



Keine PO-STG-Zuordnung vorhanden Responsible: JMU Würzburg

JMU Würzburg • generated 18-Mär-2025 • exam. reg. data record 82|f25|-|-|H|2025

## **Learning Outcomes**

German contents and learning outcome available but not translated yet.

#### Wissenschaftliche Befähigung

- Die Absolventinnen und Absolventen können die mathematischen, technischen, theoretischen und praktischen Grundlagen der Luft- und Raumfahrtinformatik anwenden.
- Die Absolventinnen und Absolventen verstehen die wesentlichen Zusammenhänge und Konzepte der einzelnen Teilgebiete der Luft- und Raumfahrtinformatik.
- Die Absolventinnen und Absolventen können tiefergehende Kenntnisse in mindestens einem Teilgebiet abrufen.
- Die Absolventinnen und Absolventen können unter Anleitung hard- und/oder softwaregetriebene Experimente durchführen, analysieren, auswerten und die erhaltenen Ergebnisse darstellen.
- Die Absolventinnen und Absolventen sind in der Lage, sich mit Hilfe von Fachliteratur in neue Aufgabengebiete einzuarbeiten und die Ergebnisse zu interpretieren und zu bewerten.
- Die Absolventinnen und Absolventen besitzen Abstraktionsvermögen, analytisches Denken, Problemlösungskompetenz und die Fähigkeit, Zusammenhänge zu strukturieren.
- Die Absolventinnen und Absolventen sind in der Lage, Methoden der Luft- und Raumfahrtinformatik unter Anleitung auf konkrete praktische oder theoretische Aufgabenstellungen anzuwenden, Lösungswege zu entwickeln und die Ergebnisse zu interpretieren und zu bewerten.
- Die Absolventinnen und Absolventen setzen die erlernten theoretischen und praktischen Methoden in geschlossener Form unter Anleitung ein, um zu zeigen, dass sie zur Anwendung der Grundlagen wissenschaftlichen Arbeitens befähigt sind.
- Die Absolventinnen und Absolventen können ihr Wissen und ihre Erkenntnisse einem Fachpublikum gegenüber darstellen und vertreten.

## Befähigung zur Aufnahme einer Erwerbstätigkeit

- Die Absolventinnen und Absolventen können ihr Wissen und ihre Erkenntnisse einem Fachpublikum gegenüber darstellen und vertreten.
- Die Absolventinnen und Absolventen sind in der Lage, konstruktiv und zielorientiert in einem Team zusammenzuarbeiten und auftretende Konflikte zu lösen (Teamfähigkeit).
- Die Absolventinnen und Absolventen können ihre erworbenen Kompetenzen in unterschiedlichen interkulturellen Kontexten und in international zusammengesetzten Teams anwenden.
- Die Absolventinnen und Absolventen kennen wichtige Anforderungen und Arbeitsweisen im gewerblichen Umfeld sowie in Forschung und Entwicklung.
- Die Absolventinnen und Absolventen sind befähigt, Probleme zu analysieren und zu lösen und sich in weniger vertraute Themenkomplexe einzuarbeiten.

## Persönlichkeitsentwicklung

- Eigenverantwortlichkeit, Selbstständigkeit, Zeitmanagement, Teamfähigkeit
- Die Absolventinnen und Absolventen kennen die Regeln guter wissenschaftlicher Praxis und beachten sie.
- Die Absolventinnen und Absolventen können ihr Wissen und ihre Erkenntnisse einem Fachpublikum gegenüber darstellen und vertreten.

## Befähigung zum gesellschaftlichen Engagement

- Die Absolventinnen und Absolventen können naturwissenschaftliche Entwicklungen kritisch reflektieren und deren Auswirkungen auf die Wirtschaft, Gesellschaft und die Umwelt in Ansätzen erfassen, zum Beispiel Technikfolgenabschätzung, Ethik, IT-Recht oder Datenschutz.
- Die Absolventinnen und Absolventen haben ihr Wissen bezüglich wirtschaftlicher, gesellschaftlicher, naturwissenschaftlicher, kultureller etc. Fragestellungen erweitert und können begründet Position beziehen.

Bachelor's with 1 major Aerospace Computer	JMU Würzburg • generated 18-Mär-2025 • exam. reg. data re-	page 2 / 68
Science (2025)	cord Bachelor (180 ECTS) Luft- und Raumfahrtinformatik - 2025	



• Die Absolventinnen und Absolventen entwickeln die Bereitschaft und Fähigkeit, ihre Kompetenzen in partizipative Prozesse einzubringen und aktiv an Entscheidungen mitzuwirken.

## Abbreviations used

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

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

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

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

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

## Conventions

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

## Notes

Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.

Should the module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.

Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

## In accordance with

the general regulations governing the degree subject described in this module catalogue:

## ASPO2015

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

## ??-???-2025 (2025-??)

This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.

# The subject is divided into

Abbreviation	Module title	ECTS credits	Method of grading	page
Compulsory Courses (125	ECTS credits)			
Aerospace Science and E	ngineering (36 ECTS credits)			
10-I-LFS-172-m01	Introduction to Aviation Systems	5	NUM	25
10-I-RFS-172-m01	Introduction to Space Systems	5	NUM	38
10-I-LRFB-252-m01	Spacecraft Operations	10	NUM	28
10-LURI-LMT-252-m01	Measurement Technique	6	NUM	49
10-LURI-FD-252-m01	Introduction to Flight Mechanics	5	NUM	47
10-LURI-DS-252-m01	Digital Signal processing	5	NUM	45
Informatics (50 ECTS cree	dits)		•	
10-I-ADS-152-m01	Algorithms and data structures	10	NUM	9
10-l-GdP-172-m01	Fundamentals of Programming	5	NUM	20
10-LURI-HWZ-252-m01	Hardware-oriented programming and Fundamentals Avionics	10	NUM	48
10-LURI-DT-252-m01	Digital Computer Systems for Aerospace Computer Science	9	NUM	46
10-I-AR-152-m01	Automation and Control Technology	8	NUM	15
10-I-HMR-152-m01	Practical Measurement and Control System Engineering	8	B/NB	22
Mathematics (20 ECTS cr	edits)			
10-M-LRl1-152-m01	Mathematics 1 for students of Space- and Aerospace Computer	10	NUM	52
	Science	-	_	
10-M-LRI2-152-m01	Mathematics 2 for students of Space- and Aerospace Compu- ter Science	10	NUM	53
Basics of Physics (19 ECT	S credits)			
11-ENNF1-152-m01	Classical Physics 1 for Students of Physics related Disciplines	7	NUM	59
11-ENNF2-152-m01	Classical Physics 2 for Students of Physics related Disciplines	7	NUM	61
11-P-PA-152-m01	Laboratory Course Physics A (Mechanics, Heat, Electromagne- tism)		B/NB	67
11-P-FR1-152-m01	Data and Error Analysis	2	B/NB	62
Compulsory Electives (25		2	D/ND	63
	and Programming (10 ECTS credits)			
10-I-PP-191-m01	Practical Course in Programming	10	B/NB	25
10-M-NUM1af-152-m01	Numerical Mathematics 1 for students of other subjects	10	NUM	35
10-M-NUM2af-152-m01	Numerical Mathematics 2 for students of other subjects	10	NUM	54
Other topics (15 ECTS cre		10	NUM	56
10-I-RIÜ-191-m01	Computer Networks and Information Transmission	10	NUM	
-	Algorithmic Graph Theory	10	NUM	39
10-I-AGT-152-m01		5		11
10-I-DM-242-m01	Data Science	5	NUM	19
10-I-TI-242-m01	Theory of Computation Computer Architecture	10	NUM	44
10-I-RAK-152-m01		5	NUM	36
10-I-SE-252-m01	Software Engineering	5	NUM	41
10-I-MSE-252-m01	Model-based Systems Engineering	5	NUM	33
10-I-SKS-242-m01	Control Principles of Modern Communication Systems	5	NUM	42
10-I-HWP-152-m01	Practical course in hardware	10	B/NB	23

10-I-SWP-LURI-252-m01	Practical course in software for students of Space- and Aero-	10	B/NB	43
10-1-5 WI -LOKI-252-1101	space Computer Science	10	0/110	45
10-M-DGLaf-152-m01	Ordinary Differential Equations for students of other subjects	10	NUM	51
10-M-NUM1af-152-m01	Numerical Mathematics 1 for students of other subjects	10	NUM	54
10-M-NUM2af-152-m01	Numerical Mathematics 2 for students of other subjects	10	NUM	56
10-M=ARTH-242-m01	Mathematical Control Theory	10	NUM	50
10-I-AKLR-152-m01	Selected Chapters of Aerospace Science and Engineering	5	NUM	14
10-I-AKI-152-m01	Selected Chapters of Computer Science	5	NUM	13
10-l-3D-152-m01	3D Point Cloud Processing	5	NUM	7
10-I-BS-242-m01	Operating Systems	5	NUM	16
10-I-DB-152-m01	Databases	5	NUM	17
10-I-LOG-152-m01	Logic for informatics	5	NUM	26
11-AP-152-m01	Astrophysics	6	NUM	57
	Laboratory Course Physics B for Space and Aerospace Compu-	,	B/NB	6-
11-P-LRB-152-m01	ter Science	4	6/110	65
	Laboratory Course Physics C for Space and Aerospace Compu-	,	B/NB	66
11-P-LRC-152-m01	ter Science	4	D/ND	00
Key Skills Area (20 ECTS o	redits)			
General Key Skills (5 EC				
	art of the pool of general transferable skills (ASQ) may be accredit	ited.		
Subject-specific Key Ski				,
10-I-LRLA-252-m01	Aerospace Laboratory	5	NUM	30
10-l-LRS1-152-m01	Seminar for students of Space- and Aerospace Computer	5	NUM	31
	Science 1			
10-l-LRS2-152-m01	Seminar for students of Space- and Aerospace Computer	5	NUM	32
101 EV25 125-1101	Science 2	5		<sup>ےر</sup>
10-I-PLR-252-m01	Practical work Space Technology	5	B/NB	34
Thesis (10 ECTS credits)				
10-I-LRI-BA-252-m01	Bachelor's Thesis Space- and Aerospace Computer Science	10	NUM	29

Module title Abbreviation						
3D Poii	nt Cloue	d Processing			10-l-3D-152-m01	
Module	Module coordinator Module offered by					
holder	of the C	Chair of Computer Scier	nce XVII	Institute of Comput	er Science	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
5	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
	, registi	g, Kinect and camera m ration, features, segme				
Intende	ed learr	ning outcomes				
munica data pr require	ate with rocessin ments,	erstand the fundamenta engineers / surveyors ng and have experience in terms of memory ree	/ CV people / etc. Studed that real application quirements and in term	lents are able to solv scenarios are challe as of implementation	ve problems of mode enging in terms of co i issues.	ern sensor
		, number of weekly con	tact hours, language –	- if other than Germa	n)	
V (2) +		. /.				
		essment (type, scope, on on whether module			tion offered — if not	every seme-
examin prox. 1	ation o 5 minut 1ge of a ble for		approx. 20 minutes) or			
Additio	onal info	ormation				
Worklo	ad					
150 h						
Teachi		9				
reaction	is cycl	5				
Referre	d to in	LPOI (examination reg		legree programmes)		
§ 22						
		rs in				
Module appears in Pachalaria dagrae (a major) Computer Science (2015)						
	Bachelor's degree (1 major) Computer Science (2015) Bachelor's degree (1 major) Mathematics (2015)					
Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015)						
Bachelor's degree (1 major) Aerospace Computer Science (2015)						
First sta	ate exa	mination for the teachi	ng degree Gymnasium	Computer Science (2	2015)	
		ning degree Gymnasiun				016)
		y course MINT Teacher			B) (2016)	
	-	gree (1 major) Aerospac		2017)		
Баспе	ur s aeg	gree (1 major) Compute	i Science (2017)			I
Bachelor's Science (20		or Aerospace Computer		enerated 18-Mär-2025 • exam ECTS) Luft- und Raumfahrtinf	-	page 7 / 68

#### Julius-Maximilians-UNIVERSITÄT WÜRZBURG

Bachelor's degree (1 major) Computer Science (2019)

Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

Bachelor's degree (1 major) Aerospace Computer Science (2020)

Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022)

Bachelor's degree (1 major) Artificial Intelligence and Data Science (2023)

Bachelor's degree (1 major) Mathematics (2023)

Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024)

Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)

Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)

Module title				Abbreviation		
Algorit	Algorithms and data structures 10-I-ADS-152-m01					
Module coordinator			Module offered by			
Dean of Studies Informatik (Computer Science) Institute of Computer Science			er Science			
ECTS	Method of grading		Only after succ. con	npl. of module(s)		
10	numerical grade					
Durati	on Module level		Other prerequisites			
1 seme	ester undergraduate					
Conter	nts					
	n and analysis of algorith es, lists, trees, graphs, ba				ods, data structures,	, abstract da-
Intend	ed learning outcomes					
know t	nts are proficient in indep the basic paradigms for t le to estimate the runtim	he desi	gn of algorithms and	can implement them	n in practical program	
Course	<b>es</b> (type, number of week	ly conta	act hours, language –	- if other than Germa	ın)	
V (4) +	Ü (2)					
	<b>d of assessment</b> (type, s nformation on whether m				ition offered — if not	every seme-
lf anno examin prox. 1 credita	n examination (approx. 6 bunced by the lecturer at nation of one candidate 5 minutes per candidate able for bonus	the beg each (ap	inning of the course,			
Alloca	tion of places		-			
Additio	onal information					
Worklo	oad					
300 h			-			
Teachi	ing cycle					
Teachi	ng cycle: only in winter s	emeste	r			
Referr	ed to in LPO I (examinati	ion regu	llations for teaching-	degree programmes)		
	Nr. 1 a) Nr. 1 a)					
Modul	e appears in					
Bache Bache	Bachelor's degree (1 major) Computer Science (2015) Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Economathematics (2015) Bachelor's degree (1 major) Human-Computer Systems (2015)					
	Bachelor's degree (1 major) Computational Mathematics (2015)					
Bache	Bachelor's degree (1 major) Aerospace Computer Science (2015)					
	tate examination for the t	-			-	
	tate examination for the t	-			2015)	
	lor's degree (1 major) Aer	•	•	2017)		
	lor's degree (1 major) Coı lor's degree (1 major) Coı	•				
Bachelor's Science (2	s with 1 major Aerospace Computer 2025)			enerated 18-Mär-2025 • exan ECTS) Luft- und Raumfahrtint	-	page 9 / 68



Bachelor's degree (1 major) Aerospace Computer Science (2020) Bachelor's degree (1 major) Computer Science und Sustainability (2021) Bachelor's degree (1 major<u>)</u> Mathematics (2023)

Module title					Abbreviation	
Algorithmic Graph Theory 10-I-AGT-152-mo1						
Modul	Module coordinator Module offered by					
		Chair of Computer Scie	ncel	Institute of Comput	er Science	
ECTS		od of grading	Only after succ. con	· · · · · ·		
5		rical grade				
Duratio	·	Module level	Other prerequisites	4		
1 seme		undergraduate				
Conter	nts					
		nical graph problems:	We solve round trip pro	blems, calculate ma	ximal flows, find ma	tchings and
			and find out how the ra			
			familiar with new conce		w we model problem	ıs as linear
		· · · · ·	are fixed parameter cor	nputable.		
Intend	ed learı	ning outcomes				
			al problems in comput			
			l from the course helps			ally. In this
			to estimate the run tim			
		, number of weekly cor	ntact hours, language –	- II other than Germa	in)	
V (2) +	-	· · · · · · · · · · · · · · · · · · ·			tion offered if we t	
			language — if other th can be chosen to earn		ition offered — if not	every seme-
	-	nation (approx. 60 to 1				
			eginning of the course,	the written examina	tion may be replace	d by an oral
			(approx. 20 minutes) or			
		es per candidate).				
		ssessment: German ar	nd/or English			
	ble for					
Allocat	tion of p	olaces				
Additio	onal info	ormation				
Worklo	ad					
150 h						
Teachi	ng cycl	e				
Referre	ed to in	LPOI (examination re	gulations for teaching-	degree programmes)		
§ 22	Nr. 3 b)					
Module appears in						
Bachelor's degree (1 major) Computer Science (2015)						
Bachelor's degree (1 major) Mathematics (2015)						
Bachelor's degree (1 major) Computational Mathematics (2015)						
	Bachelor's degree (1 major) Aerospace Computer Science (2015)					
			ng degree Gymnasium		-	
			n MINT Teacher Educat			016)
		•	Education PLUS, Elite		в) (2016)	
		gree (1 major) Aerospa gree (1 major) Compute	ce Computer Science (2 27 Science (2017)	201/)		
		Sice (I major) compute	LI JUEILE (201/)			I
Bachelor's Science (2		or Aerospace Computer		enerated 18-Mär-2025 • exan ECTS) Luft- und Raumfahrtini	-	page 11 / 68

#### Julius-Maximilians-UNIVERSITÄT WÜRZBURG

Bachelor's degree (1 major) Computer Science (2019) Module studies (Bachelor) Computer Science (2019) Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020) Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020) Bachelor's degree (1 major) Aerospace Computer Science (2020) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2023) Bachelor's degree (1 major) Mathematics (2023) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024) Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025) Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)

Module title					Abbreviation
Selected Chapters of Computer Science					10-I-AKI-152-m01
Module	e coordir	nator		Module offered by	
Dean of	fStudies	s Informatik (Computer S	Science)	Institute of Comput	er Science
· · · · · ·		d of grading	Only after succ. com	pl. of module(s)	
5		cal grade			
Duratio		Module level	Other prerequisites		
1 semes	ster	undergraduate			
Content	ts				
Selected	d topics	s in computer science.			
Intende	ed learni	ing outcomes			
		re able to understand th I questions.	e solutions to comple	ex problems in comp	outer science and to transfer
Courses	<b>s</b> (type,	number of weekly conta	ct hours, language —	if other than Germa	n)
V (2) + Ü	Ü (2)	· · · · ·			
		essment (type, scope, la on on whether module ca			tion offered — if not every seme-
lf annou examina prox. 15	unced b ation of 5 minute		inning of the course, prox. 20 minutes) or		tion may be replaced by an oral in groups of 2 candidates (ap-
Allocati	ion of pl	laces			
Additio	nal info	rmation			
Workloa	ad				
150 h					
Teachin	ng cycle				
Referre	d to in L	.POI (examination regu	lations for teaching-c	legree programmes)	
		<u> </u>	<u>0</u>	<u> </u>	
Module	appear	's in			
Bachelo Bachelo	<b>Module appears in</b> Bachelor's degree (1 major) Aerospace Computer Science (2015) Bachelor's degree (1 major) Aerospace Computer Science (2017) Bachelor's degree (1 major) Aerospace Computer Science (2020)				

	e title				Abbreviation
Selecte	ed Chap	oters of Aerospace Scien	ce and Engineering		10-I-AKLR-152-m01
Modul	e coord	inator		Module offered by	·
holder	of the (	Chair of Computer Scienc	e VII	Institute of Comput	er Science
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
5	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	Its				
stems, and do tions, p cial are stems,	sensor cking, bayloac eas of n	s and actuators for orien design of space ships, de ls, optical systems, RADA avigation, space environ astronomy and planet m	tation control, perturl esign of planetary bas RR, earth monitoring, ment, environment si	pation of orbits, inte ses, life support syst thermo managemen mulation, verificatio	n, rocket science, propulsion sy- rplanetary orbits, rendezvous rems, special aspects of opera- t, structure of space ships, spe- on and test of space faring sy- rerial science, quality manage-
Intend	ed lear	ning outcomes			
		possess an advanced kn e foundations in their fut			selected area and are able to
Course	<b>s</b> (type	, number of weekly conta	ict hours, language –	if other than Germa	ın)
V (2) +	Ü (2)		-		
		<b>sessment</b> (type, scope, la on on whether module c			tion offered — if not every seme
lf anno examir prox. 1	unced nation c 5 minut		inning of the course, oprox. 20 minutes) or		tion may be replaced by an oral in groups of 2 candidates (ap-
Allocat	ion of <sub>l</sub>	olaces			
Additic	onal inf	ormation			
Worklo	ad				
	ad				
150 h		e			
		e			
150 h <b>Teachi</b> 	ng cycl		lations for teaching.	legree programmes	
150 h <b>Teachi</b> 	ng cycl	e LPOI (examination regu	lations for teaching-c	legree programmes)	
150 h Teachi  Referre	ng cycl ed to in	LPOI (examination regu	lations for teaching-c	legree programmes)	
150 h Teachi  Referre  Module	ng cycl ed to in e appea	LPO I (examination regu			
150 h Teachi  Referre  Module Bachel	ng cycl ed to in e appea or's de	LPOI (examination regu	Computer Science (2	015)	

Module title			Abbreviation			
Automation and Control Technology 10-I-AR-152-mo1					10-I-AR-152-m01	
Module	e coord	inator		Module offered by		
holder	of the (	Chair of Computer Science	e VII	Institute of Comput	er Science	
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)		
8	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
differer structu sistent	ntial eq re imag contro	uations, nomenclature, t ges and structure image r	ransfer function, step eduction, locus curve sign through paramet	o response and realises and Bode diagram er optimisation, bas	ign methods, model creation, sing of easy linear controllers, is, frequency characteristic, per- ics of fuzzy control, scanning sy- trol systems, examples.	
Intende	ed lear	ning outcomes				
The stu	dents	master the fundamentals	of automation and c	ontrol.		
Course	<b>s</b> (type	, number of weekly conta	ct hours, language —	- if other than Germa	n)	
V (4) +	Ü (2)					
		sessment (type, scope, la ion on whether module ca			tion offered — if not every seme-	
examin prox. 1	ation o 5 minut 1ge of a	of one candidate each (ap tes per candidate). ssessment: German and/	prox. 20 minutes) or		tion may be replaced by an oral in groups of 2 candidates (ap-	
Allocat	ion of <sub>l</sub>	places				
Additio	nal inf	ormation				
Worklo	ad					
240 h						
Teachi	ng cycl	e				
Referre	ed to in	LPOI (examination regu	lations for teaching-o	degree programmes)		
Module	e appea	ars in				
Bachel Bachel Bachel Bachel Bachel	Module appears in Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major) Aerospace Computer Science (2015) Bachelor's degree (1 major) Aerospace Computer Science (2017) Bachelor's degree (1 major) Aerospace Computer Science (2020) Bachelor's degree (1 major) Computer Science und Sustainability (2021) Bachelor's degree (1 major) Mathematics (2023)					

Module	title			Abbreviation
Operati	ing Systems			10-I-BS-242-m01
Module	coordinator		Module offered by	
holder o	of the Chair of Computer Scie	nce II	Institute of Comput	er Science
ECTS	Method of grading	Only after succ. con	npl. of module(s)	
5	numerical grade			
Duratio		Other prerequisites		
1 semes	ster undergraduate			
Content	ts			
sing in o		s and threads, CPU sche	eduling, synchronisa	ure principles, interrupt proces- tion and communication, memo-
Intende	ed learning outcomes			
The stu	dents possess knowledge ar	d practical skills in buil	ding and using esse	ntial parts of operating systems.
Courses	<b>s</b> (type, number of weekly co	ntact hours, language –	- if other than Germa	n)
V (2) + Ü	(2) ت			
ster, inf	formation on whether module	can be chosen to earn		tion offered — if not every seme-
lf annou examina prox. 15 Langua		eginning of the course, approx. 20 minutes) or		tion may be replaced by an oral in groups of 2 candidates (ap-
Allocati	ion of places			
Additio	nal information			
Workloa	ad			
150 h				
Teachin	ng cycle			
Referre	d to in LPO I (examination re	gulations for teaching-o	degree programmes)	
Module	appears in			
Bachelo	or's degree (1 major) Busines	s Information Systems (	(2024)	

Module title				Abbreviation		
Databa	Databases 10-I-DB-152-mo1					
Madul	e coordinator		Module offered by			
		<b>c</b> : )				
	f Studies Informatik (Computer Science) Institute of Computer Science					
ECTS	Method of grading numerical grade	Only after succ. cor	npl. of module(s)			
5						
Duratio		Other prerequisites				
1 seme						
ment.	nal algebra and complex SQL	statements; database	planning and norma	l forms; transaction	manage-	
	ed learning outcomes					
	udents possess knowledge ab	out database modellin	g and queries in SQL	as well as transaction	ons.	
	s (type, number of weekly cor					
V (2) +			n other than defind			
	<b>d of assessment</b> (type, scope, formation on whether module			tion offered — if not	every seme-	
-	examination (approx. 60 to 1					
	ounced by the lecturer at the b	-	the written examina	tion may be replace	d by an oral	
	nation of one candidate each (					
	5 minutes per candidate).			5	<b>`</b>	
-	age of assessment: German ar	nd/or English				
credita	ble for bonus					
Allocat	tion of places					
Additio	onal information					
Worklo	oad					
150 h						
Teachi	ng cycle					
Referre	ed to in LPO I (examination re	gulations for teaching-	degree programmes)			
§4911	Nr. 1 b)					
§6911						
	e appears in					
	or's degree (1 major) Compute					
	or's degree (1 major) Mathem	_				
	or's degree (1 major) Busines					
	Bachelor's degree (1 major) Computational Mathematics (2015)					
Bachelor's degree (1 major) Aerospace Computer Science (2015)						
	Bachelor's degree (1 major) Functional Materials (2015) First state examination for the teaching degree Realschule Computer Science (2015)					
			•			
	ate examination for the teaching		computer Science (2	2015)		
	's degree (1 major) Physics (2		(2016)			
	or's degree (1 major) Busines	•				
	or's degree (1 major) Aerospa	•	2017)			
Dachel	or's degree (1 major) Compute	er Science (2017)				
Bachelor's Science (2	with 1 major Aerospace Computer 025)		enerated 18-Mär-2025 • exam ECTS) Luft- und Raumfahrtinf	-	page 17 / 68	

#### UNIVERSITÄT WÜRZBURG

Bachelor's degree (1 major) Computer Science (2019) Bachelor's degree (1 major) Business Information Systems (2019) Bachelor's degree (1 major) Business Information Systems (2020) Bachelor's degree (1 major) Aerospace Computer Science (2020) Bachelor's degree (1 major) Functional Materials (2021) Bachelor's degree (1 major) Computer Science und Sustainability (2021) Bachelor's degree (1 major) Business Information Systems (2021) Bachelor's degree (1 major) Mathematical Data Science (2022) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2023) Bachelor's degree (1 major) Business Information Systems (2023) Bachelor's degree (1 major) Business Information Systems (2023) Bachelor's degree (1 major) Business Information Systems (2024) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022) Bachelor's degree (1 major) Business Information Systems (2024) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022) Bachelor's degree (1 major) Business Information Systems (2024) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024) Bachelor's degree (1 major) Functional Materials (2025)

Data Science       10-1-DM-242-m01         Module corritation       Module offered by         Institute of Computer Science VI       Institute of Computer Science         ECTS       Method of grading       Only after succ. comp.l of module(s)         S       numerical grade          Duration       Module level       Other prerequisites         I semester       Undergraduate          Contents	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)         5       numerical grade          Duration       Module levet       Other prerequisites         1 semester       undergraduate          Contents           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 (suster and association methods), supervised learning (e. g. Bayes classification, KNN, decision trees, SVM), learning methods for special data types, other learning paradigms.         Intended learning outcomes          The students possess a theoretical and practical knowledge of typical methods and algorithms in the area of data mining algorithms.       Courses (type, number of weekly contact hours, language – if other than German)         V (2) + U (2)	Data Science					10-I-DM-242-m01
ECTS         Method of grading         Only after succ. compl. of module(s)           5         numerical grade            Duration         Module level         Other prerequisites           1 semester         undergraduate            Contents             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 (sucter and association methods), supervised learning (e.g. Bayes classification, KNN, decision trees, SVM), learning methods for special data types, other learning paradigms.           Intended learning outcomes            The students possess a theoretical and practical knowledge of typical methods and algorithms in the area of date 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.           Courses (type, number of weekly contact hours, language – if other than German)         V (2) + 0 (2)           Method of assessment (type, scope, language – if other than German)         V (2) + 0 (2)           Method of assessment (type, scope, language – if other than German)	Module	coord	inator		Module offered by	
5       numerical grade	holder	of the Q	Chair of Computer Science	e VI	Institute of Comput	er Science
Duration         Module level         Other prerequisites           1 semester         undergraduate            Contents            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.           Intended learning outcomes            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.           Courses (type, number of weekly contact hours, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus)           Written examination of gaprox. 6o to 120 minutes).           If announced by the lecturer at the beginning of the course, the written examination in groups of 2 candidates (ap- prox. 15 minutes per candidate).           Language of assessment: German and/or English creditable for bonus           Allocation of places                 Additional information	ECTS			Only after succ. com	pl. of module(s)	
1 semester undergraduate	5	nume				
Contents         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.         Intended learning outcomes         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.         Courses (type, number of weekly contact hours, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus)         written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of nea candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (ap- prox. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus         Allocation of places - - - - -         Morkload       - - - -          - - - -          - - - - - -          - - - - - -         Additional information - - - - - - - - - -				Other prerequisites		
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. Intended learning outcomes 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. Courses (type, number of weekly contact hours, language — if other than German) V (2) + Û (2) Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (ap- prox. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus Allocation of places  Morkload 150 h Teaching cycle  Referred to in LPO I (examination regulations for teaching-degree programmes) § 22 ll Nr. 3b Module appears in			undergraduate			
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. Intended learning outcomes 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. Courses (type, number of weekly contact hours, language — if other than German) V (2) + Ü (2) Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) written examination (approx. 6o to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (ap- prox. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus Allocation of places - - Morkload 150 h Teaching cycle - - Referred to in LPO I (examination regulations for teaching-degree programmes) § 22 ll Nr. 3b Module appears in	Conten	ts				
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. <b>Courses</b> (type, number of weekly contact hours, language — if other than German) V (2) + Ü (2) <b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (ap- prox. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus <b>Allocation of places</b>  <b>Additional information</b>  <b>Workload</b> 150 h <b>Teaching cycle</b>  <b>Referred to in LPO 1</b> (examination regulations for teaching-degree programmes) § 2 1 l Nr. 3b <b>Module appears in</b>	model, method	relatio Is (clus	nship to data warehouse ter and association meth	and OLAP, data prep ods), supervised lea	rocessing, data visu ming (e. g. Bayes cla	alisation, unsupervised learning
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. <b>Courses</b> (type, number of weekly contact hours, language — if other than German) V (2) + Ü (2) <b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (ap- prox. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus <b>Allocation of places</b> - <b>Additional information</b> - <b>Workload</b> 150 h <b>Teaching cycle</b> - <b>Referred to in LPO 1</b> (examination regulations for teaching-degree programmes) § 22 ll Nr. 3b <b>Module appears in</b>	Intende	ed learn	ning outcomes			
V (2) + Ü (2) Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (ap- prox. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus Allocation of places Additional information Workload 150 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 22 Il Nr. 3b Module appears in	ta minir the kno	ng and wledge	machine learning. They a e acquired in this course	are able to solve pract and by using the KDD	tical knowledge disc	covery problems with the help of
Method of assessment (type, scope, language – if other than German, examination offered – if not every seme-         ster, information on whether module can be chosen to earn a bonus)         written examination (approx. 60 to 120 minutes).         If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).         Language of assessment: German and/or English creditable for bonus         Allocation of places            Additional information            Workload         150 h         Teaching cycle            Referred to in LPO I (examination regulations for teaching-degree programmes)         § 22 Il Nr. 3b         Module appears in	Courses	<b>s</b> (type	, number of weekly conta	ct hours, language —	if other than Germa	n)
ster, information on whether module can be chosen to earn a bonus) written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (ap- prox. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus Allocation of places Additional information Workload 150 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 22 Il Nr. 3b Module appears in	V (2) + l	Ü (2)				
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus Allocation of places  Additional information  Workload 150 h Teaching cycle  Referred to in LPO I (examination regulations for teaching-degree programmes) § 22 II Nr. 3b Module appears in						tion offered — if not every seme-
 Additional information Workload 150 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 22 II Nr. 3b Module appears in	lf annou examin prox. 15 Langua	unced l ation o ; minut ge of a	by the lecturer at the beg f one candidate each (ap es per candidate). ssessment: German and/	inning of the course, prox. 20 minutes) or		
 Workload 150 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 22 II Nr. 3b Module appears in	Allocati	ion of p	olaces			
 Workload 150 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 22 II Nr. 3b Module appears in						
150 h Teaching cycle  Referred to in LPO I (examination regulations for teaching-degree programmes) § 22 II Nr. 3b Module appears in	Additio	nal info	ormation			
150 h Teaching cycle  Referred to in LPO I (examination regulations for teaching-degree programmes) § 22 II Nr. 3b Module appears in						
Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 22 II Nr. 3b Module appears in	Worklo	ad				
Referred to in LPO I (examination regulations for teaching-degree programmes) § 22 II Nr. 3b Module appears in	150 h					
§ 22 II Nr. 3b Module appears in	Teachir	ng cycl	e			
§ 22 II Nr. 3b Module appears in						
Module appears in	Referre	d to in	LPOI (examination regu	lations for teaching-d	legree programmes)	
	§ 22    N	۱r. 3b				
Bachelor's degree (1 major) Business Information Systems (2024)	Module	appea	in			
	Bachelo	or's de	gree (1 major) Business Ir	nformation Systems (	2024)	

Module title Abbreviation						
Funda	Fundamentals of Programming 10-I-GdP-172-m01					
Modul	Module coordinator Module offered by					
		Chair of Computer Scie	ncoll	Institute of Comput	or Science	
ECTS	1	od of grading	Only after succ. con			
5		rical grade				
5 Durati		Module level	Other prerequisites			
1 seme		undergraduate				
Conte						
		ntrol structures. found	ations of procedural pr	ogramming, selected	d topics of C. introdu	iction to ob-
			cs of C++, further Java			
Intend	ed lear	ning outcomes				
			l knowledge about prog		(in particular Java, C	C and C++)
		· ·	op average to high leve			
		, number of weekly cor	itact hours, language –	- if other than Germa	in)	
V (2) +						
			language — if other th can be chosen to earn		tion offered — if not	every seme-
writter	ı examiı	nation (approx. 60 to 1	20 minutes).			
lf anno	ounced	by the lecturer at the b	eginning of the course,			
			approx. 20 minutes) or	an oral examination	in groups of 2 cand	idates (ap-
	.5 minut able for	es per candidate). bonus				
	tion of p					
Additi	onal inf	ormation				
Workle	oad					
150 h						
	ing cycl	e				
Referr	ed to in	LPOI (examination re	gulations for teaching-	degree programmes)		
			0			
Modul	e appea	irs in				
		gree (1 major) Physics	(2015)			
			ce Computer Science (2	2017)		
1		gree (1 major) Compute	•	• •		
1		gree (1 major) Compute				
			s Information Systems	(2020)		
1		gree (1 major) Physics	•			
1			ce Computer Science (2	2020)		
Bache	lor's de	gree (1 major) Compute	er Science und Sustaina	ability (2021)		
Bache	lor's de	gree (1 major) Busines	s Information Systems	(2021)		
			atical Data Science (20			
			Intelligence and Data S			
			Intelligence and Data S	Science (2023)		
Bache	lor's de	gree (1 major) Mathem	atics (2023)			
Bachelor's Science (2		or Aerospace Computer		enerated 18-Mär-2025 • exar ECTS) Luft- und Raumfahrtint	-	page 20 / 68



Bachelor's degree (1 major) Business Information Systems (2023) Bachelor's degree (1 major) Business Information Systems (2024) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024)

Modul	Module title Abbreviation					
Practio	al Mea	surement and Control Sy	stem Engineering		10-I-HMR-152-m01	
Modul	e coord	inator		Module offered by		
holder	ofthe	Chair of Computer Scienc	e VI	Institute of Comput	ter Science	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
8	(not)	successfully completed				
Duration Module level Other prerequisites						
1 seme	ester	undergraduate				
Conter	nts					
		riments of control aspect ers in robotics or aerospa			mplementation of linear and non-	
		ning outcomes				
Studer	nts und	erstand closed loop syste	ems and are able to i	mplement and set co	ontrollers.	
Course	<b>es</b> (type	, number of weekly conta	ict hours, language –	- if other than Germa	in)	
P (6)						
project		ion on whether module ca resentation (approx. 15 m places		•	12 to 15 pages)	
Additio	onal inf	ormation				
Worklo	bad					
240 h						
	ng cycl	e				
Referre	ed to in	LPOI (examination regu	lations for teaching.	degree programmes)		
		<u> (c/animation regu</u>				
Modul	e appea	ars in				
Bachelor's degree (1 major) Aerospace Computer Science (2015) Bachelor's degree (1 major) Aerospace Computer Science (2017) Module studies (Bachelor) Computer Science (2019)						
	Bachelor's degree (1 major) Aerospace Computer Science (2020)					
Module studies (Bachelor) Aerospace Computer Science (2021)						

Module title Abbreviation						
Practio	Practical course in hardware 10-I-HWP-152-m01					
Modul	e coord	inator		Module offered by	<u> </u>	
			or Science)	-		
	-	es Informatik (Compute		Institute of Comput		
ECTS		od of grading successfully completed	Only after succ. cor	npl. of module(s)		
10						
Durati		Module level	Other prerequisites			
1 seme		undergraduate				
Conter						
		riments on hardware a croprocessor.	spects, for example in	communication tech	nology, robots or the	e structure of
Intend	ed lear	ning outcomes				
The stu	udents	are able to independer	tly review, prepare and	l perform experimen	ts with the help of ex	periment de-
scripti	ons, to		or additional informati			
results						
Course	<b>es</b> (type	, number of weekly cor	itact hours, language –	- if other than Germa	an)	
P (6)						
			language — if other th		ntion offered — if not	every seme-
-			can be chosen to earn	-		
			10 project assignment	s (approx. 250 hours	total) and presentat	ion of results.
		inutes per project)				
Alloca	tion of <sub>l</sub>	olaces				
Additi	onal inf	ormation				
Worklo	bad					
300 h						
Teachi	ng cycl	e				
Referr	ed to in	LPOI (examination re	gulations for teaching-	degree programmes)	1	
	Nr. 3 b)		<u> </u>			
	e appea					
		gree (1 major) Compute	er Science (2015)			
		gree (1 major) Mathem	_			
			ational Mathematics (2	015)		
			ce Computer Science (2	-		
			ng degree Gymnasium	-	2015)	
			n MINT Teacher Educat	•	-	016)
		,	Education PLUS, Elite			510)
			ce Computer Science (2		D) (2010)	
		gree (1 major) Compute		2017)		
		gree (1 major) Compute				
		es (Bachelor) Compute				
			n MINT Teacher Educat	ion PLUS Flite Netw	ork Bayaria (FNR) (2	020)
			Education PLUS, Elite			020)
			ce Computer Science (2		2, (2020)	
			er Science und Sustaina			
		jor Aerospace Computer		enerated 18-Mär-2025 • exan	n, reg. data re-	page 23 / 68
Science (2				ECTS) Luft- und Raumfahrtin	-	page 23 / 00



Bachelor's degree (1 major) Mathematics (2023)

Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025) Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)

Module	Module title Abbreviation				
Introduction to Aviation Systems					10-I-LFS-172-m01
Module	coord	inator		Module offered by	
Dean of	Studie	es Informatik (Computer S	Science)	Institute of Compute	er Science
ECTS		od of grading	Only after succ. com	pl. of module(s)	
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 semes	ster	undergraduate			
Conten	ts				
		lations of aircraft aerody ation propulsion and suit		y, airplane technolog	gy and structure of aircraft, foun-
Intende	d learr	ning outcomes			
correctl	y ident		stem relationships, f		ectly classify aerospace systems, nts for new systems and do cal-
Courses	<b>s</b> (type,	number of weekly conta	ct hours, language —	if other than Germa	n)
V (2) + Ü	Ü (1)				
ster, inf	ormati	on on whether module ca	an be chosen to earn		tion offered — if not every seme-
lf annou	unced l ation o	f one candidate each (ap	inning of the course,	the written examinat	tion may be replaced by an oral
Allocati	ion of p	olaces			
Additio	nal info	ormation			
Worklo	ad				
150 h					
Teachin	ng cycle	<b>a</b>			
		-			
Referre	d to in	LPOI (examination regu	lations for teaching-c	legree programmes)	
Module	20000	rcin			
		gree (1 major) Aerospace	Computer Scienco (a	017)	
	-		•		
	Bachelor's degree (1 major) Aerospace Computer Science (2020) Bachelor's degree (1 major) Computer Science und Sustainability (2021)				

Module	Module title Abbreviation					
Logic f	or infor	matics			10-l-LOG-152-m01	
Module	Module coordinator Module offered by					
Dean o	fStudie	es Informatik (Compute	er Science)	Institute of Comput	er Science	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
5	nume	ical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	its					
		mantics of proposition ets, syntax and semant	al logic, equivalence a ics of predicate logic.	nd normal forms, Ho	rn formulas, SAT, res	solution, infi-
Intend	ed learr	ing outcomes				
			owing areas: syntax ar solution, infinite formu			
Course	s (type.	number of weekly con	tact hours, language –	- if other than Germa	n)	-
V (2) +		•				
			language — if other th can be chosen to earn		tion offered — if not	every seme-
lf anno examir prox. 1 Langua	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (ap- prox. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					
Allocat	ion of p	laces				
Additio	onal info	ormation				
Worklo	ad					
150 h						
Teachi	ng cycl	9				
Referre	ed to in	LPOI (examination reg	gulations for teaching-	degree programmes)		
§ 22	Nr. 3 b)					
Module	e appea	rs in				
Bachel	or's de	gree (1 major) Compute	r Science (2015)			
		gree (1 major) Mathema				
			tional Mathematics (20		,	
			ng degree Gymnasium	•	-	
			n MINT Teacher Educat			016)
		gree (1 major) Compute	Education PLUS, Elite	NELWOIK DAVAIIA (EIN	D) (2010)	
		gree (1 major) Compute				
			n MINT Teacher Educat	ion PLUS. Elite Netwo	ork Bavaria (ENB) (2	020)
			Education PLUS, Elite			- <b>,</b>
			e Computer Science (2			
Bachel	or's de	gree (1 major) Compute	r Science und Sustaina	ability (2021)		
Bachelor's Science (20		or Aerospace Computer		enerated 18-Mär-2025 • exam ECTS) Luft- und Raumfahrtinf	-	page 26 / 68



Bachelor's degree (1 major) Mathematics (2023)

Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025) Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)

Module title	Module title Abbreviation				
Spacecraft Operations 10-I-LRFB-252-m01					
Module coord	inator		Module offered by		
Dean of Studio	es Informatik (Computer	Science)	Institute of Comput	er Science	
	od of grading	Only after succ. com	pl. of module(s)		
10 nume	rical grade				
Duration	Module level	Other prerequisites			
1 semester	undergraduate				
Contents					
control centre standards, pla	s, communication metho anning systems, operatin	ds and systems, tran	smission path balan	les, ground station, structure of ce, transmission and operating nd telecommando systems.	
	ning outcomes				
systems in air new systems a	and space vehicles, ider	ntify the most importa	int system relationsh	ectly classify systems to operate nips, formulate requirements for ments for the operation of air and	
Courses (type	, number of weekly conta	ct hours, language —	if other than Germa	n)	
V (4) + Ü (2)					
	sessment (type, scope, la ion on whether module ca			tion offered — if not every seme-	
If announced	of one candidate each (ap	inning of the course,	the written examina	tion may be replaced by an oral	
Allocation of p	olaces				
Additional inf	ormation				
Workload					
300 h					
Teaching cycl	e				
Referred to in	LPOI (examination regu	lations for teaching-c	legree programmes)		
Module appea	ars in				
keinem Studie	keinem Studiengang zugeordnet				

Modul	Module title Abbreviation					
Bache	Bachelor's Thesis Space- and Aerospace Computer Science 10-I-LRI-BA-252-mo1					
Modul	e coord	inator		Module offered by	·	
Dean c	of Studi	es Informatik (Computer	Science)	Institute of Comput	er Science	
ECTS		od of grading	Only after succ. con	npl. of module(s)		
10	nume	rical grade				
Durati	on	Module level	Other prerequisites	i		
1 seme	ester	undergraduate				
Conter	nts					
		nd writing on a defined to the principles of good		information techno	logy within a given time frame	
Intend	ed lear	ning outcomes				
		are able to research and les of good scientific pra		oblem in aerospace	information technology, adhering	
Course	<b>es</b> (type	, number of weekly cont	act hours, language –	- if other than Germa	in)	
Νο cou	irses as	signed to module				
		sessment (type, scope, l ion on whether module o			tion offered — if not every seme-	
		esis (approx. 30 to 60 pa ssessment: German or I				
Alloca	tion of <sub>l</sub>	places				
Additio	onal inf	ormation				
	1					
Worklo	bad					
300 h						
-	ng cycl	e				
Referred to in LPO I (examination regulations for teaching-degree programmes)						
Referre						
Referro						
	e appea	ars in				

	Module title Abbreviation				
Aerospa	ace Lat	ooratory			10-I-LRLA-252-m01
Module	coord	inator		Module offered by	
holder	of the Q	Chair of Computer Science	e VIII	Institute of Compute	er Science
ECTS		od of grading	Only after succ. com	pl. of module(s)	
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 semes	ster	undergraduate			
Conten	ts				
stems, s ground of air ar	sensor segme nd spa	s and actuators, energy, and for different components	structure (construction nts and systems of ai complex development	on) of a satellite mod r and space flight, st	on of physical/mechanical sy- lel/simulator, construction of a tructure of simplified subsystems re, hardware, electronics and
Intende	ed learn	ning outcomes			
electror a devel	nics an opmen	d mechanics by themselv t will be tested: capture o	ves as well as to oper of requirements, rudi	ate, test and docum mentary design, deta	nsisting of software, hardware, ent these. The whole life cycle of ailed design, modelling, imple- ce, transfer to the successor mo-
		, number of weekly conta	ct hours, language —	· if other than Germa	n)
V (2) + I	P (2)				
		s <b>essment</b> (type, scope, la on on whether module ca			tion offered — if not every seme-
Comple	tion of	approx. 6 practical exerc	cises (approx. 4 hours	s each)	
Allocati	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
150 h					
Teachin	ng cycl	e			
Referre	d to in	LPO I (examination regu	lations for teaching-c	legree programmes)	
Module	appea	irs in			
keinem	Studie	engang zugeordnet			

	Module title				Abbreviation
Seminar for students of Space- and Aerospace Computer Science 1 10-I-LRS1-152-m01					10-l-LRS1-152-m01
Modul	e coord	inator		Module offer	ed by
holder	ofthe	Chair of Computer Scien	ce VII	Institute of C	omputer Science
ECTS	Meth	od of grading	Only after succ. con	npl. of module	(s)
5	nume	rical grade			
Duration Module level Other prerequisites					
1 seme	ester	undergraduate			
Conter	nts				
softwa	re with		ation or video. The top	pics in module	gy based on literature and, if applicable es 10-I-LRS1 and 10-I-LRS2 must come nt lecturers).
Intend	ed lear	ning outcomes			
		are able to independentl spects in written form an			e information technology, to summari- opriate way.
Course	<b>es</b> (type	, number of weekly cont	act hours, language –	- if other than	German)
S (2)					
		s <b>essment</b> (type, scope, la ion on whether module c			amination offered — if not every seme-
		ation (10 to 15 pages) ar topic from the field of a			vith subsequent discussion (approx. 20
Alloca	tion of	places			
Additie	onal inf	ormation			
Worklo	Dad				
	bad				
150 h		e			
150 h	ing cycl	e			
150 h <b>Teachi</b> 	ing cycl		lations for teaching	legree progra	mmec)
150 h <b>Teachi</b> 	ing cycl	e LPOI (examination regu	ulations for teaching-o	degree prograi	mmes)
150 h Teachi  Referro 	ing cycl ed to in	LPOI (examination reg	ulations for teaching-o	degree prograt	mmes)
150 h Teachi  Referro  Modul	ing cycl ed to in e appea	LPOI (examination regu			mmes)
150 h Teachi  Referro  Modul Bache	ed to in ed to in e appea lor's de	LPOI (examination reg	e Computer Science (2	2015)	mmes)

Modul	Module title				Abbreviation	
Seminar for students of Space- and Aerospace Computer Science 2 10-I-LRS2-152-m01					10-I-LRS2-152-m01	
Modul	e coord	linator		Module offer	red by	
holder	ofthe	Chair of Computer Scier	nce VII	Institute of C	omputer Science	
ECTS	Meth	od of grading	Only after succ. con	npl. of module	e(s)	
5	nume	rical grade				
Duration Module level Other prerequisites						
1 seme	ester	undergraduate				
Conte	nts					
softwa	re with		tation or video. The top	pics in module	gy based on literature and, if applicable es 10-I-LRS1 and 10-I-LRS2 must come nt lecturers).	
Intend	ed lear	ning outcomes				
		are able to independen spects in written form a			e information technology, to summari- opriate way.	
Course	<b>es</b> (type	, number of weekly con	tact hours, language –	- if other than	German)	
S (2)						
		sessment (type, scope, ion on whether module			kamination offered — if not every seme-	
		ration (10 to 15 pages) a topic from the field of a			vith subsequent discussion (approx. 20	
Alloca	tion of	places				
Additi	onal inf	ormation				
Workl	oad					
150 h						
-	ing cycl	e				
Referr	ed to in	LPOI (examination reg		egree nrogra	mmes)	
Modul	e appea	ars in				
mouul						
	Bachelor's degree (1 major) Aerospace Computer Science (2015) Bachelor's degree (1 major) Aerospace Computer Science (2017)					
Bache						

Module	Module title Abbreviation					
Model-based Systems Engineering					10-I-MSE-252-m01	
Module	e coord	inator		Module offered by		
				Institute of Comput	er Science	
ECTS		od of grading	Only after succ. com	pl. of module(s)		
5	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster					
Conten	ts					
Intende	ed lear	ning outcomes				
Course	<b>s</b> (type	, number of weekly conta	ct hours, language —	if other than Germa	n)	
V (2) +	Ü (2)					
		<b>sessment</b> (type, scope, la on on whether module ca			tion offered — if not every seme-	
lf anno examin	unced ation c 5 minut	of one candidate each (ap es per candidate).	inning of the course,		tion may be replaced by an oral in groups of 2 candidates (ap-	
Allocat	ion of p	olaces				
Additio	onal inf	ormation				
	_					
Worklo	ad					
150 h						
Teachi	Teaching cycle					
Referre	ed to in	LPOI (examination regu	lations for teaching-c	legree programmes)		
Module	e appea	urs in				
keinem	n Studie	engang zugeordnet				

Module	Module title Abbreviation					
Practic	Practical work Space Technology 10-I-PLR-252-mo1					
Module	Module coordinator Module offered by					
Dean o	f Studi	es Informatik (Computer	Science)	Institute of Comput	ter Science	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
5	(not)	successfully completed				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
Comple	etion o	f a practical task.				
Intende	ed lear	ning outcomes				
The pra	actical	allows participants to wo	rk on a problem in sp	ace information tecl	hnology in teams.	
Course	<b>s</b> (type	, number of weekly conta	ct hours, language –	- if other than Germa	an)	
P (2)			· · · · · ·			
		sessment (type, scope, la ion on whether module ca			ation offered — if not every seme-	
report	(5 to 10	pages) and presentatior	i (approx. 15 minutes)	) on practical work		
Allocat	ion of	places				
Additio	onal inf	ormation				
Worklo	ad					
150 h						
Teachi	ng cycl	e				
Referre	ed to in	LPOI (examination regu	lations for teaching-o	degree programmes)		
Module	e appea	ars in				
keinem	n Studi	engang zugeordnet				

Module	title		Abbreviation						
Practical Course in Programming					10-I-PP-191-m01				
Module coordinator				Module offered by					
Dean of Studies Informatik (Computer			Science)	Institute of Computer Science					
ECTS Method of grading		Only after succ. com	cc. compl. of module(s)						
10 (not) successfully completed									
Duration Module level			Other prerequisites						
		undergraduate	•	earning outcomes of the following module are required: 10-l-					
			GdP. It is therefore strongly recommended to complete this before.						
Contents									
The programming language Java. Independent creation of small to middle-sized, high-quality Java programs.									
Intended learning outcomes									
The students are able to independently develop small to middle-sized, high-quality Java programs.									
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)									
P (6)									
Method of assessment (type, scope, language — if other than German, examination offered — if not every seme-									
ster, information on whether module can be chosen to earn a bonus)									
practical examination (programming exercises, approx. 240 hours) and written examination (approx. 60 to 120 minutes) If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (ap- prox. 15 minutes per candidate).									
Allocation of places									
Additional information									
Workload									
300 h									
Teaching cycle									
<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)									
Module appears in									
Bachelor's degree (1 major) Computer Science (2019) Module studies (Bachelor) Computer Science (2019) Module studies (Bachelor) Orientierungsstudien (2020) Bachelor's degree (1 major) Aerospace Computer Science (2020) Bachelor's degree (1 major) Computer Science und Sustainability (2021) Bachelor's degree (1 major) Mathematics (2023)									

Modul	e title	Abbreviation								
Computer Architecture 10-I-RAK-152-mo1										
Modul	e coordinator		Module offered by							
Dean of Studies Informatik (Computer		er Science)	Institute of Computer Science							
ECTS	Method of grading	Only after succ. compl. of module(s)								
5	numerical grade									
Duratio										
1 semester undergraduate										
Contents										
Instruction set architectures, command processing through pipelining, statical and dynamic instruction schedu- ling, caches, vector processors, multi-core processors.										
Intended learning outcomes										
The students master the most important techniques to design fast computers as well as their interaction with compilers and operating systems.										
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)										
$V(2) + \ddot{U}(2)$										
Method of assessment (type, scope, language — if other than German, examination offered — if not every seme-										
ster, information on whether module can be chosen to earn a bonus)										
written examination (approx. 60 to 120 minutes).										
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (ap-										
prox. 15 minutes per candidate).										
Language of assessment: German and/or English										
creditable for bonus										
Alloca	tion of places									
Additio	onal information									
Worklo	bad									
150 h										
Teaching cycle										
	ed to in LPO I (examination reg	gulations for teaching-	degree programmes)							
§ 22 II Nr. 3 b)										
§ 69   Nr. 1 c): Rechnerarchitektur										
Module appears in										
Bachelor's degree (1 major) Computer Science (2015) Bachelor's degree (1 major) Mathematics (2015)										
Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015)										
Bachelor's degree (1 major) Aerospace Computer Science (2015)										
First state examination for the teaching degree Gymnasium Computer Science (2015)										
Master's degree (1 major) Physics (2016)										
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)										
Bachelor's degree (1 major) Aerospace Computer Science (2017)										
Bachelor's degree (1 major) Computer Science (2017) Bachelor's degree (1 major) Computer Science (2019)										
	or's degree (1 major) Compute 's degree (1 major) Physics (20	-								
Bachelor's Science (2	with 1 major Aerospace Computer 025)		enerated 18-Mär-2025 • exam ECTS) Luft- und Raumfahrtinf	-	page 36 / 68					

Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020) Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020) Master's degree (1 major) Physics International (2020) Bachelor's degree (1 major) Aerospace Computer Science (2020) Bachelor's degree (1 major) Computer Science und Sustainability (2021) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2023) Bachelor's degree (1 major) Mathematics (2023) Master's degree (1 major) Physics International (2024) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024) Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)

Module title Abbreviation				
Introduction to Space Systems				10-I-RFS-172-m01
Module coord	inator		Module offered by	
Dean of Studie	es Informatik (Computer	Science)	Institute of Compute	er Science
	od of grading	Only after succ. com	pl. of module(s)	
5 nume	rical grade			
Duration	Module level	Other prerequisites		
1 semester	undergraduate			
Contents				
	ce flight, carrier rockets, o tions, foundations of sub			ons in space, special aspects of iation systems.
Intended lear	ning outcomes			
correctly ident		/stem relationships, f		ectly classify aerospace systems, nts for new systems and do cal-
Courses (type,	, number of weekly conta	ct hours, language —	if other than Germa	n)
V (2) + Ü (1)				
	s <b>essment</b> (type, scope, la on on whether module ca			tion offered — if not every seme-
If announced	f one candidate each (ap	inning of the course,	the written examinat	tion may be replaced by an oral
Allocation of p	olaces			
Additional inf	ormation			
Workload				
150 h				
Teaching cycl	e	·		
	-			
Referred to in	LPO I (examination regu	lations for teaching-	legree programmes)	
 Module appea	ors in			
	gree (1 major) Aerospace	Computer Science (2	017)	
	gree (1 major) Aerospace			
	gree (1 major) Computer S			

Module	Module title Abbreviation							
Compu	ter Net	works and Information	Transmission		10-l-RIÜ-191-m01			
Module	e coord	inator		Module offered by				
holder	of the (	Chair of Computer Scien	nce III	Institute of Comput	er Science			
ECTS	Metho	od of grading	Only after succ. con	pl. of module(s)				
10	· · · · · · · · · · · · · · · · · · ·	rical grade		-				
Duratio	n	Module level	Other prerequisites					
1 seme	ster	undergraduate						
Conten	Contents							
<ul> <li>C</li> <li>C</li> <li>T</li> <li>A</li> <li>C</li> <li>In</li> <li>D</li> </ul> Intended Studen puter n Course V (4) + Method ster, in written If anno	<ul> <li>Computer networks and the Internet: Structure and Mechanisms of Telecommunication</li> <li>Communication Protocols: Basic Principles and the Layer Model</li> <li>Computer and Communication Systems: Network Systems, Data Traffic in Distributed Systems and inter-network Communication</li> <li>The Internet: Important Protocols and Routing</li> <li>Architecture and Structure of Computer Networks: Network Architecture, Access Mechanisms, Flow Control and Traffic Management</li> <li>Coding Theory: Mechanisms for Error Detection and Error Correction</li> <li>Information Theory: Entropy of Data</li> </ul>					Flow Con- cture of com- every seme- d by an oral		
Allocat								
Additio	nal inf	ormation						
Additio								
Worklo	ad							
300 h								
Teachi		0						
Teacini	ig cycl	5						
Referre	a to in	LPUI (examination reg	gulations for teaching-o	legree programmes)				
Module								
Master Supple Bachel	's teach mentar or's deg	y course MINT Teacher gree (1 major) Aerospac	er Science (2019) n MINT Teacher Educati Education PLUS, Elite I ce Computer Science (2 er Science und Sustaina	Network Bavaria (EN 1020)		o20)		
			Intelligence and Data S	Science (2022)				
Bachelor's Science (20		or Aerospace Computer		enerated 18-Mär-2025 • exam ECTS) Luft- und Raumfahrtinf		page 39 / 68		

Bachelor's degree (1 major) Artificial Intelligence and Data Science (2023) Bachelor's degree (1 major) Mathematics (2023) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024) Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025) Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)

Module title Abbreviation				
Software Engineering 10-I-SE-252-m01				
Module coordinator		Module offered by		
		Institute of Comput	er Science	
ECTS         Method of grading         Only after succ. compl. of module(s)				
5 numerical grade		-		
Duration Module level	Other prerequisites	Other prerequisites		
1 semester				
Contents				
Intended learning outcomes				
<b>Courses</b> (type, number of weekly cont	act hours, language –	- if other than Germa	n)	
V (2) + Ü (2)				
<b>Method of assessment</b> (type, scope, l ster, information on whether module o			tion offered — if not every seme-	
written examination (approx. 60 to 12 If announced by the lecturer at the be examination of one candidate each (a prox. 15 minutes per candidate). creditable for bonus	ginning of the course,			
Allocation of places				
Additional information				
Workload				
150 h				
Teaching cycle				
Referred to in LPO I (examination reg	ulations for teaching-o	degree programmes)		
Module appears in				
keinem Studiengang zugeordnet				

Module title Abbreviation					Abbreviation		
Control Principles of Modern Communication Systems					10-I-SKS-242-m01		
Module	coord	inator		Module offered by			
		Chair of Computer Science	e III	Institute of Comput	er Science		
		od of grading	Only after succ. com	· · · ·			
		rical grade					
Duratio	n	Module level	Other prerequisites				
1 semes	1 semester   undergraduate						
Content	s						
<ul> <li>Control Mechanisms of Modern Communication Systems</li> <li>Multimedia Networking</li> <li>Broadband Access Networks</li> <li>Mobile Communication Systems</li> <li>Home Access Networks</li> <li>Current trends such as Internet of Things (IoT)</li> <li>Software Defined Networking (SDN)</li> <li>Control mechanisms implemented and deployed on the Internet</li> </ul>							
		tion of analytical perforn iing outcomes	nance evaluation				
measure analytic <b>Courses</b> V (2) + U <b>Method</b> ster, infe written of If annou examina prox. 15 Languag creditab	ement al perf (type, (2) of ass ormati action o minut ge of a ole for	setups. In addition, stud ormance evaluation. number of weekly conta essment (type, scope, la on on whether module contation (approx. 60 to 120 by the lecturer at the beg f one candidate each (approx. 60 to 120 by the lecturer at the beg f one candidate each (approx. 60 to 120 by the lecturer at the beg f one candidate each (approx. 60 to 120 by the lecturer at the beg f one candidate each (approx. 60 to 120 by the lecturer at the beg f one candidate each (approx. 60 to 120 by the lecturer at the beg f one candidate each (approx. 60 to 120 by the lecturer at the beg f one candidate each (approx. 60 to 120 by the lecturer at the beg f one candidate each (approx. 60 to 120 by the lecturer at the beg	ents have gathered in act hours, language — nguage — if other tha an be chosen to earn minutes). inning of the course, oprox. 20 minutes) or	if other than Germa in German, examina a bonus) the written examina	tion may be replaced by an oral in groups of 2 candidates (ap-		
Allocati	on of p	olaces					
Addition	nal inf	ormation					
Workloa	ad						
150 h							
Teachin	g cycl	9					
Referre	d to in	LPOI (examination regu	lations for teaching-c	legree programmes)			
Module							
Module studies (Bachelor) Computer Science (2019) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024)							

Module	e title				Abbreviation
Practic	al cour	se in software for studer	its of Space- and Aer	ospace Computer	10-I-SWP-LURI-252-m01
Scienc	е				
Module	e coord	inator		Module offered by	
Dean o	f Studi	es Informatik (Computer	Science)	Institute of Comput	ter Science
ECTS		od of grading	Only after succ. con		
10	(not) s	successfully completed	10-I-GdP, 10-LURI-H	NZ	
Duratio	on	Module level	Other prerequisites		
1 semester       undergraduate       In addition, the knowledge and skills acquired in module 10-I-required. Prior attendance of this module is therefore highly reduced.					
Conten	ts				
cation	of solu		ML) and milestones,	user manual, progra	uirements specifications, specifi- mming documentation, presenta-
Intend	ed lear	ning outcomes			
The stu small t		possess the practical ski	lls for the design, dev	velopment and exect	ution of a software project in
Course	<b>s</b> (type	, number of weekly conta	act hours, language –	- if other than Germa	an)
P (6)					
		<b>sessment</b> (type, scope, la ion on whether module c			ation offered — if not every seme-
•		ect (completion of a large prox. 10 minutes per grou		groups (approx. 300	hours per person) and final pre-
Allocat	ion of	olaces			
Additio	onal inf	ormation			
			-		
Worklo	ad		-		
300 h					
Teachi	ng cvcl	e			
Referre	ed to in	LPOI (examination regu	llations for teaching-	degree programmes	
Module	e appea	ars in			
		engang zugeordnet			

Module title Abbreviation							
Theory o	f Computation			10-I-TI-242-m01			
Module o	coordinator		Module offered by				
Dean of S	Studies Informatik (Computer S	Science)	Institute of Compute	er Science			
	Method of grading	Only after succ. com	pl. of module(s)				
10 r	numerical grade						
Duration		Other prerequisites					
1 semest	er undergraduate						
Contents	6						
	Computability, decidability, countability, finite automata, regular sets, generative grammars, context-free lan- guages, context-sensitive languages, complexity of calculations, P-NP problem, NP completeness.						
Intended	l learning outcomes						
tability, f		enerative grammars,	context-free languag	computability, decidability, coun- ges, context-sensitive languages,			
Courses	(type, number of weekly conta	ct hours, language —	if other than Germa	n)			
V (4) + Ü	(2)						
	<b>of assessment</b> (type, scope, la rmation on whether module ca			tion offered — if not every seme-			
If annour examinat prox. 15 r		inning of the course,		tion may be replaced by an oral in groups of 2 candidates (ap-			
Allocatio	on of places						
Addition	al information						
Workload	d						
300 h							
Teaching	g cycle						
Referred	to in LPO I (examination regu	lations for teaching-c	legree programmes)				
			,				
Module a	appears in						
Bachelor Master's	's degree (1 major) Artificial In teaching degree Gymnasium I tentary course MINT Teacher Ec	MINT Teacher Educati	on PLUS, Elite Netwo				

10-LURI-DS-252-m01Module correctinatorModule offered byInstitute of Computer ScienceECTS Metrical gradeNormation Service Compl. of module(s)5Normatical grade	Module	Module title Abbreviation				
Institute of Computer Science       ECTS     Method of grading     Only after succ. compl. of module(s)       5     numerical grade        Duration     Module level     Other prerequisites       1 semester         Contents              Intended learning outcomes            Courses (type, number of weekly contact hours, language – if other than German)     V (2) + Ü (2)       Method of assessment (type, scope, language – if other than German, examination offered – if not every semester, information on whether module can be chosen to earn a bonus)       written examination (approx. 60 to 120 minutes).     If anounced by the lecturer at the beginning of the course, the written examination in groups of 2 candidates (approx. 15 minutes per candidate).       creditable for bonus        Alditional information             Workload       150 h       Teaching cycle             Referred to in LPO I (examination regulations for teaching-degree programmes)	Digital Signal processing 10-LURI-DS-252-m01					10-LURI-DS-252-m01
ECTS         Metion         grading         Only after succ. compl. of module(s)           5         numerical grade             Duration         Module level         Other prerequisites           1 semester              Contents              To make a set of the set	Module	e coord	inator		Module offered by	
5       numerical grade          Duration       Module level       Other prerequisites         1 semester           Contents            Intended learning outcomes               Courses (type, number of weekly contact hours, language — if other than German)       V (2) + Û (2)         Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)         written examination (approx. 6o to 120 minutes).         If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination in groups of 2 candidates (app					Institute of Comput	er Science
Duration       Module level       Other prerequisites         1 semester           Contents           Intended learning outcomes                 Courses (type, number of weekly contact hours, language — if other than German)       V (2) + Û (2)          Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)       written examination (approx. 6o to 120 minutes).         If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).         creditable for bonus          Allocation of places              Motiklonal information              Yorkload          150 h          Teaching cycle              Referred to in LPO I (examination regulations for teaching-degree programmes)           Module appears in	ECTS			Only after succ. com	pl. of module(s)	
1 semester   Contents     Intended learning outcomes     Courses (type, number of weekly contact hours, language — if other than German)   V (2) + Û (2)   Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)   written examination (approx. 6o to 120 minutes).   If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 10 minutes per candidate).   creditable for bonus   Allocation of places     Morkload   150 h   Teaching cycle     Referred to in LPO1 (examination regulations for teaching-degree programmes)     Module appears in	5	nume	rical grade			
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Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	Worklo	ad				
Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	150 h					
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Digital Low puter Systems for Aerospace Computer ScienceaURI-DT-252-mo1Module offered byModule offered byInstitute of Computer ScienceETModule levelOnly after succ. comp.l. of module(s)9numerical gradeDurati'Module levelOther prerequisites1 sem seti-Other prerequisitesContentsContesting outcomes	Module	Module title Abbreviation				
Institute of Computer Science           ECTS         Method of grading         Only after succ. compl. of module(s)           9         numerical grade            Duration         Module level         Other prerequisites           1 semester             Contents             Intended learning outcomes             Corrests             Consets (type, number of weekly contact hours, language – if other than German)         V (a) + Ü (a)           Method of assessment (type, scope, language – if other than German, examination offered – if not every semester, information on whether module can be chosen to earn a bonus)         written examination (approx. 120 minutes) and approx. 6 practical exercises (approx. 4 hours each), weighted 1:1 creditable for bonus           Allocation of places             270 h             Method of user sine cycle             Referred to in LPO I (examination regulations for teaching-degree programmes)                  Module appears in	Digital Computer Systems for Aerospace Computer Science			ce Computer Science		10-LURI-DT-252-m01
Institute of Computer Science         ECTS       Method of grading       Only after succ. compl. of module(s)         9       numerical grade          Duration       Module level       Other prerequisites         1 semester           Contents           Intended learning outcomes           Courses (type, number of weekly contact hours, language – if other than German)       V (a) + U (a)         Method of assessment (type, scope, language – if other than German, examination offered – if not every semester, information on whether module can be chosen to earn a bonus)          written examination (approx. 120 minutes) and approx. 6 practical exercises (approx. 4 hours each), weighted 1:1 creditable for bonus          Aldication of places                Zoo h           Teaching cycle                 Module appears in	Module	coord	inator		Module offered by	
ECTS         Method of grading         Only after succ. compl. of module(s)           9         numerical grade            Duration         Module level         Other prerequisites           1 semester             Contents                  Intended learning outcomes                Contents               Contents               Contents               Contents               Contents               Contents               Contents              Contents               Contents               Contents            Contents            Contents          Contents					•	er Science
Duration       Module level       Other prerequisites         1 semester          1 semester          Contents           Intended learning outcomes             Courses (type, number of weekly contact hours, language — if other than German)       V (4) + Ü (2)         Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)         written examination (approx. 120 minutes) and approx. 6 practical exercises (approx. 4 hours each), weighted 1:1 creditable for bonus         Allocation of places               Motule appears in	ECTS	Metho	od of grading	Only after succ. com	· · ·	
1 semester          Contents          Intended learning outcomes          Courses (type, number of weekly contact hours, language — if other than German)       V(4) + Ü (2)         Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)         written examination (approx. 120 minutes) and approx. 6 practical exercises (approx. 4 hours each), weighted 1:1 creditable for bonus         Allocation of places            Additional information            Yorkload         270 h         Teaching cycle            Referred to in LPO I (examination regulations for teaching-degree programmes)            Module appears in	9 numerical grade					
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270 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	Additio	nal info	ormation			
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Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	270 h					
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keinem Studiengang zugeordnet	Module	e appea	irs in			
	keinem	Studie	engang zugeordnet			

Module	Module title Abbreviation				
Introdu	iction t	o Flight Mechanics			10-LURI-FD-252-m01
Module	e coord	inator		Module offered by	
				Institute of Comput	er Science
ECTS		od of grading	Only after succ. com	pl. of module(s)	
5	nume	rical grade			
Duratio		Module level	Other prerequisites		
1 seme	ster				
Conten	ts				
Intende	ed learı	ning outcomes			
Course	<b>s</b> (type	, number of weekly conta	ct hours, language —	if other than Germa	n)
V (2) +	Ü (2)				
		e <b>ssment</b> (type, scope, la on on whether module ca			tion offered — if not every seme-
lf anno examin	unced l ation o 5 minut	f one candidate each (ap es per candidate).	inning of the course,		tion may be replaced by an oral in groups of 2 candidates (ap-
Allocat	ion of p	olaces			
Additio	onal info	ormation			
Worklo	ad				
150 h					
Teachi	ng cycl	e			
Referre	ed to in	LPOI (examination regu	lations for teaching-o	legree programmes)	
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Module	e appea	ins in			
	Module appears in keinem Studiengang zugeordnet				

Module	Module title Abbreviation					
Hardwa	Hardware-oriented programming and Fundamentals Avionics 10-LURI-HWZ-252-mo1					
Modul	e coord	inator		Module offered by		
				Institute of Comput	er Science	
ECTS		od of grading	Only after succ. con	npl. of module(s)		
10	nume	rical grade	rade			
Duration Module level Other prerequisites						
1 seme	ster					
Conten	its		_			
Intend	ed lear	ning outcomes				
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Course	<b>s</b> (type	, number of weekly cont	act hours, language –	- if other than Germa	ın)	
V (4) +	Ü (2) +	P (2)				
ster, in	format	ion on whether module of	can be chosen to earn	a bonus)	tion offered — if not every seme-	
ses (ap		hours each), weighted		amination in form of	approx. 6 programming exerci-	
Allocat	ion of	olaces	_			
Additic	onal inf	ormation	_			
Worklo	ad					
300 h						
Teachi	ng cycl	e				
Referre	ed to in	LPOI (examination reg	ulations for teaching-	degree programmes)	_	
Modul	e appea	ars in				

Measurement Technique       10-LURI-LMT-252-m01         Module correct Mator       Module offered by         Institute of Computer Science       Institute of Computer Science         ECTS       Method of grading       Only after succ. compl. of module(s)         6       numerical grade          Unitation of module (see Precedusites)         Immetical grade          Onterts          Contest          Contest       <	Module	Module title Abbreviation					
Institute of Computer Science         ECTS       Metw → G grading       Only after succ. com J. of module(s)         6       numerical grade          Duration       Module level       Other prerequisites         1 semester           Contents                 Contents            Intended for subscription            Courses       to under of weekly contact hours, language if other than German)       V(3) + 0 (2)         Method of assesment (type, scope, language if other than German, examination offered if not every semester, information on whether module can be chosen to earn a bonus)	Measu	rement	Technique			10-LURI-LMT-252-m01	
Method of grading       Only after succ. compl. of module(s)         numerical grade          Duration       Module level       Other prerequisites         1 semester           Contents                Contents                Intended learning outcomes                 Contests                   Intended learning outcomes   <	Module	e coord	inator		Module offered by		
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1 semester   Contents     Intended learning outcomes     Courses (type, number of weekly contact hours, language — if other than German)   V (3) + Û (2)   Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)   written examination (approx. 6o to 120 minutes).   If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 20 minutes) or an oral examination of places     Additional information     Morkload   180 h   Teaching cycle     Referred to in LPO I (examination regulations for teaching-degree programmes)     Module appears in	6	nume	rical grade		-		
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Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (ap- prox. 15 minutes per candidate). creditable for bonus Allocation of places  Additional information  Workload 180 h Teaching cycle  Referred to in LPO I (examination regulations for teaching-degree programmes)  Module appears in	Course	<b>s</b> (type,	, number of weekly conta	ct hours, language —	· if other than Germa	n)	
ster, information on whether module can be chosen to earn a bonus) written examination (approx. 6o to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). creditable for bonus Allocation of places Additional information Workload 180 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	V (3) +	Ü (2)					
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). creditable for bonus   Allocation of places     Additional information     Workload   180 h   Teaching cycle     Referred to in LPO I (examination regulations for teaching-degree programmes)     Module appears in						tion offered — if not every seme-	
Additional information Workload 180 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	lf anno examin prox. 15	unced l ation o 5 minut	by the lecturer at the beg f one candidate each (ap es per candidate).	inning of the course,			
 Workload 180 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	Allocat	ion of p	olaces				
 Workload 180 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in							
180 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	Additio	nal info	ormation				
180 h Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in							
Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	Worklo	ad					
Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in	180 h						
	Teachir	ng cycl	e				
,,	Referre	d to in	LPO I (examination regu	lations for teaching-c	legree programmes)		
,,							
keinem Studiengang zugeordnet	Module	e appea	irs in				
	keinem	ı Studie	engang zugeordnet				

Module					Abbreviation
Mathematical Control Theory					10-M=ARTH-242-m01
Module coordinator				Module offered by	<u> </u>
Dean c	of Studi	es Mathematik (Mathem	natics)	Institute of Mathem	natics
ECTS		od of grading	Only after succ. com		
10		rical grade		,	
Duratio		Module level	Other prerequisites		
1 seme	ester	graduate			
Conten	nts				
bility, ł Recom	basics i Imende	o mathematical systems n optimal control. d previous knowledge: dge of the contents of th			rvability, state feedback and sta " is useful.
		ning outcomes		· · · · · · · · · · · · · · · · · · ·	
blish a	a conne				l theory. He/She is able to esta- ut the interactions of geometry
Course	<b>es</b> (type	, number of weekly cont	act hours, language —	if other than Germa	ın)
V (4) +	Ü (2)				
Modul	e taugh	t in: German and/or Eng	lish		
		sessment (type, scope, l ion on whether module			tion offered — if not every seme
b) oral c) oral Langua Assess	examir examir age of a	mination (approx. 90 to nation of one candidate nation in groups (groups issessment: German or I iffered: In the semester i bonus	each (approx. 20 minu of 2, 15 minutes per ca English	utes) or andidate)	ubsequent semester
Allocat	tion of	places			
Additic	onal inf	ormation			
Worklo	oad				
300 h					
-		e			
Teachi	וווצ נענו				
Teachi 	ing cyci				
		IPOI (examination reg	ulations for teaching.	legree programmes	
		LPOI (examination reg	ulations for teaching-c	legree programmes)	
 Referre	ed to in	=	ulations for teaching-c	legree programmes)	
 Referre  Module	ed to in e appea	ars in			
 Referre  Module Master	ed to in e appea r's degr	<b>ars in</b> ee (1 major) Computatio	nal Mathematics (202		
 Referre  Module Master Master	<b>ed to in</b> <b>e appea</b> r's degr r's degr	<b>ars in</b> ee (1 major) Computatio ee (1 major) Mathematio	nal Mathematics (202 ss (2024)		
 Referre  Module Master Master Master	ed to in e appea r's degr r's degr r's degr	<b>ars in</b> ee (1 major) Computatio ee (1 major) Mathematic ee (1 major) Economath	nal Mathematics (202 s (2024) ematics (2024)	4)	ork Bavaria (ENB) (2025)

	e title			Abbreviation
Ordina	ry Differential Equations for s	tudents of other subjec	ts	10-M-DGLaf-152-m01
Modul	e coordinator		Module offered by	
Dean o	of Studies Mathematik (Mather	matics)	Institute of Mathem	natics
ECTS	Method of grading	Only after succ. com		
10	numerical grade		1 (7	
Duratio	on Module level	Other prerequisites		
1 seme				
Conten				
	nce and uniqueness theorem; al equations; matrix exponent			tial values; systems of linear dif- igher order.
	ed learning outcomes		•	-
The stu	udent is acquainted with the fu ons. He/she is able to apply th			heory of ordinary differential
Course	es (type, number of weekly con	tact hours, language —	if other than Germa	an)
V (4) +				
		language — if other tha	an German, examina	ition offered — if not every seme-
	formation on whether module			,
a) writt	ten examination (approx. 90 to	180 minutes, usually o	chosen) or	
	examination of one candidate		-	
	examination in groups (groups		per candidate)	
	age of assessment: German an Ible for bonus	d/or English		
Allocal	tion of places			
Additio	onal information			
Worklo	pad			
300 h				
Teachi	ng cycle			
Referre	ed to in LPO I (examination reg	gulations for teaching-o	legree programmes)	
		<u>.</u>		
Modul	e appears in			
	lor's degree (1 major) Compute	r Science (2015)		
	lor's degree (1 major) Aerospa	_	015)	
	lor's degree (1 major) Function		.015)	
indi (101	tor 5 degree (I major) runetion		(017)	
	lor's degree (1 maior) Aerospac	e Computer Science (2		
Bachel	lor's degree (1 major) Aerospac lor's degree (1 major) Compute	•	.017)	
Bachel Bachel		r Science (2017)		
Bachel Bachel Bachel	lor's degree (1 major) Compute	r Science (2017) r Science (2019)		
Bachel Bachel Bachel Bachel Bachel	lor's degree (1 major) Compute lor's degree (1 major) Compute lor's degree (1 major) Aerospac lor's degree (1 major) Function	er Science (2017) er Science (2019) ce Computer Science (2 al Materials (2021)	020)	
Bachel Bachel Bachel Bachel Bachel Bachel	lor's degree (1 major) Compute lor's degree (1 major) Compute lor's degree (1 major) Aerospac lor's degree (1 major) Function lor's degree (1 major) Compute	er Science (2017) er Science (2019) ce Computer Science (2 al Materials (2021) er Science und Sustaina	020) ability (2021)	
Bachel Bachel Bachel Bachel Bachel Bachel	lor's degree (1 major) Compute lor's degree (1 major) Compute lor's degree (1 major) Aerospac lor's degree (1 major) Function lor's degree (1 major) Compute lor's degree (1 major) Artificial	er Science (2017) er Science (2019) ce Computer Science (2 al Materials (2021) er Science und Sustaina Intelligence and Data S	020) ability (2021) Science (2022)	
Bachel Bachel Bachel Bachel Bachel Bachel Bachel	lor's degree (1 major) Compute lor's degree (1 major) Compute lor's degree (1 major) Aerospac lor's degree (1 major) Function lor's degree (1 major) Compute lor's degree (1 major) Artificial lor's degree (1 major) Artificial	r Science (2017) r Science (2019) ce Computer Science (2 al Materials (2021) r Science und Sustaina Intelligence and Data S Intelligence and Data S	bility (2021) Science (2022) Science (2023)	
Bachel Bachel Bachel Bachel Bachel Bachel Bachel Bachel	lor's degree (1 major) Compute lor's degree (1 major) Compute lor's degree (1 major) Aerospac lor's degree (1 major) Function lor's degree (1 major) Compute lor's degree (1 major) Artificial lor's degree (1 major) Artificial lor's degree (1 major) Artificial	er Science (2017) er Science (2019) ce Computer Science (2 al Materials (2021) er Science und Sustaina Intelligence and Data S Intelligence and Data S	bility (2021) Science (2022) Science (2023)	
Bachel Bachel Bachel Bachel Bachel Bachel Bachel Bachel Bachel Bachel	lor's degree (1 major) Compute lor's degree (1 major) Compute lor's degree (1 major) Aerospac lor's degree (1 major) Function lor's degree (1 major) Compute lor's degree (1 major) Artificial lor's degree (1 major) Artificial	er Science (2017) er Science (2019) ce Computer Science (2 al Materials (2021) er Science und Sustaina Intelligence and Data S Intelligence and Data S Intelligence and Data S al Materials (2025)	bility (2021) Science (2022) Science (2023)	

Module	e title				Abbreviation
		1 for students of Space- a	and Aerospace Comp	uter Science	10-M-LRI1-152-m01
Module	e coord	inator		Module offered by	
Dean o	f Studi	es Mathematik (Mathema	atics)	Institute of Mathem	natics
ECTS	1	od of grading	Only after succ. com	pl. of module(s)	
10	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
		nbers and functions, seque, vector calculus, linear			differential and integral calculus natrix calculus.
Intend	ed lear	ning outcomes			
to appl	y these				ced mathematics. He/She learns ticular in computer science, and
Course	<b>s</b> (type	, number of weekly conta	ct hours, language —	if other than Germa	an)
V (5) + Module	• •	t in: Ü: German or Englisł	1		
ster, in	format	sessment (type, scope, la ion on whether module ca mination (approx. 90 to 1	an be chosen to earn	a bonus)	ation offered — if not every seme-
c) oral	examin age of a	nation of one candidate e ation in groups (groups c ssessment: German and, bonus	of 2, 15 minutes per c	-	
Allocat	ion of	olaces			
Additio	nal inf	ormation			
Worklo	ad				
300 h					
Teachi	ng cycl	e			
Referre	ed to in	LPOI (examination regu	lations for teaching-o	legree programmes)	
Module	e appea	ars in			
Bachel	or's de	gree (1 major) Aerospace	•	-	
		gree (1 major) Aerospace	-	.017)	
		es (Bachelor) Orientierung			
bachel	or s de	gree (1 major) Aerospace	Computer Science (2	.020)	

Module					Abbreviation
Mathe	matics	2 for students of Space	- and Aerospace Comp	outer Science	10-M-LRI2-152-m01
Module	e coord	inator		Module offered b	by
Dean o	f Studi	es Mathematik (Mather	natics)	Institute of Math	ematics
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
10	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
Eigenva integra			tegral calculus in seve	ral variables, diffe	erential equations, Fourier analysis,
Intend	ed lear	ning outcomes			
to appl	y these	•	•		anced mathematics. He/She learns particular in computer science, and
Course	<b>s</b> (type	, number of weekly con	tact hours, language –	- if other than Ger	man)
V (5) + Module	• •	t in: Ü: German or Engli	sh		
				an German, exami	ination offered — if not every seme-
ster, in	format	ion on whether module	can be chosen to earn	a bonus)	
b) oral c) oral	examii examir ige of a	mination (approx. 90 to nation of one candidate nation in groups (groups ussessment: German an bonus	each (approx. 20 minus of 2, 15 minutes per c	utes) or	
Allocat	ion of	places			
Additio	nal inf	ormation			
Worklo	ad				
300 h					
Teachi	ng cycl	e			
Referre	d to in	LPOI (examination reg	gulations for teaching-	degree programm	es)
Module	e appea	ars in			
Bachel	or's de	gree (1 major) Aerospac	e Computer Science (2	2015)	
		gree (1 major) Aerospac	•	-	
Dechal	or's da	gree (1 major) Aerospac	· · · · · · · · · · · · · · · · · · ·	``	

Module				Abbreviation	
Numeri	cal Mathematics 1 for student	s of other subjects		10-M-NUM1af-152-n	101
Module	coordinator		Module offered by	<u> </u>	
Dean of	f Studies Mathematik (Mathen	natics)	Institute of Mathem	natics	
ECTS	Method of grading	Only after succ. con			
10	numerical grade	'	1		
Duratio	n Module level	Other prerequisites			
1 semes	ster undergraduate				
Conten	ts	-			
	n of systems of linear equation rerpolation with polynomials, s				s of equati-
	ed learning outcomes				
	dent is acquainted with the fu	ndamontal conconte a	nd mathada in num	prical mathematics	applies them
	tical problems and knows abo	•			applies them
	s (type, number of weekly cont			n)	
V (4) + Ú					
	l of assessment (type, scope,	anguage if ather the	an Corman, ovamina	tion offered if not	00000 00000
	formation on whether module			llion onered — ii not	every serile-
	en examination (approx. 90 to				
	examination of one candidate				
	examination in groups (groups ge of assessment: German an		per candidate)		
	ble for bonus				
	ion of places				
	·····				
Additio	nal information				
Worklo	ad				
300 h					
	a avelo				
Teacini	ıg cycle				
 D - f					
Referre	d to in LPO I (examination reg	ulations for teaching-o	legree programmes)		
	appears in				
	or's degree (1 major) Compute	_			
	or's degree (1 major) Physics (:	-	<b>`</b>		
	or's degree (1 major) Nanostru				
	or's degree (1 major) Aerospac or's degree (1 major) Functiona		2015)		
	or's degree (1 major) Aerospac		2017)		
	or's degree (1 major) Compute				
	or's degree (1 major) Compute				
	or's degree (1 major) Physics (2	-			
	or's degree (1 major) Nanostru		o)		
Bachelo	or's degree (1 major) Aerospac	e Computer Science (2			
	or's degree (1 major) Functiona				
Bachelo	or's degree (1 major) Compute	r Science und Sustaina	ability (2021)		
	with 1 major Aerospace Computer		enerated 18-Mär-2025 • exam	-	page 54 / 68
Science (20	25)	cord Bachelor (180	ECTS) Luft- und Raumfahrtinf	ormatik - 2025	

Bachelor's degree (1 major) Quantum Technology (2021) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2022) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2023) Bachelor's degree (1 major) Artificial Intelligence and Data Science (2024) Bachelor's degree (1 major) Functional Materials (2025)

Modul					Abbreviation
Numer	rical Ma	thematics 2 for stud	ents of other subjects		10-M-NUM2af-152-m01
Modul	e coord	linator		Module offered by	<u> </u>
		es Mathematik (Math	nematics)	Institute of Mathe	
ECTS	1	od of grading	Only after succ. cor		inducs
10		rical grade			
Durati		r		•	
1 seme		Module level undergraduate	Other prerequisites	•	
Conter					
		oblems, linear progra ue problems.	amming, methods for init	ial value problems	for ordinary differential equation
Intend	ed lear	ning outcomes			
about	their ac		tions concerning the pos		merical mathematics and knows tion in different fields of natural
Course	<b>es</b> (type	, number of weekly c	ontact hours, language –	– if other than Germ	nan)
V (4) +	Ü (2)				
Metho	d of as	sessment (type, scop	be, language — if other th	an German, examir	nation offered — if not every seme
ster, in	nformat	ion on whether modu	ule can be chosen to earn	a bonus)	
credita	able for tion of				
Additid	onal inf	ormation			
Auuiti		ormation			
Worklo					
300 h	Jau				
		•			
Teacin	ing cycl				
					<b>`</b>
Referre	ed to in	LPOI (examination	regulations for teaching-	degree programme	S)
Modul	e appe	ars in			
		gree (1 major) Physic			
		• • • •	tructure Technology (201		
		• • • • •	bace Computer Science (2	2015)	
			onal Materials (2015)	`	
			pace Computer Science (	2017)	
		gree (1 major) Physic		-)	
			tructure Technology (202		
			bace Computer Science (2	2020)	
касре		gree (1 major) Functi			
	ا مارما				
Bache		gree (1 major) Quant	um Technology (2021) onal Materials (2025)		

Module	title				Abbreviation	
Astroph	-				11-AP-152-m01	
Module	e coord	inator		Module offered by		
Managi and Ast		ector of the Institute of T sics	heoretical Physics	Faculty of Physics a	nd Astronomy	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
6	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 semes	ster	undergraduate				
Conten	ts					
telesco um, mo	pes an decula	onomy, coordinates and d detectors, stellar struc r clouds, structure of the arge-scale structures, co	ture and atmosphere milky way, the local u	s, stellar evolution a	nd end stages, inters	stellar medi-
Intende	ed leari	ning outcomes				
physica	al obse	are familiar with the moo rvations and evaluations familiar with the physics	s. They are able to use	e these methods to p	lan and analyse own	n observati-
Courses	<b>s</b> (type	, number of weekly cont	act hours, language –	- if other than Germa	n)	
V (2) + I Module	• •	t in: German or English				
		essment (type, scope, l on on whether module o			tion offered — if not	every seme-
b) oral o c) oral o d) proje e) prese If a writ stead ta of asses nation o	examin examin ect repo entatio ten exa ake the ssmen date at	mination (approx. 90 to ation of one candidate of ation in groups (groups ort (approx. 8 to 10 page n/talk (approx. 30 minu amination was chosen a form of an oral examina t is changed, the lecture the latest. ssessment: German and	each (approx. 30 minu of 2, approx. 30 minu s) or tes) s method of assessmo ation of one candidate r must inform student	tes per candidate) of ent, this may be char e each or an oral exar	nged and assessmer mination in groups. I	If the method
Allocati			· · · · · · · · · · · · · · · · · · ·			
	<u> </u>					
Additio	nal inf	ormation				
Additio						
Worklo			-			
180 h						
Teachir	ng cycl	<b>A</b>				
	is cycl		_			
Poforro	d to in	LPOI (examination reg	lations for teaching.	degree programmes)		
§ 22    N § 22    N § 22    N	Nr. 1 h) Nr. 2 f)			200100 programmes)		
Module	e appea	irs in				
Bachelo	or's de	gree (1 major) Physics (2				
Bachelor's \ Science (20		or Aerospace Computer		enerated 18-Mär-2025 • exam ECTS) Luft- und Raumfahrtinf	-	page 57 / 68

# UNIVERSITÄT WÜRZBURG

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

Module title				Abbreviation
Classical Phys	sics 1 for Students of	Physics related Discipl	ines	11-ENNF1-152-m01
Madula acard			Madula offered by	
Module coord		<u></u>	Module offered by	
1	ector of the Institute of		Faculty of Physics	and Astronomy
	od of grading	Only after succ. co	mpl. of module(s)	
7 nume	rical grade			
Duration	Module level	Other prerequisite		
1 semester	undergraduate	Admission prerequ	isite to assessment:	completion of exercises (approx.
		13 exercise sheets	per semester). Stude	ents who successfully completed
		approx. 50% of exe	ercises will qualify for	r admission to assessment. The
		lecturer will inform	students about the r	respective details at the beginning
		of the semester.		
Contents	1	1		
	Physical quantities in	refactors derived quan	tities dimensional a	nalysis, time / length / mass (de-
		SI), importance of metr		narysis, time / tength / mass (ue-
				Uniform and constant accelerated
		r motion in polar coordi		
3. Newton's la	ws: Forces and mom	entum definition, weigh	t vs. mass forces on <sup>r</sup>	the pendulum, forces on an ato-
		c friction. Preparation of	f the equations of mo	otion and solutions;
	nergy: (Kinetic) perfo			
			momentum conserva	ation, surges in centre of mass
	system, rocket equation			and the sector field strongeth
			ai, potential energy; i	aw, weight scale, field strength
	of gravity (general rel		torque rotational e	nergy, moment of inertia, analo-
				r), escape velocities, trajectories
in the central				,,,,,,
		rence systems, apparer	nt forces, Foucault pe	endulum, Coriolis force, centrifu-
gal force;				
				nelson interferometer, Einstein's
	oblem of simultaneit	y, Lorentz transformatio	n, time dilation and l	length contraction, relativistic im-
pulse;		•••••••		
		-		nd -ellipsoid, principal axes and
	th as a spinning top;	le of the elasticity tenso	, physics of the blke	e; gyroscope: Precession and nu-
		tion_stick-slip_motion_u	olling friction viscou	us friction, laminar flow, eddy for-
mation;	atte und dynamie me		oung menon, viscou	
	Representation by m	eans of complex e-funct	ion, equation of mot	ion (DGL) on forces, torque and
				ılum, physical pendulum, damped
		, aperiodic limit), forced		
	•	s and eigenfunctions, d	ouble pendulum, det	erministic vs. chaotic motion,
•	namics and chaos;			
		-		nciple of superposition, reflection
•	na closea end, speed	or sound; interference,	Doppler effect; phas	e and group velocity, dispersion
relation;	ormation of solid box	lies: Elastic modulus, ge	eneral Hooke's law o	plastic wayes.
-		-		gle, capillary forces, steady flows,
	•			essure, compressibility and com-
pressive mod			5, « pre	.,
•		nd real gas, averages, d	istribution functions,	, equipartition theorem, Browniar
	, _			s of freedom, specific heat
motion, collis	ion cross section, me	an free path, diffusion a	and osmosis, degrees	s of freedom, specific heat

### Intended learning outcomes

The students understand the basic contexts and principles of mechanics, vibration, waves and kinetic theory of gases. They are able to apply mathematical methods to the formulation of physical contexts and autonomously apply their knowledge to the solution of mathematical-physical tasks.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (4) + Ü (2)

Module taught in: Ü: German or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (approx. 120 minutes)

Language of assessment: German and/or English

#### Allocation of places

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## Additional information

Registration: If a student registers for the exercises and obtains the qualification for admission to assessment, this will be considered a declaration of will to seek admission to assessment pursuant to Section 20 Subsection 3 Sentence 4 ASPO (general academic and examination regulations). If the module coordinators subsequently find that the student has obtained the qualification for admission to assessment, they will put the student's registration for assessment into effect. Only those students that meet the respective prerequisites can successfully register for an assessment. Students who did not register for an assessment or whose registration for an assessment to whose not put into effect will not be admitted to the respective assessment. If a student takes an assessment to which he/she has not been admitted, the grade achieved in this assessment will not be considered.

### Workload

210 h

#### Teaching cycle

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

## Module appears in

Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major) Aerospace Computer Science (2015) Bachelor's degree (1 major) Functional Materials (2015) Bachelor's degree (1 major) Aerospace Computer Science (2017) Bachelor's degree (1 major) Aerospace Computer Science (2020) Bachelor's degree (1 major) Mathematics (2023)

Classical Physics 2 for Students of Physics related Disciplines         11-ENNF2-152-m01           Module coordinator         Managing Director of the Institute of Applied Physics         Faculty of Physics and Astronomy           ECTS         Method of grading         Only after succ. compl. of module(s)         -           Tummerical grade         -         -         -         -           Duration         Module level         Other prerequisite to assessment: completion of exercises in a paprox. 50% of exercises here speetset). Students who successfully approx. 50% of exercises will qualify for admission to assess lecturer will inform students about the respective details at the off the semester.           Contents         -	Modul	le title				Abbreviation	
Managing Director of the Institute of Applied Physics         Faculty of Physics and Astronomy           ECTS         Method of grading         Only after succ. compl. of module(s)           7         inumerical grade         -           9         Duration         Module level         Other prerequisites           1 semester         undergraduate         Admission prerequisite to assessment: completion of exercises vill qualify for admission to assess lecturer will inform students about the respective details at th of the semester.           Contents         -         -           1. Thermodynamics (linked to 11:E-M): temperature and quantity of heat, thermometer, Kelvin scale;         -           2. Heat conduction, heat transfer, diffusion, convection, radiant heat;         -         -           3. Fundamental theorems of thermodynamics, entropy, inreversibility, Maxwell's demon;         -         -           4. Heat engines, working diagrams, efficiency, example: Sitting engine;         -         -         -           5. Real gases and liquids, states of matter (also solids), van der Waals, critical point, phase transition phenomean (opalescence), coexistence region, Joule-Thomson;         -         -           6. Electrostatics, basic concepts: Electrical charge, forces; electric field, reps. Field concept, field lines; point hat; post, electric, potential, working in the E-Fok, charge in a homogeneous and inhomogeneous field; induction, Fiaraday cage; to.         -			sics 2 for Students of P	hysics related Discipli	nes	11-ENNF2-152-m01	
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<ul> <li>pole field; movement paths, mass spectrometer, Wien filters, Hall effect; electron: e / m determinatio</li> <li>19. matter in the magnetic field, effects of the field on matter, relative permeability, susceptibility; par</li> <li>ferromagnetism; magn. moment of the electron, behaviour at interfaces;</li> <li>20. induction, Faraday's law of induction, Lenz's rule, flux change, eddy electric field, Waltenhofen's p</li> <li>inductance, self-induction; applications: Transformer, generator;</li> <li>21. Maxwell's displacement current, choice of integration area, displacement current; Maxwell's exter</li> <li>equation; Maxwell equations;</li> <li>22. AC: Fundamentals, sinusoidal vibrations, amplitude, period and phase; power and RMS value, oh</li> <li>stance; Capacitive &amp; inductive resistor, capacitor and coil, phase shift and frequency dependence; im</li> </ul>				etic field current halar	ice Lorentz force rid	oht-hand rule electr	ic motor di
<ol> <li>19. matter in the magnetic field, effects of the field on matter, relative permeability, susceptibility; parferromagnetism; magn. moment of the electron, behaviour at interfaces;</li> <li>20. induction, Faraday's law of induction, Lenz's rule, flux change, eddy electric field, Waltenhofen's prinductance, self-induction; applications: Transformer, generator;</li> <li>21. Maxwell's displacement current, choice of integration area, displacement current; Maxwell's exter equation; Maxwell equations;</li> <li>22. AC: Fundamentals, sinusoidal vibrations, amplitude, period and phase; power and RMS value, oh stance; Capacitive &amp; inductive resistor, capacitor and coil, phase shift and frequency dependence; im</li> </ol>							
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equation; Maxwell equations; 22. AC: Fundamentals, sinusoidal vibrations, amplitude, period and phase; power and RMS value, oh stance; Capacitive & inductive resistor, capacitor and coil, phase shift and frequency dependence; im						wont. Manualla	onolon
22. AC: Fundamentals, sinusoidal vibrations, amplitude, period and phase; power and RMS value, oh stance; Capacitive & inductive resistor, capacitor and coil, phase shift and frequency dependence; im				choice of integration al	ea, displacement cu	inent; Maxwell's ext	ension, wave
stance; Capacitive & inductive resistor, capacitor and coil, phase shift and frequency dependence; im				orations, amplitude, pe	riod and phase: pow	ver and RMS value. c	ohmic resi-
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Bachelor's with 1 major Aerospace Computer       JMU Würzburg • generated 18-Mär-2025 • exam. reg. data re-         Science (2025)       cord Bachelor (180 ECTS) Luft- und Raumfahrtinformatik - 2025			or Aerospace Computer		-	-	page 61 / 68

23. Resonant circuits, combinations of RLC; series and parallel resonant circuit; forced vibration, damped harmonic oscillator (related to 11-E-M);

24: Hertz dipole, characteristics of irradiation, near field, far field; Rayleigh scattering; accelerated charge, synchrotron radiation, X-rays; 25. Electromagnetic waves: Principles, Maxwell's determination to electromagnetism, radiation pressure (Poynting vector, radiation pressure).

### Intended learning outcomes

The students understand the basic principles and contexts of thermodynamics, science of electricity and magnetism. They know relevant experiments to observe and measure these principles and contexts. They are able to apply mathematical methods to the formulation of physical contexts and autonomously apply their knowledge to the solution of mathematical-physical tasks.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (4) + Ü (2)

Module taught in: Ü: German or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (approx. 120 minutes)

Language of assessment: German and/or English

## Allocation of places

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## Additional information

Registration: If a student registers for the exercises and obtains the qualification for admission to assessment, this will be considered a declaration of will to seek admission to assessment pursuant to Section 20 Subsection 3 Sentence 4 ASPO (general academic and examination regulations). If the module coordinators subsequently find that the student has obtained the qualification for admission to assessment, they will put the student's registration for assessment into effect. Only those students that meet the respective prerequisites can successfully register for an assessment. Students who did not register for an assessment or whose registration for an assessment was not put into effect will not be admitted to the respective assessment. If a student takes an assessment to which he/she has not been admitted, the grade achieved in this assessment will not be considered.

## Workload

210 h

## Teaching cycle

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

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## Module appears in

Bachelor's degree (1 major) Mathematics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major) Aerospace Computer Science (2015) Bachelor's degree (1 major) Functional Materials (2015) Bachelor's degree (1 major) Aerospace Computer Science (2017) Bachelor's degree (1 major) Aerospace Computer Science (2020) Bachelor's degree (1 major) Mathematics (2023)

Module title				Abbreviation	
Data and Erro	r Analysis			11-P-FR1-152-m01	
Module coord	inator		Module offered by	<u> </u>	
	ector of the Institute of A	nnlied Physics	Faculty of Physics a	nd Astronomy	
	od of grading	Only after succ. con	· · ·	ind Astronomy	
	successfully completed				
Duration	Module level	Other prerequisites			
1 semester	undergraduate	13 exercise sheets p approx. 50% of exer	site to assessment: o per semester). Stude rcises will qualify for students about the re	nts who successfully admission to asses	y completed sment. The
Contents					
Types of error and standard	s, error approximation a deviation.	nd propagation, grapł	nic representations,	linear regression, m	ean values
Intended lear	ning outcomes				
	are able to evaluate mea to draw, present and dis			gation and of the pri	nciples of
Courses (type	, number of weekly cont	act hours, language –	- if other than Germa	n)	
V (1) + Ü (1) Module taugh	t in: Ü: German or Englis	h			
	sessment (type, scope, l ion on whether module o			tion offered — if not	every seme-
	nation (approx. 120 mini		-		
	ssessment: German and				
Allocation of	olaces				
		_			
Additional inf	ormation				
this will be co 3 Sentence 4 find that the s gistration for ly register for sessment was	f a student registers for nsidered a declaration of ASPO (general academic tudent has obtained the assessment into effect. ( an assessment. Student s not put into effect will r which he/she has not be	of will to seek admissi and examination reg qualification for adm Only those students th s who did not register not be admitted to the	on to assessment pu ulations). If the mod ission to assessmen nat meet the respect for an assessment of respective assessm	rsuant to Section 20 ule coordinators sub it, they will put the s ive prerequisites car or whose registratior ent. If a student tak	o Subsection osequently student's re- n successful- n for an as- es an as-
Workload					
60 h					
Teaching cycl	e				
		_			
Referred to in	LPOI (examination reg	ulations for teaching-	degree programmes)		
§ 53   Nr. 1 c) § 77   Nr. 1 d)					
Module appea	ars in				
Bachelor's de	gree (1 major) Mathemat gree (1 major) Physics (2 gree (1 major) Nanostruc	.015)	5)		
Bachelor's with 1 ma Science (2025)	jor Aerospace Computer		enerated 18-Mär-2025 • exam ECTS) Luft- und Raumfahrtinf	-	page 63 / 68

# UNIVERSITÄT WÜRZBURG

Bachelor's degree (1 major) Mathematical Physics (2015) Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major) Aerospace Computer Science (2015) Bachelor's degree (1 major) Functional Materials (2015) Bachelor's degree (1 major, 1 minor) Physics (Minor, 2015) First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Realschule Physics (2015) First state examination for the teaching degree Gymnasium Physics (2015) First state examination for the teaching degree Mittelschule Physics (2015) Bachelor's degree (1 major) Mathematical Physics (2016) Bachelor's degree (1 major) Aerospace Computer Science (2017) First state examination for the teaching degree Grundschule Physics (2018) First state examination for the teaching degree Realschule Physics (2018) First state examination for the teaching degree Gymnasium Physics (2018) First state examination for the teaching degree Mittelschule Physics (2018) Bachelor's degree (1 major) Physics (2020) Bachelor's degree (1 major) Nanostructure Technology (2020) Bachelor's degree (1 major) Mathematical Physics (2020) Bachelor's degree (1 major, 1 minor) Physics (Minor, 2020) Bachelor's degree (1 major) Aerospace Computer Science (2020) First state examination for the teaching degree Grundschule Physics (2020) First state examination for the teaching degree Gymnasium Physics (2020) First state examination for the teaching degree Realschule Physics (2020) First state examination for the teaching degree Mittelschule Physics (2020) Bachelor's degree (1 major) Functional Materials (2021) Bachelor's degree (1 major) Quantum Technology (2021) Bachelor's degree (1 major) Mathematics (2023) exchange program Physics (2023) Bachelor's degree (1 major) Mathematical Physics (2024) Bachelor's degree (1 major) Functional Materials (2025)

Module	e title				Abbreviation
Labora	tory Co	urse Physics B for Space	and Aerospace Com	puter Science	11-P-LRB-152-m01
Module	e coord	inator		Module offered by	
Manag	ing Dire	ector of the Institute of Ap	oplied Physics	Faculty of Physics a	and Astronomy
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
4	(not) s	successfully completed			
Duratio	on	Module level	Other prerequisites		
		undergraduate			mplete modules 11-P-PA and 11-
			P-FR1 prior to compl	eting module 11-P-LI	RB.
Conten	ts				
Physica	al laws	of optics, vibrations and	waves, science of ele	ectricity and circuits	with electric components.
Intende	ed learı	ning outcomes			
le to in measu princip	depenc ring pro les of s	lently plan and conduct e stocol. They are able to ev tatistics and to draw, pre	experiments, to coop valuate the measurin esent and discuss the	erate with others, ar g results on the bas conclusions.	menting techniques. They are ab- nd to document the results in a is of error propagation and of the
	s (type	, number of weekly conta	ict nours, language –	- II other than Germa	11) 
P (2)					
		s <b>essment</b> (type, scope, la on on whether module ca			ation offered — if not every seme-
Prepari cessful can be candid	ng, per ly com repeate ate's u	oleted if a Testat (exam) i ed once. After completion	record of readings or is passed. Exactly on n of all experiments, ics-related contents	e experiment that wa talk (with discussion of the module. Talks	riments will be considered suc- as not successfully completed n; approx. 30 minutes) to test the that were not successfully com- uccessfully completed.
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
120 h					
Teachi	ng cycl	e			
Referre	d to in	LPOI (examination regu	lations for teaching-o	degree programmes)	
Module	e appea	irs in			
		gree (1 major) Aerospace	Computer Science (2	2015)	
		gree (1 major) Aerospace	•	-	
Bachel	or's de	gree (1 major) Aerospace	Computer Science (2	2020)	

Modul	e title				Abbreviation
Labora	tory Co	ourse Physics C for Space	e and Aerospace Com	puter Science	11-P-LRC-152-m01
Module	e coord	inator		Module offered by	<u> </u>
		ector of the Institute of A	oplied Physics	Faculty of Physics a	and Astronomy
ECTS		od of grading	Only after succ. con	· · · ·	
4		successfully completed			
Duratio	on	Module level	Other prerequisites		
		undergraduate	Students are highly	recommended to co	mplete module 11-P-LRB prior to
			completing module	11-P-LRC.	
Conten	nts				
					rn measuring methods using spe
cial co	mputer	ised devices with examp	les from optics and S	olid-State Physics.	
Intend	ed lear	ning outcomes	-		
to reco by usir	ord mea ng error	suring results in a structu	ured manner, even in cs. They are able to e	case of huge data tr	erimental setups. They are able affic, and to analyse the results raw conclusions and to present
Course	<b>s</b> (type	, number of weekly conta	act hours, language –	- if other than Germa	ın)
P (2)					
		<b>sessment</b> (type, scope, la ion on whether module c			tion offered — if not every seme-
Prepari cessful can be candid	ing, pei lly com repeat ate's u	pleted if a Testat (exam) ed once. After completion	record of readings or is passed. Exactly on n of all experiments, ics-related contents	e experiment that wa talk (with discussior of the module. Talks	riments will be considered suc- as not successfully completed a; approx. 30 minutes) to test the that were not successfully com-
Allocat	tion of <sub>l</sub>	olaces		ssment have to be s	uccessfully completed.
				ssment have to be s	uccessfully completed.
				ssment have to be s	uccessfully completed.
Additio	onal inf	ormation		ssment have to be s	uccessfully completed.
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Additic  Worklo		ormation		ssment have to be s	uccessfully completed.
		ormation		ssment have to be s	uccessfully completed.
 <b>Worklo</b> 120 h	oad			ssment nave to be s	uccessfully completed.
 Worklo	oad			ssment have to be s	uccessfully completed.
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 Worklo 120 h Teachi 	oad ng cycl	e	lations for teaching-o		
 Worklo 120 h Teachi  Referro	ng cycl ed to in	e LPOI (examination regu	llations for teaching-o		
 Workld 120 h Teachi  Referre  Module	oad ng cycl ed to in e appea	e LPOI (examination regu		degree programmes)	
 Worklo 120 h Teachi  Referre  Bachel	ng cycl ed to in e appea or's de	e LPOI (examination regu	Computer Science (2	degree programmes) 2015)	

Modul	e title				Abbreviat	tion
Labora	tory Course Physics A	A (Mechani	ics, Heat, Electroma	gnetism)	11-P-PA-1	52-m01
Modul	e coordinator			Module offe	rod by	-
_	ing Director of the Ins	stitute of Ap		,	ysics and Astrono	omy
ECTS	Method of grading	1.1.1	Only after succ. co	mpl. of module	e(s)	
3	(not) successfully co	ompleted				
Duratio			Other prerequisite	S		
1 seme	ester undergraduat	te				
Conter	nts					
rents, l	rement tasks in mech heat capacity, calorim drafting of graphics ar	ietry, dens	ity of bodies, dynam	nic viscosity, el		ent of voltages and cur- ension, spring con-
Intend	ed learning outcomes	5				
le to in	udents know and have dependently plan and ring protocol.					chniques. They are ab- ment the results in a
Course	es (type, number of we	eekly conta	act hours, language	— if other than	German)	
P (2)						
Metho	d of assessment (type	e, scope, la	- anguage — if other th	han German, e	xamination offere	ed — if not every seme-
	formation on whether					
Prepar cessfu can be candid	late's understanding o	valuating ( tat (exam) completion of the phys	(record of readings of is passed. Exactly of n of all experiments sics-related contents	ne experiment , talk (with disc s of the module	that was not succ cussion; approx. . Talks that were	cessfully completed 30 minutes) to test the not successfully com-
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Prepar cessfu can be candid pleted Allocat  Additio	ing, performing and en lly completed if a Test repeated once. After late's understanding of can be repeated once tion of places	valuating ( tat (exam) completion of the phys	(record of readings of is passed. Exactly of n of all experiments sics-related contents	ne experiment , talk (with disc s of the module	that was not succ cussion; approx. . Talks that were	cessfully completed 30 minutes) to test the not successfully com-
Prepar cessfu can be candid pleted Allocat  Additic  Worklo	ing, performing and en lly completed if a Test repeated once. After late's understanding of can be repeated once tion of places	valuating ( tat (exam) completion of the phys	(record of readings of is passed. Exactly of n of all experiments sics-related contents	ne experiment , talk (with disc s of the module	that was not succ cussion; approx. . Talks that were	cessfully completed 30 minutes) to test the not successfully com-
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Prepar cessfu can be candid pleted Allocat  Worklo 90 h Teachi  Referre  Bachel Bachel	ing, performing and even lly completed if a Test repeated once. After late's understanding of can be repeated once tion of places onal information oad ad ed to in LPO I (examine e appears in lor's degree (1 major)	valuating ( tat (exam) completion of the phys e. Both con be an action regulation mation regulation Mathemation	(record of readings of is passed. Exactly of n of all experiments, sics-related contents nponents of the asso allations for teaching ics (2015) 015)	ne experiment , talk (with disc s of the module essment have -degree progra	that was not succ cussion; approx. <u>3</u> . Talks that were to be successfully	cessfully completed 30 minutes) to test the not successfully com-
Prepar cessfu can be candid pleted Allocat  Additic  90 h Teachi  Referre Bachel Bachel Bachel Bachel Bachel	ing, performing and even lly completed if a Test repeated once. After late's understanding of can be repeated once tion of places bonal information boad ad ad ad ad ad ad ad ad ad ad ad ad a	Valuating ( tat (exam) completion of the phys e. Both con ation regu Mathemati Physics (20 Manostruct Mathemati	(record of readings of is passed. Exactly of n of all experiments, sics-related contents nponents of the asso allations for teaching ics (2015) o15) ture Technology (20 ical Physics (2015)	ne experiment , talk (with disc of the module essment have t -degree progra	that was not succ cussion; approx. <u>3</u> . Talks that were to be successfully	cessfully completed 30 minutes) to test the not successfully com-
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