Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

Subdivided Module Catalogue
for the Subject

Keine PO-STG-Zuordnung vorhanden

Responsible: JMU Würzburg

Course of Studies - Contents and Objectives

The elite degree programme "MINT-Lehramt PLUS" in the Elite Network of Bavaria is a research-oriented Master's degree programme offered by the Faculty of Biology, the Faculty of Chemistry and Pharmacy, the Faculty of Mathematics and Computer Science and the Faculty of Physics and Astronomy of the Julius-Maximilians-Universität Würzburg. It is being offered as part of a Bachelor's and Master's study model. This Master's degree is an additional professional and research-oriented degree.

The program is aimed at particularly high-performing and motivated graduates of a secondary school teaching program with at least one STEM subject, as well as particularly high-performing and motivated graduates of computer science-related programs. The program is designed to bring these two distinct groups of students together, allowing them to learn with and from each other, and expand their knowledge of computer science and subject-specific didactics. The program familiarizes students with the interdisciplinary conception, development, and implementation of innovative educational technologies, enables subject-specific in-depth study, and imparts comprehensive subject-specific didactic skills to teach the content and methods of a STEM subject using innovative educational technologies.

Abbreviations used

Course types: **E** = field trip, **K** = colloquium, **O** = conversatorium, **P** = placement/lab course, **R** = project, **S** = seminar, **T** = tutorial, **Ü** = exercise, **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)):

??-???-2026 (2026-??)

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 (55 ECTS credits)				
Digital Foundations of Emerging Educational Technologies (30 ECTS credits)				
10-I=EINEET-262-m01	Introduction to Informatics for EET4STEM	10	NUM	20
10-I=PEET1-262-m01	Programming for Emerging Educational Technologies 1	5	NUM	21
10-I=PEET2-262-m01	Programming for Emerging Educational Technologies 2	5	NUM	22
10-HCI=WOT-262-m01	Web and Online Technologies	5	NUM	15
10-I-MCS-242-m01	Introduction into Human-Computer Interaction	5	NUM	26
Emerging Educational Technologies (25 ECTS credits)				
19-EET=ELET1-262-m01	Educational Technologies Development Lab 1	5	NUM	36
19-EET=ELET2-262-m01	Educational Technologies Development Lab 2	20	NUM	37
Compulsory Electives (35 ECTS credits)				
Subfield Specialization (10 ECTS credits)				
10-AI=ML-242-m01	Machine Learning	5	NUM	14
10-AI=IAI-262-m01	Introduction to AI	5	NUM	13
10-HCI-B-HAI-242-m01	Human-AI Interaction	5	NUM	17
10-MK-Dig-Med1-212-m01	Digital media 1	5	NUM	30
10-MK-Dig-Med2-212-m01	Digital media 2	10	NUM	31
10-HCI-3DUI-212-m01	3D User Interfaces	5	NUM	16
10-HCI-PRIS-212-m01	Principles of Interactive Systems	5	NUM	18
Subfield Subject didactics (15 ECTS credits)				
Subject didactics Biology (0 or 15 ECTS credits)				
07-GY-FD-BIO-1-152-m01	Didactics in Biology I: Basics	5	NUM	6
07-GY-FD-BIO-2-152-m01	Didactics Biology II: Special Didactics	5	B/NB	8
07-GY-FDB-V-262-m01	Advanced Biology Education	5	NUM	9
Subject didactics Chemistry (0 or 15 ECTS credits)				
08-FD1-LAGY-152-m01	Introduction into Teaching Chemistry for High School	5	NUM	10
08-FD2-LAGY-152-m01	Teaching Chemical Practice for High School	5	NUM	11
08-FDC-V-262-m01	Advanced Chemistry Education	5	NUM	12
Subject didactics Computer Science (0 or 15 ECTS credits)				
10-I-DDI1-152-m01	Computer Science Education 1 (incl. Practical Course in the Application of Computer Science Systems form an Educational Point of View)	6	NUM	23
10-I-DDI2-GY-152-m01	Computer Science Education 2	4	NUM	24
10-I-FDI-V-262-m01	Advanced Computer Science Education	5	NUM	25
Subject didactics Mathematics (0 or 15 ECTS credits)				
10-M-DGY1-232-m01	Didactics of Mathematics: Algebra and Analysis (German Gymnasium)	6	NUM	27
10-M-DGY2-191-m01	Didactics of Mathematics: Geometry (German Gymnasium)	4	NUM	28
10-M-FDM-V-262-m01	Advanced Mathematics Education	5	NUM	29

Subject didactics Physics (0 or 15 ECTS credits)				
11-L-PD-172-m01	Physics Teaching Concepts	5	NUM	34
11-L-PDS-152-m01	Physics Teaching Concepts Seminar	2	B/NB	35
11-L-L3SGY-152-m01	Student Lab Preparation Course (Physics) German Gymnasium	3	NUM	33
11-L-FDP-V-262-m01	Advanced Physics Education	5	NUM	32
Subfield Profession-specific key competencies (10 ECTS credits)				
19-EET-SK1-262-m01	Key Competencies EET4STEM 1	5	B/NB	40
19-EET-SK2-262-m01	Key Competencies EET4STEM 2	5	B/NB	41
Thesis (30 ECTS credits)				
19-EET-MA-262-m01	Master-Thesis	25	NUM	38
19-EET-MK-262-m01	Concluding Colloquium	5	NUM	39

Module title			Abbreviation
Didactics in Biology I: Basics			07-GY-FDBIO-1-152-m01
Module coordinator		**Module offered by**	
head of group Didactics of Biology		Faculty of Biology	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The lecture *Einführung in die Fachdidaktik Biologie* (*Introduction to Biology Didactics*) will discuss central concepts and principles of biology lessons as well as methods in biology and teaching aids. Building on this knowledge, students will learn how to outline problem-based biology lessons. The course will discuss topics such as modes of interaction in the classroom, teaching methods and approaches, the definition of learning outcomes, out-of-classroom learning environments, topics and theories in biology didactics etc. The seminar *Biologieunterricht* (*The Biology Classroom*) will equip students with detailed knowledge on how to plan and design classes for the respective type of school. Students will prepare didactic analyses on topics from the curriculum. They will discuss general aspects of curriculum theory and, working in small teams, will translate the material to be taught, in a didactically reduced manner, into teaching sequences and lessons. At the same time, students will integrate different teaching methods and modes of interaction in the classroom (as well as teaching aids) into their lessons, keeping in mind what is and what is not possible in the respective type of school, and will deliver their lessons or parts of these in the seminar. Didactic aspects will be evaluated and discussed in class. There will be separate seminars for each type of school; please select the seminar for the school type for which you are pursuing a teaching degree. Using examples from the classroom, the seminar *Unterrichtsmittel* (*Teaching Aids*) will acquaint students with specific teaching aids (originals, preparations and media) for use in the biology classroom and will assess these with regard to the media literacy skills to be developed. The seminar will discuss both traditional aids used in the biology classroom (models, blackboard, OHP, transparencies, textbook and worksheets etc.) and modern aids (computer simulations, ppt presentations etc.). After having received a theoretical introduction to teaching aids, students will be arranged into small teams that will deliver lessons or individual phases of lessons on specific topics from the curriculum. They will focus on a teaching aid of their choice which will subsequently be assessed with regard to aspects of media didactics.

Intended learning outcomes

- Ability to name relevant aspects of biology didactics.
- Ability to design lively biology lessons, using original objects and teaching aids.
- Ability to prepare scientific and didactic analyses on selected topics from the curriculum for the respective type of school and to present these topics in a manner that is tailored to the target group.
- Ability to translate, with the help of didactic analyses, selected topics from the curriculum into teaching sequences and lessons as well as to deliver these teaching sequences and lessons, applying problem-based and/or open teaching methods.
- Ability to evaluate and reflect on lessons, taking didactic aspects into account.
- Knowledge of the fact that the term "teaching aids in the biology classroom" refers to originals, preparations and media.
- Familiarity with a biology-specific, didactic definition of the term "media".
- Overview of classifications of media, factors that influence the choice of media as well as the function of media.
- Familiarity with the limitations and problems associated with the use of media in the classroom.
- Practical skills using media of all kinds (hardware side).
- Ability to independently prepare teaching aids.
- Ability to use teaching aids in classroom situations in a way that is appropriate for pupils and the material taught.
- Advantages and disadvantages of specific teaching aids; limitations associated with the use of media in the classroom.

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

V (2) + S (3)

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 minutes) creditable for bonus
Allocation of places
--
Additional information
--
Workload
150 h
Teaching cycle
--
Referred to in LPO I (examination regulations for teaching-degree programmes)
§ 61 I Nr. 8

Module title			Abbreviation
Didactics Biology II: Special Didactics			07-GY-FDBIO-2-152-m01
Module coordinator		**Module offered by**	
head of group Didactics of Biology		Faculty of Biology	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The seminar *Arbeiten im Lehr-Lern-Labor* (*Working in the Teach'n'Learn Lab*) or *Arbeiten im Lehr-Lern-Garten* (*Working in the Teach'n'Learn Garden*) will provide students with an overview of selected methods in biology. They will learn to prepare these methods, in a didactically reduced manner, for pupils and, having been arranged into teams, will deliver the respective units to groups of pupils. Students will thus learn to tailor research-oriented experiments to the age group they are teaching and will acquire practical experience in the supervision of a group of pupils. In the seminar *Arbeitstechniken und Schulversuche* (*Methods and Experiments in the Classroom*), students will be arranged into small teams and will perform a variety of experiments on classic topics in biology. The experiments, which will be tailored to the requirements of *Sekundarstufe I* and *II*, will subsequently be assessed in class with regard to didactic aspects and/or will be integrated into concrete classroom situations. Students will thus acquire techniques and background knowledge that will enable them to deliver lively and motivating lessons to different age groups. The seminar *Arbeiten im Lehr-Lern-Labor* (*Working in the Teach'n'Learn Lab*) or *Arbeiten im Lehr-Lern-Garten* (*Working in the Teach'n'Learn Garden*) will provide students with an overview of selected methods in biology. They will learn to prepare these methods, in a didactically reduced manner, for pupils and, having been arranged into teams, will deliver the respective units to groups of pupils. Students will thus learn to tailor research-oriented experiments to the age group they are teaching and will acquire practical experience in the supervision of a group of pupils.

Intended learning outcomes

- Ability to didactically adapt selected traditional and modern methods in biology.
- Ability to prepare, deliver and evaluate teach'n'learn units.
- Ability to independently supervise teach'n'learn units

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

S (2) + S (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)

portfolio (approx. 30 hours)
creditable for bonus

Allocation of places

--

Additional information

--

Workload

150 h

Teaching cycle

--

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

§ 61 I Nr. 8

Module title			Abbreviation
Advanced Biology Education			07-GY-FDB-V-262-m01
Module coordinator		**Module offered by**	
--		Faculty of Biology	
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/S (2)
Module taught in: German and/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)

a) written examination (approx. 60 to 90 minutes) or
b) project work: report (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic or
c) oral examination of one candidate each (approx. 20 minutes) or
d) oral examination in groups of up to 3 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)

--

Module title			Abbreviation
Introduction into Teaching Chemistry for High School			08-FD1-LAGY-152-m01
Module coordinator			**Module offered by**
holder of the Professorship of Didactics of Chemistry			Institute of Inorganic Chemistry
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
2 semester	unknown	--	

Contents

No information on contents available.

Intended learning outcomes

No information on learning outcomes available.

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

V (2) + S (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)

a) written examination (approx. 90 minutes) and b) presentation (approx. 20 minutes)
Language of assessment: German and/or English

Allocation of places

--

Additional information

--

Workload

150 h

Teaching cycle

--

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

§ 62 I Nr. 6

Module title			Abbreviation
Teaching Chemical Practice for High School			08-FD2-LAGY-152-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Didactics of Chemistry		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	unknown	--	

Contents

No information on contents available.

Intended learning outcomes

No information on learning outcomes available.

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

S (2) + S (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)

a) written examination (approx. 60 minutes) and b) portfolio (approx. 15 pages)
Language of assessment: German and/or English

Allocation of places

--

Additional information

--

Workload

150 h

Teaching cycle

--

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

§ 62 I Nr. 6

Module title			Abbreviation
Advanced Chemistry Education			08-FDC-V-262-m01
Module coordinator			**Module offered by**
--			Faculty of Chemistry and Pharmacy
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/S (2)
Module taught in: German and/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)

a) written examination (approx. 60 to 90 minutes) or
b) project work: report (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic or
c) oral examination of one candidate each (approx. 20 minutes) or
d) oral examination in groups of up to 3 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)

--

Module title			Abbreviation
Introduction to AI			10-AI=IAI-262-m01
Module coordinator			**Module offered by**
Dean of Studies Informatik (Computer Science)			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	graduate	--	

Contents

Essential concepts and algorithms of artificial intelligence. Theoretical or practical competences are taught, ranging from classical simple heuristic methods to more complex probabilistic models of artificial intelligence.

Intended learning outcomes

The students have theoretical and practical knowledge in the field of artificial intelligence. They are able to identify and apply appropriate methods to solve problems in the field of AI.

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

V (2) + Ü (2)
Module taught in: German and/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. 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

Teaching cycle: every year, winter semester

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

§ 22 II Nr. 3 b)

Module title			Abbreviation
Machine Learning			10-AI=ML-242-m01
Module coordinator		**Module offered by**	
Dean of Studies Informatik (Computer Science)		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	graduate	--	

Contents

Foundations in the following areas: Theoretical knowledge and practical experience in machine learning. Models, approaches and algorithms, and their practical implementation for the classical problems of machine learning. Supervised and unsupervised learning methods.

Intended learning outcomes

The students have theoretical and practical knowledge of typical models, methods and algorithms in the field of machine learning. They are able to solve practical problems in the field of machine learning with the help of appropriate methods. They have experience in the application or implementation of machine learning approaches.

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

V (2) + Ü (2)
Module taught in: German and/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. 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

Teaching cycle: every year, winter semester

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

§ 22 II Nr. 3 b)

Module title			Abbreviation
Web and Online Technologies			10-HCI=WOT-262-m01
Module coordinator			**Module offered by**
--			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/S (2) + Ü (1)
Module taught in: German and/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)

a) written examination (approx. 60 to 90 minutes) or
b) project work: report (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic or
c) oral examination of one candidate each (approx. 20 minutes) or
d) oral examination in groups of up to 3 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)

--

Module title			Abbreviation
3D User Interfaces			10-HCI-3DUI-212-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		Chair of Computer Science IX (Human-Computer Interaction)	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

The module provides knowledge about the possibilities and specifics of 3D user interfaces in the areas of augmented, mixed and virtual reality, mobile devices, robotics and computer games. The lecture will introduce high-quality 3D interaction techniques and discuss their advantages and disadvantages in specific application areas. Design guidelines are taught as well as the theory needed to implement them. In the exercise, students work in groups of 2-3 participants to develop appropriate 3D interaction techniques for a virtual reality application. Presentations, exercises and discussions help the student groups to familiarize themselves with the required technologies and activities and to organize the project as a whole.

Intended learning outcomes

After participating in the module courses, students will be able to develop 3D user interfaces independently. They know high-quality 3D interaction techniques and can recall, explain and classify important design guidelines. Students know advantages and disadvantages of available tools for typically occurring tasks and are able to apply them. Students can independently familiarize themselves with complex technical systems as well as independently develop problem-solving proposals, communicate these in a team and implement and evaluate them in a joint prototype.

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

V (2) + Ü (2)
Module taught in: German and/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)

a) presentation of project results (approx. 30 minutes) or
b) oral examination of one candidate each (approx. 30 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

--

Additional information

--

Workload

150 h

Teaching cycle

Teaching cycle: only in summer semester

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

--

Module title			Abbreviation
Human-AI Interaction			10-HCI-B-HAI-242-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Psychology of Intelligent Interactive Systems			
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module provides basic and in-depth knowledge of the interaction between humans and artificial intelligence (AI) from a psychological perspective. The focus is on cognitive, emotional and social processes that influence human experience and behavior when interacting with AI systems. In the lecture, theoretical models of human-AI interaction as well as empirical research results on topics such as trust, transparency, anthropomorphism, control, responsibility and cooperation are presented and critically discussed. Using selected fields of application - e.g. chatbots, recommendation systems, AI in therapeutic and educational contexts - both the opportunities and challenges of interaction with AI will be highlighted. Furthermore, ethical aspects of human-AI interaction are presented and examined from different perspectives.

Intended learning outcomes

After partcipating in this module course, students will have extensive knowledge of key areas of human-AI interaction and their possible applications. They will also be able to explain examples. This knowledge enables students to analyze, design and evaluate AI systems and human-AI interactions based on psychological principles and to generate possible further questions and applications in the field of human-AI interaction. In addition to specialist skills, the focus is primarily on social and personal skills.

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

V (2) + Ü (2)
Module taught in: German and/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)

a) written examination (60 to 120 minutes) or
b) project work (examination of one candidate each or in groups of up to 4 candidates, approx. 150 hours per candidate) with final presentation in groups of up to 4 candidates (approx. 15 minutes per candidate) or
c) term paper (10 to 15 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

--

Additional information

--

Workload

150 h

Teaching cycle

Teaching cycle: only in summer semester

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

--

Module title			Abbreviation
Principles of Interactive Systems			10-HCI-PRIS-212-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		Chair of Computer Science IX (Human-Computer Interaction)	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

The module teaches requirements, concepts and practical solutions for interactive human-computer systems of extended reality (virtual reality, mixed reality, augmented reality), perceptual computing, computer games and cyber-physical systems. Due to their common characteristics, these systems have recently often been referred to as real-time interactive systems.
In the lecture, theoretical models are introduced, requirements of the application domain are derived, and current and novel conceptual and practical solutions are presented. First, conceptual principles for characterizing real-time interactive systems are presented. Then, conceptual models of the mission-critical aspects of time, latencies, processes, and events necessary to describe the behavior of a system are introduced. This is followed by a presentation of the application state, its distribution and coherence requirements, and the consequences of these requirements on decoupling and software quality in general. Then, potential solutions for data redundancy, distribution, synchronization, and interoperability are addressed. Furthermore, concepts underlying virtual reality such as immersion and presence are discussed, as well as various methods for measuring them. Finally, avatars and the concept of embodiment will be discussed. The exercise will provide an insight into practical research work and experiments of the chair as well as a first practical insight into software technologies and frameworks for the creation of interactive real-time systems, e.g. Unity3d and/or Unreal Engine.

Intended learning outcomes

After participating in the module courses, students are able to recognize basic application scenarios for Interactive Systems. They remember subject-specific approaches and can apply them to adequate problems. They know theoretical models and they can summarize, compare and explain different approaches and evaluate their performance. They can apply available tools to typically occurring tasks and know their advantages and disadvantages. Furthermore, you can independently familiarize yourself with complex technical systems as well as independently develop problem-solving proposals, communicate these in a team and integrate them in a prototype.

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

V (2) + Ü (2)
Module taught in: German and/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)

a) written examination (approx. 90 minutes) or
b) oral examination of one candidate each (approx. 30 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

--

Additional information

--

Workload

150 h

Teaching cycle

Teaching cycle: every semester

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

Module title			**Abbreviation**
Introduction to Informatics for EET4STEM			10-I=EINEET-262-m01
Module coordinator			**Module offered by**
--			Institute of Computer Science
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	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 (4) + Ü (2)
Module taught in: German and/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. 60 to 120 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

--

Additional information

--

Workload

300 h

Teaching cycle

--

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

--

Module title			**Abbreviation**
Programming for Emerging Educational Technologies 1			10-l=PEET1-262-m01
Module coordinator			**Module offered by**
--			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)

Ü (2)
Module taught in: German and/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)

portfolio (approx. 30 pages in total)
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)

--

Module title			**Abbreviation**
Programming for Emerging Educational Technologies 2			10-I=PEET2-262-m01
Module coordinator			**Module offered by**
--			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)

Ü (2)
Module taught in: German and/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)

portfolio (approx. 30 pages in total)
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)

--

Module title			Abbreviation
Computer Science Education 1 (incl. Practical Course in the Application of Computer Science Systems form an Educational Point of View)			10-I-DDI1-152-m01
Module coordinator		**Module offered by**	
Dean of Studies Informatik (Computer Science)		Institute of Computer Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
6	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
2 semester	undergraduate	--	

Contents

The module gives an overview of computer science didactics. It demonstrates and discusses possibilities for a practical application in the classroom.

Intended learning outcomes

Students are familiar (in particular in the area of computer science in *Sekundarstufe I*) with methods, techniques and media for teaching topics in computer science. They are able to didactically analyse and prepare practical topics. Students are familiar with both historical and current teaching approaches, typical teaching methods as well as guidelines and standards for teaching computer science. They are able to plan, organise and deliver classes.

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

V (2) + Ü (2) + P (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 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)

§ 49 I Nr. 2
§ 69 I Nr. 2

Module title			Abbreviation
Computer Science Education 2			10-I-DDI2-GY-152-m01
Module coordinator		**Module offered by**	
Dean of Studies Informatik (Computer Science)		Institute of Computer Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
4	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This course discusses different topics in computer science didactics in more detail. It demonstrates and discusses possibilities for a practical application in the classroom.

Intended learning outcomes

The students are able to plan, execute and assess projects, are familiar with important aspects of the planning and analysis of computer science classes, master fundamental teaching and learning strategies and are able to assess these.

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 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

120 h

Teaching cycle

--

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

§ 69 I Nr. 2 and § 69 I Nr. 1 c): Rechnerarchitektur

Module title			Abbreviation
Advanced Computer Science Education			10-I-FDI-V-262-m01
Module coordinator			**Module offered by**
--			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/S (2)
Module taught in: German and/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)

a) written examination (approx. 60 to 90 minutes) or
b) project work: report (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic or
c) oral examination of one candidate each (approx. 20 minutes) or
d) oral examination in groups of up to 3 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)

--

Module title			Abbreviation
Introduction into Human-Computer Interaction			10-I-MCS-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		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	undergraduate	--	

Contents

Human-Computer Interaction studies the design, evaluation, and implementation of interactive computer systems. Special focus lies on fundamental psychological and physiological properties of the human users, the technical principals and models of modern computer systems, as well as on the derived boundary conditions of designing usable and human-oriented interactions with technical systems. The topics of this course cover the human perception and cognition, the human memory and attention, the design of interactive systems, popuplar evaluation methods, principles of computer systems, input processing techniques, human interfaces and typical means of interaction, from text-based input methods over graphical user interfaces to multi-modal interfaces. Accompanying practical tasks convey to the students typical methods of requirement analysis, prototyping and evaluation.

Intended learning outcomes

After successfully completing this course, students have a fundamental understanding of human-computer interface design principles. They understand the possibilities and limitations of technology and user and the applications of modern user interfaces. They know the necessary steps of user-centric design and typical design principles.

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

V (3) + Ü (1)

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)

a) written examination (approx. 120 minutes) or
b) presentation (30 to 60 minutes) or
c) oral examination of one candidate each (30 to 60 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

--

Additional information

--

Workload

150 h

Teaching cycle

Teaching cycle: once a year, winter semester

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

§ 22 II Nr. 3 b)

Module title			Abbreviation
Didactics of Mathematics: Algebra and Analysis (German Gymnasium)			10-M-DGY1-232-m01
Module coordinator		**Module offered by**	
Dean of Studies Mathematik (Mathematics)		Institute of Mathematics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
6	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
2 semester	undergraduate	--	

Contents

Discussion of advanced topics in mathematics didactics for Gymnasium using the examples of algebra (Sekundarstufe I) and analysis (Sekundarstufe II) as well as discussion of possibilities of implementation in the classroom, also including modern technologies.

Intended learning outcomes

The student is acquainted with mathematical ways of thinking and working techniques (in particular in the fields of algebra in Sekundarstufe I and analysis in sekundarstufe II) and is able to take into account the students'perception of mathematical topics, He/She knows different aspects of planning and analysing teaching of mathematics, masters different strategies for teaching and learning und can assess them.

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

V (2) + Ü (2) + 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 minutes) and written exercises (approx. 10 exercise sheets with approx. 3 exercises each from the didactics of algebra and approx. 10 exercise sheets with approx. 3 exercises each from the didactics of analysis)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

--

Additional information

--

Workload

180 h

Teaching cycle

--

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

§ 73 I Nr. 6

Module title			Abbreviation
Didactics of Mathematics: Geometry (German Gymnasium)			10-M-DGY2-191-m01
Module coordinator		**Module offered by**	
Dean of Studies Mathematik (Mathematics)		Institute of Mathematics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
4	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Discussion of basic topics in mathematics didactics for Gymnasium using the example of geometry (Sekundarstufe I) as well as discussion of possibilities of implementation in the classroom, also including modern technologies.

Intended learning outcomes

The student is acquainted with basic mathematical ways of thinking and working techniques (in particular in the field of geometry in Sekundarstufe I) and is able to take into account the students'perception of mathematical topics, He/She knows important aspects of planning and analysing teaching of mathematics, masters different strategies for teaching and learning und can assess them.

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)

a) written examination (60 to 120 minutes) or
b) oral examination of one candidate each (approx. 30 minutes) or
c) oral examination in groups (groups of 2 or 3, 10 to 15 minutes per candidate)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

--

Additional information

--

Workload

120 h

Teaching cycle

--

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

§ 73 I Nr. 6

Module title			Abbreviation
Advanced Mathematics Education			10-M-FDM-V-262-m01
Module coordinator			**Module offered by**
--			Institute of Mathematics
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/S (2)
Module taught in: German and/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)

a) written examination (approx. 60 to 90 minutes) or
b) project work: report (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic or
c) oral examination of one candidate each (approx. 20 minutes) or
d) oral examination in groups of up to 3 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)

--

Module title			Abbreviation
Digital media 1			10-MK-DigMed1-212-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science V			
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The development of multimedia and multimodal media for the presentation of information has fundamentally transformed the way computers and media are used within few years. Since digital media is created on the computer but consumed by humans, media informatics needs to focus on technology as well as humans. The module aims to provide fundamental knowledge of digitization and coding as well as the basic functionalities of digital media types such as audio, images, 2D vector graphics and texts.

Intended learning outcomes

Students acquire a basic knowledge of human perception as well as the digitization, compression and editing of various digital media types. In the accompanying tutorials, the contents of the lecture are deepened, practiced and practically applied.

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)

a) written examination (approx. 50 minutes) or
b) oral examination of one candidate each (approx. 20 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

--

Additional information

Instead of an exercise, a tutorial with 2 SWS can be offered.

Workload

150 h

Teaching cycle

--

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

§ 22 II Nr. 3 b)

Module title			Abbreviation
Digital media 2			10-MK-DigMed2-212-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science V			
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The lecture Media Informatics 2 provides a practice-oriented insight into the functioning of the Internet and the WWW, as well as the basics of developing and designing digital online media.
Additional digital media types are introduced, based on the lecture Media Informatics 1.
At the end of the module research topics in Media Informatics will be introduced and presented in an applied-practical way.

Intended learning outcomes

The students have a deeper insight into selected media types. In addition, digital media can be developed (for the WWW) using various processes. In the accompanying tutorials the contents of the lecture are deepened, practiced and applied practically.

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)

a) written examination (approx. 100 minutes) or
b) oral examination of one candidate each (approx. 30 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

--

Additional information

--

Workload

300 h

Teaching cycle

--

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

§ 22 II Nr. 3 b)

Module title			Abbreviation
Advanced Physics Education			11-L-FDP-V-262-m01
Module coordinator			**Module offered by**
--			Faculty of Physics and Astronomy
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/S (2)
Module taught in: German and/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)

a) written examination (approx. 60 to 90 minutes) or
b) project work: report (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic or
c) oral examination of one candidate each (approx. 20 minutes) or
d) oral examination in groups of up to 3 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)

--

Module title			Abbreviation
Student Lab Preparation Course (Physics) German Gymnasium			11-L-L3SGY-152-m01
Module coordinator		**Module offered by**	
holder of the Chair of Physics and its Didactics		Faculty of Physics and Astronomy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
3	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module gives an overview of applicable physical experiments that provide an introduction to science and can be performed in teaching-learning-laboratories (M!ND center). In these experiments, different working methods are employed.

Intended learning outcomes

The students know how to prepare and follow-up a visit in a teaching-learning-laboratory (M!ND-Center) and have gained an overview of current didactic research topics and further possibilities for development in the field of subject-didactic research. They are able to evaluate and assess the (affective) learning achievements of pupils, to hold scientific-propaedeutic classes, to positively influence the motivation of pupils in the subject of Physics and to raise their interest for current physical research questions. The students are able to select, set up or build pupils experiments in a target-oriented manner, and to supervise pupils while experimenting.

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

S (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)

a) written examination (approx. 45 minutes) or
b) oral examination of one candidate each (approx. 10 minutes) or
c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) or
d) term paper (approx. 8 pages)
Language of assessment: German and/or English

Allocation of places

--

Additional information

--

Workload

90 h

Teaching cycle

--

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

§ 77 I Nr. 2

Module title			Abbreviation
Physics Teaching Concepts			11-L-PD-172-m01
Module coordinator		**Module offered by**	
holder of the Chair of Physics and its Didactics		Faculty of Physics and Astronomy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
2 semester	undergraduate	--	

Contents

Teaching of basic concepts of physics education and didactic consolidation of subject-relevant scientific content of the degree programme. Justification/legitimation of physics teaching; educational objectives of physics as a subject; competence models and educational standards; elementarisation and didactic reconstruction of physics content; methods and media in physics lessons and their use to promote learning; student perceptions and typical learning difficulties in the subject areas of physics relevant to teaching and teaching concepts based on these; dealing with student perceptions; teaching approaches to the structure and cognitive/working methods of the science of physics, including historical development;

Intended learning outcomes

Students are familiar with central physics teaching concepts to design target group-orientated physics lessons. They clearly differentiate didactic aspects of physics lessons from scientific and educational aspects. They are familiar with subject-specific student conceptions and their significance for the students' learning process. They critically discuss specific teaching concepts against this background.

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

V (2) + V (2) + Ü (1)

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)

a) written examination (approx. 60 minutes) or
b) oral examination of one candidate each (approx. 15 minutes) or
c) oral examination in groups (groups of 2, approx. 15 minutes per candidate) or
d) term paper (approx. 8 pages)
Language of assessment: German and/or English

Allocation of places

--

Additional information

--

Workload

150 h

Teaching cycle

--

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

§ 36 I Nr. 7
§ 38 I Nr. 1
§ 53 I Nr. 2
§ 77 I Nr. 2

Module title			Abbreviation
Physics Teaching Concepts Seminar			11-L-PDS-152-m01
Module coordinator		**Module offered by**	
holder of the Chair of Physics and its Didactics		Faculty of Physics and Astronomy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
2	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Different topics of current subject-didactic research; examples: Interest and physics education, girls in physics education, evaluation, task culture, interdisciplinary classes, language in physics education, effects of subject media and their application for learning support, especially regarding computers, epistemological and working methods, new teaching methods.

Intended learning outcomes

Knowledge of selected methods of didactic physical research, evaluation of didactic physical research projects, knowledge of didactic physical literature. Ability to critically evaluate Physics classes in view of different aspects and to discuss different prioritisations and approaches.

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

S (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)

a) written examination (approx. 45 minutes) or
b) oral examination of one candidate each (approx. 10 minutes) or
c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) or
d) term paper (approx. 8 pages)
Language of assessment: German and/or English

Allocation of places

--

Additional information

--

Workload

60 h

Teaching cycle

--

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

§ 77 I Nr. 2

Module title			Abbreviation
Educational Technologies Development Lab 1			19-EET=ELET1-262-m01
Module coordinator		**Module offered by**	
--		M!nd-Center	
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/S (2) + Ü (1)
Module taught in: German and/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)

a) report (approx. 30 pages) or
b) portfolio (approx. 30 pages in total)
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)

--

Module title			**Abbreviation**
Educational Technologies Development Lab 2			19-EET=ELET2-262-m01
Module coordinator			**Module offered by**
--			M!nd-Center
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
20	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
2 semester	--	--	

Contents

--

Intended learning outcomes

--

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

V/S (4) + Ü (6)
Module taught in: German and/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)

portfolio (approx. 500 hours in total)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

--

Additional information

--

Workload

600 h

Teaching cycle

--

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

--

Module title			Abbreviation
Master-Thesis			19-EET-MA-262-m01
Module coordinator		**Module offered by**	
--		M!nd-Center	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
25	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)

No courses assigned to module

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)

Master's thesis (approx. 60 pages)
Language of assessment: German and/or English

Allocation of places

--

Additional information

Time to complete: 6 months.

Workload

750 h

Teaching cycle

--

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

--

Module title			**Abbreviation**
Concluding Colloquium			19-EET-MK-262-m01
Module coordinator			**Module offered by**
--			M!nd-Center
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)

K (o)

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)

final colloquium (approx. 60 minutes)
Language of assessment: German and/or English

Allocation of places

--

Additional information

Time to complete: 6 months.

Workload

150 h

Teaching cycle

--

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

--

Module title			Abbreviation
Key Competencies EET4STEM 1			19-EET-SK1-262-m01
Module coordinator		**Module offered by**	
--		M!nd-Center	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	--	--	

Contents

--

Intended learning outcomes

--

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

V/S (2) + Ü (1)
Module taught in: German and/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)

a) written examination (approx. 60 to 90 minutes) or
b) project work: report (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic or
c) oral examination of one candidate each (approx. 20 minutes) or
d) oral examination in groups of up to 3 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)

--

Module title			Abbreviation
Key Competencies EET4STEM 2			19-EET-SK2-262-m01
Module coordinator		**Module offered by**	
--		M!nd-Center	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	--	--	

Contents

--

Intended learning outcomes

--

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

V/S (2) + Ü (1)
Module taught in: German and/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)

a) written examination (approx. 60 to 90 minutes) or
b) project work: report (approx. 20 pages) with presentation (30 to 45 minutes) and subsequent discussion on the topic or
c) oral examination of one candidate each (approx. 20 minutes) or
d) oral examination in groups of up to 3 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)

--