

Module Catalogue

for the Subject

Computer Science

as vertieft studiertes Fach (studied with a focus on the scientific discipline) with the degree "Erste Staatsprüfung für das Lehramt an Gymnasien"

> Examination regulations version: 2009 Responsible: Institute of Computer Science

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The subject is divided into

section / sub-section	ECTS credits	starting page
Scientific Discipline	92	6
Compulsory Courses	70	7
Compulsory Electives	22	19
Teaching	10	65
Freier Bereich (general as well as subject-specific electives)		69
Computer Science		70
Thesis	10	75

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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:

LASPO2009

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

27-Feb-2013 (2013-31)

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.





Scientific Discipline

(92 ECTS credits)

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Compulsory Courses

(70 ECTS credits)

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Module title			Abbreviation			
Algorithm and data structures			10-I-ADS-102-m01			
Module coordinator Module offered			Module offered by			
Dean of	fStudi	es Informatik (Compute	er Science)	Institute of Comput	er Science	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
10	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 semes	ster	undergraduate		site to assessment: e ecturer at the beginn		scope to be
Conten	ts					
			ecursion vs. iteration, s aph algorithms, progra		ods, data structures,	abstract da-
Intende	ed lear	ning outcomes				
student	ts are f	amiliar with the basic p	tly design algorithms a paradigms of the desigr stimate the run-time be	n of algorithms and a	re able to apply the	m in practical
Courses	5 (type, r	number of weekly contact hour	s, language — if other than Ger	man)		
V + Ü (n	io infoi	rmation on SWS (weekl	y contact hours) and co	ourse language avail	able)	
		sessment (type, scope, lang le for bonus)	guage — if other than German, o	examination offered — if no	t every semester, informati	on on whether
tion dat aminati tion of o examin	te, the ion in g one ca ation i	written examination ca groups. A 80 to 90 minu ndidate each, a 30 min n groups of 3.	o minutes). If announce in be replaced by an ora ute written examination ute (approx.) oral exam	al examination of on is equivalent to a 20	e candidate each or o minute (approx.) o	an oral ex- ral examina-
Allocati	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teachir	ıg cycl	е				
Referre	d to in	LPO I (examination regulati	ons for teaching-degree progra	mmes)		
§ 49 (1) 1. a) Informatik Theoretische Informatik, Algorithmen und Datenstrukturen § 69 (1) 1. a) Informatik Theoretische Informatik, Algorithmen und Datenstrukturen						
Module appears in						
Bachelor' degree (1 major) Computer Science (2010)						
Bachelor' degree (1 major) Mathematics (2012)						
Bachelor' degree (1 major) Mathematics (2013)						
Bachelor' degree (1 major) Economathematics (2012)						
Bachelor' degree (1 major) Computational Mathematics (2012)						
Bachelor' degree (1 major) Computational Mathematics (2013) Master's degree (1 major) Digital Humanities (2011)						
First state examination for the teaching degree Realschule Computer Science (2012)						
First state examination for the teaching degree Gymnasium Computer Science (2009)						
LA Gymnasi	en Comp	uter Science (2009)		• generated 26-Aug-2024 • e ehramt Gymnasien Informati		page 8 / 76



Module title			Abbreviation			
Software Technology			10-l-ST-102-m01			
Module coordinator Modu			Module offered by	Module offered by		
Dean of	f Studi	es Informatik (Compute	r Science)	Institute of Comput	er Science	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
10	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate		site to assessment: e ecturer at the beginn	exercises (type and s ing of the course).	scope to be
Conten	ts					
bases a	and obj	ed software developme ject-relational mapping d process, agile softwa	, foundations of web p	rogramming (HTML,	XML), software deve	
Intende	ed lear	ning outcomes				
The stu softwar		possess a fundamental ems.	theoretical and praction	cal knowledge on the	e design and develop	oment of
Course	S (type, r	number of weekly contact hours	s, language — if other than Gei	rman)		
V + Ü (r	no infor	rmation on SWS (weekl	y contact hours) and co	ourse language avail	able)	
		Sessment (type, scope, lang le for bonus)	uage — if other than German,	examination offered — if nc	ot every semester, informati	on on whether
tion dat aminati tion of o	te, the ion in g one ca	nation (approx. 80 to 9 written examination ca groups. A 80 to 90 minu ndidate each, a 30 min n groups of 3.	n be replaced by an ora ite written examinatior	al examination of on is equivalent to a 2	e candidate each or o minute (approx.) o	an oral ex- ral examina-
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teachir	ıg cycl	e				
Referre	d to in	LPO I (examination regulation	ons for teaching-degree progra	immes)		
§ 49 (1) 1. b) Datenbanksysteme und Softwaretechnologie						
§ 69 (1) 1. b) Datenbanksysteme und Softwaretechnologie						
Module appears in						
Bachelor' degree (1 major) Computer Science (2010)						
Bachelor' degree (1 major) Mathematics (2012) Bachelor' degree (1 major) Mathematics (2013)						
Bachelor' degree (1 major) Economathematics (2012)						
Bachelor' degree (1 major) Business Information Systems (2013)						
Bachelor' degree (1 major) Human-Computer Systems (2010)						
Bachelor' degree (1 major) Computational Mathematics (2012)						
Bachelor' degree (1 major) Computational Mathematics (2013)						
Bachelo	or' deg	ree (1 major) Aerospace	e Computer Science (20	009)		
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Bachelor' degree (1 major) Aerospace Computer Science (2011) First state examination for the teaching degree Realschule Computer Science (2012) First state examination for the teaching degree Gymnasium Computer Science (2009)

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Module title			Abbreviation			
Databases 10-I-DB-102-m01						
Module	e coord	inator		Module offered by		
Dean of Studies Informatik (Computer Science)			Institute of Comput	er Science		
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	Admission prerequi	site to assessment: e ecturer at the beginn	exercises (type and s ing of the course).	scope to be
Conten	ts					
Relation ment.	nal alg	ebra and complex SQL	statements; database	planning and norma	l forms; transaction I	manage-
Intende	ed leari	ning outcomes				
The stu	dents p	oossess knowledge abo	out database modelling	g and queries in SQL	as well as transaction	ons.
Course	S (type, n	umber of weekly contact hours	, language — if other than Ger	man)		
V + Ü (r	no infor	mation on SWS (weekly	/ contact hours) and co	ourse language avail	able)	
		essment (type, scope, lang le for bonus)	uage — if other than German, o	examination offered — if no	t every semester, informati	on on whether
if annoi ced by nutes, g	unced an oral groups	nation (approx. 50 to 60 by the lecturer by four v examination of one ca of 2: 20 minutes, group ssessment: German, Er	veeks prior to the exam ndidate each or an ora os of 3: 25 minutes)	l examination in grou		
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teachir	ng cycl	e				
Referre	d to in	LPO I (examination regulation	ons for teaching-degree progra	mmes)		
§ 49 (1)	1. b) D	atenbanksysteme und atenbanksysteme und	Softwaretechnologie	· · · · · · · · · · · · · · · · · · ·		
Module appears in						
Bachelo	or' deg	ree (1 major) Computer	Science (2010)			
Bachelor' degree (1 major) Mathematics (2012)						
Bachelor' degree (1 major) Mathematics (2013)						
Bachelor' degree (1 major) Business Information Systems (2013)						
Bachelor' degree (1 major) Computational Mathematics (2012)						
Bachelor' degree (1 major) Computational Mathematics (2013)						
Bachelor' degree (1 major) Aerospace Computer Science (2009)						
Bachelor' degree (1 major) Aerospace Computer Science (2011) Bachelor' degree (1 major) Functional Materials (2012)						
Master's degree (1 major) Computer Science (2010)						
Master's degree (1 major) Mathematics (2012)						
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Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011) Master's degree (1 major) Nanostructure Technology (2010) Master's degree (1 major) Computational Mathematics (2012) First state examination for the teaching degree Realschule Computer Science (2012) First state examination for the teaching degree Gymnasium Computer Science (2009)

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Module title			Abbreviation		
Object-Oriented Programming			10-I-OOP-GY-102-m01		
Module coordinator Modu			Module offered by		
Dean of	f Studi	es Informatik (Computer	Science)	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)	
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate		site to assessment: e ecturer at the beginn	exercises (type and scope to be ing of the course).
Conten	ts				
Polymo ment.	orphism	ı, generic programming, r	meta programming, w	veb programming, te	mplates, document manage-
Intende	ed lear	ning outcomes			
The stu their pr		•	rent paradigms of obj	ect-oriented prograr	nming and have experience in
Course	S (type, r	umber of weekly contact hours, l	anguage — if other than Ger	rman)	
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
		s essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
tion dat aminati	te, the ion in ខ្ន		be replaced by an ora ch: 15 minutes, group	al examination of on os of 2: 20 minutes,	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Workload					
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					
§ 69 (1) 1. b) Datenbanksysteme und Softwaretechnologie					
Module appears in					
First sta	First state examination for the teaching degree Gymnasium Computer Science (2009)				

Module	e title				Abbreviation
Practic	al Cours	se in Programming			10-I-PP-102-m01
Module	e coordi	nator		Module offered by	·
Dean o	f Studie	s Informatik (Computer	Science)	Institute of Comput	ter Science
ECTS	Metho	d of grading	Only after succ. com	· · · ·	
10	1	uccessfully completed			
Duratio	<u> </u>	Module level	Other prerequisites		
1 seme		undergraduate		site to assessment:	exercises (type and scope to be ing of the course).
Conten	its				
The pro	ogrammi	ing language Java. Indep	endent creation of si	mall to middle-sized	, high-quality Java programs.
Intende	ed learn	ing outcomes			
	-	re able to independently	/ develop small to mi	ddle-sized, high-qua	ality Java programs.
		umber of weekly contact hours, l	•		
	-	on on SWS (weekly cont			2)
-			· · ·		
		essment (type, scope, langua e for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether
examin		groups of 3.	e (approx.) oral exam	iination in groups of	2 and a 40 minute (approx.) oral
Additio	onal info	ormation			
		rmation on module dura	ition: 1 to 2 semester	s.	
Worklo					
Teachi	ng cycle	1			
Referre	ed to in l	POI (examination regulation	s for teaching-degree progra	mmes)	
		formatik Praktische Soft formatik Praktische Soft	_		
Module	e appea	rs in			
Bachel	or' degr	ee (1 major) Computer S	cience (2010)		
Bachel	or' degr	ee (1 major) Mathematic	s (2012)		
	-	ee (1 major) Mathematic	-		
		ee (1 major) Computatio			
	-	ee (1 major) Computatio		-	
		ee (1 major) Aerospace (
	-	ee (1 major) Aerospace (011)	
	-	e (1 major) Digital Huma			、 、
		nination for the teaching	-	•	
First sta	ate exar	nination for the teaching	g degree Gymnasium	Computer Science (2	2009)

Module	title				Abbreviation
Practic	al cour	se in software			10-I-SWP-102-m01
Module	Module coordinator			Module offered by	<u>.</u>
Dean of	f Studi	es Informatik (Computer :	Science)	Institute of Comput	ter Science
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
10	(not)	successfully completed			
Duratio	'n	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
cation of	of solu		ML) and milestones,	user manual, progra	uirements specifications, specifi- mming documentation, presenta-
Intende	ed lear	ning outcomes			
The stu small te		possess the practical skil	ls for the design, dev	velopment and exect	ution of a software project in
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Gei	rman)	
P (no in	format	tion on SWS (weekly cont	act hours) and cours	e language available	e)
module is	creditab	le for bonus)		examination offered — if no	ot every semester, information on whether
		project assignments, pre	sentation		
Allocat		places			
Additio	nalinf	ormation			
Auditio	IIdl IIII	ormation			
Worklo					
WOIKIO	au				
 Teechir					
Teachir	יצ נענו	C			
 Dof	al 4 a 1			`	
		LPOI (examination regulation		ammes)	
§ 69 (1)	1. d) I	nformatik Praktische Soft nformatik Praktische Soft	_		
Module					
	-	ree (1 major) Computer S			
	-	ree (1 major) Mathematic			
	-	ree (1 major) Mathematic ree (1 major) Computatio	-	12)	
	-	ree (1 major) Computatio			
	-	mination for the teaching		-	012)
		mination for the teaching	-		
			,		<i></i>

Module	e title				Abbreviation
Theoretical informatics					10-l-Tl-102-m01
Module coordinator				Module offered by	
		es Informatik (Computer S	Science)	Institute of Comput	er Science
ECTS		od of grading	Only after succ. com		
10		rical grade			
Duratio		Module level	Other prerequisites		
1 seme		undergraduate			exercises (type and scope to be ing of the course).
Conten	ts				
	-	, decidability, countabilit Ilar sets, generative gram			nctions and circuits, finite auto- nsitive languages.
Intende	ed leari	ning outcomes			
tability	, comp		olean functions and c	ircuits, finite automa	nputability, decidability, coun- ata and regular sets, generative
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
module is	creditab	le for bonus)			t every semester, information on whether
tion da aminat tion of	te, the ion in g one cai	written examination can groups. A 80 to 90 minute	be replaced by an ora written examination	al examination of on is equivalent to a 2	four weeks prior to the examina- e candidate each or an oral ex- o minute (approx.) oral examina- 2 and a 40 minute (approx.) oral
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teachir	ng cycl	e			
Referre	d to in	LPO I (examination regulations	s for teaching-degree progra	mmes)	
§ 49 (1)	1. a) Ir	nformatik Theoretische In nformatik Theoretische In	formatik, Algorithme	n und Datenstruktur	
Module	e appea	irs in			
Module appears inBachelor' degree (1 major) Computer Science (2010)Bachelor' degree (1 major) Mathematics (2012)Bachelor' degree (1 major) Mathematics (2013)Bachelor' degree (1 major) Computational Mathematics (2012)Bachelor' degree (1 major) Computational Mathematics (2013)First state examination for the teaching degree Realschule Computer Science (2012)First state examination for the teaching degree Gymnasium Computer Science (2009)					



Module	e title				Abbreviation
Technical Informatics 1					10-I-TEI1-102-m01
Module	e coord	inator		Module offered by	
Dean o	f Studi	es Informatik (Computer	Science)	Institute of Comput	ter Science
ECTS	Metho	od of grading	Only after succ. con	pl. of module(s)	
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate			te to assessment: exercises; type irer at the beginning of the cour-
Conten	ts				
This co	urse te	aches the foundations of	f technical computer	science.	
Intende	ed lear	ning outcomes			
The stu	dents	master the fundamentals	of technical comput	er science.	
Course	S (type, r	number of weekly contact hours,	anguage — if other than Ger	man)	
V + Ü (r	no info	rmation on SWS (weekly	contact hours) and co	ourse language avail	able)
		sessment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether
tion da aminat	te, the ion in ន្	written examination can	be replaced by an ora ch: 15 minutes, grou	al examination of on os of 2: 20 minutes,	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)
Allocat	-		<u> </u>		
Additio	nal inf	ormation			
Worklo	ad				
Teachi	ng cycl	e			
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
§ 69 (1)) 1. c) lr	nformatik Technische Info	ormatik		
Module	appea	ars in			
First sta	ate exa	mination for the teaching	g degree Gymnasium	Computer Science (2009)



Module	e title				Abbreviation
Techni	Technical Informatics 2				10-I-TEl2-102-m01
Module coordinator				Module offered by	
Dean o	f Studi	es Informatik (Compute	r Science)	Institute of Compu	ter Science
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	ster	undergraduate			ite to assessment: exercises; type urer at the beginning of the cour-
Conten	ts				
This co	urse te	aches the foundations	of technical computer	science.	
Intend	ed lear	ning outcomes			
The stu	Idents	master the fundamenta	ls of technical comput	er science.	
Course	S (type, r	number of weekly contact hours	, language — if other than Ge	man)	
V + Ü (ı	no info	rmation on SWS (weekly	/ contact hours) and co	ourse language avai	lable)
		sessment (type, scope, lang le for bonus)	uage — if other than German,	examination offered — if n	ot every semester, information on whether
tion da aminat	te, the ion in ន្	written examination ca	n be replaced by an or each: 15 minutes, grou	al examination of or os of 2: 20 minutes,	y four weeks prior to the examina- ne candidate each or an oral ex- groups of 3: 25 minutes)
Allocat					
Additio	onal inf	ormation			
Worklo	ad				
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulation	ons for teaching-degree progra	mmes)	
		nformatik Technische In			
Module	e appea	ars in			
First st	ate exa	mination for the teaching	ng degree Gymnasium	Computer Science ((2009)





Compulsory Electives

(22 ECTS credits)

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Module	e title				Abbreviation	
Digital	compu	iter systems			10-I-RAL-102-m01	
Module	e coord	inator		Module offered by		
		es Informatik (Computer	Science)	Institute of Comput	er Science	
ECTS		od of grading	Only after succ. com	· ·		
10		rical grade		.p.u. c		
Duratio		Module level	Other prerequisites			
1 seme		undergraduate			exercises (type and scope to be ing of the course).	
Conten	ts					
					nchronous and asynchronous cir- e programming, memory hierar-	
Intende	ed lear	ning outcomes				
ming of	feasyr				up to the design and program- vare description languages for the	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)		
V + Ü (r	no info	rmation on SWS (weekly o	contact hours) and co	ourse language avail	able)	
module is	creditab	le for bonus)			ot every semester, information on whether	
tion da aminat tion of	te, the ion in ន្ one ca	written examination can groups. A 80 to 90 minute	be replaced by an ora e written examination	al examination of on is equivalent to a 2	four weeks prior to the examina- e candidate each or an oral ex- o minute (approx.) oral examina- 2 and a 40 minute (approx.) oral	
Allocat						
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	d to in	LPO I (examination regulations	s for teaching-degree progra	mmes)		
§ 69 (1)) 1. c) li	nformatik Technische Info	ormatik			
Module						
		ree (1 major) Computer S	cience (2010)			
	-	ree (1 major) Mathematic				
	-	ree (1 major) Mathematic	-			
	-	ree (1 major) Computatio				
		ree (1 major) Computatio			2000)	
11151516	First state examination for the teaching degree Gymnasium Computer Science (2009)					

Module title					Abbreviation
Information Transmission					10-l-lÜ-102-m01
Module	e coord	inator		Module offered by	
holder	of the (Chair of Computer Science	e III	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
10	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate	Admission prerequis announced by the le		exercises (type and scope to be ing of the course).
Conten	ts				
theory,	spectr		, modulation techniq	ue, structure of digi	d fault correction, information tal transmission systems, intro-
Intende	ed leari	ning outcomes			
		possess a technical, theo a knowledge that is nece			ucture of systems for information
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
		eessment (type, scope, langua; le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
tion dat aminati tion of o	te, the ion in g one cai	written examination can groups. A 80 to 90 minute	be replaced by an ora written examination	al examination of on is equivalent to a 20	four weeks prior to the examina- e candidate each or an oral ex- o minute (approx.) oral examina- 2 and a 40 minute (approx.) oral
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teachir	ıg cycl	e			
Referre	d to in	LPOI (examination regulations	s for teaching-degree progra	mmes)	
§ 69 (1)	1. c) Ir	nformatik Technische Info	ormatik		
Module					
Bachelor' degree (1 major) Computer Science (2010) Bachelor' degree (1 major) Mathematics (2012) Bachelor' degree (1 major) Mathematics (2013) Bachelor' degree (1 major) Computational Mathematics (2012) Bachelor' degree (1 major) Computational Mathematics (2013) Bachelor' degree (1 major) Aerospace Computer Science (2009) Bachelor' degree (1 major) Aerospace Computer Science (2011) First state examination for the teaching degree Gymnasium Computer Science (2009)					



Module title				Abbreviation	
Logic fo	or infor	matics			10-I-LOG-102-m01
Module	coord	inator		Module offered by	
Dean of	fStudie	es Informatik (Computer S	Science)	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
6	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate	Admission prerequis announced by the le		exercises (type and scope to be ing of the course).
Conten	ts				
		mantics of propositional ets, syntax and semantic		nd normal forms, Hoi	rn formulas, SAT, resolution, infi-
Intende	ed leari	ning outcomes			
					ositional logic, equivalence and semantics of predicate logic.
Courses	S (type, n	number of weekly contact hours, l	anguage — if other than Ger	man)	
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
		eessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
tion dat	te, the		be replaced by an ora	al examination of on	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teachir	ng cycl	е			
Referre	d to in	LPO I (examination regulations	s for teaching-degree progra	mmes)	
Module	e appea	ars in			
Bachelo	or' deg	ree (1 major) Computer S	cience (2010)		
	-	ree (1 major) Mathematic			
	-	ree (1 major) Mathematic		`	
	-	ree (1 major) Computation			
	-	ree (1 major) Computation mination for the teaching		-	2009)
			,		· · //

Module title					Abbreviation
Practica	al Cour	se in Hardware			10-I-HWP-102-m01
Module	coord	inator		Module offered by	
Dean of	fStudie	es Informatik (Computer S	Science)	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)	
10	(not) s	successfully completed			
Duratio	n	Module level	Other prerequisites		
1 semes	ster	undergraduate			
Conten	ts				
		riments on hardware asp croprocessor.	ects, for example in o	communication tech	nology, robots or the structure of
Intende	ed learı	ning outcomes			
	ns, to i				s with the help of experiment de- ument and evaluate experiment
Courses	5 (type, n	number of weekly contact hours, l	anguage — if other than Ger	man)	
P (no in	format	ion on SWS (weekly cont	act hours) and cours	e language available	e)
		Sessment (type, scope, langua; le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
		,	esentation (type and	expenditure of time t	to be specified by the lecturer at
		of the course)	(),,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	- · ·	
Allocati	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teachir	ng cycl	e			
Referre	d to in	LPOI (examination regulations	s for teaching-degree progra	mmes)	
Module	appea	ars in			
	-	ree (1 major) Computer S			
	-	ree (1 major) Aerospace (
	-	ree (1 major) Aerospace (•		,
		mination for the teaching ination Special study offe		Computer Science (2	2009)
NU IIIa		mation Special Sludy Offe	:iiiig (2010)		



Module	title				Abbreviation	
Algorit	hmic G	raph Theory			10-I-GT-102-m01	
Madula	Module coordinator					
		es Informatik (Computer :	Science)	Module offered by		
ECTS		od of grading	Only after succ. com	Institute of Comput		
		rical grade	Only after Succ. con			
5 Duratio		Module level	Other prerequisites			
1 seme:		undergraduate			exercises (type and scope to be ing of the course).	
Conten	ts					
colouri of grap	ngs, wo h probl	ork with planar graphs an	d find out how the ra niliar with new conce	nking algorithm of G pts, for example ho	ximal flows, find matchings and loogle works. Using the examples w we model problems as linear	
Intende	ed leari	ning outcomes				
cipants	are ab		om the course helps	solve a given graph	problems. In addition, the parti- problem algorithmically. In this prithms.	
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)		
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)	
		s essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether	
tion dat aminati	te, the ion in g		be replaced by an ora ch: 15 minutes, group	al examination of on os of 2: 20 minutes,	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)	
Allocat			· · · ·			
Additio	nal inf	ormation				
Worklo	ad					
Teachir	ng cycl	е				
Referre	d to in	LPO I (examination regulations	s for teaching-degree progra	mmes)		
Module	e appea	irs in				
Bachelo Bachelo Master Master	Bachelor' degree (1 major) Computer Science (2010) Bachelor' degree (1 major) Aerospace Computer Science (2009) Bachelor' degree (1 major) Aerospace Computer Science (2011) Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2010) First state examination for the teaching degree Gymnasium Computer Science (2009)					

LA Gymnasien	Computer Science	(2009)	
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Module title					Abbreviation	
Knowledge-based Systems					10-I-WBS-102-m01	
Module coordinator				Module offered by		
holder	of the (Chair of Computer Scienc	e VI	Institute of Comput	er Science	
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	Contents					
		n the following areas: kno dge acquisition, learning			ge representation, solving me-	
Intende	ed lear	ning outcomes				
		possess theoretical and p ding knowledge formalisa			g and design of knowledge-based small project.	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)		
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)	
Method	l of ass	Sessment (type, scope, langua	ge — if other than German, e	examination offered — if no	t every semester, information on whether	
module is	creditab	le for bonus)				
if anno ced by nutes, g	unced an oral groups		eks prior to the exam lidate each or an oral of 3: 25 minutes)	examination in grou	itten examination can be repla- ups (one candidate each: 15 mi-	
Allocat	_					
Additio	nal inf	ormation				
Worklo	ad					
Teachir	ıg cycl	e				
Referre	d to in	LPOI (examination regulations	s for teaching-degree progra	mmes)		
Module appears in						
	Bachelor' degree (1 major) Computer Science (2010)					
	Bachelor' degree (1 major) Business Information Systems (2013) Bachelor' degree (1 major) Aerospace Computer Science (2009)					
	Bachelor' degree (1 major) Aerospace Computer Science (2009) Bachelor' degree (1 major) Aerospace Computer Science (2011)					
	-	ee (1 major) Computer Sc	•	,		
	Master's degree (1 major) Mathematics (2012)					
	-	ee (1 major) Mathematics				
	-	ee (1 major) Computation				
First sta	First state examination for the teaching degree Gymnasium Computer Science (2009)					



Module title					Abbreviation	
Data M	ining				10-I-DM-102-m01	
Module coordinator				Module offered by		
holder	of the (Chair of Computer Scie	nce VI	Institute of Comput	er Science	
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		site to assessment: e ecturer at the beginn		scope to be
Conten	ts					
model, methoo	Foundations in the following areas: definition of data mining and knowledge, discovery in databases, process model, relationship to data warehouse and OLAP, data preprocessing, data visualisation, unsupervised learning methods (cluster and association methods), supervised learning (e.g. Bayes classification, KNN, decision trees, SVM), learning methods for special data types, other learning paradigms.					
Intende	ed lear	ning outcomes				
ta mini the kno	The students possess a theoretical and practical knowledge of typical methods and algorithms in the area of da- ta mining and machine learning. They are able to solve practical knowledge discovery problems with the help of the knowledge acquired in this course and by using the KDD process. They have acquired experience in the use or implementation of data mining algorithms.					
Course	S (type, r	number of weekly contact hour	s, language — if other than Ge	rman)		
V + Ü (r	no infoi	mation on SWS (weekl	y contact hours) and co	ourse language avail	able)	
		Sessment (type, scope, lang le for bonus)	uage — if other than German,	examination offered — if no	t every semester, informati	on on whether
tion da aminat	te, the ion in ខ្	nation (approx. 50 to 6 written examination ca groups (one candidate ssessment: German, E	n be replaced by an or each: 15 minutes, grou	al examination of on ps of 2: 20 minutes,	e candidate each or	an oral ex-
Allocat						
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
	<u> </u>	-				
Referre	d to in	LPOI (examination regulati	ons for teaching-degree progra	ammes)		
Module	e appea	urs in				
		ree (1 major) Computer	Science (2010)			
Bachelor' degree (1 major) Business Information Systems (2013)						
	Bachelor' degree (1 major) Aerospace Computer Science (2009)					
	-	ree (1 major) Aerospace	•	011)		
	-	ee (1 major) Computer : ee (1 major) Mathemati				
	-	ee (1 major) Mathemati				
	-	ee (1 major) Computati		2)		
LA Gymnas	ien Compi	uter Science (2009)	-	• generated 26-Aug-2024 • e _ehramt Gymnasien Informati	-	page 26 / 76



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Module	Module title Abbreviation					
Theory	of Com	plexity			10-I-KT-102-m01	
Module	coord	inator		Module offered by		
Dean of	fStudie	es Informatik (Compute	r Science)	Institute of Comput	er Science	
ECTS	ECTS Method of grading		Only after succ. con	npl. of module(s)		
5	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate		site to assessment: e ecturer at the beginn		scope to be
Contents						
sumption	on vers	easurements and class sus computation time, c roblem, completeness j	leterminism versus inc	leterminism, hierarcl	hical theorems, trans	
Intende	ed leari	ning outcomes				
classes determ	, genei inism v	oossess a fundamental ral relationships betwe rersus indeterminism, h ing reduction, interactiv	en space and time classierarchical theorems,	ses, memory consur	nption versus comp	utation time,
Course	5 (type, n	umber of weekly contact hours	, language — if other than Ge	rman)		
V + Ü (r	infor	mation on SWS (weekly	/ contact hours) and co	ourse language avail	able)	
		essment (type, scope, lang le for bonus)	uage — if other than German,	examination offered — if no	t every semester, informati	on on whether
tion dat aminati	te, the ion in g	nation (approx. 50 to 60 written examination ca groups (one candidate e ssessment: German, Er	n be replaced by an or each: 15 minutes, grou	al examination of on ps of 2: 20 minutes,	e candidate each or	an oral ex-
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teachir	ng cycl	e				
Referre	d to in	LPO I (examination regulation	ons for teaching-degree progra	immes)		
Module	appea	ars in				
Bachelo	or' deg	ree (1 major) Computer	Science (2010)			
Bachelor' degree (1 major) Mathematics (2012)						
Bachelor' degree (1 major) Mathematics (2013)						
Bachelor' degree (1 major) Computational Mathematics (2012) Bachelor' degree (1 major) Computational Mathematics (2013)						
	-	ree (1 major) Aerospace		-		
	-	ree (1 major) Aerospace	•	-		
	-	ee (1 major) Computer S	•	-		
Master'	s degr	ee (1 major) Mathemati	cs (2012)			
LA Gymnasi	en Compi	uter Science (2009)	-	• generated 26-Aug-2024 • 6 Lehramt Gymnasien Informati	-	page 28 / 76





Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Computational Mathematics (2012) First state examination for the teaching degree Gymnasium Computer Science (2009)

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	data record Lehramt Gymnasien Informatik - 2009	

Module	e title				Abbreviation	
Automa	ation a	nd Control Technology	,	_	10-I-AR-102-m01	
Module coordinator				Module offered by		
holder	ofthe	Chair of Computer Scie	nce VII	Institute of Comput	er Science	
ECTS		od of grading	Only after succ. con	· · ·		
8	1	rical grade		•		
Duratio		Module level	Other prerequisites			
	1 semester undergraduate Admission prerequisite to assessment: exercises (type and scope to announced by the lecturer at the beginning of the course).			scope to be		
Conten	ts					
functio structu nes, co	Overview of automation systems, fundamental principles of control technology, Laplace transformation, transfer function, plant, controller types, basic feedback loop, fundamental principles of control engineering, automata, structure of Petri nets, Petri nets for automisation, machine-related structure of processing computation machi- nes, communication between process computers and periphery devices, software for automation systems, pro- cess synchronisation, process communication, real-time operating systems, real-time planning.					
		ning outcomes				
			als of automation and c	ontrol		
			rs, language — if other than Ger			
					abla)	
Metho module is	 V + Ü (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 is creditable for bonus) written examination (approx. 80 to 90 minutes). If announced by the lecturer by four weeks prior to the examina- 					
tion da aminat tion of examin	te, the ion in រួ one ca iation i	written examination ca groups. A 80 to 90 min ndidate each, a 30 mir n groups of 3.	an be replaced by an or- ute written examinatior ute (approx.) oral exam nglish if agreed upon w	al examination of on i is equivalent to a 2 hination in groups of	e candidate each or o minute (approx.) o	an oral ex- ral examina-
Allocat	ion of	places				
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl					
	is cyci					
Doforro	d to in	IPOL (avamination regulat	ions for teaching-degree progra	(mmac)		
Kelene				inines)		
Madula		we in				
Module						
	-	ree (1 major) Compute				
Bachelor' degree (1 major) Mathematics (2012) Bachelor' degree (1 major) Mathematics (2013)						
	-	-	tional Mathematics (20	12)		
Bachel	or' deg	ree (1 major) Computa	tional Mathematics (20	13)		
	-		e Computer Science (20	-		
	-		e Computer Science (20	011)		
	-	ee (1 major) Computer				
		ee (1 major) Mathemat uter Science (2009)		· concreted of Arrest		page 22 / - /
LA Gymnas	ien comp	uter Science (2009)		• generated 26-Aug-2024 • e _ehramt Gymnasien Informati		page 30 / 76



Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011) Master's degree (1 major) Nanostructure Technology (2010) Master's degree (1 major) Computational Mathematics (2012) First state examination for the teaching degree Gymnasium Computer Science (2009)

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Module tit	le			Abbreviation	
Computer Networks and Communication Systems				10-I-RK-102-m01	
Module coordinator			Module offered by		
holder of the Chair of Computer Science III			Institute of Comput	er Science	
-	thod of grading	Only after succ. com			
	merical grade				
Duration	Module level	Other prerequisites		· · · ·	
1 semester	undergraduate	Admission prerequise announced by the le			scope to be
Contents					
of compute and structu chies, data and ISO ar	of computer and communic er networks and communica ure of computer networks: n flow control and traffic con chitecture models. Internet: nmunication networks: fund	ation systems: probler etwork structure, netw trol, transfer network. structure and basic n	n statement and inti vork access, access Communication pro nechanism, TCP/IP, 1	oduction to method methods, digital tran tocols: fundamental routing, network man	architecture nsfer hierar- principles nagement.
	earning outcomes				
The studer	ts possess an intricate kno fundamental principles to ra		e of computer netwo	orks and communica	tion systems
	pe, number of weekly contact hours,		man)		
	formation on SWS (weekly			able)	
written exa tion date, t amination tion of one examination	litable for bonus) mination (approx. 80 to 90 he written examination can in groups. A 80 to 90 minut candidate each, a 30 minu on in groups of 3. of assessment: German, En	be replaced by an ora e written examination te (approx.) oral exam	al examination of on is equivalent to a 2 ination in groups of	e candidate each or o minute (approx.) o	an oral ex- ral examina-
Allocation		<u> </u>			
	·				
Additional	information				
Workload					
Worktoau					
Tooching	velo				
Teaching o	ylle				
Referred to	in LPO I (examination regulation	ns for teaching-degree progra	mmes)		
	• • • • •				
Module ap					
Bachelor' o Bachelor' o Bachelor' o Bachelor' o	legree (1 major) Computer S legree (1 major) Mathemati legree (1 major) Mathemati legree (1 major) Computatio legree (1 major) Computatio legree (1 major) Aerospace	cs (2012) cs (2013) onal Mathematics (202 onal Mathematics (202	13)		
	omputer Science (2009)	JMU Würzburg	• generated 26-Aug-2024 • 6	-	page 32 / 76
		data record L	ehramt Gymnasien Informati	k - 2009	



Bachelor' degree (1 major) Aerospace Computer Science (2011) Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2012) Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Computational Mathematics (2012) First state examination for the teaching degree Gymnasium Computer Science (2009)



Module title					Abbreviation
Seminar 1					10-I-SEM1-072-m01
Module coordinator				Module offered by	
Dean o	f Studi	es Informatik (Computer S	Science)	Institute of Comput	er Science
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				
ware w	ith writ		n. The topics in modu	les 10-I-SEM1 and 10	ure and, where applicable, soft- o-I-SEM2 must come from diffe-
Intend	ed lear	ning outcomes			
		are able to independently tten form and to orally pr	•	•	ce, to summarise the main
Course	S (type, r	umber of weekly contact hours, l	anguage — if other than Ger	man)	
S (no ir	format	ion on SWS (weekly cont	act hours) and cours	e language available	2)
		s essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
science	e (type	ation and oral presentati and length to be specifie ssessment: German, Eng	d by the lecturer at th	e beginning of the c	
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teachi	ng cycl	e			
Referre	d to in	LPO I (examination regulations	s for teaching-degree progra	mmes)	
Module	e appea	ins in			
Bachel Bachel	Bachelor' degree (1 major) Computer Science (2007) Bachelor' degree (1 major) Computer Science (2010) Bachelor' degree (1 major) Business Information Systems (2013) Bachelor' degree (1 major) Business Information Systems (2007) Bachelor' degree (1 major) Business Information Systems (2009) Bachelor' degree (1 major) Business Information Systems (2008) First state examination for the teaching degree Gymnasium Computer Science (2009)				



Module title	Abbreviation				
Seminar 2		10-I-SEM2-072-m01			
Module coordinator		Module offered by			
Dean of Studies Informatik (Computer	Science)	Institute of Comput	er Science		
ECTS Method of grading	Only after succ. com	pl. of module(s)			
5 numerical grade					
Duration Module level	Other prerequisites				
1 semester undergraduate					
Contents					
Independent review of a current topic i ware with written and oral presentation rent areas (this usually means that the	n. The topics in modu	les 10-I-SEM1 and 10			
Intended learning outcomes					
The students are able to independentl aspects in written form and to orally p	, , , , , , , , , , , , , , , , , , , ,	•	ce, to summarise the main		
Courses (type, number of weekly contact hours,	language — if other than Ger	man)			
S (no information on SWS (weekly con	tact hours) and cours	e language available	e)		
Method of assessment (type, scope, langua module is creditable for bonus)	age — if other than German, e	examination offered — if no	t every semester, information on whether		
written elaboration and oral presentat science (type and length to be specific Language of assessment: German, Eng	d by the lecturer at th	e beginning of the c	ourse)		
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 S	cience (2010)				
Bachelor' degree (1 major) Business In	-	_			
Bachelor' degree (1 major) Business In					
Bachelor' degree (1 major) Business In Bachelor' degree (1 major) Business In					
First state examination for the teaching			2009)		

Module title Abbreviation					
Review Course in Informatics for the Staatsexamen (Gymnasium) 10-1-6					10-I-REP-GY-092-m01
Modul	e coord	linator		Module offered by	
Dean c	of Studi	ies Informatik (Computer	Science)	Institute of Compu	ter Science
ECTS	Meth	od of grading	Only after succ. com	pl. of module(s)	
4	(not)	successfully completed			
Duratio	on	Module level	Other prerequisites		
2 seme	ester	undergraduate			
Conter	nts				
Revisio	on of co	ontents of modules coveri	ing the subject as wel	l as the subject did	actics of computer science.
Intend	ed lear	ning outcomes			
The stunation		have refreshed their skill	s for the solution of th	ne type of problems	asked in the written state exami-
Course	es (type,	number of weekly contact hours,	language — if other than Ger	man)	
Ü (no i	nforma	ition on SWS (weekly con	tact hours) and cours	e language availabl	e)
		sessment (type, scope, langua ble for bonus)	ge — if other than German, e	examination offered — if n	ot every semester, information on whether
		f project assignments, pro g of the course)	esentation (type and	expenditure of time	to be specified by the lecturer at
Allocat					
 Additio	onal in	formation			
Worklo	ad				
Teachi	ng cyc	le	-		
			- Contraction -		
		LPO I (examination regulation	s for teaching-degree progra	mmes)	
Modul	e appe	ars in			
First st	ate exa	amination for the teaching	dograa Cumpacium	Commuter Colones (



Module	title				Abbreviation
Databases II 10-I=DB2-102-m01					10-I=DB2-102-m01
Module	coord	inator		Module offered by	
Dean of	fStudi	es Informatik (Computer S	Science)	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 semes	ster	graduate	Where applicable, p ning of the course (e	• •	ified by the lecturer at the begin- kercises).
Content	ts				
Data wa	arehou	ses and data mining; XM	L databases; web dat	abases;introductior	n to Datalog.
Intende	ed lear	ning outcomes			
The stu	dents l	have advanced knowledg	e about relational da	tabases, XML and da	ata mining.
Courses	5 (type, r	umber of weekly contact hours, l	anguage — if other than Geri	man)	
V + Ü (n	io infoi	mation on SWS (weekly o	contact hours) and co	urse language availa	able)
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
tion dat aminati	te, the ion in g		be replaced by an ora ch: 15 minutes, group	al examination of on os of 2: 20 minutes,	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)
Allocati	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teachin	ıg cycl	e			
Referre	d to in	LPO I (examination regulations	s for teaching-degree program	mmes)	
Module	appea	urs in			
Master' Master' Master' Master' Master' Master' Master' Master'	s degra s degra s degra s degra s degra s degra s degra s degra s degra	ee (1 major) Computer Sc ee (1 major) Mathematics ee (1 major) Mathematics ee (1 major) Physics (2010 ee (1 major) Physics (2010 ee (1 major) Nanostructur ee (1 major) Nanostructur ee (1 major) Business Info ee (1 major) Business Info ee (1 major) Computation ee (1 major) Functional M	5 (2012) 5 (2010) 6) 1) re Technology (2011) re Technology (2010) formation Systems (20 formation Systems (20 al Mathematics (2012)	013)	
	-	mination for the teaching		Computer Science (2	2009)



Module	e title				Abbreviation
Data Co	ompres	sion			10-I=DK-102-m01
Module	e coord	inator		Module offered by	
holder	of the (Chair of Computer Scienc	e ll	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)	
8	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	graduate	Where applicable, p ning of the course (e		ified by the lecturer at the begin- kercises).
Conten	ts				
system velets, MPEG s	, bitpla JPEG ba standar	ne techniques, predicati aseline, JPEG 200, subba ds, audio compression.	ve methods, hierarch	ical transformations	nage compression, human visual , discrete cosine transform, wa- ıantisation, video compression,
	-	ning outcomes			
		possess the methodic kn ext, image, video and auc		al skills for the devel	opment and use of compression
Course	S (type, r	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
		essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
tion da aminat tion of examin	te, the ion in g one ca ation i	written examination can groups. A 80 to 90 minute	be replaced by an ora e written examination e (approx.) oral exam	al examination of on is equivalent to a 20 ination in groups of	four weeks prior to the examina- e candidate each or an oral ex- o minute (approx.) oral examina- 2 and a 40 minute (approx.) oral
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	Module appears in				
	-	ee (1 major) Computer Sc			
	-	ee (1 major) Mathematics		Commente C : (
First sta	ate exa	mination for the teaching	g degree Gymnasium	computer Science (2	2009)

Programming of Distributed Systems Incl=PVS-102-m01 Module contractor Institute of Computer Science Inditional contractor Institute of Computer Science ECTS Method of grading Only after succ. compil. of module(s) 8 numerical grade Duration Module level Other prerequisites contractor 1 semestr graduate Where applicable, prerequisites as specified by the lecturer at the lining of the course (e.g. completion of exercises). Content Intended learning outcomes Intended learning outcomes. The students possess the methodic knowledge and practical skills for the design and development of parallely contact hours) and course language available Module is realizable for bouns) V 0 (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scop, language – if other than Geman, examination of one candidate each or an ora amination in groups A 80 to 90 minute shift agreed upon with the examination of one candidate each ora ora ora amination in groups of 3. Language Sessement: German, English if agreed upon with the examination in groups of 3. Language Sessement: German, English if agreed upon with the examination in groups of 3. Language Contractor Sessessement: German, English if agreed upon kither examination in groups of 3. Language Contractor <t< th=""><th>Module</th><th>e title</th><th></th><th></th><th></th><th>Abbreviation</th></t<>	Module	e title				Abbreviation				
holder of the Chair of Computer Science II Institute of Computer Science ECTS Method of grading Only after succ. compl. of module(s) 8 numerical grade Duration Module level Other prerequisites as specified by the lecturer at the l ning of the course (e. g. completion of exercises). Contents	Progra	mming	of Distributed Systems			10-I=PVS-102-m01				
ECTS Method of grading Only after succ. compl. of module(s) numerical grade Duration Module level Other prerequisites 1 semester graduate Where applicable, prerequisites as specified by the lecturer at the lning of the course (e. g. completion of exercises). Contents	Module	Module coordinator Module offered by			, ,					
8 numerical grade Duration Module level Other prerequisites 1 semester graduate Where applicable, prerequisites as specified by the lecturer at the lning of the course (e. g. completion of exercises). Contents Design and development of parallely and distributedly executed programs. Intended learning outcomes Intended learning outcomes The students possess the methodic knowledge and practical skills for the design and development of para and distributedly running programs. 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 or an or a amination in groups of so to go minutes). If announced by the lecturer by four weeks prior to the exaction date, the written examination are be replaced by an oral examination of one candidate each or an or a amination in groups of 3. Language of assessment: German, English if agreed upon with the examiner Allocation of places Module appears in Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011)	holder	ofthe	Chair of Computer Scienc	e II	Institute of Compu	ter Science				
Duration Module level Other prerequisites 1 semester graduate Where applicable, prerequisites as specified by the lecturer at the lning of the course (e.g. completion of exercises). Contents Design and development of parallely and distributedly executed programs. Intended learning outcomes Intended learning outcomes The students possess the methodic knowledge and practical skills for the design and development of para and distributedly running programs. Courses (type, number of weekly contact hours, language — if other than German) V + U (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 wit module is creditable for borus) written examination (approx. 80 to 90 minutes). If announced by the lecturer by four weeks prior to the exation of ace, the written examination can be replaced by an oral examination of one candidate each or an ora amination in groups of 3. Language of assessment: German, English if agreed upon with the examiner Aldication of places Workload Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2010) Master's degree (1 ma	ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)					
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Ining of the course (e. g. completion of exercises). Contents Design and development of parallely and distributedly executed programs. Intended learning outcomes The students possess the methodic knowledge and practical skills for the design and development of para and distributedly running programs. Courses (type, number of weekly contact hours, language – if other than German) V + Ü (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 wimodule is creditable for bonus) written examination (approx. 80 to 90 minutes). If announced by the lecturer by four weeks prior to the exaction date, the written examination can be replaced by an oral examination of one candidate each or an ora amination in groups. A 80 to 90 minute written examination is equivalent to a 20 minute (approx.) oral examination in groups of 3. Language of assessment: German, English if agreed upon with the examiner Aldication of places Morkload Referred to in LPO 1 (examination regulations for teaching-degree programmes) Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major	Duratio	n	Module level	Other prerequisites						
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Intended learning outcomes The students possess the methodic knowledge and practical skills for the design and development of para and distributedly running programs. Courses (type, number of weekly contact hours, language – if other than German) V + Ü (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 wf module is creditable for bonus) written examination (approx. 80 to 90 minutes). If announced by the lecturer by four weeks prior to the exa tion date, the written examination can be replaced by an oral examination of one candidate each or an ora amination in groups. A 80 to 90 minute written examination is equivalent to a 20 minute (approx.) oral exa tion of one candidate each, a 30 minute (approx.) oral examination in groups of 2 and a 40 minute (approx.) examination in groups of 3. Language of assessment: German, English if agreed upon with the examiner Allocation of places Moditional information Referred to in LPO 1 (examination regulations for teaching-degree programmes) Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Physics (2011)	Conten	ts								
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and distributedly running programs. Courses (type, number of weekly contact hours, language – if other than German) V + Ü (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 w module is creditable for bonus) written examination (approx. 80 to 90 minutes). If announced by the lecturer by four weeks prior to the exa tion date, the written examination can be replaced by an oral examination of one candidate each or an ora amination in groups. A 80 to 90 minute written examination is equivalent to a 20 minute (approx.) oral exa tion of one candidate each, a 30 minute (approx.) oral examination in groups of 2 and a 40 minute (approx examination in groups of 3. Language of assessment: German, English if agreed upon with the examiner Allocation of places Module information Workload Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011)	Intende	ed lear	ning outcomes							
V + Ü (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 wh module is creditable for bonus) written examination (approx. 80 to 90 minutes). If announced by the lecturer by four weeks prior to the exa tion date, the written examination can be replaced by an oral examination of one candidate each or an ora amination in groups. A 80 to 90 minute written examination is equivalent to a 20 minute (approx.) oral exa tion of one candidate each, a 30 minute (approx.) oral examination in groups of 2 and a 40 minute (approx.) usage of assessment: German, English if agreed upon with the examiner Allocation of places Morkload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Mostler's degree (1 major) Computer Science (2010) Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Physics (2011)				owledge and practica	al skills for the desi	gn and development of parallely				
Method of assessment (type, scope, language – if other than German, examination offered – if not every semester, information on wimodule is creditable for bonus) written examination (approx. 80 to 90 minutes). If announced by the lecturer by four weeks prior to the exation date, the written examination can be replaced by an oral examination of one candidate each or an ora amination in groups. A 80 to 90 minute written examination is equivalent to a 20 minute (approx.) oral exation of one candidate each, a 30 minute (approx.) oral examination in groups of 2 and a 40 minute (approx.) aral examination in groups of 3. Language of assessment: German, English if agreed upon with the examiner Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011)	Course	S (type, r	number of weekly contact hours,	language — if other than Ger	rman)					
module is creditable for bonus) written examination (approx. 80 to 90 minutes). If announced by the lecturer by four weeks prior to the exa tion date, the written examination can be replaced by an oral examination of one candidate each or an ora amination in groups. A 80 to 90 minute written examination is equivalent to a 20 minute (approx.) oral exa tion of one candidate each, a 30 minute (approx.) oral examination in groups of 2 and a 40 minute (approx.) tanguage of assessment: German, English if agreed upon with the examiner Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Physics (2011)	V + Ü (r	no info	rmation on SWS (weekly	contact hours) and co	ourse language avai	lable)				
tion date, the written examination can be replaced by an oral examination of one candidate each or an ora amination in groups. A 80 to 90 minute written examination is equivalent to a 20 minute (approx.) oral exa tion of one candidate each, a 30 minute (approx.) oral examination in groups of 2 and a 40 minute (approx examination in groups of 3. Language of assessment: German, English if agreed upon with the examiner Allocation of places Additional information Workload Teaching cycle Referred to in LPO 1 (examination regulations for teaching-degree programmes) Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Physics (2011)				age — if other than German, o	examination offered — if n	ot every semester, information on whether				
 Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011)	examin Langua	ation i ge of a	n groups of 3. ssessment: German, Eng							
Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011)										
 Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011)	Additio	nal inf	ormation							
 Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011)										
 Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011) 	Worklo	ad		-						
Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011)										
 Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011)	Teachi	ng cycl	e							
 Module appears in Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011)	Referre	d to in	LPOI (examination regulation	s for teaching-degree progra	mmes)					
Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011)										
Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011)	Module	e appea	Module appears in							
Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011)	Master's degree (1 major) Computer Science (2010)									
Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011)										
Master's degree (1 major) Nanostructure Technology (2011)										
אומסוברס עבצובב עדוומוטט ואמוטסווענותוב ובעוווטוטצע עסוט	Master	's degr	ee (1 major) Computer So ee (1 major) Mathematics ee (1 major) Physics (201 ee (1 major) Physics (201	5 (2010) 0) 1)						
First state examination for the teaching degree Gymnasium Computer Science (2009)	Master Master	's degr 's degr	ee (1 major) Computer So ee (1 major) Mathematics ee (1 major) Physics (201 ee (1 major) Physics (201 ee (1 major) Nanostructu	s (2010) 0) 1) re Technology (2011)						



Module	title				Abbreviation
Information Retrieval 10-I=IR-102-m01			10-I=IR-102-m01		
Module	coord	inator		Module offered by	
Dean of	Studie	es Informatik (Computer S	Science)	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 semes	ster	graduate	Where applicable, p ning of the course (e	• •	ified by the lecturer at the begin- kercises).
Content	ts				
data str ges and thods to	ructure l parad o supp	s (e. g. inverted index), q igms, structured queries ort IR (e. g. recommendat	uery elements (e. g. c), search engine (e. g	query operations, rel . architecture, crawli	t (tokenising, text properties), evance feedback, query langua- ing, interfaces, link analysis), me- ation, information extraction).
The stu	dents j	ning outcomes possess theoretical and p know-how to create a sea		n the area of informa	ation retrieval and have acquired
_		umber of weekly contact hours, l		man)	
		mation on SWS (weekly d			ahle)
Method	l of ass				t every semester, information on whether
tion dat aminati	te, the on in g		be replaced by an ora ch: 15 minutes, group	al examination of on os of 2: 20 minutes,	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)
Allocati	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teachin	ıg cycl	e			
Referre	d to in	LPOI (examination regulations	s for teaching-degree progra	mmes)	
Module appears in					
Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Business Information Systems (2011) Master's degree (1 major) Business Information Systems (2013) Master's degree (1 major) Functional Materials (2012) First state examination for the teaching degree Gymnasium Computer Science (2009)					



Module	e title				Abbreviation
Natura	Langu	age Processing and Text	t Mining		10-I=STM-102-m01
Module	coord	inator		Module offered by	1
holder	of the (Chair of Computer Scienc	e VI	Institute of Compu	iter Science
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	Where applicable, p ning of the course (e		cified by the lecturer at the begin- exercises).
Conten	ts				
stic par The stu text min	rsing, w dents ning an	vord sense disambiguation of the sense disambiguation of the sense of	on, term extraction m practical knowledge a nostly for English. The	ethods, information about typical metho ey are able to solve	v models for tagging, probabili- n extraction, sentiment analysis. ods and algorithms in the area of problems through the methods ns.
Intende	ed lear	ning outcomes			
text mi	ning an		They are able to solve	e practical problems	ods and algorithms in the area of s with the methods acquired in s.
Course	S (type, r	umber of weekly contact hours,	language — if other than Gei	rman)	
V + Ü (r	no infor	mation on SWS (weekly	contact hours) and co	ourse language avai	ilable)
		s essment (type, scope, langua le for bonus)	age — if other than German,	examination offered — if r	not every semester, information on whether
tion da aminat	te, the ion in ទួ	written examination can	be replaced by an ora ach: 15 minutes, grou	al examination of o ps of 2: 20 minutes	y four weeks prior to the examina- ne candidate each or an oral ex- , groups of 3: 25 minutes)
Allocat	ion of p	olaces	<u> </u>		
Additio	nal inf	ormation			
Worklo	ad				
Teachi	ıg cycl	e			
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	immes)	
Module	e appea	irs in			
	-	ee (1 major) Computer So			
First sta	ate exa	mination for the teaching	g degree Gymnasium	Computer Science	(2009)



Artificial Intelligence Inol=K1-102-m01 Module corrected The Chain of Computer Science VI Institute of Computer Science Ret How of grading Only after succ. comp L of module(S) Sample Computer Science Institute of Computer Science Ret How of grading Only after succ. comp L of module(S) In umerical grade In semester graduate In graduate Other prerequisites In the Suden Science Counce (Legic and Inference, knowledge representation, planning, probabilistic closure and predicate logic and inference, knowledge representation, planning, probabilistic closure and pagesian networks, utility theory and decidability problems, learning from observations, knowledge while learning, neural networks, utility theory and decidability problems, learning from observations, knowledge while learning, probabilistic sources and pagesian networks, utility theory and decidability problems, learning from observations, knowledge while learning, neural networks, utility theory and decidability problems, learning from observations, knowledge while learning, neural networks, utility theory and decidability problems, learning from theory and decidability problems (Learning) Courses (uppe, number of weekly contact hours, language – if other than German) V ± 0 (no information on SWS (weekly contact hours) and course language available; the vamination on whether maduate konduate (Graduate acadh or an oral examination in groups (one candidate each : 15 minutes, groups of 2: 20 minutes); Entomation of one candidate each or an oral examination of one candidate ea	Module title				Abbreviation
holder of the Chair of Computer Science VI Institute of Computer Science ECTS Method of grading Only after succ. compl. of module(s) 8 numerical grade Duration Module level Other prerequisites 1 semester graduate Where applicable, prerequisites as specified by the lecturer at the beginning of the course (e. g. completion of exercises). Contents Intelligent agents, uninformed and heuristic search, constraint problem solving, search with partial information, propositional and predicate logic and inference, knowledge representation, planning, probabilistic closure and Bayesian networks, utility theory and decidability problems, learning mo observations, knowledge while learning, neural networks and statistical learning methods, reinforcement learning. Intended learning outcomes The students possess theoretical and practical knowledge about artificial intelligence and are able to assess possibilities for its application. Courses (type, number of weekly contact hours, language – if other than German) V + U (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language – if other than German, examination of nec candidate each or an oral examination in groups (one candidate each: spinutes); f announced by the lecturer by four weeks prior to the examinetion date, the written examination on pose oral examination on one candidate each or an oral examination in groups (one candidate each: spinutes, groups of 2: 20 minutes, groups of 3: 25 minutes)	Artificial Intelligence			10-I=KI-102-m01	
ECTS Method of grading Only after succ. compl. of module(s) 8 numerical grade Duration Module tevel Other prerequisites as specified by the lecturer at the beginning of the course (e.g. completion of exercises). Contents	Module coor	dinator		Module offered by	
8 numerical grade Duration Module level Other prerequisites 1 semester graduate Where applicable, prerequisites as specified by the lecturer at the beginning of the course (e.g. completion of exercises). Contents Intelligent agents, uninformed and heuristic search, constraint problem solving, search with partial information, propositional and predicate logic and inference, knowledge representation, planning, probabilistic closure and Bayesian networks, utility theory and decidability problems, learning from observations, knowledge while learning, neural networks undistical learning methods, reinforcement learning. Intended learning outcomes The students possess theoretical and practical knowledge about artificial intelligence and are able to assess possibilities for its application. 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 semester, information on whether module is creditable (or bornus) written examination (approx. 80 to go minutes); if announced by the lecturer by four weeks prior to the examination differed – if not every semester, information on el examination of places Additional information Additinotal information	holder of the	Chair of Computer Science	e VI	Institute of Comput	er Science
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Module	title				Abbreviation
Embed	ded Sy	stems			10-l=ES-102-m01
Module	coord	inator		Module offered by	
Dean of	fStudie	es Informatik (Computer	Science)	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
8	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	graduate	Where applicable, p ning of the course (e		ified by the lecturer at the begin- xercises).
Conten	ts				
	s, impl				ntroller), verification of embedded ms, hardware synthesis, softwa-
Intende	ed leari	ning outcomes			
	nportar				dded systems and master the uch systems in hardware and
Course	5 (type, n	number of weekly contact hours, l	anguage — if other than Ger	man)	
V + Ü (r	io infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether
tion dat aminat tion of examin	te, the ion in g one car ation in	written examination can groups. A 80 to 90 minute	be replaced by an ora e written examination e (approx.) oral exam	al examination of on is equivalent to a 2 ination in groups of	four weeks prior to the examina- e candidate each or an oral ex- o minute (approx.) oral examina- 2 and a 40 minute (approx.) oral
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teachir	ng cycl	e			
Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module appears in					
	-	ee (1 major) Computer Sc			
	-	ee (1 major) Mathematics			
	-	ee (1 major) Mathematics ee (1 major) Computation		2)	
	-	mination for the teaching			2009)



Module	title				Abbreviation
E-Learning				10-l=EL-102-m01	
Module	coord	inator		Module offered by	
holder	of the C	Chair of Computer Science	e VI	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 semes	ster	graduate	Where applicable, p ning of the course (e		ified by the lecturer at the begin- kercises).
Conten	ts				
intellige	ent tuto	oring systems, student m	odels, didactics, prol	olem-oriented learning	standards for learning systems, ng and case-based training sy- aluation of learning systems.
Intende	ed learr	ning outcomes			
The stu plicatio		oossess a theoretical and	l practical knowledge	about eLearning an	d are able to assess possible ap-
Courses	5 (type, n	umber of weekly contact hours, la	anguage — if other than Ger	man)	
V + Ü (n	io infor	mation on SWS (weekly o	contact hours) and co	ourse language availa	able)
		s essment (type, scope, languag le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
tion dat aminati	te, the ion in g		be replaced by an ora ch: 15 minutes, group	al examination of on os of 2: 20 minutes,	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)
Allocati					
Additio	nal inf	ormation			
Worklo	ad				
Teachir	ng cycl	9			
Referre	d to in	LPOI (examination regulations	s for teaching-degree progra	mmes)	
Module appears in					
Master' Master' Master' Master' Master' Master'	s degre s degre s degre s degre s degre s degre s degre	ee (1 major) Computer Sc ee (1 major) Mathematics ee (1 major) Mathematics ee (1 major) Business Info ee (1 major) Business Info ee (1 major) Business Info ee (1 major) Computation ee (1 major) Functional M mination for the teaching	(2012) (2010) ormation Systems (20 ormation Systems (20 al Mathematics (2012)	013) 2)	2009)

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Module	e title				Abbreviation	
Robotics 10-I=RO-102-m01						
Module	e coord	inator		Module offered by		
holder	of the (Chair of Computer Scie	nce VII	Institute of Comput	er Science	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
8	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	graduate		prerequisites as spec e.g. completion of ex		at the begin-
Conten	ts					
homog tor con Worksp se dyna lonome Movem	enous figurati bace an amics. es and lent co	coordinates, axis coord on, numerical and ana alysis and trajectory pl Mobile robots: direct a non-holonome restricti ntrol and path planning	of robots, direct kinem linates, arm equation. lytical approaches, exa anning, dynamics of m nd inverse kinematics, ons, kinematic classific g: roadmap methods, consors, distance sensors	Inverse kinematics: s mples of different ro anipulators: Lagrang propulsion system, f cation of mobile robo ell decomposition m	solution properties, bots for analytical a ge-Euler model, direc tricycle, Ackermann ots, posture kinemat	end effec- pproaches. ct and inver- steering, ho- ic model.
Intende	ed lear	ning outcomes				
The stu	dents i	master the fundamenta	lls of robot manipulato Il as the planning of pa			niliar with
Course	S (type, r	umber of weekly contact hour	s, language — if other than Gei	rman)		
v + Ü (r	no infoi	mation on SWS (weekl	y contact hours) and co	ourse language avail	able)	
		essment (type, scope, lang le for bonus)	uage — if other than German,	examination offered — if no	t every semester, informati	on on whether
tion da aminat tion of examin	te, the ion in g one ca ation i	written examination ca roups. A 80 to 90 minu ndidate each, a 30 min n groups of 3.	o minutes). If announc n be replaced by an or ute written examinatior ute (approx.) oral exam nglish if agreed upon w	al examination of on i is equivalent to a 20 nination in groups of	e candidate each or o minute (approx.) o	an oral ex- ral examina-
Allocat	-		<u></u>			
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module	e appea	irs in				
Module appears inBachelor' degree (1 major) Aerospace Computer Science (2009)Bachelor' degree (1 major) Aerospace Computer Science (2011)Master's degree (1 major) Computer Science (2010)Master's degree (1 major) Mathematics (2012)Master's degree (1 major) Mathematics (2010)						
LA Gymnas	ien Compi	uter Science (2009)	-	• generated 26-Aug-2024 • e ehramt Gymnasien Informati	-	page 45 / 76





Master's degree (1 major) Computational Mathematics (2012) First state examination for the teaching degree Gymnasium Computer Science (2009)

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	data record Lehramt Gymnasien Informatik - 2009	



Robotics II: Networked Robots Module offered Jy Module cort the Chair of Computer Science VII Institute of Computer Science ECTS Method of grading Only after succ. compl. of module(s) 8 numerical grade Duration Module level Other prerequisites on specified by the lecturer at the beginning of the course (e.g. completion of exercises). Contents Foundations of dynamic systems, controllability and observability, controller design through pole assignment: feedback and feed-forward, state observer, feedback with state observer, time discrete systems, stochastic systems: foundations of stochastics, random processes, stochastic dynamic system, Kalman filter: derivation, in-ititalising, application examples, problems of Kalman filters, extended Kalman filter: derivation, in-ititalising, application examples, problems of advanced controller and observer methods and recognitions of robotics. The students possess a knowledge of advanced controller and observer methods and necognitions of robotics. The students possess a knowledge of advanced controller and observer methods and necognitions of robotics. The students possess a knowledge of advanced controller and observer methods and necognitions of robotics. The students possess a knowledge of advanced controller as a state estimator and an observer. Coursest (type, number of weekly contact hours, language – if other than German, examination of nec candidate each or a 30 minute (approx.) or al examination of one candidate each, a 30 minute (approx.) or al examination in groups of 2 and a 40 minute (approx.) or al examination in groups of 3. Number = Instruction <	Module	Module title Abbreviation				
holder of the Chair of Computer Science VII Institute of Computer Science ECTS Method of grading Only after succ. compl. of module(s) 8 numerical grade Duration Module level Other prerequisites 1 semester graduate Where applicable, prerequisites as specified by the lecturer at the beginning of the course (e.g. completion of exercises). Contents Foundations of dynamic systems, controllability and observability, controller design through pole assignment: feedback and feed-forward, state observer, feedback with state observer, time discrete systems, stochastic systems; foundations of stochastics, random processes, stochastic dynamic systems, Kalman filter: derivation, initialising, application examples, problems of Kalman filters, extended Kalman filters. Instended learning outcomes The students master all fundamentals that are necessary to understand Kalman filters and their use in applications of robotics. The students possess a knowledge of advanced controller and observer methods and recognise the connections between the dual pairs controllability - observability as well as controller design and observer. Courses (type, number of weekly contact hours, language – if other than German, examination offered – if not every semester, 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 or an oral examination in groups. A So to 90 minutes). If announced by the lecturer by four weeks prior to the examination date, the written examinatio	Robotics II: Networked Robots					10-l=RO2-102-mo1
ECTS Method of grading Only after succ. compl. of module(s) 8 numerical grade Duration Module level Other prerequisites 1 semester graduate Where applicable, prerequisites as specified by the lecturer at the beginning of the course (e.g. completion of exercises). Contents Foundations of dynamic systems, controllability and observability, controller design through pole assignment: feedback and feed-forward, state observer, feedback with state observer, fime discrete systems, stochastic systems; foundations of stochastics, random processes, stochastic dynamic systems, Kalman filter: derivation, initialising, application examples, problems of Kalman filters, extended Kalman filters and their use in applications of robotics. The students possess a knowledge of advanced controller and observer methods and recognise the connections between the dual pairs controllability - observability as well as controller design and observer. Courses (type, number of weekly contact hours, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus Written examination (approx. 80 to 90 minutes). If announced by the lecturer by four weeks prior to the examination of one candidate each, a 30 minute (approx.) oral examination is groups of 2 and a 40 minute (approx.) oral examination in groups of 3. Language of assessment: German, English if agreed upon with the examiner Additional information Goverability agree upon with the examiner	Module coordinator				Module offered by	
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tions of robotics. The students possess a knowledge of advanced controller and observer methods and recogni- se the connections between the dual pairs controllability - observability as well as controller design and observer design. They also recognise the relationship between the Kalman filter as a state estimator and an observer. Courses (type, number of weekly contact hours, language – if other than German) V + Ü (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 is creditable for bonus) written examination (approx. 80 to 90 minutes). If announced by the lecturer by four weeks prior to the examina- tion date, the written examination can be replaced by an oral examination of one candidate each or an oral ex- amination in groups. A 80 to 90 minute written examination is equivalent to a 20 minute (approx.) oral examina- tion of one candidate each, a 30 minute (approx.) oral examination in groups of 2 and a 40 minute (approx.) oral examination in groups of 3. Language of assessment: German, English if agreed upon with the examiner Allocation of places	Intende	ed leari	ning outcomes			
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Method of assessment (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus) written examination (approx. 80 to 90 minutes). If announced by the lecturer by four weeks prior to the examina- tion date, the written examination can be replaced by an oral examination of one candidate each or an oral ex- amination in groups. A 80 to 90 minute written examination is equivalent to a 20 minute (approx.) oral examina- tion of one candidate each, a 30 minute (approx.) oral examination in groups of 2 and a 40 minute (approx.) oral examination in groups of 3. Language of assessment: German, English if agreed upon with the examiner Allocation of places Additional information	Course	S (type, n	number of weekly contact hours, l	anguage — if other than Ger	man)	
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Additional information	tion dat aminati tion of e examin	tion date, the written examination can be replaced by an oral examination of one candidate each or an oral ex- amination in groups. A 80 to 90 minute written examination is equivalent to a 20 minute (approx.) oral examina- tion of one candidate each, a 30 minute (approx.) oral examination in groups of 2 and a 40 minute (approx.) oral examination in groups of 3.				e candidate each or an oral ex- o minute (approx.) oral examina-
	Allocat	ion of p	olaces			
 Workload	Additio	nal inf	ormation			
Workload						
	Worklo	ad				
Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module appears in	Module					
Master's degree (1 major) Computer Science (2010)						
Master's degree (1 major) Mathematics (2012)		-				
Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Computational Mathematics (2012)		-			2)	
First state examination for the teaching degree Gymnasium Computer Science (2009)		-				2009)

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	data record Lehramt Gymnasien Informatik - 2009	



Module title					Abbreviation	
Deducti	ive Dat	abases			10-I=DDB-102-m01	
Module	coord	inator		Module offered by		
Dean of	Studie	es Informatik (Computer S	Science)	Institute of Compute	er Science	
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)		
8	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 semes	ster	graduate	Where applicable, p ning of the course (e		ified by the lecturer at the begin- vercises).	
Content	ts					
		mantics of logic programs or Datalog; negation and			d applications for Prolog; analyti-	
Intende	d learr	ning outcomes				
The stu	dents p	oossess expertise in work	king with Prolog and I	Datalog (including ne	egation and disjunction).	
Courses	5 (type, n	umber of weekly contact hours, la	anguage — if other than Geri	man)		
V + Ü (n	o infor	mation on SWS (weekly o	contact hours) and co	urse language availa	able)	
		eessment (type, scope, languag le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether	
tion dat aminati tion of c examina	te, the ion in g one car ation ir	written examination can l roups. A 80 to 90 minute	be replaced by an ora written examination e (approx.) oral exam	al examination of one is equivalent to a 20 ination in groups of	four weeks prior to the examina- e candidate each or an oral ex- o minute (approx.) oral examina- 2 and a 40 minute (approx.) oral	
Allocati	ion of p	olaces				
Additio	nal info	ormation				
Worklo	ad					
Teachin	ng cycl	6				
Referre	d to in	LPO I (examination regulations	for teaching-degree program	mmes)		
	Module appears in					
Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2012) Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Computational Mathematics (2012) First state examination for the teaching degree Gymnasium Computer Science (2009)						
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LA Gymnasien	Computer Science	(2009)
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Module	e title				Abbreviation
Analyti	cal Per	formance Evaluation of D	Distributed Systems		10-l=LVS-102-m01
Module coordinator Mod			Module offered by		
holder	of the (Chair of Computer Scienc	e III	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)	
8	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	graduate	Where applicable, p ning of the course (e		ified by the lecturer at the begin- xercises).
Contents					
proces non-Ma compu	ses, me arkov a ter syst	ethods for performance a nd time critical systems, tems and networks: throu	nalysis of technical s matrix analytical met	ystems, queue-/traf hod, practical exam	mation techniques, stochastic fic theory, analysis of Markov, ples for performance analysis of naracteristics.
Intend	ed lear	ning outcomes			
		possess the methodic kn theory of probability and			ry to model technical systems by
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	rman)	
v + Ü (r	no infoi	rmation on SWS (weekly o	contact hours) and co	ourse language avail	able)
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether
tion da aminat tion of examin	te, the ion in ន្ one ca iation i	written examination can groups. A 80 to 90 minute	be replaced by an ora e written examination e (approx.) oral exam	al examination of on i is equivalent to a 2 ination in groups of	four weeks prior to the examina- e candidate each or an oral ex- o minute (approx.) oral examina- 2 and a 40 minute (approx.) oral
Allocat	ion of _l	places			
Additio	onal inf	ormation			
Worklo	ad				
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulations	s for teaching-degree progra	mmes)	
	 Module appears in				
			· · · · · · · · · · · · · · · · · · ·		
		ee (1 major) Computer Sc ee (1 major) Mathematics			
	-	mination for the teaching		Computer Science (*	(000
			Sacare Cymnasiam		

Module	e title				Abbreviation
Simulation Techniques for Performance Evaluation			e Evaluation		10-I=ST-102-m01
Module coordinator				Module offered by	
holder	of the (Chair of Computer Scienc	e III	Institute of Comput	er Science
ECTS		od of grading	Only after succ. com	· · ·	
8		rical grade			
			Other prerequisites	• •.	· · · · · · · · · · · · · · · · · · ·
1 seme	ster	graduate	where applicable, p ning of the course (e		ified by the lecturer at the begin- xercises).
Conten	ts				
bles, ra measui	indom red dat of mode	sample theory and estim a, planning and evaluatio	ation techniques, sta on of simulation expe	tistical analysis of s riments, special ran	m numbers and random varia- imulation values, inspection of dom processes, possibilities and actical execution of simulation
Intende	ed learı	ning outcomes			
	cal) sys	stems, the evaluation of r			y for the stochastic simulation of possibilities and limits of simu-
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
module is	creditab	le for bonus)			ot every semester, information on whether
tion da aminat tion of examin	te, the ion in g one car ation in	written examination can roups. A 80 to 90 minute	be replaced by an ora e written examination e (approx.) oral exam	al examination of on is equivalent to a 2 ination in groups of	four weeks prior to the examina- e candidate each or an oral ex- o minute (approx.) oral examina- 2 and a 40 minute (approx.) oral
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teachi	ng cycl	6			
	3 - 9 - 61	-			
	Referred to in LPO I (examination regulations for teaching-degree programmes)				
Referre		LE UT (examination regulation:	s ior reaching-degree progra	iiiiies)	
 Modula		ure in			
Module			ionco (2010)		
	Master's degree (1 major) Computer Science (2010) Master's degree (1 major) Mathematics (2012)				
	-	ee (1 major) Mathematics			
	-	ee (1 major) Computation		2)	
	-	mination for the teaching			(000
			,)

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	data record Lehramt Gymnasien Informatik - 2009	



Module title Abbreviation					
Automata Theory 10-I=AUT-102-m01					
Module coordinator A				Module offered by	
Dean of	fStudie	es Informatik (Computer S	Science)	Institute of Comput	er Science
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	graduate		site to assessment: e ecturer at the beginn	exercises (type and scope to be ing of the course).
Conten	ts				
words,	langua		nonoids, syntactic mo	onoid, predicate logi	ations, predicate logic with cal and algebraic characterisati-
Intende	ed learn	ning outcomes			
ges, sta	ar-free l Is, synt	anguages, natural equiva actic monoid, predicate l	alence relations, pred	dicate logic with wor	inite automata, regular langua- ds, language acceptance through egular and star-free languages,
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
		essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
tion dat aminati	te, the ion in g		be replaced by an ora ch: 15 minutes, group	al examination of on os of 2: 20 minutes,	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 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					
Master'	s degre	ee (1 major) Mathematics ee (1 major) Computation mination for the teaching	al Mathematics (201		2000)
	First state examination for the teaching degree Gymnasium Computer Science (2009)				



Module title Abbreviation					
Computabil	lity Theory		10-I=BER-102-m01		
Module coordinator			Module offered by		
Dean of Stu	dies Informatik (Computer	Science)	Institute of Comput	er Science	
ECTS Me	thod of grading	Only after succ. com	pl. of module(s)		
5 nur	nerical grade				
Duration	Module level	Other prerequisites			
1 semester	graduate	Admission prerequise announced by the le		exercises (type and scope to be ing of the course).	
Contents					
	bering, computable function tive sets, relative computable			problem, m-reducibility, creative , arithmetic hierarchy.	
Intended le	arning outcomes				
ons, decida		ting problem, m-redu	icibility, creative and	Gödel numbers, countable functi- l productive sets, relative compu-	
Courses (typ	e, number of weekly contact hours, l	anguage — if other than Ger	man)		
V + Ü (no in	formation on SWS (weekly o	contact hours) and co	ourse language availa	able)	
	assessment (type, scope, langua itable for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether	
tion date, th amination i		be replaced by an ora ch: 15 minutes, group	al examination of on os of 2: 20 minutes,	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)	
Allocation of	of places				
Additional i	information				
Workload					
Teaching cy	/cle				
Referred to	in LPO I (examination regulation	s for teaching-degree progra	mmes)		
	Module appears in				
Master's de	gree (1 major) Mathematics gree (1 major) Computation xamination for the teaching	al Mathematics (201		2009)	



Module	Module title Abbreviation				
Mathen	natical	Logic			10-I=ML-102-m01
Module	Module coordinator Module offered				
Dean of	fStudie	es Informatik (Computer S	Science)	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 semes	ster	graduate	Admission prerequis announced by the le		exercises (type and scope to be ing of the course).
Content	ts				
		logic, first-order predicat ncompleteness theorem,			npleteness theorem, Tarski theo- of elemental arithmetic.
Intende	ed learr	ning outcomes			
predica	te logi		ödel's completeness	theorem, Tarski the	oropositional logic, first-order orem, Gödel's incompleteness
Courses	5 (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V + Ü (n	io infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
		e essment (type, scope, langua ₎ le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
tion dat aminati	te, the ion in g		be replaced by an ora ch: 15 minutes, group	al examination of on os of 2: 20 minutes,	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)
Allocati	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teaching cycle					
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)				
Module	appea	irs in			
Master'	Module appears in Master's degree (1 major) Mathematics (2012) Master's degree (1 major) Computational Mathematics (2012) First state examination for the teaching degree Gymnasium Computer Science (2009)				

LA Gymnasien Co	omputer Science (2009))
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Modul	Module title Abbreviation					
Advan	ced Top	ics in Computationa	al Complexity		10-I=KT2-122-m01	
Modul	e coord	inator		Module offe	ered by	
Dean of Studies Informatik (Computer Science)			uter Science)	Institute of	Computer Science	
ECTS	Metho	od of grading	Only after succ.	compl. of modul	e(s)	
5	nume	rical grade				
Durati	on	Module level	Other prerequisi	ites		
1 seme	ester	graduate		•	sment: exercises (type and scope to be beginning of the course).	
Conter	nts					
		NP-complete sets, an stic algorithms.	utoreducibility, interac	tive proof systen	ns, polynomial time hierarchy, complex	
Intend	ed lear	ning outcomes				
					reas of properties of NP-complete sets, complexity of probabilistic algorithms.	
Course	es (type, r	number of weekly contact h	ours, language — if other that	n German)		
V + Ü (no infoi	rmation on SWS (we	ekly contact hours) an	d course langua	ge available)	
		Sessment (type, scope, le for bonus)	language — if other than Germ	nan, examination offer	red — if not every semester, information on whether	
tion da amina	ate, the tion in g	written examination groups (one candida	can be replaced by ar	n oral examination roups of 2: 20 m	turer by four weeks prior to the examina on of one candidate each or an oral ex- inutes, groups of 3: 25 minutes) iner	
	tion of p					
Additi	onal inf	ormation				
Worklo	oad					
Teachi	ng cycl	e				
Referr	ed to in	LPO I (examination regu	ulations for teaching-degree p	rogrammes)		
Modul	e appea	ars in				
	-	ee (1 major) Mathem				
First st	ate exa	mination for the tea	ching degree Gymnasi	um Computer Sc	ience (2009)	



Module title					Abbreviation		
Cryptos	graphy	and Data Security			10-I=KD-102-m01		
Module	e coord	inator		Module offered by			
Dean of	f Studi	es Informatik (Computer	Science)	Institute of Comput	er Science		
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	graduate	Where applicable, p ning of the course (e		ified by the lecturer at the begin- xercises).		
Conten	ts						
RSA, Di	ffie-He		ser-Micali, digital sig	nature, challenge-re	public key cryptography systems, sponse methods, secret sharing,		
Intende	ed lear	ning outcomes					
stems, wasser	Vernar -Micali	n one-time pad, AES, per	fect security, public k nge-response metho	ey cryptography, RS	private key cryptography sy- A, Diffie-Hellman, Elgamal, Gold- Ilionaire problem, secure circuit		
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)			
V + Ü (r	no infoi	rmation on SWS (weekly o	contact hours) and co	ourse language avail	able)		
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether		
tion dat aminat	te, the ion in ទួ		be replaced by an ora ch: 15 minutes, group	al examination of on os of 2: 20 minutes,	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)		
Allocat	ion of j	olaces					
Additio	nal inf	ormation					
Worklo	ad						
Teachir	ıg cycl	e					
Referre	d to in	LPO I (examination regulations	s for teaching-degree progra	mmes)			
Module	e appea	ars in					
Master	's degr	ee (1 major) Computer Sc	ience (2010)				
	-	ee (1 major) Mathematics					
	-	ee (1 major) Mathematics		-)			
	-	ee (1 major) Computation			2000)		
11151 510	First state examination for the teaching degree Gymnasium Computer Science (2009)						



Module title					Abbreviation
Computational Geometry					10-l=AG-102-m01
Module	coordi	nator		Module offered by	
holder of	f the C	hair of Computer Scienc	e l	Institute of Comput	er Science
ECTS I	Metho	od of grading	Only after succ. com	pl. of module(s)	
5 r	numer	rical grade			
Duration	n	Module level	Other prerequisites		
1 semest	ter	graduate	Where applicable, p ning of the course (e	• •	ified by the lecturer at the begin- xercises).
Contents	S				
formatio algorithn	n syst nic as	ems it is necessary to s pects of these tasks: We	store, analyse, create will acquire techniqu	or manipulate spati les that are needed	virtual reality and geographic in- ial data. This class is about the to plan and analyse geometric al- in the practical areas listed abo-
Intended	d learn	ning outcomes			
metric pr	roblen		to analyse new proble	ems and to come up	e for the solution of a given geo- with their own efficient solutions
Courses	(type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V + Ü (no	o infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
		essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
tion date aminatio	e, the v on in g		be replaced by an ora ch: 15 minutes, group	al examination of on os of 2: 20 minutes,	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)
Allocatio	on of p	laces			
Addition	al info	ormation			
Workloa	d				
Teaching	g cycle	2			
Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module appears in					
	-	ee (1 major) Computer Sc			
	-	ee (1 major) Mathematics ee (1 major) Mathematics			
	-	ee (1 major) Kathematics		2)	
	-	mination for the teaching			2009)

Module title					Abbreviation	
Approximation Algorithms					10-l=APA-102-m01	
Module	e coord	inator		Module offered by		
holder	of the (Chair of Computer Scienc	e l	Institute of Comput	er Science	
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	graduate	Where applicable, p ning of the course (e		ified by the lecturer at the begin- xercises).	
Conten	ts					
there an are use drafting practica	re man d whic g and a al optir	y problems without an ef h do not always give the nalysing techniques for a	ficient algorithm for a optimal solution but algorithms which have cture will introduce s	an optimal solution. always give good so e a proven approxim tudents to importan	omputer science. Unfortunately, As a result, in practice, methods lutions. This lecture will discuss nation quality. With the help of t drafting techniques such as	
		ning outcomes		·		
dament	tal draf		greedy, local search a		quality. They understand fun- is methods based on linear pro-	
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)		
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)	
		essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether	
tion dat aminati	te, the ion in g		be replaced by an ora ch: 15 minutes, group	al examination of on os of 2: 20 minutes,	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)	
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teachir	ng cycl	e				
Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module	Module appears in					
Master	's degr	ee (1 major) Computer Sc	ience (2010)			
	-	ee (1 major) Mathematics				
	-	ee (1 major) Mathematics				
	-	ee (1 major) Computation			2000)	
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Module title				Abbreviation	
Visualization of Graphs					10-l=VG-102-m01
Module	e coord	inator		Module offered by	
holder	of the (Chair of Computer Scienc	e l	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)	
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	graduate		rerequisites as spec e.g. completion of ex	ified by the lecturer at the begin- xercises).
Conten	ts				
<i>phenth</i> the pla	<i>eorie (/</i> nar sep	Algorithmic Graph Theory	 such as divide and sed. We will become 	conquer, flow netwo	n the course <i>Algorithmische Gra</i> - orks, integer programming and res of quality of a graph drawing
Intende	ed lear	ning outcomes			
					h typical tools. They consolidate raphs and graph algorithms.
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)	
V + Ü (r	no infoi	mation on SWS (weekly	contact hours) and co	ourse language avail	able)
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
tion da aminat	te, the ion in ខ្		be replaced by an ora ch: 15 minutes, group	al examination of on os of 2: 20 minutes,	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 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	e appea	nrs in			
	-	ee (1 major) Computer Sc			
	-	ee (1 major) Mathematics		Computer Science (2000)
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Module title					Abbreviation	
Algorit	hms fo	r Geographic Informati	on Systems		10-I=AGIS-102-m01	
Module coordinator				Module offered by		
holder	ofthe	Chair of Computer Scier	nce l	Institute of Compu	ter Science	
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	graduate	Where applicable, p ning of the course (cified by the lecturer at the begin- xercises).	
Conter	nts					
sition, misatio	proces on. App	sing, analysis and pres	entation of spatial info eation of digital height	rmation. Processes	on in selected problems of acqui- of discrete and continuous opti- ith GPS trajectories, tasks of spa-	
Intend	ed lear	ning outcomes				
		are able to formalise al mprove suitable appro			nic information systems as well as	
Course	es (type, r	number of weekly contact hours	s, language — if other than Ge	rman)		
V + Ü (no info	rmation on SWS (weekl	y contact hours) and co	ourse language avai	lable)	
		Sessment (type, scope, lang Ile for bonus)	uage — if other than German,	examination offered — if n	ot every semester, information on whether	
tion da aminat	ite, the tion in §	written examination ca	n be replaced by an or each: 15 minutes, grou	al examination of or ps of 2: 20 minutes,	o four weeks prior to the examina- ne candidate each or an oral ex- groups of 3: 25 minutes)	
Allocat	tion of _l	olaces				
Additio	onal inf	ormation				
Worklo	bad					
	-					
 Teachi	ng cycl	e				
 Teachi 	ng cycl	e				
			ons for teaching-degree progra	ummes)		
		e LPOI (examination regulation	ons for teaching-degree progra	immes)		
 Referre	ed to in	LPOI (examination regulation	ons for teaching-degree progra	ımmes)		
 Referre Module	ed to in e appea	LPO I (examination regulation r		ummes)		
 Referre Module Master	ed to in e appea	LPOI (examination regulation	Science (2010)	ımmes)		
 Referre Module Master Master	ed to in e appea r's degr r's degr	LPOI (examination regulation regu	Science (2010) cs (2012)	ummes)		
 Referre Module Master Master Master	ed to in e appea f's degr f's degr f's degr	LPO I (examination regulation ars in ee (1 major) Computer S ee (1 major) Mathemati	Science (2010) cs (2012) cs (2010)			



Module title				Abbreviation					
Compiler Construction				10-l=CB-102-m01					
Module coordina	ator		Module offered by						
holder of the Cha	air of Computer Scienc	e II	Institute of Comput	er Science					
ECTS Method	of grading	Only after succ. com	pl. of module(s)						
8 numerica	al grade								
Duration M	odule level	Other prerequisites							
1 semester gr	raduate	Where applicable, p ning of the course (e		ified by the lecturer at the begin- kercises).					
Contents									
Lexical analysis,	syntactic analysis, ser	mantics, compiler ger	nerators, code gener	ators, code optimisation.					
Intended learnin	g outcomes								
	perform transformation	-		uages and their compilation. utomata, push-down automata					
Courses (type, num	ber of weekly contact hours, l	anguage — if other than Ger	man)						
V + Ü (no informa	ation on SWS (weekly o	contact hours) and co	urse language avail	able)					
Method of asses module is creditable for		ge — if other than German, e	examination offered — if no	t every semester, information on whether					
tion date, the wr amination in gro tion of one candi examination in g	itten examination can ups. A 80 to 90 minute idate each, a 30 minut	be replaced by an ora written examination e (approx.) oral exam	al examination of on is equivalent to a 20 ination in groups of	four weeks prior to the examina- e candidate each or an oral ex- o minute (approx.) oral examina- 2 and a 40 minute (approx.) oral					
Allocation of pla	ces								
Additional inform	nation								
Workload									
Teaching cycle									
Referred to in LPO I (examination regulations for teaching-degree programmes)									
Module appears in									
Master's degree	(1 major) Computer Sc	ience (2010)							
-	-			Master's degree (1 major) Mathematics (2012)					
-			Master's degree (1 major) Mathematics (2010)						
-	Master's degree (1 major) Computational Mathematics (2012)								
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Module	e title				Abbreviation
Program Design and Analysis 10-I=PA-102-m01					10-I=PA-102-m01
Module coordinator				Module offered by	
holder	ofthe	Chair of Computer Sc	ience II	Institute of Comput	ter Science
ECTS	Meth	od of grading	Only after succ. con	pl. of module(s)	
5	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	graduate	Where applicable, p ning of the course (e		ified by the lecturer at the begin- xercises).
Conten	Its				
Program	m analy	sis, model creation i	in software engineering, p	orogram quality, test	of programs, process models.
Intend	ed lear	ning outcomes			
The stu quality		are able to analyse p	rograms, to use testing fr	ameworks and metr	ics as well as to judge program
Course	S (type, r	number of weekly contact ho	ours, language — if other than Ger	rman)	
ı) Ü + V	no info	rmation on SWS (wee	ekly contact hours) and co	ourse language avail	able)
		Sessment (type, scope, la ble for bonus)	anguage — if other than German, o	examination offered — if no	ot every semester, information on whether
	ige of a	ssessment: German,	e each: 15 minutes, grou English if agreed upon w		groups of 3: 25 minutes)
		ormation			
Auditio	matim	ormation			
 Worklo	ad				
	-				
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regul	lations for teaching-degree progra	mmes)	
Module	e appea	ars in			
	-	ee (1 major) Compute			
	-	ee (1 major) Mathema			
Master's degree (1 major) Mathematics (2010)					
Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011)					
Master's degree (1 major) Physics (2011) Master's degree (1 major) Nanostructure Technology (2011)					
	-	-	ucture Technology (2010)		
			s Information Systems (20	011)	
	-	-	s Information Systems (20		
		ee (1 major) Computa			
		· · · ·	ational mathematics (201	2)	

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Module title				Abbreviation		
Comput	Computer Arithmetic 10-I=RAM-102-m01					
Module	coord	inator		Module offered by		
holder	of the C	Chair of Computer Science	e ll	Institute of Comput	er Science	
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)		
5	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 semes	ster	graduate	Where applicable, p ning of the course (e		ified by the lecturer at the begin- vercises).	
Content	ts					
		nerical computation, rast l calculation.	er and rounding, defi	nition and implemer	ntation of computational arithme-	
Intende	ed learn	ning outcomes				
					aster and roundings, definition naster the application of algo-	
Courses	5 (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)		
V + Ü (n	io infor	mation on SWS (weekly o	contact hours) and co	ourse language availa	able)	
		e essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether	
tion dat aminati	te, the ion in g		be replaced by an ora ch: 15 minutes, group	al examination of on os of 2: 20 minutes,	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)	
Allocati	ion of p	olaces				
Additio	nal info	ormation				
Workloa	ad					
Teachin	ng cycl	e				
Referre	d to in	LPO I (examination regulations	s for teaching-degree progra	mmes)		
Module appears in						
	•••	ee (1 major) Computer Sc	ience (2010)			
	-	ee (1 major) Mathematics				
	-	ee (1 major) Mathematics				
	-	ee (1 major) Computation		-		
First sta	ate exa	mination for the teaching	degree Gymnasium	Computer Science (2	2009)	

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Module title Abbreviation					
Compu	iter Scie	ence in Media 1			o6-MK-MedInf1-102-mo1
Modul	e coord	inator		Module offered by	1
holder	of the F	Professorship of Media Ir	formatics	Institute of Human	Computer Media
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
6	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ester	undergraduate			
Conter	nts				
format	ion pro	cessing in the context of	digital media. The mo	odule Medieninform	ealing with various aspects of in- atik 1 (Computer Science for Me- v of current digital media types.
Intend	ed learı	ning outcomes			
		amiliar with the central c th a special focus on digi		ormatics. They have	a basic knowledge of information
Course	es (type, n	umber of weekly contact hours, I	anguage — if other than Gei	rman)	
V + T (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language availa	able)
		essment (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether
hours), 30 min 20 pag	, weight iutes) w ges)	ted 5:1 or c) oral examina	tion of one candidate o to 15 pages) or e) to	e each (approx. 30 m	40 minutes) with exercises (40 ninutes) or d) presentation (15 to pages) or f) portfolio (maximum
-	tion of p	-	<u>.</u>		
Digital	Human	ities Master's (120 ECTS)			cated according to the number sters, places will be allocated by
	onal inf	ormation			
Worklo	bad				
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					
Modul	e appea	irs in			
Bachel Bachel Master	lor' deg lor' deg r's degre	ree (1 major) Media Com ree (1 major) Media Com ee (1 major) Digital Huma mination for the teaching	munication (2010) Inities (2011)	Computer Science (2	2009)

Module title				Abbreviation	
Computer Science in Media 2					o6-MK-MedInf2-102-mo1
Module	Module coordinator			Module offered by	
holder	of the F	Professorship of Media In	formatics	Institute of Human	Computer Media
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
6	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten					
		<i>edieninformatik 2 (Comp</i> Indamentals of digital me			r knowledge of digital media ty-
Intende	ed learr	ning outcomes			
able to	develo		various processes.		er science. In addition, they are ided for academic work as well
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V + Ü (r	no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
		e essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
hours), 30 min 20 page	weight utes) w es)	ed 5:1 or c) oral examina	tion of one candidate o to 15 pages) or e) te	e each (approx. 30 m	40 minutes) with exercises (40 iinutes) or d) presentation (15 to pages) or f) portfolio (maximum
Allocat					
Digital	Human	ities Master's (120 ECTS)			cated according to the number sters, places will be allocated by
Additio	nal info	ormation			
Worklo	ad				
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module appears in					
	-	ree (1 major) Media Comr			
	-	ree (1 major) Media Comr ee (1 major) Digital Huma			
	-	mination for the teaching		Computer Science (2	2009)





Teaching (10 ECTS credits)

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Module title Abbreviation					Abbreviation
Didacti	cs of In	formatics 1			10-l-DDl1-092-m01
Module	coord	inator		Module offered by	
Dean of	Studie	es Informatik (Computer S	Science)	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
4	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 semes	ster	undergraduate	Admission prerequise announced by the le		exercises (type and scope to be ing of the course).
Content	ts				
	-	ves an overview of comp cation in the classroom.	uter science didactic	s. It demonstrates ar	nd discusses possibilities for a
Intende	d learr	ning outcomes			
and me topics.	dia for Studen	teaching topics in computes are familiar with both	uter science. They are historical and curren	e able to didactically t teaching approach	<i>tufe I</i>) with methods, techniques analyse and prepare practical es, typical teaching methods as o plan, organise and deliver clas-
Courses	5 (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V + Ü (n	o infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
		essment (type, scope, langua, le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
tion dat	e, the		be replaced by an ora	al examination of on	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)
Allocati	ion of p	olaces			
Additio	nal info	ormation			
Worklo	ad				
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					
§ 69 (1)	2. Info	rmatik Didaktik			
Module	appea	rs in			
First sta	ite exa	mination for the teaching	degree Gymnasium	Computer Science (2	2009)



1

Module title					Abbreviation
Didactics of Informatics 2					10-l-DDl2-092-m01
Module	coord	inator		Module offered by	
Dean of	fStudie	es Informatik (Computer S	Science)	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
4	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 semes	ster	undergraduate	Admission prerequis announced by the le		exercises (type and scope to be ing of the course).
Conten	ts				
		scusses different topics i es for a practical applica	-		ail. It demonstrates and discus-
Intende	ed learn	ning outcomes			
	alysis c				portant aspects of the planning arning strategies and are able to
Courses	5 (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
V + Ü (n	io infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)
		s essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
tion dat	te, the		be replaced by an ora	al examination of on	four weeks prior to the examina- e candidate each or an oral ex- groups of 3: 25 minutes)
Allocati	ion of p	olaces			
Additio	nal info	ormation			
Worklo	ad				
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					
§ 69 (1) 2. Informatik Didaktik					
Module	appea	in and the second se			
First sta	ate exa	mination for the teaching	degree Gymnasium	Computer Science (2	2009)

Module title Abbrevia					Abbreviation		
	Practical Course in the Application of Informatics Systems from a Didactical 10-I-DPAI-092-m01 Point of View 10-I-DPAI-092-m01						
Module	e coord	inator		Module offered by			
Dean o	f Studi	es Informatik (Computer	Science)	Institute of Compu	ter Science		
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)			
2	(not)	successfully completed					
Duratio	on	Module level	Other prerequisites				
1 seme	ster	undergraduate					
Conten	ts						
and, m	ore spe				practical skills for use in schools and discusses possibilities for a		
Intende	ed lear	ning outcomes					
		possess practical skills ir the classroom.	n working with select	ed computer science	e systems and are able to apply		
Course	S (type, 1	number of weekly contact hours, I	language — if other than Ge	rman)			
P (no ir	nforma	tion on SWS (weekly cont	act hours) and cours	e language availabl	e)		
		sessment (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if n	ot every semester, information on whether		
		project assignments, pre of the course)	esentation (type and	expenditure of time	to be specified by the lecturer at		
Allocat	ion of	places					
	-						
Additio	nal inf	ormation					
Worklo	ad						
Teaching cycle							
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	immes)			
§ 69 (1)) 2. Info	ormatik Didaktik					
Module	e appea	ars in					
First sta	ate exa	mination for the teaching	g degree Gymnasium	Computer Science (2009)		



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

(ECTS credits)

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

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

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Computer Science (ECTS credits)

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

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Module title					Abbreviation	
Semina	Seminar Didactics of Informatics 10-I-DS-092-m01					
Module	e coord	inator		Module offered by		
Dean o	f Studie	es Informatik (Computer	Science)	Institute of Comput	er Science	
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)		
4	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
Selecte	d topic	s in computer science di	dactics.			
Intende	ed leari	ning outcomes				
selves	with an		, using selected litera	iture, as well as to pi	hey are able to acquaint them- repare a talk on the respective	
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)		
S (no ir	nformat	ion on SWS (weekly cont	act hours) and cours	e language available	2)	
		s essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether	
sion (a	pprox.	ation (approx. 20 to 25 p 15 minutes) on a topic fro ffered: usually only in the	om the field of compu	ter science didactics	ninutes) with subsequent discus- s	
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						
		mination for the teaching				
First sta	First state examination for the teaching degree Gymnasium Computer Science (2009)					

Modul	Module title Abbreviation					
Advan	Advanced Topics of Didactic of Informatics 10-I-DV-092-m01					
Modul	e coord	inator		Module offered by		
Dean o	of Studi	es Informatik (Comput	er Science)	Institute of Compu	ter Science	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
4	nume	rical grade				
Durati	on	Module level	Other prerequisites			
1 seme	ester	undergraduate				
Conter	nts					
particu	ılar sub		ns, didactic analyses, t		o account different aspects, in bate in computer science didac-	
Intend	ed lear	ning outcomes				
			itral topics and issues c		er science in a <i>Gymnasium</i> , taking	
Course	es (type, r	umber of weekly contact hou	rs, language — if other than Gei	rman)		
S (no i	nforma	ion on SWS (weekly co	ontact hours) and cours	e language availabl	e)	
		essment (type, scope, lan le for bonus)	guage — if other than German,	examination offered — if n	ot every semester, information on whether	
sion (a	approx.	15 minutes) on a topic	5 pages) and oral presen from the field of compu the semester in which t	iter science didactio		
	tion of _l					
Additi	onal inf	ormation				
Workload						
workle						
workle						
	ing cycl	e				
	ing cycl	e				
 Teachi 			ions for teaching-degree progra	mmes)		
 Teachi 			ions for teaching-degree progra	mmes)		
 Teachi Referro		LPOI (examination regulat	ions for teaching-degree progra	mmes)		

Module title Abbreviation					
Practio	al Cou	rse in Didactics of Inform	atics		10-I-DP-092-m01
Modul	e coord	inator		Module offered by	
Dean c	of Studi	es Informatik (Computer	Science)	Institute of Comput	ter Science
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
4	(not)	successfully completed			
Durati	Puration Module level Other prerequisites				
1 seme	ester	undergraduate			
Conter	nts				
dactic classro	analyse oom.	es, the contemporary deb			ubject-specific foundations, di- l as possible approaches in the
Intend	ed lear	ning outcomes			
	and ar				ence systems discussed in the didactic as well as methodical
Course	es (type, r	number of weekly contact hours, l	anguage — if other than Gei	rman)	
P (no i	nformat	tion on SWS (weekly cont	act hours) and cours	e language available	e)
		sessment (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether
the be	ginning	project assignments, pro of the course) ffered: usually only in the			to be specified by the lecturer at
	tion of				
Additio	onal inf	ormation			
Worklo	bad				
Teaching cycle					
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	immes)	
Modul	e appea	ars in			
		mination for the teaching			-
First state examination for the teaching degree Gymnasium Computer Science (2009)					

Module	e title		Abbreviation						
Advanced Practical Course in Didactics of Informatics 10-I-DPP-092-m01									
Module	e coord	inator		Module offered by					
Dean o	f Studi	es Informatik (Compu	ter Science)	Institute of Comput	ter Science				
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)					
8	nume	rical grade							
Duratio	on	Module level	Other prerequisites	Other prerequisites					
2 semester undergraduat		undergraduate	Admission prerequisite to assessment: exercises (type and scope to be announced by the lecturer at the beginning of the course).						
Conten	ts								
shops. topic, s in grou work. In pupils	In the search t ps with n the p and aft	theoretical phase, the for a suitable topic, el- o students providing e ractical phase, the stu erwards reflect the pla	students formulate the aborate this topic for the ach other with advice as	subject-specific and e project and draw u s well as challenging ementation of the pr	reas of special interest), work- d didactic requirements of the p a project plan. This is done and reflecting on each other's oject, implement the project with				
Intend	ed lear	ning outcomes							
are abl	e to ela				s suitable for a school project and ing and management and are ab-				
Course	S (type, r	number of weekly contact hou	ırs, language — if other than Ge	rman)					
P + S (r	no infor	mation on SWS (week	ly contact hours) and co	ourse language avail	able)				
		s essment (type, scope, lar le for bonus)	nguage — if other than German,	examination offered — if no	ot every semester, information on whether				
with pu	upils		drawing up a project p the semester in which t		es) and practical implementation				
Allocat									
Additio	onal inf	ormation							
Worklo	ad								
Teachi	ng cycl	e							
Referred to in LPO I (examination regulations for teaching-degree programmes)									
Module	e appea	ars in							
First state examination for the teaching degree Realschule Computer Science (2012)									
				1)				





Thesis

(10 ECTS credits)

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

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Modul	e title			Abbreviation		
Thesis Informatics (Gymnasium) 10-I-HA-GY-092-m01						
Modul	e coord	inator		Module offered by		
Dean o	f Studi	es Informatik (Computer	Science)	Institute of Computer Science		
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
10	nume	rical grade	Where applicable, specific modules/module components as specified by supervisor.			
Duratio	on	Module level	Other prerequisites	er prerequisites		
1 semester		undergraduate		T		
Conter	Its					
Largely dactics		endently researching an	d writing on a scientif	ic topic in computer	science or computer science di-	
Intend	ed lear	ning outcomes				
		are able to largely indep ence didactics, using kno		d write on a scientifi	ic topic in computer science or	
Course	S (type, r	number of weekly contact hours,	language — if other than Ge	rman)		
no cou	rses as	signed				
		s essment (type, scope, langu ole for bonus)	age — if other than German,	examination offered — if n	ot every semester, information on whether	
		(approx. 250 to 300 hou ssessment: German, En		vith the examiner		
Allocat	ion of _l	places				
Additio	onal inf	ormation				
Additio	onal inf	ormation on module du	ration: 1 to 2 semester	'S.		
Worklo	ad					
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulatio	ns for teaching-degree progra	ammes)		
Modul	e appea	ars in				
First st	ate exa	mination for the teachin	g degree Gymnasium	Computer Science	(2009)	