International Master’s Programme
Software Systems Engineering
Introductory Meeting WS 2019/20

Head of Programme:
Prof. Gerhard Lakemeyer, Ph.D.

Advisor/Co-Coordinator:
Dr. rer. nat. Stefan Schiffer

RWTH Aachen University
Knowledge-Based Systems Group

October 4, 2019
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 & RWTH Online
   • Types of Courses
   • Course Information System
   • Seminars & Lab Courses
4 Exams
- (Re-)Registration
- 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(!)
- 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
  please subscribe to mailing list sse2019]
Master Programme Software Systems Engineering

by www — last modified Sep 28, 2019 08:02 PM

Entry page of the SSE homepage. Contains pointers to all relevant information.

Welcome to the web page of the International Master Programme Software Systems Engineering 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 always is March 1 of the corresponding year. Please 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.

The Introductory Meeting 2019 will take place on October 4, 2019, 10:30h, at Informatik-Zentrum, lecture hall AH II. You can download the 2019 SSE Intro Meeting Slides.

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 FAQs. Once you got admission and you are enrolled, you might want to check the Formats to be Completend. 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.

History

Send this — Print this
Academic Advisor

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

- Change of Advisors
  - you may decide to change your advisor (at any time)
  - 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 sse2019!
- 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)
- Current 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 have made the second seminar optional!
- Another set of changes imminent (planned for early 2020)
# 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>
</tr>
</thead>
<tbody>
<tr>
<td>1\textsuperscript{st} Sem.</td>
<td>Theoretical Foundations of SSE</td>
<td>Communication</td>
<td>Data&amp;Informat. Management</td>
<td>Applied Comp.Science</td>
<td>Software Engineering</td>
<td>30</td>
</tr>
<tr>
<td>2\textsuperscript{nd} Sem.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>3\textsuperscript{rd} Sem.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>4\textsuperscript{th} Sem.</td>
<td></td>
<td>Master’s Thesis</td>
<td></td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>120</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Cover courses from five areas:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theoretical Foundations of SSE</strong></td>
</tr>
<tr>
<td>- at least two courses (min. 12 CP) from “Core Subjects”:</td>
</tr>
<tr>
<td>- Model Checking, Theoretical Foundations of UML, Functional Programming,</td>
</tr>
<tr>
<td>- Logic Programming, Theoretical Foundations of Distributed Systems (until WS 14/15),</td>
</tr>
<tr>
<td>- Satisfiability Checking (since WS 14/15), Foundations of Data Science (since WS 14/15)</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
</tr>
<tr>
<td><strong>Data &amp; Information Management</strong></td>
</tr>
<tr>
<td><strong>Applied Computer Science</strong></td>
</tr>
<tr>
<td><strong>Software Engineering</strong></td>
</tr>
<tr>
<td>- mandatory Lecture Software Project Management (4 ECTS)</td>
</tr>
<tr>
<td>- further min. 12 CP from at least two “Core Subjects”:</td>
</tr>
<tr>
<td>- Model-based Software Engineering, Generative Software Engineering, Software Architectures,</td>
</tr>
<tr>
<td>- Object Oriented Software Construction, Designing Interactive Systems, Information Management (a.k.a. Implementation of DB), Safety and Reliability of Software-controlled Systems</td>
</tr>
</tbody>
</table>
SSE: The Programme at a Glance

- **Courses**
  - Lectures in five areas
  - one Seminar (compulsory)
  - *optionally* a second Seminar
    otherwise replaced with regular course from Lectures
  - one Lab Course
    ! Seminars and Lab *should not be* all from same area
  - Depth Oral Colloquium (*“Schwerpunktkolloquium”*)
    on three (3) connected courses (often from one area)
    ask examiner (professors) for possible combinations
  - German Language Course
    only for german-proficient students (need proof!):
    replaceable with non-technical course (4 ECTS w/ grade!)
- **Master’s Thesis**
For Your Orientation: The SSE Map

International Master Programme Software Systems Engineering

Theoretical Foundations of Software Systems Engineering

Communication

Data and Information Management

Applied Computer Science

Software Engineering Core Curriculum

Software Engineering Lectures

Other Software Engineering Lectures

Lab Course

Softw. Project Management Lecture

Other Lectures

German Language Course

Depth Oral Colloquium

Master Thesis

Seminar

2nd Seminar (optional)

Lab Course

≥ 12 ECTS

≤ 35 ECTS

0 . . . 35 ECTS

≤ 35 ECTS

12 ECTS

4 ECTS

30 ECTS

3 ECTS

4 ECTS

4 ECTS

7 ECTS
## Sample Schedule

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 courses</td>
<td>4 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>+ V3Ü1 [6ECTS]</td>
<td>+ V2Ü1 [4ECTS]</td>
<td>Lab Course</td>
<td>Depth Oral Colloquium</td>
</tr>
<tr>
<td>German</td>
<td>Proj. Mgmt.</td>
<td>4h [7ECTS]</td>
<td></td>
</tr>
<tr>
<td>2h [4ECTS]</td>
<td></td>
<td>2nd Seminar / addit. course</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V2Ü1 [4ECTS]</td>
<td>2h [4ECTS]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seminar 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2h [4ECTS]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28 ECTS</td>
<td>30 ECTS</td>
<td>29 ECTS</td>
<td>33 ECTS</td>
</tr>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

Oct 4, 2019
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
  - **RWTH Online** (course information system of RWTH)
    - [http://online.rwth-aachen.de/](http://online.rwth-aachen.de/)
    - Studies, Master → Software Systems Engineering (M.Sc.)
  - German-speaking students may also look at:
    - Studies, Master → Informatik (M.Sc.) → ...
  - Detailed descriptions also on the chairs’ websites
Courses Offered (2)

- **Introductory Presentation of Electives**
  - takes place at beginning of each and every semester this year: 2019-09-30, 11:30h, Großer Hörsaal, Audimax
  - all introductory events will always be listed at
    https://www.informatik.rwth-aachen.de/cms/Informatik/Studium/Im-Studium/~cpjfn/
    Einfuehrungsveranstaltungen/lidx/1/

- **Slides from electives presentation at**
  https://www.informatik.rwth-aachen.de/global/show_document.asp?id=aaaaaaaaagmhecl

- **video recording will be available soonish at**
  https://video.fsmpi.rwth-aachen.de/19ws-wahlpflicht
Courses (Electives)

▪ One elective course usually comprises
  - Lecture
  - Exercise (practical and/or theoretical), maybe exercise groups
  - Usually V3 Ü2 oder V3 Ü1, 6 Credits
    • V3 = 3 hours of lecture per week
    • Ü2 = 2 hours of exercise per week

▪ Examined by **final exam** at the end of the semester
  - Two exams per year, usually both at end of the semester
    • In some minors: one exam per semester
  - Written or oral, decided by teachers
  - Teachers can decide on exam admission criteria!
    • Hand in solutions which are corrected by teachers, achieve minimum score
    • Pass a presence exercise / midterm exam
    • ...
  - Note: exam admissions only valid for one year!
RWTH Online

- on 1st of October 2018 RWTH switched to a new course information system [https://online.rwth-aachen.de/](https://online.rwth-aachen.de/)
- plenty of information available online, sometimes hidden
- don’t be afraid, we still need to get used to it too!

- manuals available at [https://wiki-intern.rwth-aachen.de/display/RD/Manuals+for+Students](https://wiki-intern.rwth-aachen.de/display/RD/Manuals+for+Students) (online works from within the RWTH network)
Registering for Elective Courses (Lecture/Exercise)

- Register for each lecture/exercise via RWTHonline
  - Getting access to all learning material: slides, exercise sheets, lecture recordings, …
    - Mostly via RWTHmoodle learning rooms
  - Course dates are filled in into your internal calendar
  - You are put on the mailing list for the course
  - Note: no unified registration periods! Each teacher configures own ones. Check registration periods of interesting courses timely!

- What if there is no registration???
  - Maybe the teacher has not yet configured anything…
  - Or a teacher manages all material and e-mail lists on own web pages
  - Always try to attend first lecture of a course to get such organizational information!
Registering for Elective Courses

1. Open the course semester you would like to plan by clicking on the triangle that appears before each listed semester.
2. Select the module. Symbol:
3. Select the offer node. Symbol:
4. The semester is shown in the course title (a). If necessary, check the academic year is correct and change it using the arrow button (b).
5. Click on the green T symbol in the “Part” column: (c)
   If the symbol is red or gray, it is not possible to register for the course.
Registering for Elective Courses

1. You will see this registration form. It is always the same, whether you are using the Curriculum Support, My Calendar, or My Courses apps.

2. Review your entries.

3. If you are not sure whether you would like to take the course, you can add the course group to your favorites. Click on the star next to the group title and then BACK. Your bookmarked dates will now appear in your calendar, although you are not yet registered on the course. (see Slide 12).

4. If you would like to take the course, click on CONTINUE on the form.
Registering for Elective Courses

1. Select the SPO context. Only choose the “free registration” option if no SPO context is available. Places on courses with limited capacity will e.g. often be preferentially allocated to registrations with SPO context.

2. If you can choose from several groups, select your preferred group and specify your preference ranking.
### Registering for Elective Courses

1. Click on **ENTER PLACE REQUEST** to complete your registration. This button appears once you have entered all the required details.

2. Follow the menu prompts until the system shows that you have submitted your request. Your request for a place will first be reviewed. Once you have been allocated a place you are registered on the course.
Registering for Elective Courses

1. Check your registration status under “My Courses” in the Courses app.
2. You can edit or cancel your request for a place here within the stated deadlines.

NOTE: registering for a course does not mean you are registered for the relevant exam(s). You must register for all your exams in an additional process (see Slide 22ff.)
Registering for Exams

- Registering for lectures/exercises only allows you to participate in a course

- **Additional registration for exam required!**
  - Separate registrations for first and second exam configured
    - Only possible to register for one date
    - In doubt, register for the first one

- **Registration period**
  - Standard for first exam: 1st October – 14th December
  - Standard for second exam: till 7 days before exam date
  - **Important note:**
    - Carefully check periods for each course! Teachers can modify them!
    - Listen for announcements for summer semester
  - Do not forget registration! Late registrations generally not possible!
Registering for Exams

1. Open the course semester you would like to plan by clicking on the triangle that appears before the listed semester.

2. Select the module. Symbol:

3. Select the exam node. Symbol:

4. The semester is shown in the exam title (a). If necessary, check the academic year is correct and change it using the arrow button (b).

5. Click on the green P symbol in the “Part” column (c). If the symbol is red or gray, it is not possible to register for the exam.
Registering for Exams

Semester recommendations will not always be given. In such cases, use “Curriculum” in Curriculum Support.

Example of registering for an exam:

1. Click on “Exam date” in the NODE FILTER drop down menu. (a) Registering for a course via the curriculum works in the same way. Use “NODE FILTER (all)” for this.

2. Open the exam nodes for the exam you would like to take and check the academic year (see Slide 24.)

3. Click on the green P symbol to open the registration form. (b)
Registering for Exams

The “Subject exam/Module exam” window will open.

This happens whether you register via Curriculum Support, your Calendar, the Examination Dates, or the Exam Registration app.

Under “Exam dates and registration” select CONTINUE TO REGISTRATION.
Registering for Exams

1. Check the exam details.
2. Make sure your programme details are correct.
3. Click on REGISTER and follow the menu prompts until the system confirms you are registered.

It is only possible to be preliminarily registered for some exams.

What does “preliminarily registered” mean?

In some subjects you are required to fulfill certain prerequisites before taking the exam. These are clearly laid out in the module catalog of your examination regulations.

When you submit a conditional registration, the prerequisites will be checked at a later time. If you have fulfilled the prerequisites up to 6 days before the exam date, the system will automatically register you for the exam. If you have not fulfilled them by this time, you will be de-registered.
Registering for Exams

• You can see an overview of your exam registrations via the Exam registration application in the "My Exams" tab.
• You can de-register here within the stated deadlines. To do so, click on DEREGERSTER in the Operations column. The “Subject exam/Module exam” window will open. (see Slide 27)
(De-)Registering for Exams

- **Withdrawal of exam registration possible**
  - Until three working days before the exam date

- **Not taking an exam because of illness**
  - Doctor’s certificates must be issued on the day of the exam the latest
  - Certificate must indicate that you cannot take exams on that day
  - Must be handed in at ZPA at latest on the third working day after the respective exam
  - ZPA withdraws your registration
  - Official regulations: [https://www.rwth-aachen.de/go/id/eir/lidx/1](https://www.rwth-aachen.de/go/id/eir/lidx/1)

- **Missing a registered exam without medical certificate**
  - Counts as fail
Deregistering for Exams

The following applies to all Bachelor’s and Master’s degree programmes:

A de-registration within the stated deadline (a) is not considered as a withdrawal by the system and will not appear in the printout of your study record.

If you would like to de-register from an exam, click on CONTINUE TO DEREGISTRATION (b) and follow the menu prompts until the system confirms you are de-registered.
Repeating Exams

- Participation in 2nd exam
  - If failing 1st exam, withdrawing registration or being ill
  - New registration required!
    - Possible only after results of 1st exam are published

- Remember: every exam has to be actively registered for!

- You can take each exam at most three times
  - Exam plus two repetitions
  - When failing three times, you cannot take that course any more
    - IF failing the course ends your studies, you can take an oral supplementary examination
      - You have to apply for it in time
Seminars & Lab Courses

- **Seminar**: independent elaboration of a scientific topic from literature
  - Literature survey, writing a paper & giving a talk
  - Chairs offer seminars on various topics in their research area
  - Typically 10–30 participants

- **Practical**: solve practical tasks
  - No industry practicals!
  - Development, implementation, constructing prototypes, ...
  - Teachers offer practicals on various topics
  - Typically 10–20 participants, teamwork

- **Both**: at most three tries possible
  - Failing three times ends your studies!
Seminars & Lab Courses

- Central allocation procedure within Computer Science faculty
  algo.rwth-aachen.de/fgi/test.quax?code=Angebot
- takes place end of preceeding 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 alloted thereupon
- provide meaningful information, choose carefully!
- 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 RWTH Online
  - usually either two dates (if written) [de: Klausur]
  - or individual dates (if oral) [de: mündl. Prüfung]
  - one 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 RWTH Online)

**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!
Central Examination Office (ZPA)

- **Location**
  - in the Super C building (Templergraben 57)
  - registration officers in room 2.22
  - Ms. Cuepper currently is your officer

- **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.

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
- First supervisor MUST be a CS Dept Professor!

**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

- available at https://pa.informatik.rwth-aachen.de/
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:**

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

choose wisely when registering for the exam!

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?