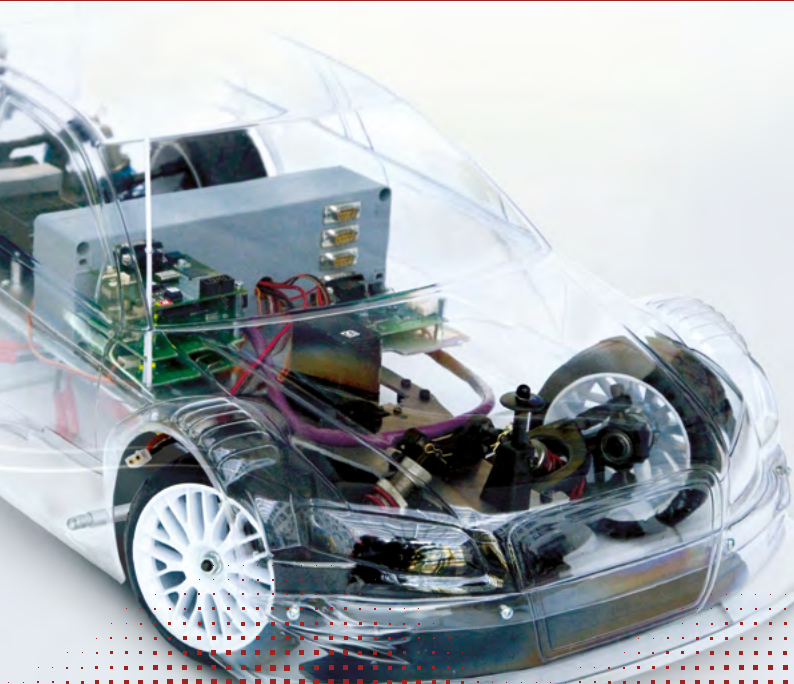




**Fraunhofer**  
ACADEMY

Part Time Course of Study

**MASTER SOFTWARE  
ENGINEERING FOR  
EMBEDDED SYSTEMS**



Offered by

 TECHNISCHE UNIVERSITÄT  
KAISERSLAUTERN

DISTANCE AND INDEPENDENT  
STUDIES CENTER





“Engineers for embedded systems need to master mechanics, electronics, and – increasingly – software. In this course, experienced engineers will learn state-of-the-art software engineering for embedded systems.”

*Prof. Dr. Dieter Rombach, Director Business Development, Fraunhofer IESE*



“At present, high software quality at reasonable costs is clearly a necessary precondition for business success. Thus, software quality assurance is an important topic within this masters program.”

*Prof. Dr.-Ing. Peter Liggesmeyer, Executive Director, Fraunhofer IESE*

## HIGH DEMAND FOR SOFTWARE ENGINEERING PRACTITIONERS

Today, traditionally hardware-dominated product domains are increasingly integrating software. But many of the companies and organizations in these traditional domains such as the medical devices industry or the automotive industry still employ mostly engineers without any profound education or training in software and systems engineering.

Therefore, the Distance and Independent Studies Center (DISC) of the University of Kaiserslautern offers in scientific cooperation with the Fraunhofer Institute for Experimental Software Engineering (IESE) a part-time, high-quality distance study program in “Software Engineering for Embedded Systems”. It provides a theoretical scientific background as well as practical methods, techniques, and tools that consider software development for embedded systems issues.

**Boost your Career with a Post-Graduate Software Engineering Education!**

### Target Group

The distance education program is designed for professionals working in the field of software development who need to acquire advanced knowledge of emerging technologies and who wish to broaden their software engineering skills by pursuing graduate-level education in software engineering for embedded systems. The program targets three kinds of graduates with a special emphasis on the first one: graduates of engineering disciplines such as electrical, mechanical, or industrial engineering; graduates of IT disciplines such as computer science; and graduates of non-engineering disciplines such as mathematics, physics, etc.

### Accreditation and Costs

The distance learning course is accredited by ASIIN.

The course fee for the entire course is € 7,960.



### Degrees and Admission Requirements

You should have at least 2 years of work experience in software development and possess a graduate degree either in electrical engineering, mechanical engineering, computer science, physics, mathematics, or a similar discipline. Completing the distance course entitles you to receive a Master of Engineering degree from the University of Kaiserslautern.



### **Balance Job and Education**

The Distance Education Program is an ideal solution for practitioners who are looking for new perspectives in their career, for example for positions such as head of research & development or project leader in industry. The innovative concept allows you to combine your studies with your professional and family commitments, enabling you to work on the course anywhere, and at any time. You will receive textbooks for each module and can study these wherever you want. Additionally, online phases increase communication between students and allow intensive support as preparation for the exams.

### **Hands-on Experience at Fraunhofer**

As a highlight, at the end of each semester, on-campus phase will be organized at Fraunhofer IESE. During those times, experts from industry as well as from science will provide practical insights into software engineering, and you can experience first-hand how Europe's largest research center for applied research is collaborating with its clients. A great opportunity to make new contacts in research and industry.

### **Become an Agent of Change!**

By selecting the best available experts worldwide as authors, the high-quality learning materials reflect not only the state of the art of science, but also the software engineering requirements of industry in the embedded systems domain. The experts are high-ranking researchers who are recognized in industry because of their profound practical experiences.

### **Fraunhofer Institute for Experimental Software Engineering (IESE)**

Fraunhofer IESE in Kaiserslautern performs research in the areas of software development, software quality management, and software competence management. Together with its sister institute in the USA, Fraunhofer IESE offers processes, methods, and techniques for developing software-based systems according to engineering-style principles. In doing so, it follows an empirical approach: Through proven, innovative solutions, products based on software can be brought to the market with a measurably higher degree of efficiency.

### **Distance and Independent Studies Center (DISC) of the University of Kaiserslautern**

The Distance and Independent Studies Center of the University of Kaiserslautern is one of the leading establishments in Germany for distance-learning postgraduate courses. Its tasks comprise the initiation and development of further qualifications for university graduates who have already obtained an initial professional qualification. More than 4,000 students are currently enrolled in the distance learning programs, which can be taken on a part-time basis while pursuing a career.

### **Fraunhofer Academy**

In 2006 the Fraunhofer Academy was established as a central unit to support Fraunhofer institutes in offering advanced training programs. With the range of training and development courses in the fields of technology and innovation, energy and sustainability, logistics and production, manufacturing and test engineering and information and communication, the Fraunhofer Academy contributes to the creation of a new innovation culture in Germany and Europe.



## Course Contents

Software engineering focuses on the specification of system structure and behavior, and on the implementation of these specifications; the activities required in order to assure that the specifications have been met; and the development of such systems across space (distributed development, subcontracting) and time (evolution, maintenance).

In the course, you will first engage in four fundamental course modules that will provide you with the basic knowledge in the domain of software development and project management for embedded systems. After that, you are going to take a more development-oriented software engineering course which prepares the students to work in the technical field of software development or to switch to more development related activities.

This ensures that you will acquire new competencies that will help you to improve the products and processes in your organization. The course will enable you to gain a better understanding of software engineering principles and to assess and select the best technologies for your work. It will prepare your organization for future changes, challenges, and innovations that will increase your company's competitive edge.

### Master's thesis

Semester 4

### On-campus phase V.2: Component and Embedded Software Engineering

Module V-M.4: Embedded Software Engineering

Module V-M.3: Software Component Engineering

Semester 3

### On-campus phase V.1: Quality and Concept Engineering Software

Module V-M.2: Software Concept Engineering

Module V-M.1: Software Quality Engineering

Semester 2

### On-campus phase B.1: Software Engineering Basics and Project Management

Module B-M.2: Project Management

Module B-M.1: Software Engineering Basics

Semester 1



## DO YOU HAVE ANY QUESTIONS...

about our program's content?

**Dr. Juliane Brauch**

Technische Universität  
Kaiserslautern  
Distance & Independent  
Studies Center (DISC)  
[www.zfuw.de](http://www.zfuw.de)  
[softeng@disc.uni-kl.de](mailto:softeng@disc.uni-kl.de)

about registration or program's  
general organization?

**Eva Blum**

Fraunhofer IESE  
[www.iese.fraunhofer.de](http://www.iese.fraunhofer.de)  
[eva.blum@iese.fraunhofer.de](mailto:eva.blum@iese.fraunhofer.de)

about further similar programs?

**Lena Kurtz**

Fraunhofer Academy  
P +49 89 1205-1526  
[lena.kurtz@zv.fraunhofer.de](mailto:lana.kurtz@zv.fraunhofer.de)

[www.academy.fraunhofer.de](http://www.academy.fraunhofer.de)

*Status: February 2019*

*All illustrations: © IESE, Fraunhofer, DISC, Bernd Müller*