Computer Science - Game Engineering
– Bachelor of Science –

The Role of Game Engineering

These days, the German game industry generates a turnover of approx. 2.0 billion euros per year, which means that it has turned into the most important infotainment segment, surpassing even the movie and music industries. In addition to the games for entertainment purposes, the so-called "serious games", especially designed for a primary purpose other than entertainment also contribute to this growth market. In this area, the field of simulative training is particularly promising. For example, more and more companies have their employees undergo playful training with the help of immersive training simulators. Surgeons practice complicated surgical interventions in interactive simulators in order to minimize mistakes. Also in advertising, computer games are used more and more often in order to acquire customers. In addition to this economic factor, games also have gained cultural importance as a form of art, especially in the youth subculture. However, it is a fact that far too few game developers were trained in the past. According to the "Game Development Salary Report" they rank among the top earners among computer scientists.

Job Prospects

As a graduate of our course in "Game Engineering" you can work as a programmer in the game industry and apply special methods required for game development. Your course of study at Kempten University takes into consideration aspects of both game design and game economy. Therefore, you will be able to monitor the entire production chain of a game, making the course interesting for potential experts and leaders in the game sector, too. Of course, you may also work in game-related sectors, such as interactive 3D simulations, playful marketing or multimedia applications after your course of study. And since our degree course "Computer Science - Game Engineering" comprises a complete basic training in computer science you may find work also in traditional computer science areas.

Personal Requirements

In addition to the skills and abilities that make a good computer scientist, such as logical and abstract thinking, meticulousness and flexibility, a certain artistic and creative vein is necessary for the Bachelor's Degree Course "Game Engineering". Good three-dimensional imagination is an asset, too. A passion for and devotion to computer-game development is indispensable.

Structure of the Course

The **basic studies period** covers the first two semesters. Besides technology fundamentals you will acquire sound basic knowledge of computer science, game design and 3D-modelling and animation. Moreover you will learn to master essential mathematical basics and will be trained intensively in programming.

During the **advanced studies** the core subjects that are indispensable for your future work are taught. The main emphasis in this specialisation area is on subjects specific for game engineering, such as Game Programming and Game Physiology. During the **work placement semester** (semester 5) you will put your theoretical knowledge into practice in a real-life job environment. Preferably, you should work in the game industry or in related sectors. You may give your studies an individual game-specific profile by means of information management projects and course-related electives. You will complete your studies with a **bachelor's thesis** in the field of Game Engineering. After successful completion of the course of study you are awarded the academic degree **Bachelor of Science (B. Sc.)**.

Study Abroad

In view of the global networking of economic areas it will be particularly useful for you to spend some time abroad during your studies, broaden your horizon and become fluent in one or several foreign languages. For this, you may complete part of your specialisation studies abroad in cooperation with foreign partner universities, or you may serve your work placement semester abroad. In particular, we have a close partnership with the University of Abertay (Dundee), which specializes in game development. Not only may you spend a semester abroad there but also gather a Bachelor Honours' degree in "Computer Games Application Development" by spending a study year there after your sixth study semester at Kempten. Additionally, you may continue with a game-specific Master's Degree Course in Dundee. Dundee has a long tradition as a location of the game industry. Games, such as "Lemmings" or "Grand Theft Auto" were produced there.

The chart below shows an exemplary study outline. The actual subjects offered are set forth in the respective study plan.

Sem. 7	Bachelor's thesis				Elective	Elective	Elective
Sem. 6	Information Management Project				Control of Virtual Avatars	Elective	Elective
Sem. 5	Work placement semester						Complimentary lectures
Sem. 4	Probability Theory & Numeric Control	Distributed Software Systems	Computer Networks	Software Laboratory/Game/ Numerics	Game Programming		Project Management
Sem. 3	Discrete Mathematics	Databases	Software Engineering I	Software Engineering II	Operating Systems		Computer Graphics
Sem. 2	Linear Algebra & Analytic Geometry	Computer Science Theory	Programming II	Algorithms & Data Structures	Game Design		Drawing & Design
Sem. 1.	Analysis	Introduction in Computer Science	Programming I (for Games)		IT Systems		Modelling and Animation
CP	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	21 22 23 24 25		26 27 28 29 30

CP = Credit Point; IT = Information Technology

More Information and Advice on Admission

- Our **International Relations Coordinator** will give advice on study contents, individual modules and study degrees:
  Prof. Dr. Jochen Staudacher, Tel: +49 831 2523-513 or -9271
  E-mail: jochen.staudacher@hs-kempten.de

- Further information can also be obtained through our **International Office**:
  Tel: +49 831 2523-340 or -117, e-mail: international@hs-kempten.de.

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 its description is written in English, the study course itself is taught in German.