
Managi	ng Director of the Institute of Ap	plied Physics	Faculty of Physics a	nd Astronomy
ECTS	Method of grading	Only after succ. com	pl. of module(s)	
6	numerical grade			
Duratio	n Module level	Other prerequisites		
1 semes	ster undergraduate			
Conten	ts			
Principl	les of producing, characterising	and applying nanost	ructures.	
	ed learning outcomes			
	dents have knowledge of the fu	ndamental properties	s. technologies, char	racterising methods and functi-
	nanostructures.		.,	
Courses	s (type, number of weekly conta	ct hours, language —	if other than Germa	n)
V + S (n	o information on SWS (weekly o	contact hours) and co	urse language availa	able)
				tion offered — if not every seme-
	formation on whether module ca			
written	examination (approx. 90 minut	es)		
Allocati	ion of places			
Additio	nal information			
Worklo	ad			
Teachir	ng cycle			
Referre	d to in LPO I (examination regu	lations for teaching-o	legree programmes)	
Module	appears in			
	or' degree (1 major) Physics (20			
	or' degree (1 major) Technology		-	
	or' degree (1 major) Technology			
	or' degree (1 major) Nanostructu			
	or' degree (1 major) Nanostructu)	
	or's degree (1 major, 1 minor) Ph			
Bachelo	Bachelor' degree (1 major) Technology of Functional Materials (2006)			

Module	e title				Abbreviation
Physic	s Labor	atory Course for student	s of Physics Related	Minor Subjects	11-PNNF-062-m01
Module	e coord	inator		Module offered by	<u> </u>
		ector of the Institute of Ap	onlied Physics	Faculty of Physics a	and Astronomy
ECTS		od of grading	Only after succ. com		
3		successfully completed		<u> </u>	
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
Mecha Physics		bration theory, thermody	namics, optics, X-ray	s, nuclear magnetic	resonance, Atomic and Nuclear
Intende	ed learı	ning outcomes			
The stu	dents l	know the principles of Ph	ysics.		
Course	s (type	, number of weekly conta	ct hours, language –	- if other than Germa	an)
P (no ir	format	ion on SWS (weekly cont	act hours) and cours	e language available	2)
		· · · · ·			ition offered — if not every seme-
		on on whether module ca			
a) oral	test (ap	prox. 15 minutes) during	experiment and b) u	ngraded written exa	mination (approx. 90 minutes)
Allocat	ion of p	olaces			
Only as	s part o	f pool of general key skill	s (ASQ): 15 places. P	laces will be allocate	ed by lot.
Additio	nal inf	ormation			
Worklo	ad				
Teachi	ng cvcl	6			
	3 0 0 0	-			
Referre	d to in	LPOI (examination regu	lations for teaching-	legree programmes)	
Module		ors in			
		ree (1 major) Mathematic	s (2008)		
	-	ree (1 major) Mathematic			
	-	ree (1 major) Mathematic			
	-	ree (1 major) Mathematic			
	-	ree (1 major) Mathematic			
Bachel	or' deg	ree (1 major) Technology	of Functional Materia	als (2009)	
	-	ree (1 major) Technology			
	-	ree (1 major) Computatio		•	
		ree (1 major) Computatio			
		ree (1 major) Computatio			
		ree (1 major) Computatio		13)	
	-	ree (1 major) Functional N			
Dachel	u aeg	ree (1 major) Technology	or runctional Materia	us (2006)	

Module					Abbreviation
Laborat	tory co	urse on Physical Techno	ogy of Material Synt	hesis	11-PPT-091-m01
Module	Module coordinator Module offered by				
Managing Director of the Institute of Applied Physics Faculty of Physics and Astronomy			and Astronomy		
ECTS	Meth	od of grading	Only after succ. con	pl. of module(s)	
5	(not)	successfully completed			
Duratio	n	Module level	Other prerequisites		
1 semes	ster	undergraduate			
Conten	ts				
Growth	and co	pating procedures, metho	ds of characterisatio	n and exemplary str	ucturing technologies.
Intende	ed lear	ning outcomes			
The stu terial sy			actical basics of mat	erial characterisatio	n and physical technology for ma-
Courses	s (type	, number of weekly conta	ct hours, language –	- if other than Germa	an)
		tion on SWS (weekly cont			
		sessment (type, scope, la ion on whether module ca			tion offered — if not every seme-
nutes) p cessfull compor ents of	prior to ly com nent of the as ered su	the experiment is passe pleted if a Testat (exam) i the assessment (a and b sessment have been succ accessfully completed.	d. b) Performing and s passed. An experin) can be repeated on	evaluating the expe nent log (approx. 8 p ce in the respective	l test (duration: approx. 15 mi- riment will be considered suc- bages) is to be prepared. Each semester. Only if both compon- r will the module component be
Allocal		Diaces			
 Additio	nal inf	ormation			
Worklo	ad				
Teachir	ng cycl	e			
Referre	d to in	LPOI (examination regu	lations for teaching-o	legree programmes)	
Module	appea	ars in			
	-	ree (1 major) Technology		-	
Bachelo	or' deg	ree (1 major) Technology	of Functional Materia	als (2010)	

Module title					Abbreviation
Introduction to the Physics of Functional Materials					11-TMS-101-m01
Modul	e coord	inator		Module offered by	<u> </u>
Manag	ing Dire	ector of the Institute of <i>I</i>	Applied Physics	Faculty of Physics a	ind Astronomy
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
5	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ester	undergraduate			
Conten	nts				
		ld practical principles o s and oxides. Principles			ductor process technology, diel- ting procedures.
Intend	ed lear	ning outcomes			
		have knowledge of the t terial synthesis.	heoretical and practic	al principles of phys	ical material properties and tech-
Course	s (type	, number of weekly con	tact hours, language –	- if other than Germa	n)
		rmation on SWS (weekly			
		sessment (type, scope, ion on whether module			tion offered — if not every seme-
written	exami	nation (approx. 120 min	utes)		
Allocat	tion of	olaces			
Additio	onal inf	ormation			
Worklo	ad				
Teachi	ng cycl	e			
	0.9				
Referre	ed to in	LPOI (examination reg	ulations for teaching-	degree programmes)	
			,		
Module	e appea	ars in			
		ree (1 major) Technolog	v of Functional Materia	als (2010)	
Bachet			, e. i unetional materia		

Module title Abbreviation						
Comput	Computer-based Construction and Assembly (CAD/CAM) 99-CA-091-m01					
Module coordinator				Module offered by		
Dean of the Faculty of Mechanical Engineering at the University of Applied Sciences Würzburg-Schweinfurt				University of Applied Sciences Würzburg- Schwein- furt (FHWS)		
ECTS						
6	nume	rical grade				
Duration Module level O		Other prerequisites				
1 semes	ster	undergraduate				
Conten	ts					
		ve view of the process of ted example.	product developmen	t, including the corre	esponding specialist subjects ba-	
Intende	ed lear	ning outcomes				
					opment of products with a focus yping and product validation.	
Courses	s (type	, number of weekly conta	ct hours, language –	- if other than Germa	in)	
		mation on SWS (weekly o				
		essment (type, scope, la on on whether module ca			tion offered — if not every seme-	
written	examiı	nation (90 minutes)				
Allocati	ion of p	olaces				
, , ,						
Additio	nal inf	ormation				
Workload						
Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module appears in						
Bachelor' degree (1 major) Technology of Functional Materials (2009) Bachelor' degree (1 major) Technology of Functional Materials (2010)						

Module title Abbreviation						
Basics of Electronics 1					99-EL1-091-m01	
Module coordinator				Module offered by		
Dean of the Faculty of Electrical Engineering at the Universi-				University of Applie	d Sciences Würzburg- Schwein-	
ty of Applied Sciences Würzburg-Schweinfurt				furt (FHWS)		
ECTS		od of grading	Only after succ. con	ıly after succ. compl. of module(s)		
5		rical grade				
Duration Module level		Other prerequisites				
1 seme	ster	undergraduate				
Conten	ts					
Theoret tors.	ical an	d practical principles of s	science of electricity,	passive linear netwo	orks, principles of semiconduc-	
Intende	ed leari	ning outcomes	,			
		nave basic knowledge of semiconductors.	theoretical and pract	ical science of electi	ricity, especially of passive linear	
Course	s (type	, number of weekly conta	ct hours, language –	- if other than Germa	n)	
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)	
Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus)						
written	examiı	nation (60 minutes)				
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module appears in						
Bachelor' degree (1 major) Technology of Functional Materials (2009)						
Bachelor' degree (1 major) Technology of Functional Materials (2010)						

Module	Module title Abbreviation				
Basics of Electronics 2					99-EL2-091-m01
Module coordinator				Module offered by	
Dean of the Faculty of Electrical Engineering at the Universi-			ering at the Universi-		
ty of Applied Sciences Würzburg-Schweinfurt				furt (FHWS)	
ECTS		od of grading	Only after succ. compl. of module(s)		
5		rical grade			
		Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten					
		d practical principles of t logy, combinatorial circu			basic circuits, basic elements of
Intende	ed lear	ning outcomes			
		have theoretical and prac ements of digital technol			ectrical engineering, basic cir- al circuits.
Course	s (type	, number of weekly conta	ict hours, language –	· if other than Germa	n)
V + Ü (r	no infor	mation on SWS (weekly	contact hours) and co	ourse language avail	able)
Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus)					
written	exami	nation (60 minutes)			
Allocat	ion of p	olaces			
Additional information					
Workload					
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module appears in					
Bachelor' degree (1 major) Technology of Functional Materials (2009) Bachelor' degree (1 major) Technology of Functional Materials (2010)					

Module title					Abbreviation
Laboratory Course on Engineering (mechanical and electrical engineering) 99-IP-091-m01					
Module coordinator				Module offered by	
Deans of the Faculties of Electrical Engineering and Me- chanical Engineering at the University of Applied Sciences Würzburg-Schweinfurt			-	University of Applied Sciences Würzburg- Schwein- furt (FHWS)	
			Only after succ. con	npl. of module(s)	
6	(not) s	successfully completed			
Duratior	า	Module level	Other prerequisites		
1 semes	ter	undergraduate			
Content	s				
Enginee	ring la	boratory and internship	experiments.		
Intende	d learr	ning outcomes			
The stuc ring.	lents ł	nave practical experience	es in applying engine	ering methods in el	ectrical and mechanical enginee-
Courses	(type,	number of weekly conta	ict hours, language –	- if other than Germa	an)
P (no inf	ormat	ion on SWS (weekly cont	act hours) and cours	e language availabl	e)
		essment (type, scope, la on on whether module ca			ation offered — if not every seme-
		ort / fieldwork report / re cal course (approx. 15 to		ining / report on pra	ctical course / project report / re-
Allocatio	on of p	olaces			
Addition	nal info	ormation			
Workload					
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module appears in					
Bachelor' degree (1 major) Technology of Functional Materials (2009)					
Bachelor' degree (1 major) Technology of Functional Materials (2010)					

Module	Module title Abbreviation					
Fundamentals of Engineering Mechanics99-TM-062-m				99-TM-062-m01		
Module coordinator				Module offered by		
Dean of the Faculty of Mechanical Engineering at the Uni-				University of Applied Sciences Würzburg- Schwein- furt (FHWS)		
versity of Applied Sciences Würzburg-SchweinfurtECTSMethod of gradingOnly after succ. con			Only after succ. con	· /		
5		rical grade				
Duration Module level Other prerequisites			i			
1 seme	ster	undergraduate				
Conten	ts					
Basics	of stati	stics, strength of materia	lls and dynamics.			
		ning outcomes				
		have methodological con ormations and in dimens		ining forces and stre	ess resultants, in calculating ten-	
Course	s (type	, number of weekly conta	ct hours, language –	- if other than Germa	ın)	
V + Ü (r	no info	rmation on SWS (weekly o	contact hours) and co	ourse language avail	able)	
Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus)						
written	exami	nation (90 minutes)				
Allocat	ion of _l	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module appears in						
Bachelor' degree (1 major) Technology of Functional Materials (2009) Bachelor' degree (1 major) Technology of Functional Materials (2010) Bachelor' degree (1 major) Technology of Functional Materials (2006)						