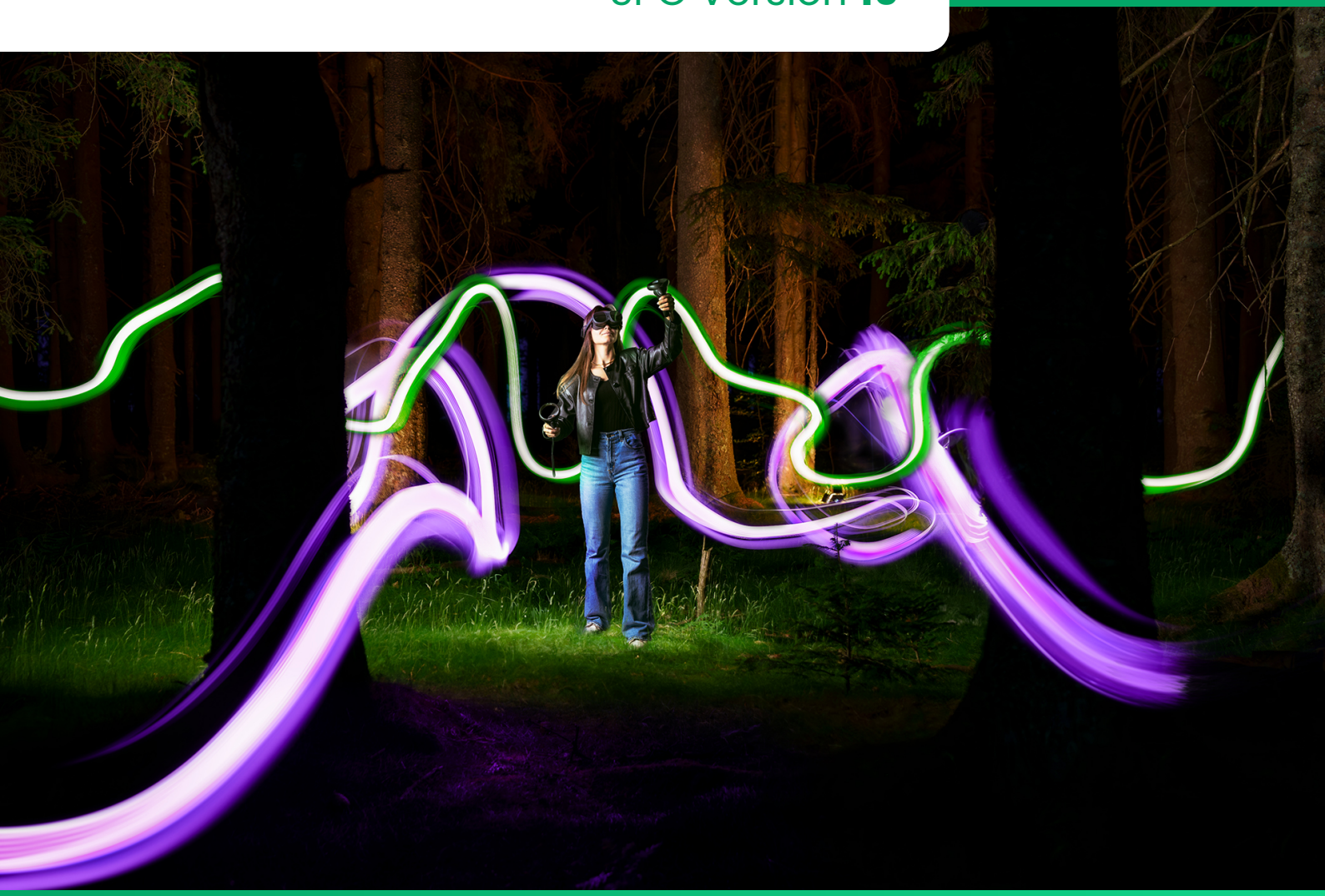
HOCHSCHULE FURTWANGEN UNIVERSITY HFU

Module Handbook

Games & Immersive Media B.A.

SPO Version **10**



Academic Dean - Prof. Jirka Dell´Oro-Friedl

Faculty Business, Design & Media

Robert-Gerwig-Platz 1 - 78120 Furtwangen

§ 87 Bachelor Study Programme - Games & Immersive Media

(1) The total number of required and elective courses necessary, including the internship semester, for successful completion of the programme is 210 credit points (ECTS).

(2) In the Games & Immersive Media study programme, the foundation level studies comprise two curricular semesters, while the advanced level studies comprise five curricular semesters.

(3) The fifth curricular semester is the internship semester.

(4) Regarding the regulations for study semesters abroad, refer to § 3a in the General Section of the General Bachelor SPO.

(5) The elective area serves to deepen and expand the degree content autonomously. The following general regulations apply to the electives:

a) A total of four elective modules (Elective 1-4) must be completed during the advanced level studies, which specifically deepen the topics of the GMB programme. The Faculty Business, Design & Media offers regularly in-depth elective modules and individual classes / courses.

b) Courses offered outside the Faculty Digital Media can also be recognised if approved by the Dean of Studies.

c) Every elective module requires a total of 6 credit points. At least 50%/half of the credit points must be achieved in the graded assessment.

d) Until the end of the programme, students may combine completed individual classes into a maximum of two elective modules. This also applies to the so-called heterogeneous modules.

(6) Graded certificate and bachelor degree certificate are issued in English.

(7) The courses required for successful completion of the programme and the associated non-graded and graded assessments are found in Table 2 for the foundation level studies and in Table 3 for the advanced level studies. Table 1 shows an overview of the module structure.

Table 1: Module Structure

Module / Semester	1	2	3	4	5
7	Elective 3	Elective 4	Thesis		
6	Elective 1	Elective 2	Business 2	Project 5	
5	Internship				
4	Code 4	Theory 3	Business 1	STEM 3	Project 4
3	Code 3	Sound 2	STEM 2	Visual 3	Project 3
2	Code 2	Theory 2	Sound 1	Visual 2	Project 2
1	Code 1	Theory 1	STEM 1	Visual 1	Project 1

Table 2: Games & Immersive Media B.A. (1-2 foundation level studies Curricular Semester)

Module	Module component	Type of course	No. contact hours per week	Graded assessment	Non-graded assessment	Credit points
1. Curricular Semester						**30**
Code 1 (6 credits)						
	Code 1	S	4	1sbK		6
Theory 1 (6 credits) [1]						
	Computer Science and HCI Theory	V/S	4	1sbK	1R	6
STEM 1 (6 credits)						
	STEM 1 Seminar	S	3	1K		4
	STEM 1 Practical	P	1		1sbA	2
Visual 1 (6 credits)						
	Visual 1	S/P	4	1sbA		6
Project 1 (6 credits)						
	Entry Project - No Code	W	4	1sbA		6

Last Change : 07.02.2024 - SPO Version 10 (As of 13.12.2023)

Module	Module component	Type of course	No. contact hours per week	Graded assessment	Non-graded assessment	Credit points
2. Curricular Semester						**30**
Code 2 (6 credits)						
	Code 2	S/P	4	1sbK		6
Theory 2 (6 credits)						
	Theory 2 - Game Design	S/P	2	1sbK		3
	Theory 2 - Data Driven Game Design	S	2	1KO		3
Sound 1 (6 credits)						
	Sound 1 - Basics of sound and music design	S	4	1sbA		6
Visual 2 (6 credits)						
	Visual 2 - Game Asset Creation	S/P	4	1sbA		6
Project 2 (6 credits)						
	Project 2 - Physical Game	W	3	1A		6
Overall						**60**

Table 3: Games & Immersive Media B.A. (3-7 advanced level studies Curricular Semester)

Module	Module component	Type of course	No. contact hours per week	Graded assessment	Non-graded assessment	Credit points
3. Curricular Semester						**30**
Code 3 (6 credits)						
	Code 3 - Realtime Computer Graphics	S/P	4	1sbA		6

Module	Module component	Type of course	No. contact hours per week	Graded assessment	Non-graded assessment	Credit points
Sound 2 (6 credits)						
	Sound 2 - Concepts and techniques in interactive and immersive audio design	S/P	4	1sbA		6
STEM 2 (6 credits) [1]						
	STEM 2	S	4	1sbK, 1sbA		6
Visual 3 (6 credits)						
	Visual 3 - Game Character Design and Animation	S/P	4	1sbA		6
Project 3 (6 credits)						
	Project 3 - Intermediate Digital Project	W	3	1A		6
4. Curricular Semester						**30**
Code 4 (6 credits)						
	Code 4	S/P	4	1K		6
Theory 3 (6 credits)						
	Theory 3	S	4	1sbK		6
Business 1 (6 credits)						
	Business 1	S	4	1sbK		6
STEM 3 (6 credits)						
	STEM 3 - Physical Computing	S/P	4	1sbA		6
Project 4 (6 credits)						
	Project 4 - Advanced Digital Project	W	3	1A		6

Module	Module component	Type of course	No. contact hours per week	Graded assessment	Non-graded assessment	Credit points
5. Curricular Semester						**30**
Internship (30 credits)						
	Internship				1sbA	28
	Seminar Internship	S	1		1R	2
6. Curricular Semester						**30**
Elective 1 (6 credits)						
	Elective Course (WPM) see (5)			PL	SL	6
Elective 2 (6 credits)						
	Elective Course (WPM) see (5)			PL	SL	6
Business 2 (6 credits)						
	Business 2	S	4	1sbK		6
Project 5 (12 credits)						
	Project 5 - Complex Digital Project	W	3	1A		12
7. Curricular Semester						**30**
Elective 3 (6 credits)						
	Elective Course (WPM) see (5)			PL	SL	6
Elective 4 (6 credits)						
	Elective Course (WPM) see (5)			PL	SL	6
Thesis (18 credits)						
	Bachelor thesis			1T		12
	Thesis Seminar	S	2		1PN	6
Overall						**150**

(1)

Last Change : 07.02.2024 - SPO Version 10 (As of 13.12.2023)

The total of the graded assessment is only passed if all multiple component assessments are graded at least “adequate” (4,0). In case of failure, only the failed component assessments must or may be repeated.

Code 1

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2023-2808	180 h	6	1	SoSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Code 1	German / English	4 SWS / 45h	135h	35

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- know the basic concepts of interactive audio-visual applications.

Comprehension

- understand basic information structures for interactive 2D-graphics and audio as implemented by web-technologies.

Practical Use

- work with a programming language and use software development and source control environments.

Analysis

- analyse simple human-computer-interactions and use computational thinking to formulate algorithms for their realization

Synthesis

- be creative and experiment with procedural coding, web- and other technologies

Evaluation

- evaluate and improve their coded creations

Individual component content

a) Code 1

- Creative Code
- Web Fundamentals
- 2D-Scenegraph
- Procedural Code
- Coding Audio-Visuals
- Computational Thinking

Teaching methods

a) Code 1

- Seminar

Prerequisites

a) Code 1

- None

Methods of assessment

a) Code 1

Written Exam during semester (sbK)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Jirka Dell´Oro-Friedl

Full-time lecturers:

a) Code 1

- Prof. Jirka Dell´Oro-Friedl

Reading list

a) Code 1

Project 1

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2023-2807	180 h	6	1	SoSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Entry Project - No Code	German / English	4 SWS / 45h	135h	20

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- specify the basics of agile projects.
- specify the basics of agile learning.

Comprehension

- understand the benefits of agility.
- understand the basics of No-Code/Low-Code game development.

Analysis

- reflect their personal skills for team projects.

Synthesis

- present their results to an audience.
- develop a simple computer game in a playful approach.

Evaluation

- understand the impact of following courses.
- evaluate the limitations of No-Code/Low-Code game development.

Individual component content

a) Entry Project - No Code

- No-Code/Low-Code game project
- Agile mindset
- Project-based learning
- Methods (Scrum, Kanban, Team Building)
- Game design documents
- Developing a simple computer game
- Presentation and event planning

Teaching methods

a) Entry Project - No Code

- Project

Prerequisites

a) Entry Project - No Code

- None

Methods of assessment

a) Entry Project - No Code

◆ Practical Assignment during semester (sbA)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Nikolaus Hottong

Full-time lecturers:

a) Entry Project - No Code

- Prof. Nikolaus Hottong
- Prof. Dr. Uwe Hahne

Reading list

a) Entry Project - No Code

- Depending on subject of study and task.

STEM 1

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2023-2809	180 h	6	1	SoSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) STEM 1 Seminar	German / English	3 SWS / 33.75h	90h	35
b) STEM 1 Practical	German / English	1 SWS / 11.25h	45h	20

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- reliably reproduce central basic concepts of projection (set theory).
- know how to articulate geometric questions precisely using the appropriate technical terms.

Comprehension

- recognise, understand and reproduce, meaningful connections and proof elements or derivations in the field of geometry and the mapping of three-dimensional objects on two-dimensional planes.

Practical Use

- apply techniques of vector calculus and matrix algebra to geometrical problems and to questions of the position and representation of spatial objects.

Analysis

- analyse geometric problems in the plane and space, while selecting the appropriate tools from those provided.

Synthesis

- recognise and exploit common structures and patterns in different mathematical areas.
- present an overview of a suitable delimited model relevant to computer graphics or computer vision.

Evaluation

- weigh up different procedures (e.g., for linking affine or projective transformations) in terms of clarity and effort.

Individual component content

a) STEM 1 Seminar

- Coordinates of Points and Vectors, Change of Coordinate Frames
- Systems of Linear Equations
- Metric Spaces: Distances, Lengths, Angles
- Matrices, Linear and Affine Transformations
- Homogeneous Coordinates
- Parallel, Axonometric and Orthographic Projections
- Linear Perspective: Image Construction using Desargues' Theorem
- Points at Infinity and Vanishing Points
- Projection Matrices: Unified Approach
- Camera Models in Computer Graphics and Computer Vision

b) STEM 1 Practical

- All contents of course a) are applied and practised.

Teaching methods

a) STEM 1 Seminar

- Seminar

b) STEM 1 Practical

- Practical/lab

Prerequisites

a) STEM 1 Seminar

- None

b) STEM 1 Practical

- None

Methods of assessment

a) STEM 1 Seminar

◆ Written Examination (K)	*Exam*	4 CP

b) STEM 1 Practical

◆ Practical Assignment during semester (sbA)	*Study Task*	2 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Dr. Thomas Schneider

Full-time lecturers:

a) STEM 1 Seminar

- Prof. Dr. Thomas Schneider

b) STEM 1 Practical

- Prof. Dr. Thomas Schneider

Reading list

a) STEM 1 Seminar

- Anton, Howard; Rorres, Chris; Kaul, Anton: Elementary Linear Algebra: Applications Version (12th Edition), Wiley, 2019, ISBN: 1119282365
- Lengyel, Eric: Mathematics for 3D Game Programming and Computer Graphics (3rd Edition), Cengage Learning PTR, 2011, ISBN: 1435458869

b) STEM 1 Practical

- See course a)

Theory 1

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2023-2810	180 h	6	1	SoSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Computer Science and HCI Theory	German / English	4 SWS / 45h	135h	35

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- have basic knowledge in HCI including cognition and perception, UCD and UCD Process.
- have basic knowledge on computer hardware, concepts and history of computer science.

Comprehension

- understand concepts in computer science like computer architecture, bits & bytes.
- understand user-centred, psychological and HCI concepts.

Practical Use

- apply computer science concepts.
- apply user-centred design, UI design concepts.

Analysis

- analyse programs / code for concepts.
- analyse user interfaces for patterns and interaction concepts

Synthesis

- design and create interactions and user interfaces.
- realize basic algorithms / programs.

Evaluation

- evaluate user interfaces using heuristics and design principles.
- evaluate code for programming principles.

Individual component content

a) Computer Science and HCI Theory

- Why computer science?
- Current research and technology
- History of the computer
- Technology hardware, von NeumannComputer
- Science basics: Bits & Bytes, pixels
- Boolean logic
- Perception (Visual, auditive and haptic), including colours
- Cognition and memory, HCI topics
- User-centred design and user-centred design process

Teaching methods

a) Computer Science and HCI Theory

- Lecture (V) / Seminar (S)

Prerequisites

a) Computer Science and HCI Theory

- None

Methods of assessment

a) Computer Science and HCI Theory

◆ Written Exam during semester (sbK)	*Exam*	3 CP
◆ Presentation with documentation (R)	*Study Task*	3 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Dr. Thomas Schlegel

Full-time lecturers:

a) Computer Science and HCI Theory

- Prof. Dr. Thomas Schlegel

Reading list

a) Computer Science and HCI Theory

- Will be given in lecture as applicable

Visual 1

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2023-2811	180 h	6	1	SoSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Visual 1	German / English	4 SWS / 45h	135h	20

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- gain knowledge of and practice the essential basics of visual design.

Comprehension

- understand artistic processes and assess composition and design.

Practical Use

- develop and implement design concepts.

Analysis

- break down creative processes, analyse design parameters and visualize production processes.

Synthesis

- combine creative processes to create coherent design concepts for immersive media.

Evaluation

- iterative evaluation of own work and implementation of visual adjustments.

Individual component content

a) Visual 1

- Draft and sketching
- Figurative thinking
- Storyboard
- Colour theory and practical application
- Visual character-development
- UI design basics

Teaching methods

a) Visual 1

- Seminar / Practical/lab

Prerequisites

a) Visual 1

- None

Methods of assessment

a) Visual 1

Practical Assignment during semester (sbA)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Niv Shpigel

Full-time lecturers:

a) Visual 1

- Prof. Niv Shpigel

Reading list

a) Visual 1

- Will be given in lecture as applicable.

Code 2

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2870	180 h	6	2	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Code 2	German / English	4 SWS / 45h	135h	35

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- know basics of a graphic design language (UML).

Comprehension

- understand common patterns and techniques for real-time applications in three dimensions.

Practical Use

- create experimental prototypes of games and interactive applications using a game engine and its integrated development environment.

Analysis

- analyse simple problems in interactive three-dimensional environments.

Synthesis

- create object- and component-oriented designs for interactive applications.

Evaluation

- evaluate and improve their coded creations.

Individual component content

a) Code 2

- Software Design
- Object Orientation
- 3D-Scenegraph
- Game Patterns & Techniques
- Component Entities

Teaching methods

a) Code 2

- Seminar / Praktikum

Prerequisites

a) Code 2

- None

Methods of assessment

a) Code 2

Written Exam during semester (sbK)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Jirka Dell´Oro-Friedl

Full-time lecturers:

a) Code 2

- Prof. Jirka Dell´Oro-Friedl

Reading list

a) Code 2

- Kecher, Christoph; Hoffmann-Elbern, Ralf; Will, Thorsten: UML 2.5, Rheinwerk Computing, 2021, ISBN: 978-3-8362-8447-9
- Nystrom, Robert: Game Programming Patterns, Genever Benning, 2014, ISBN: 0990582906 – online at https://gameprogrammingpatterns.com/contents.html

Project 2

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2869	180 h	6	2	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Project 2 - Physical Game	German / English	3 SWS / 33.75h	146.25h	20

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- gain experience working on a project in a team.

Comprehension

- understand agile project management.

Practical Use

- apply the skills and knowledge acquired in the other modules so far.

Analysis

- analyse a theme for a game, do research and detect opportunities to deduct rules to play from it.

Synthesis

- design, create and present a physical game prototype.

Evaluation

- evaluate their prototype e.g., by conducting user tests and recommend improvements.

Individual component content

a) Project 2 - Physical Game

- Design and creation of a physical game, optionally with digital augmentation
- Practical application of various skills acquired in previous modules
- Team- and project management
- Practice visualization, documentation, communication, presentation
- Work with physical material to create prototypes

Teaching methods

a) Project 2 - Physical Game

- Project

Prerequisites

a) Project 2 - Physical Game

- None

Methods of assessment

a) Project 2 - Physical Game

Practical Assignment (A)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module / lecturer:

- Dean of Studies GMB

Full-time lecturers:

a) Project 2 - Physical Game

- All professors of the faculty

Reading list

a) Project 2 - Physical Game

- Depending on subject of study and task.

Sound 1

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2871	180 h	6	2	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Sound 1 - Basics of sound and music design	German / English	4 SWS / 45h	135h	36

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- outline basic principles and techniques for the design of sound and music for games and immersive media.

Comprehension

- understand basic principles and techniques of interactive and immersive sound and music.

Practical Use

- apply the learned concepts and techniques in the design of sound and music.

Analysis

- identify essential concepts and techniques in the design of sound and music.

Synthesis

- create sound and music for games and immersive media in first design studies.

Evaluation

- critically discuss the quality of design and production of sound and music in games and immersive media.

Individual component content

a) Sound 1 - Basics of sound and music design

- Basics of sound, listening and sonic interaction
- Impact of sound and music in media environments
- Basics of digital audio (in sound and music processing)
- Basic concepts, techniques and tools in interactive and immersive audio design
- Basics of sound design for interactive and immersive media
- Design principles and challenges for music in interactive and immersive media
- Music genres and aesthetics (in games and immersive media)
- Music and emotion (in games and immersive media)

Teaching methods

a) Sound 1 - Basics of sound and music design

- Seminar

Prerequisites

a) Sound 1 - Basics of sound and music design

- None

Methods of assessment

a) Sound 1 - Basics of sound and music design

◆ Practical Assignment during semester (sbA)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Dr. Norbert Schnell

Full-time lecturers:

a) Sound 1 - Basics of sound and music design

- Prof. Dr. Norbert Schnell

Reading list

a) Sound 1 - Basics of sound and music design

- Collins, Karen: Playing with Sound – A Theory of Interacting with Sound and Music in Video Games, MIT Press, 2013, ISBN: 9780262018678
- Görne, Thomas: Sounddesign: Klang Wahrnehmung Emotion, Carl Hanser Verlag, 2017, ISBN: 3446442979
- Geronazzo, Michele; Serafin, Stefania: Sonic Interactions in Virtual Environments (Human–Computer Interaction Series), Springer International Publishing, 2022, ISBN: 978-3031040207
- Grimshaw, Mark: Game Sound Technology and Player Interaction: Concepts and Developments, Idea Group Reference, 2010, ISBN: 978-1616928285
- Kapralos, Bill; Tessler, Holly; Collins, Karen: The Oxford Handbook of Interactive Audio, Oxford University Press, 2014, 978-0199797226
- Karlin, Fred; Wright, Rayburn: On the Track: A Guide to Contemporary Film Scoring, Taylor & Francis, 2004, ISBN: 9780203643907

Theory 2

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2872	180 h	6	2	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Theory 2 - Game Design	German / English	2 SWS / 22.5h	67.5h	36
b) Theory 2 - Data Driven Game Design	German / English	2 SWS / 22.5h	67.5h	36

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- acquire a basic command of probability concepts.
- know the history and taxonomies of digital games.

Comprehension

- understand how games can be modelled.
- understand the fundamental theories of games and play.

Practical Use

- apply concepts of probability and game theory to selected types of games.
- apply their knowledge and comprehension to create a credible game design.

Analysis

- analyse game types and strategies by means of game theoretical methods.
- analyse game ideas and deduct patterns and rules usable for game design.

Synthesis

- create a game design document using a variety of techniques.

Evaluation

- evaluate selected games by their typologies and the corresponding strategy algorithms.
- evaluate games and interactive applications with scientific methods.

Individual component content

a) Theory 2 - Game Design

- Game Studies
- Design Graphs
- Design Methodologies
- Psychology of play
- History
- Taxonomies
- Documentation (GDD)
- Design methods and graphs

b) Theory 2 - Data Driven Game Design

- Elementary Combinatorics
- Finite Probability Spaces: Examples
- Bernoulli Processes and Binominal Distributions
- Expected Value and Variance
- Conditional Probabilities, Bayes' Theorem
- Game Theory
- Categories of Games
- Representation of games
- Players' Strategies
- Nash Equilibria

Teaching methods

a) Theory 2 - Game Design

- Seminar, Practical

b) Theory 2 - Data Driven Game Design

- Seminar

Prerequisites

a) Theory 2 - Game Design

- none

b) Theory 2 - Data Driven Game Design

- None

Methods of assessment

a) Theory 2 - Game Design

◆ Written Exam during semester (sbK)	*Exam*	3 CP

b) Theory 2 - Data Driven Game Design

◆ Colloquium (KO)	*Exam*	3 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Jirka Dell´Oro-Friedl

Full-time lecturers:

a) Theory 2 - Game Design

- Prof. Jirka Dell´Oro-Friedl

b) Theory 2 - Data Driven Game Design

- Prof. Dr. Ekkehard Batzies

Reading list

a) Theory 2 - Game Design

- Schell, Jesse: The Art of Game Design: A Book of Lenses (3rd Edition), Taylor & Francis, 2019, ISBN: 1138632058
- Fritz, Jürgen: Das Spiel verstehen: Eine Einführung in Theorie und Bedeutung (Grundlagentexte Soziale Berufe), Beltz Juventa, 2004, ISBN: 3779919419
- Huizinga, Johan: Homo Ludens, Taylor & Francis, 1949, ISBN: 9781315824161
- Caillois, Roger (Author); Barash, Meyer (Translator): Man, play, and games, University of Illinois Press, 2001, ISBN: 978-0252070334
- Juul, Jesper: Half-Real: Video Games between Real Rules and Fictional Worlds, The MIT Press, 2011, ISBN: 9780262516518

b) Theory 2 - Data Driven Game Design

- Bewersdorff, Jörg: Glück, Logik und Bluff: Mathematik im Spiel – Methoden, Ergebnisse, und Grenzen (7th Edition), Springer Spektrum Wiesbaden, 2018, ISBN: 978-3-658-21764-8

Visual 2

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2873	180 h	6	2	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Visual 2 - Game Asset Creation	German / English	4 SWS / 45h	135h	40

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- understand the connection between light, material and colouring in 3D modelling.
- know appropriate 3D modelling techniques for different types of geometry.

Comprehension

- recognize material settings for emulating given representation forms.
- recognize suitable 3D modelling techniques for concrete requirements.

Practical Use

- create complex materials including textures for use in real-time 3D applications.
- create 3D models for use in real-time 3D environments.

Analysis

- assess the applicability of publicly available techniques and approaches to 3D asset generation for specific problems.

Synthesis

- develop novel approaches and processes for complex tasks in 3D asset generation.

Evaluation

- critically examine their own semester work in the context of what they have learned.

Individual component content

a) Visual 2 - Game Asset Creation

- 3D Modelling, Box Modelling, Sculpting
- Poly Modelling / Polygon Flow, Retopology Materials, Lights and Texturing
- UV Unwrapping, Texture Painting, Normal Mapping
- Material generation for game engines
- Light and Material
- Character, from Concept Art to 3D-Primitive Block-Out
- Animation Basics, Keyframe Animation, Path Animation
- From Models to Assets
- Modelling for Realtime Engines
- Materials for Realtime Engines

Teaching methods

a) Visual 2 - Game Asset Creation

- Seminar, Practical

Prerequisites

a) Visual 2 - Game Asset Creation

- None

Methods of assessment

a) Visual 2 - Game Asset Creation

Practical Assignment during semester (sbA)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Christoph Müller

Full-time lecturers:

a) Visual 2 - Game Asset Creation

- Prof. Christoph Müller

Reading list

a) Visual 2 - Game Asset Creation

- Baechler, Oscar; Greer, Xury: Blender 3D By Example: A project-based guide to learning the latest Blender 3D, EEVEE rendering engine, and Grease Pencil, 2nd Edition, Packt Publishing, 2020, ISBN: 978-1789612561

Code 3

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2889	180 h	6	3	SoSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Code 3 - Realtime Computer Graphics	German / English	4 SWS / 45h	135h	40

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- recognize software design patterns.
- understand the structure of a real-time computer graphics pipeline and the interaction of modern interfaces and current GPUs.

Comprehension

- understand the factors influencing the performance of an application.
- recognize and formulate the requirements for high-performance real-time computer graphics applications.

Practical Use

- apply common software design patterns.
- develop solution-oriented concepts for a complex problem in the context of programming.

Analysis

- get an overview of the architecture of a real-time media application.
- evaluate the interaction of additional APIs in their own real-time computer graphics application.

Synthesis

- integrate further APIs for visualization and audio in the own code.
- implement interactive real-time visualizations in appropriate tools.

Evaluation

- critically examine the own term paper and plan improvements/optimizations.

Individual component content

a) Code 3 - Realtime Computer Graphics

- Realtime Computer Graphics
- Shader
- Game Engine Software Architecture
- Computation Performance
- Advanced Audio-visuals

Teaching methods

a) Code 3 - Realtime Computer Graphics

- Seminar, Practical

Prerequisites

a) Code 3 - Realtime Computer Graphics

- None

Methods of assessment

a) Code 3 - Realtime Computer Graphics

Practical Assignment during semester (sbA)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Dr. Uwe Hahne

Full-time lecturers:

a) Code 3 - Realtime Computer Graphics

- Prof. Dr. Uwe Hahne
- Prof. Christoph Müller

Reading list

a) Code 3 - Realtime Computer Graphics

- Akenine-Möller, Tomas; Haines, Eric; Hoffman Naty: Real-time Rendering, Fourth Edition, A K Peters/ CRC Press, 2018, ISBN: 9781138627000
- McGuire, Morgan: The Graphics Codex, Edition 2.17, Casual Effects, 2021 – online at https://graphicscodex.com
- Gregory, Jason: Game Engine Architecture, Third Edition, Taylor & Francis, 2018, ISBN: 1138035459 – online at https://www.gameenginebook.com/

Project 3

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2888	180 h	6	3	SoSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Project 3 - Intermediate Digital Project	German / English	3 SWS / 33.75h	146.25h	20

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- gain experience working on a project in a team.

Comprehension

- understand agile project management.

Practical Use

- apply the skills and knowledge acquired in the other modules so far.

Analysis

- analyse and detect interesting opportunities for human-computer-interaction within given constraints.

Synthesis

- design, create and present a simple digital prototype of an interactive, immersive application or game.

Evaluation

- evaluate their prototype e.g., by conducting user tests and recommend improvements.

Individual component content

a) Project 3 - Intermediate Digital Project

- Design and creation of a simple interactive application
- Practical application of various skills acquired in previous modules
- Implementation of graphics, sound, behaviour, animation, text
- Team- and project management
- Practice visualization, documentation, communication, presentation
- Work with digital material to create prototypes

Teaching methods

a) Project 3 - Intermediate Digital Project

- Project

Prerequisites

a) Project 3 - Intermediate Digital Project

- None

Methods of assessment

a) Project 3 - Intermediate Digital Project

Practical Assignment (A)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module / lecturer:

- Dean of Studies GMB

Full-time lecturers:

a) Project 3 - Intermediate Digital Project

- N.N.

Reading list

a) Project 3 - Intermediate Digital Project

- Depending on subject of study and task.

Sound 2

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2891	180 h	6	3	SoSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Sound 2 - Concepts and techniques in interactive and immersive audio design	German / English	4 SWS / 45h	135h	36

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- outline principles of auditory perception as well as concepts and techniques of interactive audio.

Comprehension

- understand principles of auditory perception as well as concepts and techniques of interactive audio.

Practical Use

- apply the learned theoretical background, concepts and techniques of designing interactive audio.

Analysis

- identify essential elements and relationships in the composition of complex real and virtual audio environments.

Synthesis

- create complex interactive and immersive audio environments.

Evaluation

- critically discuss the design of interactive and immersive audio environments.

Individual component content

a) Sound 2 - Concepts and techniques in interactive and immersive audio design

- Principles of acoustics, room acoustics and psychoacoustics
- Advanced listening and analysis of real and virtual sound environments
- Relationships between sound and action
- Concepts, techniques and tools for the design of virtual and augmented acoustic environments
- Concepts, techniques and tools for interactive sound and music
- Sound and Music Games

Teaching methods

a) Sound 2 - Concepts and techniques in interactive and immersive audio design

- Seminar, Practical

Prerequisites

a) Sound 2 - Concepts and techniques in interactive and immersive audio design

- none

Methods of assessment

a) Sound 2 - Concepts and techniques in interactive and immersive audio design

◆ Practical Assignment during semester (sbA)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Dr. Norbert Schnell

Full-time lecturers:

a) Sound 2 - Concepts and techniques in interactive and immersive audio design

- Prof. Dr. Norbert Schnell

Reading list

a) Sound 2 - Concepts and techniques in interactive and immersive audio design

- Marks, Aaron: Aaron Marks' Complete Guide to Game Audio: For Composers, Sound Designers, Musicians, and Game Developers (3rd Edition), A K Peters/CRC Press, 2017, ISBN: 1138795380
- Raffaseder, Hannes: Audiodesign: Akustische Kommunikation, akustische Signale und Systeme, psychoakustische Grundlagen, Klangsynthese, Audioediting und Effektbearbeitung, Sounddesign, Bild-Ton-Beziehungen (2. Auflage), Carl Hanser Verlag, 2010, ISBN: 3446417621
- Spehr, Georg: Funktionale Klänge, Hörbare Daten, klingende Geräte und gestaltete Hörerfahrungen (Sound Studies), transcript, 2009, ISBN: 9783837611687
- Schafer, R. Murray: The Soundscape: Our Sonic Environment and the Tuning of the World, Destiny Books, 1993, ISBN: 0892814551
- Farnell, Andy: Designing Sound, The MIT Press, 2010, ISBN: 0262014416

STEM 2

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2892	180 h	6	3	SoSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) STEM 2	German / English	4 SWS / 45h	135h	35

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- articulate accurately relationships of differential calculus and kinematics.
- reproduce essential concepts of geometrical (ray) optics reliably.

Comprehension

- capture basic principles of the paraxial processing model for imaging systems.
- understand mathematical modelling of simple dynamical systems.

Practical Use

- apply methods for the description of dynamic systems to simple systems.
- apply the basic laws of ray optics to the imaging properties of camera lenses.

Analysis

- analyse the effect of varying system parameters and initial conditions on system behaviour.

Synthesis

- compare optical imaging in photography / cinematography and computer graphics / computer vision.

Evaluation

- evaluate different physics engines in terms of their functionality and simulation fidelity and realism.

Individual component content

a) STEM 2

- Foundations: Basic Calculus, Parametrized Curves in the plane and in three-dimensional space,
- Elements of Kinematics
- Dynamical Systems: Deterministic Models, Differential Equations
- Setting up and Evaluating Models for Example Systems
- Project Work: Visualization of the Behaviour of Simple Systems by Means of Web Applications
- Foundations of Camera Optics: Paraxial Ray Tracing, Camera Lenses and their cardinal points
- Focus, Magnification, Depth of Focus
- Comparison: Optical Properties of the Human Eye vs. Camera Optics
- Physics Engines

Teaching methods

a) STEM 2

- Seminar

Prerequisites

a) STEM 2

- none

Methods of assessment

a) STEM 2

Written Exam during semester (sbK)	*Exam*	6 CP
Practical Assignment during semester (sbA)	*Exam*	

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Dr. Thomas Schneider

Full-time lecturers:

a) STEM 2

- Prof. Dr. Thomas Schneider
- Prof. Dr. Uwe Hahne

Reading list

a) STEM 2

- Kleppner, Daniel; Dourmashkin, Peter; Ramsey, Norman: Quick Calculus: A Self-Teaching Guide (3rd Edition), Jossey-Bass, 2022, ISBN: 1119743192
- Strang, Gilbert: Differential Equations and Linear Algebra, Wellesley-Cambridge Press, 2015, ISBN: 0980232791
- Erb, Roger: Optik mit GeoGebra, De Gruyter, 2016, ISBN: 3110491273
- Bourg, David M.: Physics for Game Developers, O'Reilly & Associates, 2001, ISBN: 0596000065

Visual 3

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2890	180 h	6	3	SoSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Visual 3 - Game Character Design and Animation	German / English	4 SWS / 45h	135h	35

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- know animation techniques and their fields of application.
- understand the differences between real-time and offline-rendered animation.

Comprehension

- recognize suitable animation technology for specific specifications.
- understand the application of VFX in real-time environments.

Practical Use

- create complex character animation phases for non-linear playback in real-time environments.
- create rule-based, physically simulated as well as generative animations for use in real-time environments.

Analysis

- analyse conceptual specifications for animation applications and break them down into sub-requirements.

Synthesis

- synthesize complex animation scenarios for real-time applications from individual results.

Evaluation

- critically examine their own semester work in the context of what they have learned.

Individual component content

a) Visual 3 - Game Character Design and Animation

- Advanced Material and Shading, 3D-Animation (Realtime), Non-linear animation, Animation State-machines, Animation Blending
- Combining Physics and scripted Animation
- Character Animation, Rigging Forward / Inverse Kinematics
- Walk Cycles
- From Models to Assets
- Visual Design 2D Animation VFX in Realtime

Teaching methods

a) Visual 3 - Game Character Design and Animation

- Seminar, Practical

Prerequisites

a) Visual 3 - Game Character Design and Animation

- None

Methods of assessment

a) Visual 3 - Game Character Design and Animation

◆ Practical Assignment during semester (sbA)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Christoph Müller

Full-time lecturers:

a) Visual 3 - Game Character Design and Animation

- Prof. Christoph Müller
- Prof. Niv Shpigel

Reading list

a) Visual 3 - Game Character Design and Animation

- Williams, Richard: The Animator's Survival Kit: A Manual of Methods, Principles and Formulas for Classical, Computer, Games, Stop Motion and Internet Animators, Farrar, Straus and Giroux, 2012, ISBN: 978-0865478978
- Osipa, Jason: Stop Staring: Facial Modeling and Animation Done Right (3rd Edition), Sybex, 2010, ISBN: 0470609907
- Totten, Chris: Game Character Creation with Blender and Unity, Sybex, 2012, ISBN: 1118172728

Business 1

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2894	180 h	6	4	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Business 1	German / English	4 SWS / 45h	135h	40

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- know the fundamentals of business economy and community management.

Comprehension

- understand the dependencies between the various parts of a project and the implications.

Practical Use

- act as a team leader to produce interactive and immersive applications.

Analysis

- analyse an immersive application at different stages of development and assess quality.

Synthesis

- estimate and calculate the costs of development of immersive applications.

Evaluation

- evaluate the results of user researches and their implications.

Individual component content

a) Business 1

- Producing
- Quality Management
- User Research
- Community Management
- Financial Calculation

Teaching methods

a) Business 1

- Seminar

Prerequisites

a) Business 1

- none

Methods of assessment

a) Business 1

◆ Written Exam during semester (sbK)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Dr. Alexander Maier

Full-time lecturers:

a) Business 1

- Prof. Dr. Alexander Maier

Reading list

a) Business 1

- Will be given in lecture as applicable.

Code 4

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2895	180 h	6	4	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Code 4	German / English	4 SWS / 45h	135h	35

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- know algorithms for game AI.

Comprehension

- choose the right algorithm for a specific scenario.

Practical Use

- implement basic algorithms for game AI.

Analysis

- analyse the existing algorithms for patterns and use cases.

Synthesis

- combine multiple algorithms or patterns to create sophisticated systems for specific purposes.

Evaluation

- evaluate AI with a data-driven approach to incorporate feedback and improvements.

Individual component content

a) Code 4

- Game AI: Finite Automata und Behaviour Trees, Agents, Search Problems, Uninformed Search, Informed Search (A* and Heuristics)
- Adversarial Search and Games I: Minimax,
- Alpha-beta Pruning Adversarial Search and Games II: Expect Imax, MCTSReinforcement Learning
- Network: Relational and NoSQL databases,
- Optional: Dedicated Game server: Architectures, APIs
- Networking Multiplayer-Game server:
- Online: Client Server /P2P /MMOG Architectures and Protocols
- Local: LAN/WLAN
- Dedicated MMOG@home: NAT, DDNS, STUN Cloud Gaming over public networks (Shadow/Blade/Google)

Teaching methods

a) Code 4

- Semiar, Practical

Prerequisites

a) Code 4

- none

Methods of assessment

a) Code 4

Written Examination (K)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Nikolaus Hottong

Full-time lecturers:

a) Code 4

- Prof. Nikolaus Hottong
- Prof. Dr. Stephanie Heintz
- Prof. Dr. Ruxandra Lasowski

Reading list

a) Code 4

- Russell, Stuart; Norvig, Peter: Artificial Intelligence: A Modern Approach, Pearson, 2021, ISBN: 1292401133

Project 4

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2893	180 h	6	4	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Project 4 - Advanced Digital Project	German / English	3 SWS / 33.75h	146.25h	20

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- gain experience working on a project in a team.

Comprehension

- understand agile project management.

Practical Use

- apply the skills and knowledge acquired in the other modules so far.

Analysis

- analyse and detect interesting opportunities for the implementation of advanced technologies.

Synthesis

- design, create and present an advanced digital prototype of an interactive, immersive application and game.

Evaluation

- evaluate their prototype e.g., by conducting user tests and recommended improvements.

Individual component content

a) Project 4 - Advanced Digital Project

- Design and creation of an advanced interactive application
- Practical application of various skills acquired in previous modules
- Implementation of advanced technologies e.g., AR/VR, spatial audio/video, tangible interfaces
- Team and project management
- Practise visualisation, documentation, communication, presentation
- Work with digital material to create advanced prototypes

Teaching methods

a) Project 4 - Advanced Digital Project

- Project

Prerequisites

a) Project 4 - Advanced Digital Project

- none

Methods of assessment

a) Project 4 - Advanced Digital Project

Practical Assignment (A)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module / lecturer:

- Dean of Studies GMB

Full-time lecturers:

a) Project 4 - Advanced Digital Project

- All professors of the faculty

Reading list

a) Project 4 - Advanced Digital Project

- Depending on subject of study and task.

STEM 3

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2896	180 h	6	4	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) STEM 3 - Physical Computing	German / English	4 SWS / 45h	135h	30

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- distinguish between different actors and sensors (such as a camera).
- understand how sensors (such as a camera), actors and a single-board computer (SBC) / microcontroller (MCU) are constructed and work.

Comprehension

- understand basic concepts of image processing.
- understand a system of sensors, actors and SBC/MCU.

Practical Use

- run and test computer vision algorithms on a system.
- connect sensors and actors to an SBC/MCU and put them into operation.

Analysis

- derive prerequisites for the use of computer vision algorithms and other information processing methods.
- understand requirements and challenges of systems consisting of sensors, actors and SBC/MCU.

Synthesis

- implement an application for system sensors, actors and SBC/MCU.

Evaluation

- evaluate an implemented application for a system consisting of sensors, actors and SBC/MCU with regard to its usability in practice.

Individual component content

a) STEM 3 - Physical Computing

- Practical electronics and signal processing
- Physical Computing
- Computer Vision for Extended Reality (XR)
- IoT, Tangible Interfaces

Teaching methods

a) STEM 3 - Physical Computing

- Seminar, Practical

Prerequisites

a) STEM 3 - Physical Computing

- None

Methods of assessment

a) STEM 3 - Physical Computing

◆ Practical Assignment during semester (sbA)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Dr. Uwe Hahne

Full-time lecturers:

a) STEM 3 - Physical Computing

- Prof. Dr. Uwe Hahne
- Prof. Dr. Gabriel Rausch

Reading list

a) STEM 3 - Physical Computing

- Szeliski, Richard: Computer Vision: Algorithms and Applications (2nd Edition), Springer, 2022, ISBN: 3030343715 – online at https://szeliski.org/
- Kuniavsky, Mike: Smart things: Ubiquitous Computing User Experience Design, Morgan Kaufmann, 2010, ISBN: 0123748992
- O'Sullivan, Dan; Igoe, Tom: Physical Computing: Sensing and Controlling the Physical World with Computers, Course Technology, 2004, ISBN: 978-1592003464
- Horowitz, Paul; Hill, Winfield: The Art of Electronics: The x Chapters, Cambridge University Press, 2020, ISBN: 1108499945

Theory 3

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2897	180 h	6	4	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Theory 3	German / English	4 SWS / 45h	135h	30

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- know the fundamentals of user experience design.

Comprehension

- understand the fundamental theories and best practices of narrative-, level- and mission-design.

Practical Use

- apply their knowledge and comprehension to design experiences within a predesigned framework.

Synthesis

- create innovative ways of narrative- and mission design.

Evaluation

- evaluate their designs with e.g., user tests.

Individual component content

a) Theory 3

- Level Design
- Mission Design
- Narrative Design
- Storytelling
- Environmental
- UX-Design

Teaching methods

a) Theory 3

- Seminar

Prerequisites

a) Theory 3

- None

Methods of assessment

a) Theory 3

◆ Written Exam during semester (sbK)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Jirka Dell´Oro-Friedl

Full-time lecturers:

a) Theory 3

- Julien Trübiger

Reading list

a) Theory 3

- Schell, Jesse: The Art of Game Design: A Book of Lenses (3rd Edition), Taylor & Francis, 2019, ISBN: 1138632058
- Juul, Jesper: Half-Real: Video Games between Real Rules and Fictional Worlds, The MIT Press, 2011, ISBN: 9780262516518
- Vogler, Christopher: The Writer's Journey: Mythic Structure for Writers (3rd Edition), Michael Wiese Productions, 2007, ISBN: 978-1615931705
- Solarski, Chris: Interactive Stories and Video Game Art: A Storytelling Framework for Game Design, Taylor & Francis, 2017, ISBN: 978-1498781503
- McRae, Edwin: Narrative Design for Writers: An industry guide to writing for video games, Fiction Engine Limited, 2020, ISBN: 978-0473518820
- Totten, Christopher W.: An Architectural Approach to Level Design (2nd Edition), A K Peters, 2019, ISBN: 978-0815361367
- Totten, Christopher W.: Level Design: Processes and Experiences, A K Peters/CRC Press, 2017, ISBN: 978-1138628809
- Kremers, Rudolf: Level Design: Concept, Theory and Practice, A K Peters, 2009, ISBN: 978-1568813387
- Rusch, Doris C.: Making Deep Games: Designing Games with Meaning and Purpose, Routledge, 2017, ISBN: 978-1138812130
- Isbister, Katherine: How Games Move Us: Emotion by Design (Playful Thinking), MIT Press, 2016, ISBN: 978-0262034265

Internship

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2898	900 h	30	5	WiSe/SoSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Internship	German / English	0 SWS / 0h	840h	1
b) Seminar Internship	German / English	2 SWS / 22.5h	37.5h	50

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- better assess their own areas of interest and skills through practical experience in everyday working life.

Comprehension

- gain a deeper understanding of work processes and team structures in companies in their future field of work.

Practical Use

- describe and evaluate the experiences and insights gained.

Analysis

- assess their own knowledge and level of training in the context of a professional activity and identify potential for improvement.

Synthesis

- incorporate acquired practical qualifications into the tasks of the degree programme and underpin them theoretically.

Evaluation

- better assess their own strengths and weaknesses and plan their further studies accordingly.

Individual component content

a) Internship

- Depends on degree programme and employer

b) Seminar Internship

- Self-critical reflection of activities and acquired knowledge in the context of professional activity

Teaching methods

a) Internship

- Internship

b) Seminar Internship

- Seminar

Prerequisites

a) Internship

- None

b) Seminar Internship

- None

Methods of assessment

a) Internship

Practical Assignment during semester (sbA)	*Study Task*	28 CP

b) Seminar Internship

Presentation with documentation (R)	*Study Task*	2 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module / lecturer:

- Dean of Studies GMB

Full-time lecturers:

a) Internship

- All professors of the faculty

b) Seminar Internship

- Prof. Jirka Dell´Oro-Friedl

Reading list

a) Internship

- None

b) Seminar Internship

- Will be given in lecture as applicable.

Business 2

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2902	180 h	6	6	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Business 2	German / English	4 SWS / 45h	135h	35

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- act as a team leader to produce interactive and immersive applications.
- know he fundamentals of the publishing business and marketing

Comprehension

- understand the lifecycles of games and immersive media and how to manage them.

Analysis

- analyse game concepts with a focus on monetization and suggest best options.

Synthesis

- draft a business plan for a start-up based on a concept of a product to create.

▶ Individual component content

a) Business 2

- Publishing
- Entrepreneurship
- Monetization
- Marketing
- Lifecycle Management

Teaching methods

a) Business 2

- Seminar

Prerequisites

a) Business 2

- None

Methods of assessment

a) Business 2

◆ Written Exam during semester (sbK)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module:

- Prof. Dr. Alexander Maier

Full-time lecturers:

a) Business 2

- Prof. Dr. Alexander Maier

Reading list

a) Business 2

- Will be given in lecture as applicable.

Module: Business 2 Semester: 6

Elective 1

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2900	180 h	6	6	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Elective Course (WPM) see (5)		4 SWS / 45h	135h	50

Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- Depending on the elective course (WPM)

Individual component content

a) Elective Course (WPM) see (5)

- Depending on the elective course (WPM)

Teaching methods

a) Elective Course (WPM) see (5)

- Depending on the elective course (WPM)

Prerequisites

a) Elective Course (WPM) see (5)

- Depending on the elective course (WPM)

Methods of assessment

a) Elective Course (WPM) see (5)

◆ Depending on the elective course (WPM)	*Exam*	6 CP

Applicability of module

Required module in:

- ◆ Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module / lecturer:

- ◆ Academics Vice Dean

Full-time lecturers:

a) Elective Course (WPM) see (5)

Reading list

a) Elective Course (WPM) see (5)

- ◆ Depending on the elective course (WPM)

Elective 2

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2901	180 h	6	6	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Elective Course (WPM) see (5)		4 SWS / 45h	135h	50

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- Depending on the elective course (WPM)

▶ Individual component content

a) Elective Course (WPM) see (5)

- Depending on the elective course (WPM)

▶ Teaching methods

a) Elective Course (WPM) see (5)

- Depending on the elective course (WPM)

▶ Prerequisites

a) Elective Course (WPM) see (5)

- Depending on the elective course (WPM)

Methods of assessment

a) Elective Course (WPM) see (5)

◆ Depending on the elective course (WPM)	*Exam*	6 CP

Applicability of module

Required module in:

- ◆ Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module / lecturer:

- ◆ Academics Vice Dean

Full-time lecturers:

a) Elective Course (WPM) see (5)

Reading list

a) Elective Course (WPM) see (5)

- ◆ Depending on the elective course (WPM)

Project 5

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2899	360 h	12	6	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Project 5 - Complex Digital Project	German / English	4 SWS / 45h	326.25h	20

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- gain experience working professionally on a project in a team.

Comprehension

- understand professional project management including economic considerations.

Practical Use

- can apply the skills and knowledge acquired in the other modules so far.

Analysis

- can analyse and detect interesting technical and economic opportunities of an immersive media application or game.

Synthesis

- can professionally design, create and present an interactive, immersive application or game.

Evaluation

- can evaluate application e.g., by conducting user tests and recommend improvements.

Individual component content

a) Project 5 - Complex Digital Project

- Professional design and creation of a complex interactive application
- Practical application of various skills acquired in previous modules
- Consideration and calculation of professional publishing, marketing, monetization, quality assurance
- Practice professional workflow

Teaching methods

a) Project 5 - Complex Digital Project

- Project

Prerequisites

a) Project 5 - Complex Digital Project

- None

Methods of assessment

a) Project 5 - Complex Digital Project

◆ Practical Assignment (A)	*Exam*	12 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module / lecturer:

- Dean of Studies GMB

Full-time lecturers:

a) Project 5 - Complex Digital Project

- All professors of the faculty

Reading list

a) Project 5 - Complex Digital Project

- Depending on subject of study and task.

Elective 3

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2903	180 h	6	7	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Elective Course (WPM) see (5)		4 SWS / 45h	135h	50

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- Depending on the elective course (WPM)

▶ Individual component content

a) Elective Course (WPM) see (5)

- Depending on the elective course (WPM)

▶ Teaching methods

a) Elective Course (WPM) see (5)

- Depending on the elective course (WPM)

▶ Prerequisites

a) Elective Course (WPM) see (5)

- Depending on the elective course (WPM)

Methods of assessment

a) Elective Course (WPM) see (5)

◆ Depending on the elective course (WPM)	*Exam*	6 CP

Applicability of module

Required module in:

- ◆ Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module / lecturer:

- ◆ Academics Vice Dean

Full-time lecturers:

a) Elective Course (WPM) see (5)

Reading list

a) Elective Course (WPM) see (5)

- ◆ Depending on the elective course (WPM)

Elective 4

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2904	180 h	6	7	WiSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Elective Course (WPM) see (5)		4 SWS / 45h	135h	50

Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- Depending on the elective course (WPM)

Individual component content

a) Elective Course (WPM) see (5)

- Depending on the elective course (WPM)

Teaching methods

a) Elective Course (WPM) see (5)

- Depending on the elective course (WPM)

Prerequisites

a) Elective Course (WPM) see (5)

- Depending on the elective course (WPM)

Methods of assessment

a) Elective Course (WPM) see (5)

◆ Depending on the elective course (WPM)	*Exam*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module / lecturer:

- Academics Vice Dean

Full-time lecturers:

a) Elective Course (WPM) see (5)

Reading list

a) Elective Course (WPM) see (5)

- Depending on the elective course (WPM)

Thesis

Module code:	Workload:	Credits/LP:	Semester:	Frequency:	Duration:
DM-2024-2905	572.5 h	18	7	WiSe / SoSe	1

Components:	Language:	Contact hours:	Self-study:	Class size:
a) Bachelor Thesis	German / English	2 SWS / 22.5h	360h	1
b) Thesis Seminar	German / English	2 SWS / 22.5h	167.5h	40

▶ Module learning outcomes:

After successfully completing the module, students will be able to

Knowledge

- present central topics and results in a concise way.
- use the acquired skills and knowledge to create a coherent scientific submission.

Comprehension

- develop an in-depth knowledge of patterns connections with a subject.
- understanding the process of creating and solidifying knowledge in a scientific context.

Practical Use

- apply the theory, techniques and processes of the design of immersive media and games in their own work.

Analysis

- identify and collate salient aspects of the theoretical background and the work of others in the context of their own work.

Synthesis

- make a contribution to the state-of-the-art in games and immersive media.

Evaluation

- critically discuss and evaluate their work in a chosen context.

Individual component content

a) Bachelor Thesis

- Depending on the chosen topic and thesis supervisor.

b) Thesis Seminar

- Depending on the chosen topic and thesis supervisor.

Teaching methods

a) Bachelor Thesis

- Thesis

b) Thesis Seminar

- Meetings with the supervisors, public thesis presentation and discussion

Prerequisites

a) Bachelor Thesis

- Successful completion of the degree programme, basic studies fully completed, thesis registration

b) Thesis Seminar

- None

Methods of assessment

a) Bachelor Thesis

◆ Thesis (T)	*Exam*	12 CP

b) Thesis Seminar

◆ Presentation (PN)	*Study Task*	6 CP

Applicability of module

Required module in:

- Games & Immersive Media B.A. (SPO-Version: 10)

Person responsible for module and lecturers

Person responsible for module / lecturer:

- Academics Vice Dean

Full-time lecturers:

a) Bachelor Thesis

- All professors of the faculty

b) Thesis Seminar

- N.N.

Reading list

a) Bachelor Thesis

- Depending on the chosen topic and thesis supervisor.

b) Thesis Seminar

- Depending on the chosen topic and thesis supervisor.