Software Systems Engineering
Introductory Meeting WS 2012/2013

Dipl.-Inform. Stefan Schiffer

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Dipl.-Inform. Stefan Schiffer

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

October 2, 2012
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Master Programme Coordination

- Head: Prof. Gerhard Lakemeyer, Ph.D.
  Office hours: Thursday, 13h – 14h
- Programme Guidance / Study Advisor:
  Dipl.-Inform. Stefan Schiffer
  Office hours: by appointment (!)
  Mail: sse@kbsg.rwth-aachen.de

- Internet
  - Website: http://dbis.rwth-aachen.de/SSE/
  - Mailinglist: please subscribe to mailing list sse2012 at
    .../mailing-lists/sse20XX
Master Programme Software Systems Engineering

Welcome page with recent news (if available)

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 programme is primarily intended for international students holding a Bachelor degree in Computer Science or a closely related field from an internationally recognized university. The programme is offered in English. For more information on the programme and how to apply, please follow the links to the left. General information about the Department of Computer Science at RWTH Aachen University can be found here.

News

The Introductory Meeting for new Software Systems Engineering students will be held on Monday, October 11, 10:00 a.m.
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 a computer account
  - Rechnerbetrieb Informatik (RBI)
  - user administration office, room 4U16a, Basement, E1
  - http://www-rbi.informatik.rwth-aachen.de/
  - office hours:
    - Mo: 9am - 12am, 1pm - 7 pm
    - Tu-Th: 9am - 12am, 1pm - 9 pm
    - Fr: 9am - 12am, 1pm - 6 pm
- Send your current mail address to us (if it has changed since application)
- Subscribe to the mailing list sse2012!
There exist different versions of the master examination rules (“Prüfungsordnung”, MPO)

Starting from winter term (WS 2011/2012) SSE programme (again) has a slightly new structure

You are “MPO2011” (master exam. rules 2011) let people know which version is yours! especially ZPA, student service, and other administr.

(Old structures referred to as “MPO2005” & “MPO2010”)
## SSE: The Programme at a Glance

<table>
<thead>
<tr>
<th>2 years</th>
<th>1st Sem.</th>
<th>2nd Sem.</th>
<th>3rd Sem.</th>
<th>4th Sem.</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 35</td>
<td></td>
<td></td>
<td></td>
<td>Software Engineering</td>
<td>30</td>
</tr>
<tr>
<td>0 – 35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>16 – 35</td>
<td></td>
<td></td>
<td></td>
<td>Master’s Thesis</td>
<td>30</td>
</tr>
</tbody>
</table>

**Total** 120

**Table:** Structure of the SSE Programme (MPO’2011)
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>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical Foundations of SSE</td>
<td>12 – 35 ECTS</td>
</tr>
<tr>
<td>at least two courses from “Core Subjects”:</td>
<td></td>
</tr>
<tr>
<td>Model Checking, Theoretical Foundations of UML, Functional Programming, Logic Programming, Theoretical Foundations of Distributed Systems</td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>0 – 35 ECTS</td>
</tr>
<tr>
<td>Data &amp; Information Management</td>
<td>0 – 35 ECTS</td>
</tr>
<tr>
<td>Applied Computer Science</td>
<td>0 – 35 ECTS</td>
</tr>
<tr>
<td>Software Engineering</td>
<td>16 – 35 ECTS</td>
</tr>
<tr>
<td>mandatory Lecture Software Project Management</td>
<td>4 ECTS</td>
</tr>
<tr>
<td>further 12 CP from “Core Subjects”:</td>
<td></td>
</tr>
<tr>
<td>Model-based Software Engineering, Generative Software Engineering, Software Architectures, Object Oriented Software Construction, Designing Interactive Systems, Information Management, Safety and Reliability of Software-controlled Systems</td>
<td></td>
</tr>
</tbody>
</table>
SSE: The Programme at a Glance

- **Courses**
  - Lectures in five areas 68 ECTS
  - two Seminars $2 \times 4 = 8$ ECTS
    - at least one has to be from Theo. Found. of SSE/Soft. Eng.
  - one Lab Course 7 ECTS
    - Seminars and Lab must not be all from same area
  - depth oral colloquium (“Schwerpunktkolloquium”) 3 ECTS
    - on 2-3 connected courses (often from one area)
    - ask examiner (professors) for possible combinations
  - German Language Course 4 ECTS
    - for german-speaking students: replaceable by additional lecture/seminar/lab/course (w/ grade!)

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

International Master Programme Software Systems Engineering

- Theoretical Foundations Core Curriculum
- Theoretical Foundations of Software Systems Engineering
- Other Theoretical Lectures
- German Language Course
- Communication
- Data and Information Management
- Applied Computer Science
- Software Engineering Core Curriculum
- Lab Course
- Software Project Management Lecture
- Other Software Engineering Lectures
- Seminar I
- Seminar II
- Master Thesis
- Depth Oral Colloquium
- Softw. Project Management Lecture
- 0 ≤ 35 ECTS
- 0 . . . 35 ECTS
- 0 ≤ 35 ECTS
- 0 . . . 35 ECTS
- 12 ECTS
- 4 ECTS
- 4 ECTS
- 7 ECTS
- 0 ≤ 35 ECTS
- ≤ 10 ECTS
- 0 ≤ 35 ECTS
- Oct. 2, 2012
## Sample Schedule

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5 courses</strong></td>
<td><strong>3 courses</strong></td>
<td><strong>3 courses</strong></td>
<td><strong>Master’s Thesis</strong></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><strong>Seminar 1</strong></td>
<td><strong>Seminar 2</strong></td>
<td><strong>Seminar 2</strong></td>
<td><strong>Seminar 2</strong></td>
</tr>
<tr>
<td>2h [4ECTS]</td>
<td>2h [4ECTS]</td>
<td>2h [4ECTS]</td>
<td>2h [4ECTS]</td>
</tr>
<tr>
<td><strong>German-I</strong></td>
<td><strong>German-II</strong></td>
<td><strong>German-II</strong></td>
<td><strong>German-II</strong></td>
</tr>
</tbody>
</table>
Chairs/Teaching and Research Areas

- **Overview:**
  
  [http://www.informatik.rwth-aachen.de/Lehreinheiten/index_eng.php](http://www.informatik.rwth-aachen.de/Lehreinheiten/index_eng.php)

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

- **Details on chairs:**
  - Follow links on overview site
  - Switch the language, if necessary
  - Check the “teaching” and “research” links
Chairs

Computer Science 1
- Algorithmic and Complexity
  Prof. Dr. Berhard Vogt
- Theoretical Computer Science
  Prof. Dr. Peter Rossmanith

Computer Science 2
- Software Modeling and Verification
  Prof. Dr. Jürgen Stöber
- Programming, Languages and Verification
  Prof. Dr. Jürgen Gehr
- Theory of Hybrid Systems
  Prof. Dr. Erik Abraham

Computer Science 3
- Software Engineering
  Prof. Dr. Michael Hohm, Prof. Dr. Bernhard Rümpe
- Software Construction
  Prof. Dr. Hendrik Lüth

Computer Science 4
- Communication Systems
  Prof. Dr. Olaf Spacing
- Distributed Systems
  Prof. Dr. Adolf Weiß
- Mobile Networks Performance
  Prof. Dr. James Gross

Computer Science 5
- Information Systems and Database Technology
  Prof. Dr. Matthias Jajszczak
- Knowledge-Based Systems
  Prof. Dr. Gerhard Lakemeyer, PhD
- Fraunhofer Institute for Applied Information Technology (FIT)
  Prof. Dr. Thomas Barlag, Prof. Wolfgang Prieß, PhD, Prof. Dr. Thomas Ross

Computer Science 6
- Human Language Technology and Pattern Recognition
  Prof. Dr. Hermann Ney

Computer Science 7
- Theory of Discrete Systems
  Prof. Dr. Dr. Ing. Wolfgang Thomas
- Mathematical Foundations of Computer Science
  Prof. Dr. Erich Grädel

Computer Science 8
- Computer Graphics and Multimedia
  Prof. Dr. Lef Konst
- Mobile Multimedia Processing
  Prof. Dr. Bastian Loelbe

Computer Science 9
- Data Management and Data Exploration
  Prof. Dr. Thomas Seidl
- Computer-Oriented Learning
  Prof. Dr. Ulla Schneider

Computer Science 10
- Media Computing
  Prof. Dr. Jan Borchers

Computer Science 11
- Software for Embedded Systems
  Prof. Dr. Stefan Kowalczyk

Computer Science 12
- Scientific Computing
  Prof. Dr. Oliver Bichsel, PhD
- Software and Tools for Computational Engineering
  Prof. Dr. Uwe Naumann
- Performance Analysis of Parallel Applications
  Prof. Dr. Gerd Vellk
- Virtual Reality Group
  Prof. Dr. Timo Ahlen

UMIC
- IT-Security
  Prof. Dr. Oliver Müller

ACCE
- Automation and High Performance Computing
  Prof. Paolo Bertinetti, PhD
Courses Offered

- Filed in one of the five areas
- Information on Courses (mainly lectures)
  - 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.)
  - For German-speaking students:
    - Diplomstudiengänge → Informatik → Hauptstudium
    - Master of Science (M.Sc.) → Informatik (M.Sc.) → ...
  - Detailed descriptions also on the chairs’ websites
  - Some courses in Electrical Engineering
- Introductory Presentation at beginning of each semester
  - this year: 2012-10-05, 14h, Roter Hörsaal
  - (presentation of courses offered this semester)
Vorlesungen: WS 2011/2012

Diplomstudiengänge (D)
Magisterstudiengänge (M.A.)
Staatsexamen Lehramtstudiengänge (GYM+GS BK StI)
Lehramtsbezogene Bachelorstudiengänge (GyGe)
Lehramtsbezogene Bachelorstudiengänge (BK)
Medizinische Studiengänge (St)
Bachelor of Arts (B.A.)
Bachelor of Science (B.Sc.)
Master of Arts (M.A.)

Master of Science (M.Sc.)

Aufbau- (A), Ergänzungs- (E) und Zusatzstudiengänge (Z)
Prüfungen (Zentrales Prüfungsamt)
Sprachenzentrum
Interdisziplinäres Lehrangebot
Studierende unterrichten Studierende
Lehrerfortbildungsverzeichnis
Schülervorlesungsverzeichnis
Seniorenstudium
CAMPUS-Studiengang

Aktuelles:

- CAMPUS Schulungstermine finden Sie im Veranstaltungsverzeichnis des Rechen- und Kommunikationszentrums der RWTH Aachen.
- Wintersemester 2011/2012 Das WS 2011/12 ist seit 27.06.2011 offiziell freigeschaltet.
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. This two year Master programme is primarily intended for international students holding a Bachelor degree in Computer Science or a closely related field.

**Link:** [http://cis.rwth-aachen.de/SSE/](http://cis.rwth-aachen.de/SSE/)

**E-Mail:** msc-pgm@informatik.rwth-aachen.de

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**Software Systems Engineering (M.Sc.)**

- **Theoretical Foundations of Software Systems Engineering**
- **Core Subjects**
- **[MPO2010] Theoretical Computer Science**
- **Communication**
- **Data and Information Management**
- **Applied Computer Science**
- **Software Engineering**
  - **[MPO2005] Theoretical Computer Science**
  - **[MPO2005] Practical Computer Science**

**Areas of Specialization**

- **Seminar**
- **Lab Course**
- **Non computer science related studies**

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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](https://www.graphics.rwth-aachen.de/apse)
- Takes place at end of preceding semester
  - in January for summer term
  - in June for winter term
- Register and choose which seminar(s)/lab you want
  slots are being allotted thereupon
- E-Mail with instructions will be send

[http://web-info8.informatik.rwth-aachen.de/stube/Ankuendigung_zentrale_Anmeldung.pdf](http://web-info8.informatik.rwth-aachen.de/stube/Ankuendigung_zentrale_Anmeldung.pdf)
Information about Exams

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

Registration for exams needed
- you have to register for each exam via CAMPUS
  - register for “exam”-event corresp. to each course
  - usually either two dates (if written) [de: Klausur]
    or individual dates (if oral) [de: mündl. Prüfung]

registration deadline:
- summer: next to last Friday in May
- winter: next to last Friday in November
Automatic (Re-)Registration for Exams

- **Automatic Registration** for exams
  - Once you registered for an exam
    - if you fail, you will be re-registered automatically!
    - you can de-register a module **only once** (per module)!
  - If you fail an exam **3 times**
    you fail the whole programme!

- **Switching modules / Dropping a module**
  - But you can **change** modules, i.e. drop a module and pick another (except for mandatory courses)
  - If you failed an exam **twice** you should **drop it**
    (come see me to do so) and switch to another module
Modulare Anmeldeverfahren

- MPO’2011” requires registration via so-called “modulare Anmeldeverfahren”
- This is done via CAMPUS Office

Sommersemester

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

Wintersemester

+ registration is only possible until the week before the last full week in November!
- de-registration is only possible until the last full week in November!
CAMPUS-Office

- web-based study organizer
  - [https://www.campus.rwth-aachen.de/office](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
  - ...

Oct. 2, 2012
Central Examination Office (ZPA)

- **Location**
  - in the Super C building (Templergraben 57)
  - registration officers in room 2.25
  - Ms. Cuepper
    - Mo, Di, Do, Fr: 10.00 - 12.30; Mi: 13.00 - 16.00

- **Things to do when going to ZPA**
  - present your student ID
  - 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 connected courses (12–18 ECTS)
- You may have had exams in the individual courses

1. Agree with Professor on courses
   He or she has to agree on combination

2. Agree on a date for the D.O.C.

3. Register D.O.C. with central examination office (ZPA)
   at least one week before the date.

4. Take the D.O.C. at the appointed date.

5. Let examiner file your mark with ZPA
Master’s Thesis

- Usually during the final six months of the programme
- Try to find a topic a bit earlier (orientation phase)
- Before:
  - Topic is usually chosen from an area that you want to put emphasize in (i.e., you are very interested in)
  - Registration is necessary
  - Prerequisites: successful completion of 60 ECTS
- After:
  - Thesis will be graded by your first supervisor and another faculty member (second supervisor)
  - You have to present and defend your thesis within an oral (makes up 3 ECTS from the total 30 ECTS)
Prolongation of residence permit

- If you cannot finalize 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 equal or more than four years
  - courses should 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
Software Systems Engineering

Questions?
Additional Notes / Answers to Questions

- In WS 2011 the “Information Management” course was given in CAMPUS as “Implementation of Databases”
- In CAMPUS, for the lists given for the Core Subjects 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.