UNIVERSITY OF AMSTERDAM

FACULTY OF SCIENCE

EDUCATION AND EXAMINATION REGULATIONS
PART B: programme-specific section

Academic year 2016-2017

MASTER'S PROGRAMME
SOFTWARE ENGINEERING

Chapter 1.   General Provisions

Article 1.1 – Definitions
Not applicable

Article 1.2 – Study programme information
1. The Master's programme Software Engineering is registered under CROHO number 60228. The language of instruction is English. This means that the Code of Conduct for Foreign Languages at the UvA applies for this programme (see Code of Conduct Governing Foreign Languages at the University of Amsterdam 2000 at the website: http://www.uva.nl/en/about-the-uva/uva-profile/rules-and-regulations/teaching/teaching.html).
2. The programme consists of a one-year programme with a total study load of 60 EC.
3. The Master's programme is offered in different variants, as follows:
    1. The programme is provided on a full-time and a part-time basis.
    2. The part-time programme is offered as a one-day and a two-day variant.
    In the course catalogue, detailed information is given on the part-time programme variants.

Article 1.3 – Enrolment
Students can start the study programme in semester 1 (September).

Chapter 2.   Programme objectives and exit qualifications

Article 2.1 – Programme objectives
1. The aim of Software Engineering is to systematically design, construct and maintain large software systems that are delivered in time and within budget, that are reliable and efficient, and that are maintainable over the long term.
2. The Software Engineering programme educates students to become professional software engineers who can not only be employed by industry and government, but can also be active in higher education and academic research.

Article 2.2 – Exit qualifications
1. The Exit qualifications of the Master's programme Software Engineering are defined as follows:
    1. The graduate has insight in the most important theories, methods and techniques in the domain of Software Engineering and has sufficient background to familiarize himself/herself with new methods and techniques.
    2. The graduate can apply this insight to find innovative solutions for existing and new problems, while applying theory in the right way in practice. He/she can analyze and solve domain-specific problems as well as general Software Engineering problems.
    3. The graduate can make a valuable contribution to complex software projects that require the independent and critical application of academic knowledge and skills.
    4. The graduate has sufficient technical knowledge and intellectual capacities to play – after some years of practical experience – a managerial or advisory role in the Software Engineering profession.
    5. The graduate can formulate a vision regarding Software Engineering and can contribute to the evolution, innovation and policy development needed for software systems.
    6. The graduate can solve Software Engineering problems using abstraction and modelling, and can create solutions that take their societal context into consideration, even if only partial information is available.
    7. The graduate can clearly report on his/her findings, both orally and in writing, and can explain problems at the right level of abstraction.

8. The graduate has the skills to explore (search, read, assess) documentation, literature and tools in the domain of Software Engineering.
9. The graduate can reflect on his/her own accomplishments and can therefore continuously develop him/herself.
10. The graduate can act well in *mono*-disciplinary teams.
11. The graduate has research skills at the academic level and can autonomously perform research in the domain of Software Engineering.
12. The graduate can understand the experiences of others.

2. The following specific exit qualifications apply per component:
   1. *Software Evolution*: the graduate masters the methods and techniques needed to analyze an existing software system and to enable it to evolve given changing requirements.
   2. *Software Testing*: the graduate can produce formal specifications of modest-sized samples of software and is able to use formal specifications to generate relevant tests for them.
   3. *Software Construction*: the graduate knows how to employ model-driven and language-driven approaches in software construction. The graduate is also able to reason about and reflect upon aspects of design, code quality, and software construction methods.
   4. *Software Architecture*: the graduate can translate system requirements into a software architecture, handle trade-offs between conflicting requirements, motivate choices made, and assess an architecture document for different stakeholders having different priorities.
   5. *Requirements Engineering*: the graduate understands why user needs are so hard to express, capture and understand. The graduate knows the shortcomings of best practices like product owner, prototyping, interviewing and use cases. The graduate has had a first experience with data-driven methods for requirements engineering like Contextual Design.
   6. *Software Process*: the graduate understands why big software engineering projects are prone to failure. The graduate has insight in how performance is influenced at different levels: that of the individual software engineer, the team and the whole organization. The graduate is able to understand why a method like RUP or Scrum is sometimes successful and sometimes not and how to adapt a method based on a situational analysis.

Chapter 3. Further admission requirements

Article 3.1 – Admission requirements
1. Admission to the Master's programme Software Engineering is possible for students with either of the following qualifications:
    a. A Bachelor Informatics, Technical Informatics or Computer Science from a Dutch university.
    b. A foreign qualification comparable to paragraph 1.a. In an assessment the quality, motivation and the level of knowledge of the candidate will be reviewed.
    c. Every Higher Vocational Education (HBO) Bachelor in Informatics (HIO), Technical Informatics, or a Bachelor in a comparable HVE (HBO) programme with a graduate point average (GPA) of 7 (out of 10) or higher, for students that successfully pass the assessment for the Master's programme Software Engineering, which students must also have completed a study programme that includes the following courses, or courses that are comparable to these:
        1. Data structures and algorithms;
        2. Software and database design;
        3. Operating systems and compiler construction;
        4. Programming languages;
        5. Software engineering;
        6. Discrete mathematics and logic.
    In the assessment the quality, motivation and the level of knowledge of the candidate will be reviewed.
    d. All other candidates who have successfully completed a (substantial part of a) comparable or related study programme, and who exhibit during an admission procedure sufficient quality, motivation and prerequisite knowledge or experience in order to successfully complete the study programme. In the review of candidates the focus will be specifically on the following aspects:
        1. Basic knowledge of discrete mathematics
        2. Basic knowledge of logic
        3. Basic knowledge of formal language theory
        4. Basic knowledge of data structures and algorithms
        5. Basic knowledge of compiler construction
        6. Basic knowledge of software engineering
        7. Basic knowledge of design patterns and UML
        8. Programming capabilities (Linux, C, Java, develop-environments)
        9. General academic skills
    The above-mentioned procedure will be further established by the Examinations Board.
2. The Examinations Board will review every application for admission. Without approval of admission by the Examinations Board no candidate will have access to the Master's programme Software Engineering.
3. At the request of a student, the Examination Board may deviate from the provisions of paragraph 1.

Article 3.2 – Pre-Master's programme
Not applicable.

Article 3.3 – Limited programme capacity
Not applicable.

Article 3.4 – Final deadline for registration
1. A request for admission to the Master's programme starting in September must be submitted to StudieLink and the Faculty before 1 May in the case of Dutch students, before 1 April in the case of EU students and before 1 February in the case of non-EU students.
2. The Examinations Board may consider a request submitted after this closing date.

Article 3.5 – English language requirements
1. The proficiency requirement in English as the language of instruction can be met by the successful completion of one of the following examinations or an equivalent:
   1. IELTS-test: minimum score 7.0, at least 6.5 on each sub-score (listening/reading/ writing/speaking)
   2. TOEFL Test: the minimum required score is 98 for the Internet-based test (iBT)
   3. A Cambridge Examination Score with a minimum test result of CAE B will also be accepted. For the CPE test a minimal score of C is required.
2. Those possessing a Bachelor's degree from a Dutch university or have an English-language 'international baccalaureate' diploma satisfy the requirement of sufficient command of the English language.

Article 3.6 – Free curriculum
1. Subject to certain conditions, the student has the option of compiling a curriculum of his/her own choice, which deviates from the curricula prescribed by the programme.
2. The concrete details of such a curriculum must be approved beforehand the Examinations Board of the programme.
3. The free curriculum is put together by the student and must at least have the size, breadth and depth of a regular Master's programme.
4. The following conditions must at least have been met in order to be eligible for the Master's degree:
   1. at least 42 EC (including the Master Project SE and preparation) must be obtained from the regular curriculum;
   2. the level of the programme must match the objectives and exit qualifications that apply for the Master Software Engineering programme.

Chapter 4.   Curriculum structure

Article 4.1 – Composition of programme
1. The programme consists of the following:
    1. Components concerning content (theory and practicals), amounting to 36 EC;
    2. *Master Project SE* and *Preparation Master Project SE* amounting to 24 EC.
2. Every component will be tested. Within the Master's programme SE different types of testing are used. This is described per component in the course catalogue.
3. Within the Master's programme SE different types of teaching methods are used. This is described per component in the course catalogue.

Article 4.2 – Compulsory components

Component	Code	Study load (EC)	Semester	Teaching method	Assessment
Software Architecture	5364SOAR6Y	6	1	L, S, CP	Written, Lab work
Software Testing	5364SOTE6Y	6	1	L, S, CP	Written
Software Evolution	5364SOEV6Y	6	1	L, CP	Written
Requirements Engineering	5364REEN6Y	6	1	L, S, CP	Written, Lab work
Software Construction	5364SOCO6Y	6	2	L, W, CP	Written
Software Process	5364SOPR6Y	6	2	L, W, S	Written, Lab work
Preparation Master Project Software Engineering	5364PRMS6Y	6	1&2	W	Written
Master Project Software Engineering	5364MAS18Y	18	2	IC	Written, Oral

L = Lectures, S = seminars, W = workshops, CP = Computer practical, IC = Individual coaching

Article 4.3 – Practical exercise
In addition to, or instead of, classes in the form of lectures, the elements of the Master's programme often include a practical component as defined in article 1.2 of part A.

Article 4.4 – Elective components
Not applicable.

Article 4.5 – Sequence of examinations
1. The student may participate in examinations of a component only after the student has shown that he/she has the necessary prerequisite knowledge. This is stated in the course catalogue.
2. The student may start with the final project of the study programme (Master Project Software Engineering) only if the student has successfully passed at least five courses of the program.
3. Resits are not allowed in case the component consists of practical training.
4. Written work has to be handed in for assessment in time. In case this condition is not met, the component has to be taken again in the next year. After the first assessment written work can be handed in once more for final improvements.
5. The assessment of projects in which several students have worked on an assignment will only be made at the end of the relevant teaching period. In principle, an individual resit is not possible.
6. At the request of a student, the Examinations Board may deviate from the conditions in paragraphs 1, 2 and 5 for the benefit of the student.

Article 4.6 – Participation in practical exercise and study group sessions

1. All parts and activities of the curriculum are obligatory (presence and participation).
2. Exemptions for activities have to be granted in advance by the examiner.
3. If no exemption has been granted and the conditions as stated in paragraph 1 were not met, the component has to be taken again.
4. In exceptional circumstances, the Examinations Board may, at the request of the student, permit an exemption from this requirement if, in the opinion of the Board, the assessment of the intended skills is also possible with a lesser percentage of participation, with or without the imposition of supplementary requirements.

Article 4.7 – Maximum exemption
A maximum of 18 EC in the programme can be accumulated through granted exemptions.

Article 4.8 – Validity period of examinations
The validity period of interim examinations and exemptions from interim examinations is limited, as described in part A, article 4.8.

Article 4.9 – Degree
Students who have successfully completed their Master's examination are awarded a Master of Science degree. The degree awarded is stated on the diploma.

Chapter 5. Transitional and final provisions

Article 5.1 - Amendments and periodic review
1. The dean will adopt any amendment to the Teaching and Examination Regulations after taking advice from the relevant Board of Studies. A copy of the advice will be sent to the authorised representative advisory body.
2. An amendment to the Teaching and Examination Regulations requires the approval of the authorised representative advisory body if it concerns components not related to the subject of Section 7.13, paragraph 2 sub a to g and v, and paragraph 4 of the WHW and the requirements for admission to the Master's programme.
3. An amendment to the Teaching and Examination Regulations is only permitted to concern an academic year already in progress if this does not demonstrably damage the interests of students.

Article 5.2 – Transitional provisions
Not applicable.

Article 5.3 - Publication
1. The Dean of the faculty will ensure the appropriate publication of these Regulations and any amendments to them.
2. The Teaching and Examination Regulations will be posted on the faculty website and deemed to be included in the course catalogue.

Article 5.4 – Effective date
These Regulations enter into force with effect from 1 September, 2016.
Thus drawn up by the Dean of the Faculty of Science on 18 July 2016.

Appendix 1   List of articles that must be included in the OER pursuant to the WHW (articles in framed boxes)

Section A
Art. 1.1	7.13, para 1, WHW
Art. 2.1	7.13, para 2 sub w
Art. 3.2	7.13, para 2 sub e
Art. 4.2	7.13, para 2 sub h and l
Art. 4.3	7.13, para 2 sub n
Art. 4.4	7.13, para 2 sub o
Art. 4.5	7.13, para 2 sub j, h
Art. 4.7	7.13, para 2 sub r
Art. 4.8	7.13, para 2 sub k
Art. 4.9	7.13, para 2 sub p
Art. 4.10	7.13, para 2 sub q
Art. 4.11	7.13, para 2 sub a
Art. 5.1	7.13, para 2 sub u
Art. 5.2	7.13, para 2 sub m

Section B
Art. 1.2	7.13, para 2 sub i
Art. 2.1	7.13, para 1 sub b, c
Art. 2.2	7.13, para 2 sub c
Art. 3.1	7.25, para 4
Art. 4.1	7.13, para 2 sub a
Art. 4.2	7.13, para 2 sub e, h, j, l
Art. 4.3	7.13, para 2 sub t
Art. 4.4	7.13, para 2 sub e, h, j, l
Art. 4.5	7.13, para 2 sub s
Art. 4.6	7.13, para 2 sub d
Art. 4.8	7.13, para 2 sub k

Appendix 2   Overview of guidelines pursuant to Section 9.5 WHW UvA

*The structure is a **format** established as a guideline:*		date of decision: 20 November 2012 entry into force: 1 September 2013
Section A		
Art. 4.5 para 3	*most recent result applies*	date of decision: 14 February 2008 entry into force: 14 March 2008
Art. 4.6	*Marks* *(5.5 as pass mark boundary)*	date of decision: 14 February 2008 entry into force: 14 March 2008
	(5.1 to 5.9 not awarded as final marks)	date of decision: xxxx 2014 entry into force: 1 September 2014
Art. 4.11 para 3	*Final examination dates, 12 per year*	date of decision: 14 February 2008 entry into force: 14 March 2008
Art. 4.13	*Fraud and plagiarism*	date of decision: 25 May 2010 entry into force: 1 September 2010
Section B		
Art. 3.1 para 6	*Entry requirements for Master's programme*	date of decision: 22 June 2006 entry into force: 22 June 2006 withdrawn on 1 September 2014