

Modulkatalog des Studiengangs Games & Immersive Media

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Ziele des Studiengangs

Fachliche Qualifikationsziele

The alumni of Games & Immersive Media have ...

- a strong expertise in designing and implementing visual arts, software, sound, and interactive elements.
- in-depth knowledge and abilities in team management, production, and marketing.
- a comprehensive theoretical understanding of media design and technology
- experience in collaborating with diverse teams on multiple projects using agile methodologies.

Überfachliche Qualifikationsziele

The alumni of Games & Immersive Media have ...

- the ability to effectively work within multicultural teams in both German and English.
- a sensitivity to the societal impact of the development and utilization of games and immersive media.
- competence and self-assurance in employing complex technologies in creative and artistic contexts.

Berufliche Qualifikationsziele

The alumni of Games & Immersive Media have ...

- a robust foundation for pursuing various careers in the gaming industry.
- a strong groundwork for exploring diverse professions within immersive media outside the gaming sector.
- opportunities for further specialization in chosen fields such as computer science, media technologies, digital asset creation, media management, and media design.

Studiengangsstruktur

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

Umsetzungsmatrix

Qualifikationsziel	Modul															
	Project 1	Code 1	STEM 1	Theory 1	Visual 1	Project 2	Code 2	Sound 1	Theory 2	Visual 2	Project 3	Code 3	Sound 2	STEM 2	Visual 3	
a strong expertise in designing and implementing visual arts, software, sound, and interactive elements.	0	2	0	1	2	1	2	2	1	2	1	2	2	0	2	
in-depth knowledge and abilities in team management, production, and marketing.	0	0	0	0	1	2	0	0	1	1	2	1	0	0	1	
a comprehensive theoretical understanding of media design and technology	0	1	2	1	2	0	1	2	2	2	0	2	2	2	2	
experience in collaborating with diverse teams on multiple projects using agile methodologies.	2	1	0	0	2	2	1	0	0	2	2	2	0	2	2	
the ability to effectively work within multicultural teams in both German and English.	2	1	2	0	1	2	1	0	1	1	2	1	0	1	1	
a sensitivity to the societal impact of the development and utilization of games and immersive media.	1	0	0	2	1	1	0	0	2	1	1	0	0	0	1	
competence and self-assurance in employing complex technologies in creative and artistic contexts.	0	2	0	1	2	2	2	2	0	2	2	1	2	0	2	
a robust foundation for pursuing various careers in the gaming industry.	1	2	1	1	1	2	2	1	2	2	2	2	1	0	1	
a strong groundwork for exploring diverse professions within immersive media outside the gaming sector.	0	2	1	1	1	2	2	1	1	1	2	2	1	2	2	
opportunities for further specialization in chosen fields such as computer science, media technologies, digital asset creation, media management, and media design.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Qualifikationsziel	Modul													
	Project 4	Business 1	Code 4	STEM 3	Theory 3	Internship	Project 5	Business 2	Elective 1	Elective 2	Project 6: Thesis	Elective 3	Elective 4	Summe
a strong expertise in designing and implementing visual arts, software, sound, and interactive elements.	0	2	0	1	2	1	2	2	1	2	1	2	2	27
in-depth knowledge and abilities in team management, production, and marketing.	0	0	0	0	1	2	0	0	1	1	2	1	0	20
a comprehensive theoretical understanding of media design and technology	0	1	2	1	2	0	1	2	2	2	0	2	2	29
experience in collaborating with diverse teams on multiple projects using agile methodologies.	2	1	0	0	2	2	1	0	0	2	2	2	0	30
the ability to effectively work within multicultural teams in both German and English.	2	1	2	0	1	2	1	0	1	1	2	1	0	29
a sensitivity to the societal impact of the development and utilization of games and immersive media.	1	0	0	2	1	1	0	0	2	1	1	0	0	20
competence and self-assurance in employing complex technologies in creative and artistic contexts.	0	2	0	1	2	2	2	2	0	2	2	1	2	30
a robust foundation for pursuing various careers in the gaming industry.	1	2	1	1	1	2	2	1	2	2	2	2	1	38
a strong groundwork for exploring diverse professions within immersive media outside the gaming sector.	0	2	1	1	1	2	2	1	1	1	2	2	1	38
opportunities for further specialization in chosen fields such as computer science, media technologies, digital asset creation, media management, and media design.	0	0	0	0	0	0	0	0	0	0	0	0	0	12

1. Semester

Project 1					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB103	180 Std.	6	1	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Entry Project - No Code	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 20
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... are able to specify the basics of agile projects ... can specify the basics of agile learning Verständnis (2) ... understand the benefits of agility ... understand the basics of No-Code/Low-Code game development Analyse (4) ... reflect their personal skills for team projects Synthese (5) ... presenting their results to an audience ... develop a simple computergame in a playful approach Evaluation / Bewertung (6) ... understand the impact of following courses ... are able to evaluate the limitations of No-Code/Low-Code game development				
3	Inhalte a) - No-Code/Low-Code Game Projects - Agile Mindset - Project-based learning - Methods (Scrum, Kanban, Team Building) - Gamedesign Documents - Developing a simple computer game - Presentation and event planning				
4	Lehrformen a) Project				
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden				

6	Prüfungsformen a) Graded Assessment 1sbA (Practical Work) (6 LP)
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende Prof. Nikolaus Hottong (Module Responsible) Prof. Dr.-Ing. Uwe Hahne (Lecturer)
9	Literatur

Code 1					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB102	180 Std.	6	1	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Code 1	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 35
2	Lernergebnisse/Kompetenzen After successful participation in the module, students will be able to / or have gained the ability for ... Wissen (1) ... know the basic concepts of interactive audiovisual applications Verständnis (2) ... understand basic information structures for interactive 2D-graphics and audio as implemented by web-technologies Anwendung (3) ... can work with a programming language and use software development and source control environments Analyse (4) ... can analyse simple human-computer-interactions and use computational thinking formulate algorithms for their realization Synthese (5) ... are able to be creative and experiment with procedural coding, web- and other technologies Evaluation / Bewertung (6) ... can evaluate and improve their coded creations				
3	Inhalte a) - Creative Coding - Web Fundamentals - 2D-Scenegraph - Procedural Code - Coding Audiovisuals - Computational Thinking				
4	Lehrformen a) Seminar				
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden				

6	Prüfungsformen a) Graded Assessment 1sbK (Written Exam) (6 LP)
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende Prof. Jirka Dell'Oro-Friedl (Module Responsible) Prof. M.F.A. Regina Reusch (Lecturer)
9	Literatur a) Robbins, Jennifer: HTML5 pocket reference, Sebastopol, CA: O'Reilly, 2013 Meyer, Eric A.: CSS pocket reference, Sebastopol, CA: O'Reilly Media, 2018 Vanderkam, Dan: Effective TypeScript. Sebastopol, CA: O'Reilly Media, 2019

STEM 1					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB101	180 Std.	6	1	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) STEM 1 Seminar b) STEM 1 Practica	a) Deutsch/ English b) Deutsch/ English	a) 33,75 Std. b) 11,25 Std.	a) 90 Std. b) 45 Std.	a) 35 b) 15
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... reliably reproduce central basic concepts of projection (set theory) ... know how to articulate geometric questions precisely using the appropriate technical terms Verständnis (2) ... 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. Anwendung (3) ... apply techniques of vector calculus and matrix algebra to geometrical problems and to questions of the position and representation of spatial objects. Analyse (4) ... analyse geometric problems in the plane and space, while selecting the appropriate tools from those provided Synthese (5) ... 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 / Bewertung (6) ... weigh up different procedures (e.g. for linking affine or projective transformations) in terms of clarity and effort.				
3	Inhalte a) Geometry of 2D and 3D spaces: <ul style="list-style-type: none"> - Coordinates of Points and Vectors - Change of Coordinate Frames - Systems of Linear Equations - Metric Spaces: Distances, Lengths, Angles - Matrices and Linear Transformations - Homogeneous Coordinates - Matrices and Affine Transformations 				

	<p>Graphical Representations of 3D Objects</p> <ul style="list-style-type: none"> - Parallel Projections / Axonometric Projections / Orthographic Projections - Linear Perspective: Image Construction using Desargues' Theorem - Points at Infinity and Vanishing Points - Projection Matrices: Unified Approach <p>Camera Models in Computer Graphics and Computer Vision</p> <p>b) Identical with a) STEM 1 Seminar</p>
4	<p>Lehrformen</p> <p>a) Seminar</p> <p>b) Practical / Lab</p>
5	<p>Teilnahmevoraussetzungen</p> <p>None</p>
6	<p>Prüfungsformen</p> <p>a) Graded Assessment 1K (Written Exam) (4 LP)</p> <p>b) Non Graded Assessment 1sbA (Practical Work) (2 LP)</p>
7	<p>Verwendung des Moduls</p> <p>Games & Immersive Media B.A. (GMB)</p>
8	<p>Modulbeauftragte/r und hauptamtlich Lehrende</p> <p>Prof. Dr. Thomas Schneider (Module Responsible)</p> <p>Prof. Dr.-Ing. Uwe Hahne (Lecturer)</p> <p>Prof. Dr. Ruxandra Lasowski (Lecturer)</p> <p>Prof. Dr. Thomas Schneider (Lecturer)</p>
9	<p>Literatur</p> <p>a) H. Anton, C. Rorres, A. Kaul: Elementary Linear Algebra, Applications Version E. Lengyel: Mathematics for 3D Game Programming and Computer Graphics</p> <p>b) identical to a)</p>

Theory 1					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB104	180 Std.	6	1	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Computer Science and HCI Theory	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 30
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... Basic knowledge in HCI including cognition and perception, UCD and UCD Process ... Basic knowledge on computer hardware, concepts and history of computer science Verständnis (2) ... Understanding concepts in computer science like computer architecture, bits&bytes ... Understanding user-centered, psychological and HCI concepts Anwendung (3) ... applying computer science concepts ... applying user-centered design, UI design concepts Analyse (4) ... analysing programs / code for concepts ... analysing user interfaces for patterns and interaction concepts Synthese (5) ... design and create interactions and user interfaces ... realize basic algorithms / programs Evaluation / Bewertung (6) ... evaluate user interfaces using heuristics and design principles ... evaluate code for programming principles				
3	Inhalte a) - 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 Colors - Cognition and Memory, HCI topics - User-Centered Design & User-Centered Design Process				

4	Lehrformen a) Lecture / Seminar
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden
6	Prüfungsformen a) Non Graded Assessment 1R (Review) (6 LP insgesamt für alle Teilprüfungsleistung dieser Lehrveranstaltung) ¹ a) Graded Assessment 1sbK (Written Exam) ¹
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende Prof. Dr.-Ing. Thomas Schlegel (Module Responsible)
9	Literatur a) will be given in lecture as applicable

¹ The entire examination is only passed if all partial examinations are graded at least "sufficient" (4.0). In the case of a fail, only the partial examinations that have not been passed must and may be repeated.

Visual 1					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB105	180 Std.	6	1	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Visual 1	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 20
2	Lernergebnisse/Kompetenzen After successful participation in the module, students will be able to ... Wissen (1) ... gain knowledge of and practice the essential basics of visual design Verständnis (2) ... understand artistic processes and assess composition and design Anwendung (3) ... develop and implement design concepts Analyse (4) ... break down creative processes, analyze design parameters and visualize production processes Synthese (5) ... combine creative processes to create coherent design concepts for immersive media Evaluation / Bewertung (6) ... iterative evaluation of own work and implementation of visual adjustments				
3	Inhalte a) - Draft and sketching - Figurative thinking - Storyboard - Color theory and practical application - Visual Character-Development - UI-Design-Basics				
4	Lehrformen a) Seminar / Practical				
5	Teilnahmevoraussetzungen None				

6	Prüfungsformen a) Graded Assessment 1sbA (Practical Work) (6 LP)
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende Prof. Christian Fries (Module Responsible)
9	Literatur

2. Semester

Project 2					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB201	180 Std.	6	2	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Project 2 - Physical Game	a) Deutsch/ English	a) 33,75 Std.	a) 146,25 Std.	a) 20
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... gain experience working on a project in a team Verständnis (2) ... understand agile project management Anwendung (3) ... can apply the skills and knowledge acquired in the other modules so far Analyse (4) ... can analyse a theme for a game, do research and detect opportunities to deduct rules to play from it Synthese (5) ... can design, create and present a physical game prototype Evaluation / Bewertung (6) ... can evaluate their prototype e.g. by conducting user tests and recommend improvements				
3	Inhalte a) - Design and creation of a physical game, optionally with digital augmentation - Practical application of various skills acquired in previous modules - Team- and projectmanagement - Practice visualization, documentation, communication, presentation - Work with physical material to create prototypes				
4	Lehrformen a) Project				
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden				
6	Prüfungsformen a) Graded Assessment 1sbA (Practical Work) (6 LP)				

7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende
9	Literatur

Code 2					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB202	180 Std.	6	2	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Code 2	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 35
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... know basics of a graphic design language (UML) Verständnis (2) ... understand common patterns and techniques for realtime applications in three dimensions Anwendung (3) ... can create experimental prototypes of games and interactive applications using a game engine and its integrated editor Analyse (4) ... can analyse simple problems in interactive threedimensional environments Synthese (5) ... are able to create object- and component oriented designs for interactive applications Evaluation / Bewertung (6) ... can evaluate and improve their coded creations				
3	Inhalte a) - Software Design - Object Orientation - 3D-Scenegraph - Game Patterns & Techniques - Component Entities				
4	Lehrformen a) Seminar / Practical				
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden				
6	Prüfungsformen a) Graded Assessment 1sbK (Written Exam) (6 LP)				

7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende Prof. Jirka Dell'Oro-Friedl (Module Responsible)
9	Literatur a) Kecher, Hoffmann-Elbern, Will: UML 2.5, Rheinwerk Computing (2021) Nystrom, Game Programming Patterns (2014) - online at https://gameprogrammingpatterns.com/contents.html

Sound 1					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB204	180 Std.	6	2	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Sound 1 - Basics of sound and music design	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 36
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... outline basic principles and techniques for the design of sound and music for games and immersive media Verständnis (2) ... understand basic principles and techniques of interactive and immersive sound and music Anwendung (3) ... apply the learned concepts and techniques in the design of sound and music Analyse (4) ... identify essential concepts and techniques in the design of sound and music Synthese (5) ... create sound and music for games and immersive media in first design studies Evaluation / Bewertung (6) ... critically discuss the quality of design and production of sound and music in games and immersive media				
3	Inhalte a) • 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)
4	Lehrformen a) Seminar
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden
6	Prüfungsformen a) Graded Assessment 1sbA (Practical Work) (6 LP)
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende Prof. Dr. Norbert Schnell (Module Responsible)
9	Literatur a) Karen Collins (2013), Playing with Sound – A Theory of Interacting with Sound and Music in Video Games, MIT Press Thomas Görne (2017): Sounddesign: Klang Wahrnehmung Emotion, Carl Hanser Verlag. Michele Geronazzo, Stefania Serafin (2022), Sonic Interactions in Virtual Environments, Springer International Publishing. Mark Grimshaw (2010): Game Sound Technology and Player Interaction: Concepts and Developments, Idea Group Reference. Bill Kapralos, Holly Tessler, Karen Collins (2017), The Oxford Handbook of Interactive Audio, Oxford University Press. Fred Karlin, Rayburn Wright (2013): On the Track: A Guide to Contemporary Film Scoring, Taylor & Francis. Aaron Marks (2008): The Complete Guide to Game Audio: For Composers, Musicians, Sound Designers, Game Developers, Focal Press. Hannes Raffaseder (2010): Audiodesign, Carl Hanser Verlag. Georg Spehr (2009), Funktionale Klänge, Hörbare Daten, klingende Geräte und gestaltete Hörerfahrungen, Transcript. R. Murray Schafer (2009), The Soundscape: Our Sonic Environment and the Tuning of the World, Inner Traditions/ Bear. Andy Farnell (2010). Designing Sound, MIT Press

Theory 2					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB203	180 Std.	6	2	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Theory 2 - Game Design	a) Deutsch/ English	a) 22,5 Std.	a) 67,5 Std.	a) 36
	b) Theory 2 - Data Driven Game Design	b) Deutsch/ English	b) 22,5 Std.	b) 67,5 Std.	b) 30
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... acquire a basic command of probability concepts ... know the history and taxonomies of digital games Verständnis (2) ... understand how games can be modelled ... understand the fundamental theories of games and play Anwendung (3) ... apply concepts of probability and game theory to selected types of games ... can apply their knowledge and comprehension to create a credible game design Analyse (4) ... analyse game types and strategies by means of game theoretical methods ... can analyse game ideas and deduct patterns and rules usable for game design Synthese (5) ... are able to create a game design document using a variety of techniques Evaluation / Bewertung (6) ... evaluate selected games by their typologies and the corresponding strategy algorithms ... can evaluate games and interactive applications with scientific methods				
3	Inhalte a) - Game Studies - Design Graphs - Design Methodologies b) - Elementary Combinatorics - Finite Probability Spaces: Examples - Bernoulli Processes and Binomial Distributions - Expected Value and Variance - Conditional Probabilities, Bayes' Theorem				

	<ul style="list-style-type: none"> - Game Theory - Categories of Games - Representation of games - Players' Strategies - Nash Equilibria
4	Lehrformen a) Seminar / Practical b) Seminar
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden
6	Prüfungsformen a) Graded Assessment 1sbK (Written Exam) (3 LP) b) Graded Assessment 1KO (Colloquium) (3 LP)
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende Prof. Jirka Dell'Oro-Friedl (Module Responsible) Prof. Dr. Thomas Schneider (Module Responsible)
9	Literatur

Visual 2					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB205	180 Std.	6	2	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Visual 2 - Game Asset Creation	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 40
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... understand the connection between light, material and coloring in 3D modelling. ... know appropriate 3D modeling techniques for different types of geometry. Verständnis (2) ... recognize material settings for emulating given representation forms ... recognize suitable 3D modeling techniques for concrete requirements. Anwendung (3) ... create complex materials including textures for use in real-time 3D applications. ... create 3D models for use in real-time 3D environments. Analyse (4) ... are able to assess the applicability of publicly available techniques and approaches to 3D asset generation for specific problems. Synthese (5) ... are able to develop novel approaches and processes for complex tasks in 3D asset generation. Evaluation / Bewertung (6) ... are able to critically examine their own semester work in the context of what they have learned.				
3	Inhalte a) - 3D Modeling, Box Modeling, Sculpting, - Poly Modeling/Polygon Flow, RetopologyMaterials Lights and Texturing, - UV Unwinding, 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 - Modeling for Realtime Engines - Materials for Realtime Engines				

4	Lehrformen a) Seminar / Practical
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden
6	Prüfungsformen a) Graded Assessment 1sbA (Practical Work) (6 LP)
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende Prof. Christoph Müller (Module Responsible)
9	Literatur a) Oscar Baechler Xury Greer: Blender 3D By Example Second Edition, Packt 2020

3. Semester

Project 3					
Kennnummer DM-2023-GMB301	Workload 180 Std.	Credits/LP 6	Studiensemester 3	Häufigkeit des Angebots Nur Sommersemester	Dauer 1 Semester
1	Lehrveranstaltungen a) Project 3 - Intermediate Digital Project	Sprache a) Deutsch/ English	Kontaktzeit a) 33,75 Std.	Selbststudium a) 146,25 Std.	Geplante Gruppengröße a) 20
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... gain experience working on a project in a team Verständnis (2) ... understand agile project management Anwendung (3) ... can apply the skills and knowledge acquired in the other modules so far Analyse (4) ... can analyse and detect interesting opportunities for human-computer-interaction within given constraints Synthese (5) ... can design, create and present a simple digital prototype of an interactive, immersive application or game Evaluation / Bewertung (6) ... can evaluate their prototype e.g. by conducting user tests and recommend improvements				
3	Inhalte a) - 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 projectmanagement - Practice visualization, documentation, communication, presentation - Work with digital material to create prototypes				
4	Lehrformen a) Projekt				
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden				

6	Prüfungsformen a) Prüfungsleistung 1sbA (Praktische Arbeit) (6 LP)
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende
9	Literatur

Code 3					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB302	180 Std.	6	3	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Code 3 - Realtime Computer Graphics	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 40
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... recognize software design patterns. ... understand the structure of a real-time computer graphics pipeline and the interaction of modern interfaces and current GPUs. Verständnis (2) ... understand the factors influencing the performance of an application. ... recognize and formulate the requirements for high-performance real-time computer graphics applications. Anwendung (3) ... apply common software design patterns. ... develop solution-oriented concepts for a complex problem in the context of programming. Analyse (4) ... 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. Synthese (5) ... integrate further APIs for visualization and audio in the own code. ... implement interactive real-time visualizations in appropriate tools. Evaluation / Bewertung (6) ... critically examine the own term paper and plan improvements/optimizations.				
3	Inhalte a) - Realtime Computer Graphics - Shader - Game engine software architecture - Computation Performance - Advanced Audiovisuals				
4	Lehrformen a) Seminar / Practical				

5	Teilnahmevoraussetzungen None
6	Prüfungsformen a) Graded Assessment 1sbA (Practical Work) (6 LP)
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende Prof. Dr.-Ing. Uwe Hahne (Module Responsible) Prof. Christoph Müller (Module Responsible)
9	Literatur a) Möller, Tomas, et al. Real-time Rendering, Fourth edition, Boca Raton, FL: CRC Press, 2018 M. McGuire, The graphics codex, 2.17. Casual Effects, 2021. [Online]. Available: https://graphicscodex.com Jason Gregory, Game Engine Architecture, Third Edition / Edition 3, https://www.gameenginebook.com/

Sound 2					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB304	180 Std.	6	3	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Sound 2 - Concepts and techniques in interactive and immersive audio design	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 36
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... outline principals of auditory perception as well as concepts and techniques of interactive audio Verständnis (2) ... understand principals of auditory perception as well as concepts and techniques of interactive audio Anwendung (3) ... apply the learned theoretical background, concepts and techniques in the design interactive audio Analyse (4) ... identify essential elements and relationships in the composition of complex real and virtual audio environments Synthese (5) ... create complex interactive and immersive audio environments Evaluation / Bewertung (6) ... critically discuss the design of interactive and immersive audio environments				
3	Inhalte a) • 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				
4	Lehrformen a) Seminar / Practical				

5	Teilnahmevoraussetzungen Keine Eingabe vorhanden
6	Prüfungsformen a) Graded Assessment 1sbA (Practical Work) (6 LP)
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende Prof. Dr. Norbert Schnell (Module Responsible)
9	Literatur a) Karen Collins (2013), Playing with Sound – A Theory of Interacting with Sound and Music in Video Games, MIT Press. Thomas Görne (2017): Sounddesign: Klang Wahrnehmung Emotion, Carl Hanser Verlag. Michele Geronazzo, Stefania Serafin (2022), Sonic Interactions in Virtual Environments, Springer International Publishing. Mark Grimshaw (2010): Game Sound Technology and Player Interaction: Concepts and Developments, Idea Group Reference. Bill Kapralos, Holly Tessler, Karen Collins (2017), The Oxford Handbook of Interactive Audio, Oxford University Press. Fred Karlin, Rayburn Wright (2013): On the Track: A Guide to Contemporary Film Scoring, Taylor & Francis. Aaron Marks (2008): The Complete Guide to Game Audio: For Composers, Musicians, Sound Designers, Game Developers, Focal Press. Hannes Raffaseder (2010): Audiodesign, Carl Hanser Verlag. Georg Spehr (2009), Funktionale Klänge, Hörbare Daten, klingende Geräte und gestaltete Hörerfahrungen, Transcript. R. Murray Schafer (2009), The Soundscape: Our Sonic Environment and the Tuning of the World, Inner Traditions/Bear. Andy Farnell (2010). Designing Sound, MIT Press.

STEM 2					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB303	180 Std.	6	3	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) STEM 2	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 30
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... can accurately articulate relationships of differential calculus and kinematics. ... reproduce essential concepts of geometrical (ray) optics reliably. Verständnis (2) ... capture basic principles of the paraxial processing model for imaging systems ... understand mathematical modeling of simple dynamical systems Anwendung (3) ... 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 Analyse (4) ... can analyse the effect of varying system parameters and initial conditions on system behavior Synthese (5) ... compare optical imaging in photography / cinematography and computer graphics / computer vision. Evaluation / Bewertung (6) ... evaluate different physics engines in terms of their functionality and simulation fidelity and realism.				
3	Inhalte a) Foundations <ul style="list-style-type: none"> - Basic Calculus - Parametrized Curves in the plane and in three-dimensional space - Elements of Kinematics Dynamical Systems <ul style="list-style-type: none"> - Deterministic Models, Differential Equations - Setting up and Evaluating Models for Example Systems - Project Work: Visualization of the Behavior of Simple Systems by Means of Web Applications 				

	<p>Foundations of Camera Optics</p> <ul style="list-style-type: none"> - Paraxial Ray Tracing - Camera Lenses and their cardinal points - Focus, Magnification, Depth of Focus - Comparison: Optical Properties of the Human Eye vs. Camera Optics <p>Physics Engines</p>
4	<p>Lehrformen</p> <p>a) Seminar</p>
5	<p>Teilnahmevoraussetzungen</p> <p>Keine Eingabe vorhanden</p>
6	<p>Prüfungsformen</p> <p>a) Graded Assessment 1sbK (Written Exam) (6 LP insgesamt für alle Teilprüfungsleistung dieser Lehrveranstaltung)²</p> <p>a) Graded Assessment 1sbA (Practical Work)²</p>
7	<p>Verwendung des Moduls</p> <p>Games & Immersive Media B.A. (GMB)</p>
8	<p>Modulbeauftragte/r und hauptamtlich Lehrende</p> <p>Prof. Dr. Thomas Schneider (Module Responsible)</p>
9	<p>Literatur</p> <p>a) D. Kleppner et al.: Quick Calculus : A Self-Teaching Guide</p> <p>G. Strang: Differential Equations and Linear Algebra</p> <p>R. Erb: Optik mit GeoGebra</p> <p>D.M. Bourg: Physics for Game Developers</p>

² The entire examination is only passed if all partial examinations are graded at least "sufficient" (4.0). In the case of a fail, only the partial examinations that have not been passed must and may be repeated.

Visual 3					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB305	180 Std.	6	3	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Visual 3 - Game Character Design and Animation	a) Deutsch/English	a) 45 Std.	a) 135 Std.	a) 35
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... know animation techniques and their fields of application. ... understand the differences between real-time and offline-rendered animation. Verständnis (2) ... recognize suitable animation technology for specific specifications. ... understand the application of VFX in real-time environments Anwendung (3) ... create complex character animation phases for non-linear playback in real-time environments. ... are able to create rule-based, physically simulated as well as generative animations for use in real-time environments. Analyse (4) ... analyse conceptual specifications for animation applications and break them down into sub-requirements. Synthese (5) ... synthesize complex animation scenarios for real-time applications from individual results. Evaluation / Bewertung (6) ... be able to critically examine their own semester work in the context of what they have learned.				
3	Inhalte a) - Advanced Material and Shading, 3D-Animation (Realtime), Non-linear animation, Animation State-machines, Animation Blending - Combining Physics and scripted Animation - Character Animation, RiggingForward / Inverse Kinematics - Walk Cycles - From Models to Assets - Visual Design2D AnimationVFX in Realtime				
4	Lehrformen a) Seminar / Practical				

5	Teilnahmevoraussetzungen Keine Eingabe vorhanden
6	Prüfungsformen a) Graded Assessment 1sbA (Practical Work) (6 LP)
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende Prof. Christoph Müller (Module Responsible) Prof. M.F.A. Regina Reusch (Module Responsible)
9	Literatur a) Richard Williams: "The Animator's Survival Kit: A Manual of Methods, Principles and Formulas for Classical, Computer, Games, Stop Motion and Internet", FABER & FABER 2012 Jason Osipa: "Stop Staring", John Wiley & Sons, 2010 Chris Totten: "Game Character Creation with Blender and Unity", Sybex 2012

4. Semester

Project 4					
Kennnummer DM-2023-GMB401	Workload 180 Std.	Credits/LP 6	Studiensemester 4	Häufigkeit des Angebots Nur Sommersemester	Dauer 1 Semester
1	Lehrveranstaltungen a) Project 4 - Advanced Digital Project	Sprache a) Deutsch/ English	Kontaktzeit a) 33,75 Std.	Selbststudium a) 146,25 Std.	Geplante Gruppengröße a) 20
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... gain experience working on a project in a team Verständnis (2) ... understand agile project management Anwendung (3) ... can apply the skills and knowledge acquired in the other modules so far Analyse (4) ... can analyse and detect interesting opportunities for the implementation of advanced technologies Synthese (5) ... can design, create and present an advanced digital prototype of an interactive, immersive application or game Evaluation / Bewertung (6) ... can evaluate their prototype e.g. by conducting user tests and recommend improvements				
3	Inhalte a) - 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 projectmanagement - Practice visualization, documentation, communication, presentation - Work with digital material to create advanced prototypes				
4	Lehrformen a) Projekt				
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden				

6	Prüfungsformen a) Prüfungsleistung 1sbA (Praktische Arbeit) (6 LP)
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende
9	Literatur

Business 1					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB402	180 Std.	6	4	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Business 1	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 40
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... know the fundamentals of business economy and community management Verständnis (2) ... understand the dependencies between the various parts of a project and the implications Anwendung (3) ... can act as a teamleader to produce interactive and immersive applications Analyse (4) ... can analyse an immersive application at different stages of development and assess quality Synthese (5) ... can estimate and calculate the costs of development of immersive applications Evaluation / Bewertung (6) ... can evaluate the results of user researches and their implications				
3	Inhalte a) - Producing - Quality Management - User Research - Community Management - Financial calculation				
4	Lehrformen a) Seminar				
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden				
6	Prüfungsformen a) Graded Assessment 1sbK (Written Exam) (6 LP)				

7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende
9	Literatur

Code 4					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB403	180 Std.	6	4	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Code 4	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 35
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... know algorithms for game AI Verständnis (2) ... choose the right algorithm for a specific scenario Anwendung (3) ... implement basic algorithms for game AI Analyse (4) ... analyse existing algorithms for patterns and use cases Synthese (5) ... combine multiple algorithms or patterns to create sophisticated systems for specific purposes Evaluation / Bewertung (6) ... evaluate AI with a data-driven approach to incorporate feedback and improvements				
3	Inhalte a) - 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: Expectimax, MCTSReinforcement Learning - Network: Relational and NoSQL databases, - Server APIs, Backend services, Network Communication - Network, Multiplayer: Internet- and Streaming: Networking Protocols Basics - Optional: Dedicated Gameserver: Architectures, APIs - Networking Multiplayer-Gameserver: - a) Online: Client Server /P2P /MMOG Architectures and Protocols - b) Local: LAN/WLAN - c) Dedicated MMOG@home: NAT, DDNS, STUN Cloud Gaming over public networks (Shadow/Blade/Google)				
4	Lehrformen a) Seminar / Practical				

5	Teilnahmevoraussetzungen Keine Eingabe vorhanden
6	Prüfungsformen a) Graded Assessment 1K (Written Exam) (6 LP)
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende Prof. Dr. Jürgen Anders (Module Responsible) Prof. Dr. Stephanie Heintz (Module Responsible) Prof. Dr. Ruxandra Lasowski (Module Responsible)
9	Literatur a) Russell, Stuart ; Norvig, Peter: Artificial Intelligence: A Modern Approach, Pearson, 2021

STEM 3					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB404	180 Std.	6	4	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) STEM 3 - Physical Computing	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 30
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... 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. Verständnis (2) ... understand basic concepts of image processing. ... understand a system of sensors, actors and SBC/MCU. Anwendung (3) ... run and test computer vision algorithms on a system. ... connect sensors and actors to a SBC/MCU and put them into operation. Analyse (4) ... 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. Synthese (5) ... implement an application for a system sensors, actors and SBC/MCU. Evaluation / Bewertung (6) ... evaluate an implemented application for a system consisting of sensors, actors and SBC/MCU with regard to its usability in practice.				
3	Inhalte a) - Practical electronics and signal processing - Physical Computing - Computer Vision for Extended Reality (XR) - IoT, Tangible Interfaces				
4	Lehrformen a) Seminar / Practical				

5	Teilnahmevoraussetzungen Keine Eingabe vorhanden
6	Prüfungsformen a) Graded Assessment 1sbA (Practical Work) (6 LP)
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende Prof. Dr.-Ing. Uwe Hahne (Module Responsible) Prof. Dr. Gabriel Rausch (Module Responsible)
9	Literatur a) R. Szeliski, "Computer Vision: Algorithms and Applications 2nd Edition," 2021. [Online]. Available: https://szeliski.org/Book Kuniavsky, Mike. Smart things : ubiquitous computing user experience design. Amsterdam Boston: Morgan Kaufmann Publisher, 2010. O'Sullivan, Dan, and Tom Igoe. Physical Computing: Sensing and Controlling the Physical World with Computers. Course Technology, 2010. Horowitz, Paul, and Winfield Hill. The Art of Electronics: The x-Chapters. Cambridge University Press, 2021.

Theory 3					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB405	180 Std.	6	4	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Theory 3	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 30
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... know the fundamentals of user experience design Verständnis (2) ... understand the fundamental theories and best practices of narrative-, level- and mission-design Anwendung (3) ... can apply their knowledge and comprehension to design experiences within a predesigned framework Synthese (5) ... are able to create innovative ways of narrative- and mission design Evaluation / Bewertung (6) ... can evaluate their designs with e.g. user tests				
3	Inhalte a) - Level Design - Mission Design - Narrative Design - Storytelling - Environmental - UX-Design				
4	Lehrformen a) Seminar				
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden				
6	Prüfungsformen a) Graded Assessment 1sbK (Written Exam) (6 LP)				

7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende
9	Literatur a) Schell, Jesse: The Art of Game Design. A book of Lenses, 2008 Juul, Jesper: Half-real: video games between real rules and fictional worlds, 2011

5. Semester

Internship					
Kennnummer DM-2023GMB501	Workload 900 Std.	Credits/LP 30	Studiensemester 5	Häufigkeit des Angebots Each semester	Dauer 1 Semester
1	Lehrveranstaltungen a) Internship b) Seminar Internship	Sprache a) Deutsch/ English b) Deutsch/ English	Kontaktzeit a) 0 Std. b) 22,5 Std.	Selbststudium a) 840 Std. b) 37,5 Std.	Geplante Gruppengröße a) 1 b) 50
2	Lernergebnisse/Kompetenzen				
3	Inhalte				
4	Lehrformen a) b) Seminar				
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden				
6	Prüfungsformen a) Non Graded Assessment 1sbA (Practical Work) (28 LP) b) Non Graded Assessment 1R (Review) (2 LP)				
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)				
8	Modulbeauftragte/r und hauptamtlich Lehrende				
9	Literatur				

6. Semester

Project 5					
Kennnummer DM-2023-GMB601	Workload 360 Std.	Credits/LP 12	Studiensemester 6	Häufigkeit des Angebots Only summer semester	Dauer 1 Semester
1	Lehrveranstaltungen a) Project 5 - Complex Digital Project	Sprache a) Deutsch/ English	Kontaktzeit a) 33,75 Std.	Selbststudium a) 326,25 Std.	Geplante Gruppengröße a) 20
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... gain experience working professionally on a project in a team Verständnis (2) ... understand professional project management including economic considerations Anwendung (3) ... can apply the skills and knowledge acquired in the other modules so far Analyse (4) ... can analyse and detect interesting technical and economical opportunities of an immersive media application or game Synthese (5) ... can professionally design, create and present an interactive, immersive application or game Evaluation / Bewertung (6) ... can evaluate application e.g. by conducting user tests and recommend improvements				
3	Inhalte a) - 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				
4	Lehrformen a) Project				
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden				
6	Prüfungsformen a) Graded Assessment 1sbA (Practical Work) (12 LP)				

7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende
9	Literatur

Business 2					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB604	180 Std.	6	6	Only summer semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Business 2	a) Deutsch/ English	a) 45 Std.	a) 135 Std.	a) 35
2	Lernergebnisse/Kompetenzen After successful participation in the module the students ... Wissen (1) ... can act as a teamleader to produce interactive and immersive applications ... know the fundamentals of the publishing business and marketing Verständnis (2) ... understand the lifecycles of games and immersive media and how to manage them Analyse (4) ... can analyse game concepts with a focus on monetization and suggest best options Synthese (5) ... can draft a business plan for a small startup based on a concept of a product to create				
3	Inhalte a) - Publishing - Entrepreneurship - Monetization - Marketing - Lifecycle Management				
4	Lehrformen a) Seminar				
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden				
6	Prüfungsformen a) Graded Assessment 1sbK (Written Exam) (6 LP)				
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)				
8	Modulbeauftragte/r und hauptamtlich Lehrende				

9	Literatur
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Elective 1					
Kennnummer DM-2023-GMB602	Workload 157,5 Std.	Credits/LP 6	Studiensemester 6	Häufigkeit des Angebots Each semester	Dauer 1 Semester
1	Lehrveranstaltungen a) Elective Course (WPM) see (5)	Sprache a) Deutsch/ English	Kontaktzeit a) 0 Std.	Selbststudium a) 157,5 Std.	Geplante Gruppengröße a) 50
2	Lernergebnisse/Kompetenzen After successful participation in the module, students will be able to ... Wissen (1) ... X, depending on the chosen elective course (WPM)				
3	Inhalte a) Depending on the elective course and the lecturer				
4	Lehrformen a)				
5	Teilnahmevoraussetzungen <ul style="list-style-type: none"> - Depending on the elective course and lecturer - The level of the elective course, higher levels require the lower levels to be completed 				
6	Prüfungsformen <ul style="list-style-type: none"> a) Graded Assessment PL (Undetermined) (6 LP insgesamt für alle Teilprüfungsleistung dieser Lehrveranstaltung) a) Non Graded Assessment SL (Undetermined) 				
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)				
8	Modulbeauftragte/r und hauptamtlich Lehrende				
9	Literatur				

Elective 2					
Kennnummer DM-2023-GMB603	Workload 157,5 Std.	Credits/LP 6	Studiensemester 6	Häufigkeit des Angebots Each semester	Dauer 1 Semester
1	Lehrveranstaltungen a) Elective Course (WPM) see (5)	Sprache a) Deutsch/ English	Kontaktzeit a) 0 Std.	Selbststudium a) 157,5 Std.	Geplante Gruppengröße a) 50
2	Lernergebnisse/Kompetenzen After successful participation in the module, students will be able to ... Wissen (1) ... X, depending on the chosen elective course (WPM)				
3	Inhalte				
4	Lehrformen a)				
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden				
6	Prüfungsformen a) Graded Assessment PL (Undetermined) (6 LP insgesamt für alle Teilprüfungsleistung dieser Lehrveranstaltung) a) Non Graded Assessment SL (Undetermined)				
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)				
8	Modulbeauftragte/r und hauptamtlich Lehrende				
9	Literatur				

7. Semester

Project 6: Thesis					
Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
DM-2023-GMB701	540 Std.	18	7	Each semester	1 Semester
1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Bachelor Thesis b) Thesis Seminar	a) Deutsch/ English b) Deutsch/ English	a) 0 Std. b) 22,5 Std.	a) 360 Std. b) 157,5 Std.	a) 1 b) 40
2	Lernergebnisse/Kompetenzen After successful completion of the thesis module, students will be able to ... Wissen (1) ... present central topics and results in a concise way ... use the aquired skills and knowledge to create a coherent scientific submission Verständnis (2) ... develop an in-depth knowledge of patterns and connections within a subject ... understanding the process of creating and solidifying knowledge in the scientific context Anwendung (3) ... apply the theory, techniques and processes of the design of immersive media and games in their own work Analyse (4) ... identify and collate salient aspects of the theoretical background and the work of others in the context of their own work Synthese (5) ... make a contribution to the state-of-the-art in games and immersive media Evaluation / Bewertung (6) ... critically discuss and evaluate their work in a chosen context				
3	Inhalte a) - Depending on the chosen topic and thesis supervisor b) - Continous discussion of the thesis topic and current progress between student and supervisors - Creation of milestones and the review of the planned milestones - Presentation and discussion of the thesis with a professional audience				
4	Lehrformen a) b) Seminar				

5	Teilnahmevoraussetzungen Keine Eingabe vorhanden
6	Prüfungsformen a) Graded Assessment 1T (Thesis) (12 LP) b) Non Graded Assessment 1PN (Presentation) (6 LP)
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)
8	Modulbeauftragte/r und hauptamtlich Lehrende
9	Literatur a) Depending on the subject and supervisors b) Depending on the subject and supervisors

Elective 3					
Kennnummer DM-2023-GMB702	Workload 157,5 Std.	Credits/LP 6	Studiensemester 7	Häufigkeit des Angebots Each semester	Dauer 1 Semester
1	Lehrveranstaltungen a) Elective Course (WPM) see (5)	Sprache a) Deutsch/ English	Kontaktzeit a) 0 Std.	Selbststudium a) 157,5 Std.	Geplante Gruppengröße a) 50
2	Lernergebnisse/Kompetenzen After successful participation in the module, students will be able to ... Wissen (1) ... X, depending on the chosen elective course (WPM)				
3	Inhalte				
4	Lehrformen a)				
5	Teilnahmevoraussetzungen Keine Eingabe vorhanden				
6	Prüfungsformen a) Graded Assessment PL (Undetermined) (6 LP insgesamt für alle Teilprüfungsleistung dieser Lehrveranstaltung) a) Non Graded Assessment SL (Undetermined)				
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)				
8	Modulbeauftragte/r und hauptamtlich Lehrende				
9	Literatur				

Elective 4					
Kennnummer DM-2023-GMB703	Workload 157,5 Std.	Credits/LP 6	Studiensemester 7	Häufigkeit des Angebots Each semester	Dauer 1 Semester
1	Lehrveranstaltungen a) Elective Course (WPM) see (5)	Sprache a) Deutsch/ English	Kontaktzeit a) 0 Std.	Selbststudium a) 157,5 Std.	Geplante Gruppengröße a) 50
2	Lernergebnisse/Kompetenzen After successful participation in the module, students will be able to ... Wissen (1) ... X, depending on the chosen elective course (WPM)				
3	Inhalte a) Depending on the elective course and the lecturer				
4	Lehrformen a)				
5	Teilnahmevoraussetzungen <ul style="list-style-type: none"> - Depending on the elective course and lecturer - The level of the elective course, higher levels require the lower levels to be completed 				
6	Prüfungsformen <ul style="list-style-type: none"> a) Graded Assessment PL (Undetermined) (6 LP insgesamt für alle Teilprüfungsleistung dieser Lehrveranstaltung) a) Non Graded Assessment SL (Undetermined) 				
7	Verwendung des Moduls Games & Immersive Media B.A. (GMB)				
8	Modulbeauftragte/r und hauptamtlich Lehrende				
9	Literatur				