Master ASE

Hints concerning the study and examination regulations

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General

This document is:

- a collection of important hints translated into English language concerning the study- and examination regulations of the master study-course Automotive Software Engineering (ASE) at the Technische Universität Chemnitz.
- not exhaustive
- not legally binding

Study Regulations

General

- Only some modules are available in English language – check them in the module descriptions included in the study regulations

Structure and Contents of the Study Course

- Modules which were already passed in the bachelor studies can not be credited again in the master studies
- Within the study course 120 credit points (CP) in total have to be achieved
- The composition is divided into 8 categories as following:

1. Modules in the area of **Automotive Software Technology** (Σ 20 CP):
    1) 555010 Formal Specification and Verification, 5 CP (mandatory module)
    2) Out of the following list modules with a total amount of 15 credit points have to be completed:
        1) 561030 Multicore Programming, 5 CP (elective module)
        2) 577050 Software Engineering – advanced, 5 CP (elective module)
        3) 561050 Optimizations in Compiler Construction, 5 CP (elective module)
        4) 573010 Image Understanding, 5 CP (elective module)
        5) 555170 Practical Training Automotive Software Engineering, 5 CP (elective module)
2. Modules in the area of **Embedded Systems** (Σ 20 CP):
    1) 565050 Design for Software of Embedded Systems, 5 CP (mandatory module)
    2) 555110 Software Platforms for Automotive Systems, 5 CP (mandatory module)

3) Out of the following list modules with a total amount of 10 credit points have to be completed:
    1) 555070 Hardware/Software-Codesign I, 5 CP (elective module)
    2) 555090 Hardware/Software-Codesign II, 5 CP (elective module)
    3) 565010 Operating Systems for Distributed Systems, 5 CP (elective module)
    4) 420001 Automotive Sensor Systems, 5 CP (elective module)
    5) 422002 Technologies for Micro and Nano systems, 5 CP (elective module)
    6) 422001 Advanced integrated circuit technology, 5 CP (elective module)

3. Modules in the area of **Real-time and Communication Systems** (Σ 10 CP):
   Out of the following list modules with a total amount of 10 credit points have to be completed:
    1) 553090 Software Service Engineering, 5 CP (elective module)
    2) 556010 Timing-Aware Programming for Embedded Systems, 5 CP (elective module)
    3) 565030 Real-time Systems, 5 CP (elective module)
    4) 565130 Dependable Systems, 5 CP (elective module)
    5) 416002 Mobile Networks, 3 CP (elective module)
    6) 416001 Self-organizing Networks, 2 CP (elective module)
4. Modules in the area of **Computer Science** (Σ 15 CP):
   Out of the following list modules with a total amount of 15 credit points have to be completed:
    1) 500190 Efficient Algorithms, 5 CP (elective module)
    2) 500310 Focal Points in Computer Science, 5 CP (elective module)
    3) 500330 Focal Points in Computer Science II, 5 CP (elective module)
    4) 541030 Parallel Algorithms, 5 CP (elective module)
    5) 541090 Probability Calculation and Algorithms, 5 CP (elective module)
    6) 543030 Approximation Algorithms, 5 CP (elective module)
    7) 543070 Data Security and Cryptography, 5 CP (elective module)
    8) 553130 Securit y of Distributed Systems, 5 CP (elective module)
    9) 555190 Hardware Development with VHDL, 5 CP (elective module)
    10) 561010 Compiler Construction, 5 CP (elective module)
    11) 561070 Parallel Programming, 5 CP (elective module)
    12) 563050 Databases and Web-techniques, 5 CP (elective module)

13) 563090 Databases and Object Orientation, 5 CP (elective module)
14) 565110 Analysis and Modeling of Operating System Aspects, 5 CP (elective module)
15) 571010 Computer Aided Geometric Design, 5 CP (elective module)
16) 571050 Computer Graphics I, 5 CP (elective module)
17) 571110 Computer Graphics II, 5 CP (elective module)
18) 571150 Basics of Computer Geometry, 5 CP (elective module)
19) 571210 Solid Modeling, 5 CP (elective module)
20) 571250 Virtual Reality, 5 CP (elective module)
21) 573030 Introduction to Artificial Intelligence, 5 CP (elective module)
22) 573050 Machine Learning, 5 CP (elective module)
23) 573070 Neurocognition I, 5 CP (elective module)
24) 573130 Neurocognition II, 5 CP (elective module)
25) 573090 Robotics, 5 CP (elective module)
26) 578010 Media Applications, 5 CP (elective module)
27) 578050 Media Encoding, 5 CP (elective module)
28) 578070 Media Ergonomics, 5 CP (elective module)
29) 578150 Media Programming, 5 CP (elective module)

5. Modules in the area of **Key Competences** (Σ 5 CP):
   Out of the following list modules with a total amount of 5 credit points have to be completed:
   1) 613002 Entrepreneurship, 5 CP (elective module)
   2) 613004 Technical Sales and Distribution, 5 CP (elective module)
6. for students, who do not speak German as their mother tongue:
   1) 500410 German as Foreign Language, 5 CP (elective module)
7. 500090 Module Research Seminar Computer Science, 5 CP (mandatory module)
8. 500170 Module Research Internship, 15 CP (mandatory module)
9. 9100_M Module Master Thesis: 30 CP (mandatory module)

Procedure

- The student has to prepare, repeat and deepen the contents of the courses self-dependently.

Exams

Admission

- Exams have to be registered in the official registration period – exams outside the exam-period have to be registered at least 3 weeks before the exam.
- The exams in the master study course can only be performed if:
  - the student is enrolled at the Technische Universität Chemnitz
  - the examination is not finally failed (= not failed for 3 times in the same subject)
  - the examination prerequisites are fulfilled

Types

- Oral and / or
- written exams or other written documents and / or
- alternative examination performances and / or
- project work
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- The language is German. In the module descriptions it is regulated which exams are offered in English language.
- The examinee (the student) can make an application for performing the exam in English language – but there is no guarantee

Oral Exams

- Are examined by either two examiners or one examiner and one observer
- Can be performed individually or as a group – the duration for each examinee is between 15 and 45 minutes
- Can also contain small written tasks, if the character of an oral exam is preserved

Written Exams

- The duration is between 60 minutes and 300 minutes.
- After the exam the professorships offer dates to take insight into the exam and the rating – see the corresponding professorship website or ask the examiner for the dates

Alternative Examination Performances

- Can be:
  - Homework
  - Report
  - Elaboration
  - Protocol of practical work
- Have to be done independently and must be individually imputable
- Written documents mus contain a listing of used literature (sources)
- The amount is specified in the module description

Project work

- The amount of oral presentation and written report are specified in the module description

Missing, Withdrawal, Deception

- Withdrawal without giving reasons is possible up to one week before the examination
- If the exam-date is missed without valid reasons the examination is failed
- Medical Certifications have to be submitted as soon as possible – in case of doubt a medical certification of a public health officer can be requested (link to the form)
- Attempts of deception lead to failing the exam

Passing / Failing Exams

- Module exams are passed, if they are rated at least with “sufficient” (4,0)
- If necessary examination performances are rated with “not sufficient” the module is failed
- Passed exams can not be repeated
- Failed exams can be repeated twice
- Failed exams have to be repeated within one year (2 semesters)
- If an exam is failed for the second time, it has to be repeated at the next possible examination-date
- Re-examinations also have to be registered
- If at least one module is finally failed the master exam is finally failed

- The master examination is passed if all necessary prerequisites are fulfilled and all module-examinations are passed
- A master examination which is not performed within four semesters after the standard study period ends is failed

Nullity of the Master Examination

- If the examinee has cheated during an examination and it becomes known after handing out the certificate, the examination rate can be corrected afterwards. Possibly the affected module and the master examination can be declared as “not sufficient”.
- If a prerequisite for an exam is not fulfilled – without the attempt to cheat, but the master exam is passed, this lack is healed by passing the master exam
- If a prerequisite for an exam is not fulfilled – with the attempt to cheat, the affected module and the master examination can be declared as “not sufficient”.
- The wrong master-certificate is to be retracted and replaced by the corrected version

Topic Handout, Delivery, Assessment, Repetition of the Master Thesis

- Goal of the master thesis is to show, to be able to work within a specific time-interval for your own on a subject-specific or interdisciplinary problem using scientific techniques and to be able to formulate the result clearly and precise.
- The topic of the master thesis has to be associated with the contents of the study course
- The thesis must be written individually and only specified resources and auxiliary means may be used. This must be declared in the submitted thesis.
- Three exemplars of the thesis have to be submitted to the examination office within the given period of time – two typewritten, hardback and one digital.
- The date of topic-allocation and submission have to be attested.
- The topic can be rejected one time within four weeks after allocation
- The master thesis is normally rated by two examiners (one of them is the supervisor) within 4 weeks
- If the master thesis is not submitted in time, it is rated “not sufficient” (5,0) and can be repeated for one time.

Examiner and Observer

- Examiner can be every one who is authorized to conduct exams in the respective subject
- Examiner of the master thesis can be from the department of Computer Science, Electrical Engineering or Mechanical Engineering if their professorship is related to the automotive domain (not necessarily Prof. Dr. Hardt)
- The examiner of the master thesis and of oral exams can be proposed by the student – but there is no guarantee.
- The name(s) of the examiners are announced to the student at least two weeks before the exam.

Editing time, Colloquium

- The maximum editing time is 23 weeks
- The student can make an application with giving reasons for prolonging the editing time for up to 6 additional weeks – if the reason is illness, a medical certification is necessary (link to the form)
- The master thesis has to be defended by the student in a colloquium

Insight into the examination record

- Within one year after the examination procedure the student can make an application to get insight into the whole examination record – including all written exams, expertises and examination-protocols