Software Systems Engineering
Introductory Meeting WS 2017/18

Head of Programme: Prof. Gerhard Lakemeyer, Ph.D.
Advisor/Co-Coordinator: Dr. rer. nat. Stefan Schiffer

RWTH Aachen University
Knowledge-Based Systems Group
(Lehr- und Forschungsgebiet Informatik 5)

October 6, 2017
1 Organization
- SSE Website
- Academic Advisor
- Practical Things

2 Structure & Schedule
- Master Examination Rules
- Programme at a Glance
- Sample Schedule
- Structure of CS Department

3 Courses & CAMPUS
- Types of Courses
- Course Information System
- Seminars & Lab Courses
4 Exams
- (Re-)Registration
- CAMPUS Office
- Central Examination Office (ZPA)
- Depth Oral Colloquium
- Thesis

5 Other Stuff
- Forms
- Residence Permit
- Transfer of Credits
Master Programme Coordination

**Head:** Prof. Gerhard Lakemeyer, Ph.D.
- Office hours: Thursday, 13h – 14h

**Advisor:** Dr. rer. nat. Stefan Schiffer
- Office hours: by appointment only(!)
- Mail: sse@kbsg.rwth-aachen.de

**On the Internet**
- **Website:** [http://dbis.rwth-aachen.de/SSE/](http://dbis.rwth-aachen.de/SSE/)
- **Mailinglist:** [.../mailing-lists/sse20XX](http://dbis.rwth-aachen.de/SSE/.../mailing-lists/sse20XX)
  
  please subscribe to mailing list sse2017
Master Programme Software Systems Engineering
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Entry page of the SSE homepage. Contains pointers to all relevant information.

Welcome to the web pages of the International Master Programme Software Systems Engineering offered by the Department of Computer Science at RWTH Aachen University.

This two year Master's programme is primarily intended for international students holding a Bachelor's degree in Computer Science or a closely related field from an internationally recognized university. There is a detailed list of special entrance requirements applicants need to comply with for admission. For more information on the programme and how to apply, please follow the links to the left.

The programme is completely taught in English. (You do NOT need German language proficiency.) For the language entry requirements see the central page Language Requirements for RWTH Master's programmes.

The programme only starts in winter, i.e. in October!
Deadline for international applicants is March 1 of the corresponding year.
Read also have a look at the SSE Frequently Answered Question (FAQ)

You might also be interested in general information about the Department of Computer Science at RWTH Aachen University and the CS Chairs and Institutes.

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The Introductory Meeting 2017 will take place early October 2017, at Informatik-Zentrum, room 5056 (tentative)
You can download last year's SSE Intro Meeting Slides for a heads-up.

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The Master Programme Software Systems Engineering (SSE) is one of the International Master's Degree Programs at RWTH Aachen. There is General Information for Prospective International Students as well as Info on Deadlines for International Applicants for Master programmes and the like. Once you get admission and you are enrolled you might want to check Formalities to be Completed.

If you are interested in taking part in an Erasmus exchange rather than entering a full programme, have a look at Information for (Erasmus) Exchange Students.
Academic Advisor

- **Your Advisor**
  - faculty members of the CS department
  - assigned to each student by end of October
  - will advise you regarding the courses you should take
  - will possibly supervise your thesis

- **Change of Advisors**
  - you may decide to change your advisor
  - may depend on the specialization you choose
  - your new advisor has to agree
  - please contact sse@kbsg.rwth-aachen.de
  - there’s no deadline for a change
Practical Things to Do ...

- Get to know the CS Centre and its facilities
- Send your current mail address to us (if it has changed since application)
- Subscribe to the mailing list sse2017!
- Browse the courses offered this semester and plan your first semester in Aachen
Structure(s) in SSE – MPO2011

- There exist different versions of the master examination rules ("Prüfungsordnung", MPO)
- New structure since winter term (WS 2011/12)
- You are “MPO2011” (master exam. rules 2011) let people know which version is yours! especially ZPA, student service, and other administr.
- Since 2015 the "Übergreifende PO" is in effect: some changes since then, but no new major version
- Most recent change makes second seminar optional!
## SSE: The Programme at a Glance

<table>
<thead>
<tr>
<th>2 years</th>
<th>12 – 35</th>
<th>0 – 35</th>
<th>0 – 35</th>
<th>0 – 35</th>
<th>16 – 35</th>
<th>ECTS</th>
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<tr>
<td>1st Sem.</td>
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<td>30</td>
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<tr>
<td></td>
<td>Theoretical Foundations of SSE</td>
<td>Communication</td>
<td>Data&amp;Inform. Management</td>
<td>Applied Comp.Sci</td>
<td>Software Engineering</td>
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<tr>
<td>2nd Sem.</td>
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<tr>
<td>3rd Sem.</td>
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<td>4th Sem.</td>
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<td>30</td>
</tr>
<tr>
<td></td>
<td>Master’s Thesis</td>
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<td></td>
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<td>Total 120</td>
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</table>

**Table:** Structure of the SSE Programme
SSE: The Programme at a Glance

What is required? (2 years = a total of 120 ECTS)

Cover courses from five areas:

- **Theoretical Foundations of SSE** 12 – 35 ECTS
  - at least two courses (min. 12 CP) from “Core Subjects”:
    - Model Checking, Theoretical Foundations of UML, Functional Programming,
    - Logic Programming, Theoretical Foundations of Distributed Systems (until WS 14/15),
    - Satisfiability Checking (since WS 14/15), Foundations of Data Science (since WS 14/15)

- **Communication** 0 – 35 ECTS
- **Data & Information Management** 0 – 35 ECTS
- **Applied Computer Science** 0 – 35 ECTS
- **Software Engineering** 16 – 35 ECTS
  - mandatory Lecture Software Project Management (4 ECTS)
  - further min. 12 CP from at least two “Core Subjects”:
    - Model-based Software Engineering, Generative Software Engineering, Software Architectures,
    - Object Oriented Software Construction, Designing Interactive Systems, Information Management
      (a.k.a. Implementation of DB), Safety and Reliability of Software-controlled Systems
SSE: The Programme at a Glance

- **Courses**
  - Lectures in five areas 68 ECTS
  - one Seminar (compulsory) 4 ECTS
  - optionally a second Seminar 4 ECTS
    otherwise replaced with regular lecture
  - one Lab Course 7 ECTS
  - Seminars and Lab must not be all from same area
  - **Depth Oral Colloquium** (“Schwerpunktkolloquium”) 3 ECTS
    on three (3) connected courses (often from one area)
    ask examiner (professors) for possible combinations
  - German Language Course 4 ECTS
    for german-proficient students (need proof!): replaceable
    by additional non-technical course (4 ECTS with grade!)

- **Master’s Thesis** 30 ECTS
For Your Orientation: The SSE Map

International Master Programme Software Systems Engineering

- Theoretical Foundations of Software Systems Engineering: 2-3 ECTS
- Communication: 0-5 ECTS
- Applied Computer Science: 0-5 ECTS
- Data and Information Management: 0-5 ECTS
- Applied Computer Science: 0-5 ECTS
- Software Engineering Core Curriculum: 12 ECTS
- Software Engineering Lectures: 4 ECTS
- Lab Course: 7 ECTS
- Other Software Engineering Lectures: 0-35 ECTS
- Other Theoretical Lectures: 0-35 ECTS
- German Language Course: 4 ECTS
- Depth Oral Colloquium: 2 ECTS
- Master Thesis: 30 ECTS
- Seminar: 4 ECTS
- 2nd Seminar (optional): 4 ECTS
- Softw. Project Management Lecture: 0-35 ECTS

ECTS ranges:
- ≤ 35 ECTS
- ≥ 12 ECTS

Oct 6, 2017 9 / 28
# Sample Schedule

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
<th>Fall</th>
<th>Spring</th>
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</thead>
<tbody>
<tr>
<td>5 courses</td>
<td>3 courses</td>
<td>3 courses</td>
<td>Master’s Thesis</td>
</tr>
<tr>
<td>3×V3Ü2 [3×6ECTS]</td>
<td>3×V3Ü2 [3×6ECTS]</td>
<td>3×V3Ü2 [3×6ECTS]</td>
<td>[30ECTS]</td>
</tr>
<tr>
<td>+ V2Ü1 [4ECTS]</td>
<td>Proj. Mgmt.</td>
<td>Lab Course</td>
<td>Depth Oral Colloquium</td>
</tr>
<tr>
<td>+ V3Ü1 [6ECTS]</td>
<td>V2Ü1 [4ECTS]</td>
<td>4h [7ECTS]</td>
<td>[3ECTS]</td>
</tr>
<tr>
<td>German-I</td>
<td>German-II</td>
<td>2nd Seminar</td>
<td></td>
</tr>
<tr>
<td>2h [2ECTS]</td>
<td></td>
<td>2h [4ECTS]</td>
<td></td>
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Oct 6, 2017
Chairs/Teaching and Research Areas

- Overview:
  
  http://www.informatik.rwth-aachen.de/cms/Informatik/Forschung/Forschungsbereiche/~mrys/
  Liste-der-Forschungsbereiche/?lidx=1

- 12 Chairs
  - one “chair professor” each (head of department)
  - additional professors (teaching and research areas)

- Details on chairs:
  - Follow links on overview site
  - Switch language if necessary
  - Check “teaching” and “research” links
Courses Offered

- Filed in one of the *five* areas
- Information on Courses
  - **CAMPUS** (information system of RWTH)
    - [http://www.campus.rwth-aachen.de/rwth/all/groups.asp](http://www.campus.rwth-aachen.de/rwth/all/groups.asp)
      → Master of Science (M.Sc.) → Software Systems Engineering (M.Sc.)
  - German-speaking students may also look at:
    → Master of Science (M.Sc.) → Informatik (M.Sc.) → ...
  - Detailed descriptions also on the chairs’ websites
  - Some (very few!) courses in Electrical Engineering
- **Introductory Presentation** at beginning of each semester this year: 2017-10-06, 14h, Fo1, Kármán Auditorium
  (presentation of courses offered this semester)
Master of Science (M.Sc.)

Aktuelles:

- Informationen zu Studium und Lehre finden Sie im Wiki der RWTH Aachen. Das Wiki informiert Sie über die organisatorischen Abläufe rund um das Prüfungswesen, Lehrveranstaltungs- und Studienendenabgabe.
- Studierende und Beschäftigte der Studierendenangebote Bachelor Chemistry and Master Politikwissenschaft nehmen zum Wintersemester 2017/18 am Plotbetrieb von RWTHonline teil und erteilen dann nicht mehr in CAMPUS bzw. CAMPUS-Office.
- CAMPUS Schultermine finden Sie im Veranstaltungsverzeichnis der IT-Center der RWTH Aachen.
- Lehrveranstaltungen des Wintersemesters 2017/2018:
  - Das Veranstaltungsverzeichnis ist seit dem 26.06.2017 veröffentlicht und das WiSe 17/18 offiziell freigeschaltet.
- Klausuren des WiSe 2017/2018:
  - Die Rückmeldung der von carpe diem geplanten Klausurermine zu CAMPUS ist abgeschlossen.
  - Wenden Sie sich bei Rückfragen zur Klausurermine bitte an support@zedem.rwth-aachen.de
- Planung der Lehrveranstaltungen des Sommersemesters 2019 (Leitfaden für Dozenten und Fachstudiendienstberater):
  - 30.10.2019: Stichtag für die Erteilung von Veranstaltungen für das Sommersemester 2019 in CAMPUS zur Übernahme nach carpe diem!
  - 18.12.2017: Die letzten Termine, die mit carpe diem geplant sind, sind in der Lehrveranstaltungstermine (Klausurermine in der Vorlesungszeit) der Hochschule der RWTH Aachen
- Klausurermine des Sommersemesters 2018:
  - Prüfungssemester mit carpe diem werden hinsichtlich der Klausurermine des S18 gesondert informiert
  - Wenden Sie sich bei Rückfragen zur Klausurermine des Sommersemesters 2018 an carpe diem Supportteam support@zedem.rwth-aachen.de
The Master Programme in *Software Systems Engineering* focuses on the design and implementation of complex software systems, including their embedding in technical and socio-technical systems. It is these latter aspects that distinguish this programme from other master programmes in Computer Science. The two-year Master programme is primarily intended for international students holding a Bachelor degree in Computer Science or a closely related field.

- **Software Engineering**
  - Theoretical Foundations of Software Engineering
  - Communication
  - Data and Information Management
  - Applied Computer Science
  - Software Engineering
  - Practical Computer Science
  - Bachelor Computer Science
  - Bachelor Chemistry and Master Political Sciences

**5 areas (disregard those entries with other MPO-version prefix)**
Seminars & Lab Courses

- Central allocation procedure within Computer Science faculty
  https://www.graphics.rwth-aachen.de/apse
- takes place end of preceding semester’s lecture period
  - in January for summer term
  - in June for winter term
- register and choose which seminar(s)/lab you want
- slots are being allotted thereupon
- provide meaningful information, choose carefully!
- http://web-info8.informatik.rwth-aachen.de/stube/Ankuendigung_zentrale_Anmeldung.pdf
- reminder E-Mail with instructions will be send
Information about Exams

For all courses

- exam(s) at the end of the course
- either oral (30-45 min) or written (60 – 90 min)
- admission to exams may have prerequisites
  (e.g., 50 % of homework assignments)

Separate registration for exams needed

- you have to register for each exam via CAMPUS
  - usually either two dates (if written) [de: Klausur]
    or individual dates (if oral) [de: mündl. Prüfung]
  - one CAMPUS-event for every exam, each with a
    modular registration procedure (type B) attached

Registration deadline:

- summer: next to last Friday in May
- winter: next to last Friday in November

No delayed registration!!
(Re-)Registration for Exams

- Two exam dates per semester, need extra registration each! register for *only one of the two*! (e.g. due to date conflicts)
- Pre-requisites are NOT carried over to another semester
- No automatic (re-)registration for exams
  - If you fail an exam, you need to re-register manually!
  - You can de-register an exam (as often as you want) but only until three days before the exam date!
  - Registration for second attempt via VZPA only possible when results from first exam have been entered

Changing modules / Dropping a module
- If you fail an exam 3 times you fail the programme!
- But you can change modules, i.e. drop a module
Modulare Anmeldeverfahren

- MPO’2011 requires registration via so-called “modulare Anmeldeverfahren” (done in CAMPUS Office)

Sommersemester

+ registration is only possible until the week before the last full week in May!

Wintersemester

+ registration is only possible until the week before the last full week in November!

- proper modular registration for first attempt is a necessary condition for registration for the second attempt!
CAMPUS-Office

- web-based study organizer
  - https://www.campus.rwth-aachen.de/office
  - login with your matriculation number and password
- features
  - browse courses in CAMPUS
  - timetable of your courses
  - list of registered exams
  - results of exams taken so far
  - online-access to central examination office
  - online-access to student secretary
  - ...
settings  
CAMPUS  
your (course) registrations + draft exam registrations  
timetable  
weekly view  

Central Examination Office (ZPA)  
registered exams (after deadline)  
mark sheet  
certificates  

exams (de-)registration  

student secretary
Central Examination Office (ZPA)

- Location
  - in the Super C building (Templergraben 57)
  - registration officers in room 2.22
  - Mr. Kevin Dörr

- Things to do when going to ZPA
  - show student ID / matriculation number
  - tell the name of the Master Programme (i.e. Software Systems Engineering) and version of master examination rules (MPO’2011)
  - explain what your request is about
Depth Oral Colloquium (D.O.C.)

- Oral examination on 3 connected courses (12–18 ECTS)
- You may have had exams in the individual courses but this is not a formal requirement!
- Examiner decides whether combination is OK
- You must register the D.O.C. with ZPA!

Procedure is as follows

1. Agree with Professor on courses and date
   He or she has to agree on combination of courses
2. Register D.O.C. with central examination office (ZPA) at least one week before the date
3. Take the D.O.C. at the appointed date
4. Let examiner file your mark with ZPA
Master’s Thesis

- Usually during the final six months of the programme
- Try to **find a topic early** (orientation phase)
- **Before:**
  - Topic is usually chosen from an area that you want to put emphasis on (i.e., you are very interested in)
  - Registration is necessary (get form via ZPA)
  - Prerequisites: successful completion of **60 ECTS**
- **After:**
  - Thesis will be graded by your first supervisor (CS Prof) and another faculty member (second supervisor, also Prof)
  - You have to present and defend your thesis within an oral (makes up 3 ECTS from the total 30 ECTS)
Request Forms / Examination Board

- Request Forms for Applications to the Examination Board
  - Change Title of Master Thesis
  - Disregard Grade(s) in Final Grade Computation
  - Drop an Elective Course
  - Extend Deadline of Master Thesis (only for severe reasons!!)
  - Miscellaneous Application
  - General Question for your PA Contact Person

Prolongation of residence permit

- If you cannot finalize the programme in time, it is possible to prolongate your residence permit
- Procedure:
  - get your intermediate transcripts at the central examination office
  - get a certificate at the international office and a “Studienverlaufsbescheinigung” at my office
  - take certificates to aliens department of local authorities
- Further information:
  - Ulrike Brands
  - ulrike.brands@zhv.rwth-aachen.de
Transfer of Credits

- “Transfer of Credits” to speed up your studies

What can be transferred:

- credits from your bachelor and master programmes so far
- programmes should have taken at least four years!
- courses must be Master’s-level CS courses
- may be similar to courses in the SSE programme
- will be filed according to SSE-Programme structure
- maximum: 30 credits
- grades of transferred courses have to be better than German 3.0

Deadline: end of November (we will send detailed instructions)

We need:

- letter containing which courses you want to be transferred (incl. your name, email, immatriculation #, prioritization)
- copy of the transcripts of your previous studies
- (official) description of grading scheme
Additional Notes / FAQs

- The lecture “Implementation of Databases” can be counted towards two different modules:
  - “Information Management” Software Engineering CoreSubject
  - “Implementation of Databases” Data and Information Management

choose wisely when registering for the exam!

- In CAMPUS, for the lists given for the CoreSubjects for the areas *Theoretical Foundations of SSE* and *Software Engineering*, look for “Veranstaltungen” (and do not pay too much attention to “Module”). The former is the list of courses offered this semester, the latter is the list of all modules that are generally considered as Core Subjects in that area.

- If you have questions on a particular course/lecture, don’t hesitate to ask with the lecturer or better yet a corresponding research assistant.
Software Systems Engineering

Questions?