FH Salzburg

MultiMedia Technology

Master

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```

competent
relevant
sustainable

Study Programme

MultiMediaTechnology is a forward-thinking media informatics programme, keenly attuned to contemporary trends and committed to shaping solutions for the coming digital landscape. Our students are passionate about cutting-edge media technologies and drive innovation in application areas such as augmented and virtual reality, games, mobile, web and internet technologies.

The master's programme offers a wide range of comprehensive courses in applied computer science topics, fostering in-depth expertise in the Game & Simulation Engineering or Web Engineering majors. At the heart of these majors are two projects lasting up to four semesters. These projects will take you from design through prototyping to market readiness. Along the way, you will create intricate digital applications and tackle complex software engineering challenges as part of a team. Both projects are supported by extensive coaching from experts in design, technology and business.

The programme is complemented by a wide range of electives, including relevant topics such as Information Visualisation, Mixed Reality Technologies or Deep Learning & Explanable AI.

Teamwork between developers and designers is a unique feature of the programme. Working in a team with students from our design or human-computer interaction partner programmes, you'll gain valuable experience of the professional workflow in the creative industries. You will also develop social and communication skills that will enable you to manage future projects.

The Master's programme offers tailor-made development opportunities that are also aimed at career changers. Preparatory courses and bridge modules are designed to help you quickly catch up on missing skills in web development, game development and machine learning. During your studies you will create games, web or mobile applications, while having fun with talented fellow students and working towards an academic degree that is highly relevant to the industry.

Semester abroad

A semester abroad is an option for you in the fourth semester at one of our numerous partner universities.

Job prospects and careers

We are one of the most start-up-friendly universities in Austria. We are committed to the marketability of the completed projects and support the development of startups during and after your studies. Our graduates include successful founders and managers from the following sectors:

· Online industry
· Digital media and entertainment industry
· Computer games industry
· Software industry
· Advertising and digital agencies
· Research and development
· Startups

Examples of successful master projects can be found at:
https://portfolio.fh-salzburg.ac.at
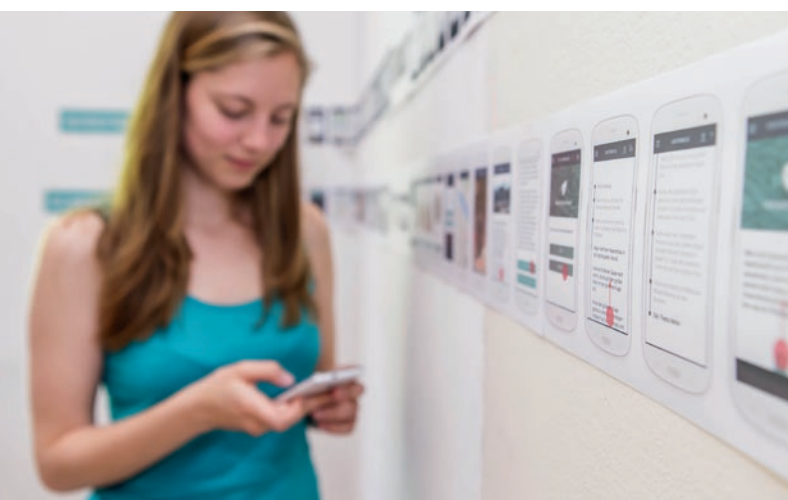
Majors

Game & Simulation Engineering

Computer games serve as technology catalysts and trendsetters in various industries beyond entertainment. The major Game & Simulation Engineering offers the opportunity to gain unique expertise in computer game development and interactive simulation. The curriculum includes:

· Applied Games
· Multiplayer & Online Gaming
· Advanced Gameplay Programming
· Physics-based Simulation
· Efficient Game Programming
· Software Quality Assurance
· Games User Research
· Artificial Intelligence for Games
· Cross-Platform Development

You will explore alternative uses of game technologies beyond entertainment contexts. Moreover, you will address the technical complexities of scalable, networked online game worlds and multiplayer games. Discover the capabilities of contemporary game engines, their underlying architectures, and efficient implementation.

Learn techniques for quality assurance in gameplay and coding, plus the systematic analysis of games and player behavior. Explore physically realistic simulations and immersive 3D environments, and expand your knowledge into cross-platform game development. Uncover how artificial intelligence is harnessed in games, such as crafting procedurally generated worlds.

Web Engineering

Web development stands as a mature and multifaceted field within computer science. From crafting elegant user interfaces to building robust backend systems, web development offers an array of exciting opportunities. The curriculum includes:

· Web Performance Optimization
· Applied Programming Paradigms
· Distributed Software Architectures
· Continuous Delivery
· Frontend Engineering
· Software Quality Assurance
· Web User Research
· Scalable Web Architectures
· Data Engineering
· DevSecOps

Early on in your studies, you will improve web performance by studying all aspects of the stack, from backend databases to the intricacies of frontend JavaScript. You will also master distributed systems and their cloud-based implementation. You'll gain hands-on experience with modern programming languages such as TypeScript, Elm and Rust and explore applications of WebAssembly.

You will then dive into advanced front-end topics, covering everything from advanced JavaScript topics to UX and design. You will also learn about automation in software development, testing and deployment through DevOps and Infrastructure as Code. You will also gain skills in quality assurance and user behaviour analysis in web development.

Finally, you will explore all aspects of handling data, from traditional databases to NoSQL and data pipelines. Security will be a key focus, particularly through automation. Combining all the the previous topics you will be able to build robust, scalable web applications.

Curriculum

Module	Courses	Semester			
		1	2	3	4
Theory and Research Methods					
	Data Analysis	3 (2)			
	Research Methods & Study Design		3 (2)		
Game & Simulation Engineering¹					
	Applied Games	4 (3)			
	Multiplayer & Online Gaming	4 (3)			
	Advanced Gameplay Programming	4 (3)			
	Physics-Based Simulation		4 (3)		
	Efficient Game Programming		4 (3)		
	Software Quality Assurance		1 (1)		
	Games User Research		3 (2)		
	Artificial Intelligence for Games			4 (3)	
	Cross-Platform Development			4 (3)	
	Guest Lecture Game & Simulation Engineering			2 (1)	
Web Engineering¹					
	Web Performance Optimisation	4 (3)			
	Applied Programming Paradigms	4 (3)			
	Distributed Software Architectures	4 (3)			
	Continuous Delivery		4 (3)		
	Frontend Engineering		4 (3)		
	Software Quality Assurance		3 (2)		
	Web Performance Optimisation		1 (1)		
	Scalable Web Architectures			4 (3)	
	Data Engineering			3 (2)	
	DevSecOps			1,5 (1)	
	Guest Lecture Web Engineering			1,5 (1)	
Project					
	Lightning Talks & Innovation Workshops	2 (2)			
	Digital Ideation / Rapid Prototyping	4 (2)			
	Project 1 / Project 2	4 (1,5)	9 (2)	8 (2)	3 (1)
	Innovation Coaching & Project Reflection		1 (1)	1 (1)	0,5 (0,5)
	Transfer Projects			1 (0)	1 (0)
	Lecture Series: Emerging Technologies / Conference Attendance			3 (2)	0,5 (0,5)
Elective Courses²					
	Information Visualisation & Visual Analytics		3 (2)		
	Generative AI		3 (2)		
	Predictive Modelling		3 (2)		
	Mixed Reality Technologies			3 (2)	
	Creative Entrepreneur & Corporate Innovation			3 (2)	
	Deep Learning & Explainable AI			3 (2)	
	Selected Topics in Human-Computer Interaction			3 (2)	
Smart Skills					
	Agile Project Management	1,5 (1)			
	Diversity in Tech	1 (1)			
	Facilitation and Efficient Meetings	1,5 (1)			
	IT Law and Data Protection		1 (1)		
	Symposium on Ethics / Ethics in Informatics	1 (1)	1 (1)		
	Sustainable Computing			1 (1)	
Master Thesis					
	Master Thesis Seminar			3 (2)	1 (1)
	Master Thesis / Master Exam				24 (0)
	ECTS (CHW)	30 (20,5)	30 (18)	30 (17)	30 (3)

¹ Choose one of the two majors
² Choose one of the listed courses per semester

ECTS: European Credit Transfer and Accumulation System
CHW: Contact hours per week per semester

This chart shows the curriculum as an example only.

Studying at Salzburg University of Applied Sciences

Salzburg University of Applied Sciences offers practical course content in line with the requirements of business and society. Qualified and experienced teaching staff from both scientific and practical fields guarantee an academic education of the highest standard. Together with the first-rate facilities in our lecture halls and laboratories, they provide the basis for a successful course of study. Our locations, offering a total of 18 bachelor programmes, 15 master programmes and further education possibilities, are situated in some of the most beautiful regions in the world. Whether you are an art and architecture buff, a music fan or a lover of the great outdoors, Salzburg combines historical heritage and modern lifestyle culture to offer something for everyone.

Urstein Campus

Kuchl Campus

Get to know us better:

Urstein Campus: This modern building houses our central administrative offices and is where most of our degree programmes are taught. The campus is surrounded by greenery, next to the neighbouring medieval estate known as the »Meierei« and our new premises at the »Wissenspark«.

Kuchl Campus: This campus, built to contemporary »passive house« energy efficiency standards, is located amongst the greenery at the foot of the Tennengebirge mountains. Six of our degree programmes are based here.

Salzburg Campus (University Hospital LKH): Practical lessons and some of the tuition for degree programmes in Health Studies are held at the University Hospital in the city of Salzburg.

Schwarzach Campus (Kardinal Schwarzenberg Hospital): Our degree programme for Nursing is additionally held at the »Kardinal Schwarzenberg Klinikum« in Schwarzach (district of Pongau).

International: Gain experience abroad at one of our approx. 190 partner institutions around the world. The global exchange of knowledge not only allows you to gain valuable insights into other cultures but also to make lots of new friends. Our International Office will assist you in organising a semester or placement abroad.

Career Center: We support students in planning their careers and entering the world of work. Students can benefit from exclusive free workshops on 'career planning' and a jobs and careers portal: www.fh-salzburg.ac.at/career-center

Sport: Our sports programme offers a wide range of courses and training sessions. Find out more at www.fh-salzburg.ac.at/sport

Living & studying: There is student housing located on the Urstein and Kuchl campuses. Please go directly to www.studentenheim.at for more information.

Public Traffic: There are excellent train and bus connections between all locations.

Application & Admission

Study mode: part-time
Length of study: 4 semesters
Language of instruction: English
Degree awarded: Master of Science in Engineering (MSc)
Study places per year: 20
Location: Campus Urstein
Tuition: 363 euros per Semester + ÖH-fee
Instruction: Monday and Tuesday whole day, Friday afternoon (on campus and online lessons) Saturday mornings, on rare occasions

Prerequisites for admission

· Relevant university degree (bachelor's or diploma degree) from a domestic or foreign institution of higher education or completion of an equivalent course of study at a post-secondary educational institution or
· Non-subject-related degree with proof of 20 ECTS credits in MINT subjects (mathematics, computer science, natural sciences and technology) and 25 ECTS credits in the field of software development or equivalent project or work experience.

Application procedure

1. Online application at:
   www.fh-salzburg.ac.at/online-application
   Submission of application documents and certificates
2. Interview

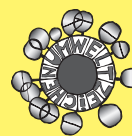**Application deadlines and updates can be found on our website.**

Further information
www.fh-salzburg.ac.at/mmt-master

Student projects
portfolio.fh-salzburg.ac.at

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Accredited by: