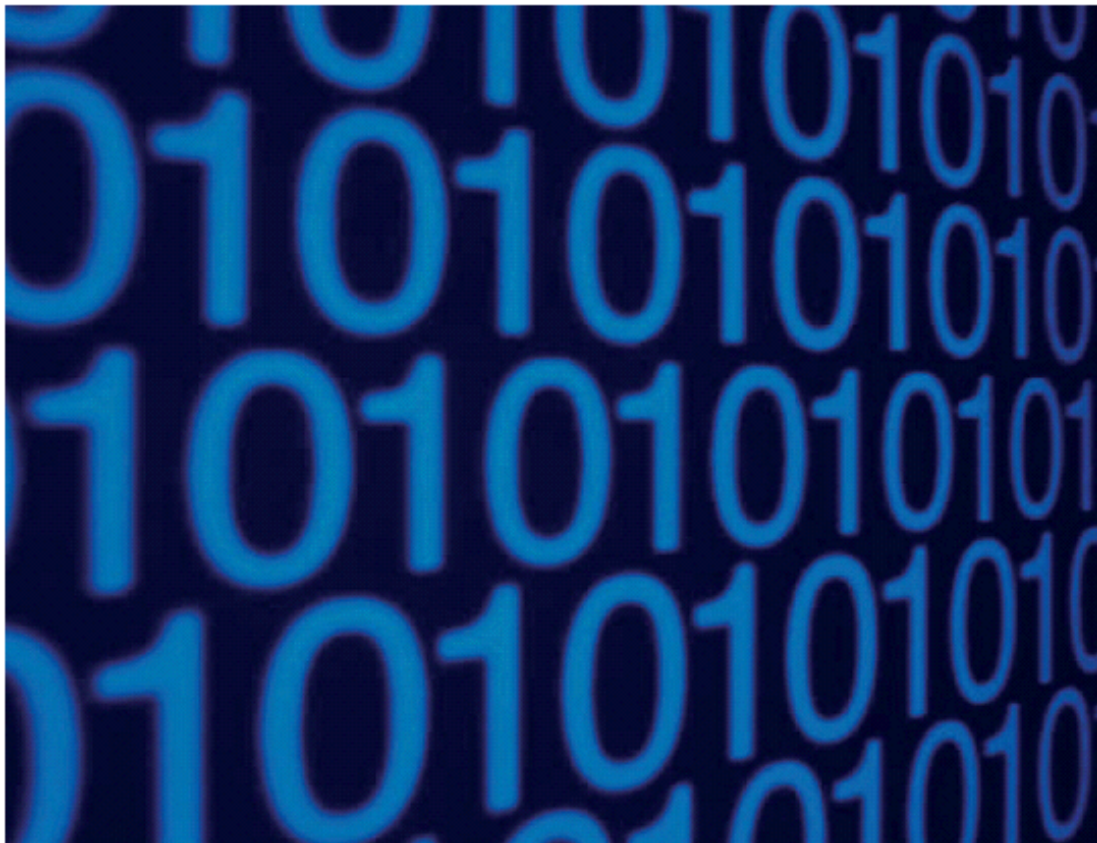


Graduate studies at  
**RWTHAACHEN**  
**UNIVERSITY**

International Master Programme  
**Software Systems Engineering**

Computer Science Department  
RWTH Aachen University



# Software Systems Engineering

## Overview

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Final degree awarded	Master of Science (MSc) in Software Systems Engineering
Language of instruction	English
Duration of the programme	Two years
Beginning of the programme	October

## Goals of the Programme

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While a Bachelor's degree in Computer Science typically qualifies a person to participate in large-scale software projects, the Master's degree provides the skills needed for leadership. Graduates of the Software Systems Engineering programme are expected to be technically innovative, to work as system architects, and to manage large projects. Graduates will also have the qualifications necessary for pursuing a doctoral degree.

## General Description of the Programme

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This programme focuses on the design and implementation of complex software systems, including their embedding in technical and socio-technical systems. The programme is designed to take full advantage of the scope and environment offered at RWTH Aachen University as one of the leading technological universities in Europe. Students will gain knowledge of theoretical, practical, and applied aspects of computer science, which will allow them to adapt quickly to the constant changes in this fast-paced field. In addition, the students will gain the ability to understand the necessary depth and interdisciplinary skills by taking courses in several areas. The programme features the areas of theoretical foundations of software systems engineering, communication, data and information management, applied computer science, and software engineering. Students will further be taking two seminars, and a lab course, and they will finally write a Master's thesis.

## Formal Entrance Requirements

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A candidate should have a recognised first degree (Bachelor of Science or Engineering) in Computer Science, Computer Engineering, Informatics, or another closely related discipline, awarded by an internationally recognised university or equivalent degree-awarding institution. Applicants should also have performed above average during their undergraduate studies. Further, we strongly advise candidates to take the Graduate Record Examination (GRE).

The candidate must be able to speak and write fluent English (TOEFL 550 paper-based / 213 computer-based or IELTS 6.0). English-speaking students will attend a basic German language course starting in August, two months prior to the beginning of the Master's programme.

# Software Systems Engineering

## Special Entrance Requirements

The candidate should have a substantial background in Computer Science and Mathematics. Typically this would include courses in the following areas: Calculus, Linear Algebra, Discrete Mathematics and Logic, Probability Theory, Fundamentals of Computer Programming, Computer Architecture, Data Structures, Analysis of Algorithms, Programming Languages, Computability, and Complexity Theory. In addition, an applicant should have taken at least two advanced undergraduate courses in specialised topics such as Distributed Systems, Information Systems, Operating Systems, and Compilers.

## Structure of the Programme

The programme's curriculum covers the areas of theoretical foundations of software systems engineering, communication, data and information management, applied computer science, and software engineering. Students may take courses of no more than 35 credits in each of these areas but are required to take courses of at least twelve credits in theoretical foundations of software systems engineering as well as at least 16 credits in software engineering. This includes a mandatory four credits course on the management of large software system engineering projects and courses in the amount of twelve credits to be chosen from a specific set of lectures in software engineering. During the programme students further need to take two seminars and a lab course.

The Master's examination consists of course-related exams, the two seminars, the lab course, an oral core exam on courses of twelve to 18 credits and the Master's thesis. The thesis typically takes the final six months of the programme and can be written in cooperation with industry or at the university.

The course contents will be structured according to the ECTS (European Credit Transfer System). Each student will be assigned a professor from the Computer Science Department as a personal mentor.

2 years	12 – 35	0 – 35	0 – 35	0 – 35	16 – 35	ECTS
1 <sup>st</sup> Sem.	Theoretical Foundations of Softw.Syst.Eng.	Communication	Data & Information Management	Applied Comp.Science	Software Engineering	30
2 <sup>nd</sup> Sem.						30
3 <sup>rd</sup> Sem.						30
4 <sup>th</sup> Sem.	Master's Thesis					30
<b>Total</b>						<b>120</b>

# Software Systems Engineering

## Career Opportunities

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Computer scientists have been in great demand in past years, a trend which is expected to continue into the foreseeable future. The ability to design and implement large computer software systems in an interdisciplinary environment opens the door to management and leadership positions, an aspect that distinguishes this programme from other Master's programmes in Computer Science.

## Application and Admission

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For further information please read the brochure "Graduate Studies at RWTH Aachen University" carefully or go to <http://www.rwth-aachen.de/go/id/kqo/>

Please note:

Admission/rejection letters will be send out in late April / early May at the earliest.

**For more information** on general issues please contact the

**International Office**

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<http://www.international.rwth-aachen.de/>

If you have specific questions about course content please contact:

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