Game Engineering and Visual Computing
– Master of Science –

WHY STUDY THIS DEGREE COURSE?

The game industry is currently undergoing an economic development of overwhelming dynamism. Current estimates predict that its turnover will even be higher than the ones of the film, music and print industries taken together. Also, the importance of the areas of virtual and augmented reality and of computer vision, which are related to this field but nevertheless considered independent, can hardly be overestimated. In combination with computer graphics, which is an essential part of the game engineering industry, these areas can be integrated in the term "visual computing".

The application areas of this technology as a whole however go far beyond the pure entertainment and media economy. Simulations and their visualisation are on the rise, they have become a success factor for nearly all industrial areas. Further obvious applications are in medicine, architecture and building information modelling (BIM), to name but a few.

The underlying knowledge and skills are imparted in this Master's degree course, which can either be taken up immediately after the first university degree, or, alternatively, after a phase of professional activity.

WHO SHOULD STUDY THIS MASTER'S DEGREE COURSE?

The course has been designed for students who would like to grasp research-related procedures and algorithms connected to the areas of game engineering, computer vision, as well as virtual, augmented and mixed reality, and simulation, ideally in their combination, and who strive for mastering the implementation of named areas. Students should have completed a Bachelor's degree in Computer Science – Game Engineering or a similar computer science course with a clear focus on game engineering, computer graphics or similar areas to qualify for application-oriented and research-focused professional activities.

STRUCTURE OF THE FULL-TIME COURSE

The first two semesters consist of academic training. There are two kinds study modules here, core modules and compulsory electives. Among the core modules is also a project consisting of a practical part and a scientific-academic part. This combination aims at enhancing the competency to analyse, adapt and further develop research-related topics. The given tasks are implemented during the practical part of the project in a real-life application. The scientific part of the project is similar to a scientific seminar in which the topic must be defined by the students themselves on the basis of the practical requirements. This module is characteristic and particularly important for this degree course as it emphasises its focus on applied sciences in this complex environment.

The third semester is reserved for the Master Thesis which can be done either as a project with a partner from industry or as a research project at the university.

STRUCTURE OF THE PART-TIME COURSE

The Master's degree course can be studied either in full-time in three or part-time in six semesters. In the part-time model 15 ECTS credit points must be scored per semester. The academic training is done in the first four semesters, the final two semesters are reserved for the Master Thesis.

COURSE OVERVIEW

The following list gives an exemplary course sequence. The study modules offered in details are determined in the relevant study plan.

Semester 1

	ECTS
Algorithms for Real-Time Rendering	5
Simulation and Data Visualisation	5
Compulsory Course Elective	5
Scientific Underpinning for Project	5
Project	10

Semester 2

	ECTS
Computer Vision	5
Advanced Game Engineering	5
Augmented Reality	5
Compulsory Course Elective	5
Compulsory Course Elective	5
Compulsory Course Elective	5

Semester 3

	ECTS
Master Thesis	30

DEGREE AWARD

After successful graduation the academic degree **Master of Science (M.Sc.)** will be awarded by Kempten University. Graduates thus fulfil the formal requirements for entering a doctoral degree course in Germany or abroad.

CONTACT

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IMPORTANT LINKS
(Information in English on our website)

www.hs-kempten.de > INTERNATIONAL > click English flag (in the top left-hand corner)

Information for international exchange students
(> INTERNATIONAL > EXCHANGE STUDENTS / INCOMING)

Study programmes – short description in English
(> INTERNATIONAL > DOWNLOADS > Study Programmes)

Guests and Visitors at Kempten University
(> INTERNATIONAL > GUESTS AND VISITORS)

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PLEASE NOTE that, although this description is written in English, the study course is taught in German.