

UNIVERSITY OF AMSTERDAM
FACULTY OF SCIENCE
TEACHING AND EXAMINATION REGULATIONS
PART B: programme-specific section
Academic year 2021 – 2022
MASTER’S PROGRAMME
SOFTWARE ENGINEERING

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Chapter 1. General Provisions

Article B-1.1 – Definitions

See part A.

Article B-1.2 – Degree programme information

1. The degree programme Software Engineering -CROHO number 60228- is offered in a one-year full-time variant and in a two-year part-time variant.
2. The official language is English. The Code of Conduct for Foreign Languages at the University of Amsterdam in its latest form applies to this programme (<https://www.uva.nl/en/about-the-uva/policy-and-regulations/rules-and-regulations/teaching/teaching.html>).
3. The programme has a workload of 60 EC.

Article B-1.3 – Entry date

The programme starts in the first semester of an academic year (September 1).

Chapter 2. Programme objectives and exit qualifications

Article B-2.1 – Programme objectives

1. The aim of Software Engineering is to systematically design, construct and maintain large-scale software systems that are delivered on time and within budget, that are reliable and efficient and that are maintainable over the long term.
2. The programme educates students to become professional software engineers, who successfully pursue a career in industry, government, higher education or academic research.

Article B-2.2 – Exit qualifications

1. Graduates are familiar with the most relevant theories, methods and techniques in the domain of Software Engineering.
2. Graduates have the necessary background knowledge to familiarise themselves with novel methods and techniques for life-long learning.
3. Graduates can successfully apply theory in practice in order to find innovative solutions for both general and domain-specific software engineering problems.
4. Graduates can make valuable contributions to complex software engineering projects through the independent and critical application of academic knowledge and skills.
5. Graduates have sufficient technical understanding and intellectual capacity to play, after some years of practical experience, a managerial or advisory role in the domain of software engineering.
6. Graduates can clearly report their findings, both in oral and in written form, and can explain problems at an audience-focused level of abstraction.
7. Graduates have research skills at the academic level Master of Science and are capable to autonomously perform research in the domain of software engineering.
8. Graduates understand why user needs are difficult to express, capture and understand, and graduates are familiar with best practices in requirements engineering as well as their shortcomings.
9. Graduates are able to produce formal specifications of modest-sized samples of software and to use them for the generation of meaningful tests; they understand the essential concepts of software verification.
10. Graduates master the methods and techniques for analysing existing software systems and their evolution in the context of changing requirements.
11. Graduates are familiar with the characteristics of software for embedded systems and know how to accommodate these characteristics in the software design and development phases.
12. Graduates understand why big software projects are prone to failure, and they are familiar with software engineering process models, their situation-awareness and their general shortcomings.

13. Graduates are familiar with the concept of DevOps and its benefits for organisational IT infrastructure and services management; they understand how to build cloud-based applications and how to use cloud automation tools across a wide range of application scenarios.

Chapter 3. Further admission requirements

Article B-3.1 – Admission requirements

1. Admission to the Master's programme Software Engineering is restricted to candidates with either of the following qualifications:
 - a. a Bachelor degree in Informatics or a closely related subject from a research university (WO) in the Netherlands;
 - b. a foreign qualification equivalent in length and depth to the degree mentioned in paragraph (a);
 - c. a Bachelor degree in Informatics or a closely related subject from a university of applied sciences (HBO) in the Netherlands with a grade point average (GPA) of 7 or higher;
 - d. completion of a substantial part of a higher education degree programme in Informatics or a closely related subject and several years of relevant practical experience in the software engineering domain in an industrial context.
2. The Admissions Board decides about applications based on the formal prior education as well as on the motivation and additional qualifications of a candidate.
3. The Admissions Board may invite a candidate for additional tests, intake interviews or ask for references in order to determine its decision.
4. The Admissions Board may require candidates to successfully complete a Pre-Master's programme prior to their admission to the programme.
5. In exceptional, well-motivated cases, the Admissions Board may deviate from the provisions of paragraph 1.

Article B-3.2 – Pre-Master's programme

1. The Pre-Master's programme Software Engineering is an individual learning trajectory with the aim to compensate for a candidate's academic or technical weaknesses and to improve a candidate's probability to successfully complete the Master's programme.
2. The Pre-Master's programme consists of the following courses from the Bachelor's programme Informatica:
 - a. Datastructuren voor INF,
 - b. Programmeertalen,
 - c. Compiler Construction,
 - d. Besturingssystemen,
 - e. Automaten en Formele Talen and
 - f. Project Software Engineeringas well as the following self-study courses:
 - g. Logic in Action and
 - h. Functional Programming.
3. The Admissions Board determines the individual Pre-Master's programme as a subset of the above courses.
4. The self-study courses mentioned in paragraph 2 (Logic in Action and Functional Programming) can be replaced by equivalent online courses. The decision whether an online course is suitable to replace the self-study course lies with the Admissions Board.
5. Under special circumstances, and in the interest of a candidate, the Admissions Board may deviate from the course list stated in paragraph 2 and devise an individual premaster course portfolio.
6. As soon as a candidate has passed all courses assigned to him/her, he/she will automatically be admitted to the Master's programme for the following academic year.

7. The duration of the Pre-Master's programme is limited to one academic year.
8. Under exceptional circumstances and upon written motivated application by a candidate the Admissions Board may decide to extend the duration of the Pre-Master's programme or to postpone admission to the Master's programme after successful completion.

Article B-3.3 – Limited programme capacity

Not applicable.

Article B-3.4 – Final deadline for registration

1. Any request for admission must be submitted to Studielink and to the Faculty of Science before July 1 in the case of EU/EEA/Swiss candidates and before February 1 in the case of all other candidates.

Article B-3.5 – English language requirements

1. Candidates must demonstrate their proficiency in English as the official language by successful completion of one of the following examinations:

- a. IELTS: 7, at least 6,5 on each sub-score (listening/reading/writing/speaking);
- b. TOEFL paper-based test: 590;
- c. TOEFL internet-based test: 100, with a minimum of 22 for listening, 24 for reading and writing and 25 for speaking. ;
- d. Cambridge C1 Advanced (CAE): minimal result 190 (overall B);
- e. Cambridge C2 Proficiency (CPA): minimal result 170 (overall C).

IELTS and TOEFL examinations must have been taken at most two years prior to the candidate's application for admission. The TOEFL code for the Faculty of Science of the University of Amsterdam is 9011.

2. Exemption from examination of proficiency in English shall be granted to candidates who
 - a. completed their secondary or tertiary education in one of the following English-speaking countries: Australia, Canada (English), New Zealand, Ireland, the United Kingdom or the United States of America;
 - b. hold an English-language 'international baccalaureate' diploma;
 - c. possess a Bachelor's degree from a Dutch university (WO);
 - d. passed the final examination for the subject of English as part of one of the following diplomas: VWO, Belgian ASO (Flemish).

Chapter 4. Curriculum structure

Article B-4.1 – Programme Composition

1. The programme consists of 8 compulsory units of study.
2. Teaching methods and assessment techniques are detailed in the course catalogue.

Article B-4.2 – Compulsory components

Component	Code	Study load (EC)	Period	Teaching method	Assessment
Requirements Engineering	5364REEN6Y	6	1	L, S, W, CP	Written, Lab work
Software Specification, Verification and Testing	5364SSVT6Y	6	1	L, S, W, CP	Written, Lab work
Embedded Software and Systems	5364EMSS6Y	6	2	L, S, W, CP	Written, Lab work
Software Evolution	5364SOEV6Y	6	2	L, S, W, CP	Written, Lab work
Preparation Master Project Software Engineering	5364PRMS6Y	6	1,2, 3	IC, W	Written, Oral
Software Process	5364SOPR6Y	6	4	L, S, W, CP	Written, Lab work
DevOps and Cloud-based Software	5364DCBS6Y	6	4	L, S, W, CP	Written, Lab work

Master Project Software Engineering	5364MAS18Y	18	5,6	IC	Written, Oral
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L = Lectures, S = Seminars, W = Workshops, CP = Computer practical, IC = Individual coaching

Article B-4.3 – Practical exercise

Units of study may include practical work as defined in Article A-1.2 of part A.

Article B-4.4 – Free-choice elective components

Not applicable.

Article B-4.5 – Free curriculum

1. Students have the option of compiling a curriculum of their own choice, which may deviate from the regular curriculum.
2. The composition of the free curriculum must a-priori be approved by the Examinations Board.
3. The free curriculum must be compiled from units of study offered by the University of Amsterdam and must have the breadth and depth of the regular curriculum.
4. The following conditions must be met:
 1. at least 42 EC must be obtained from the regular curriculum;
 2. the course Preparation Master Project must be included;
 3. the Master Project Software Engineering must be included;
 4. the objectives and learning outcomes of the programme must be met.

Article B-4.6 – Sequence of examinations

1. Students may start with the Master Project only after successful completion of at least five components, one of which must be Preparation Master Project.
2. Practical work must be submitted by the deadline or will be considered failed.
3. Resits for practical work are only permitted by special approval of the course coordinator.
4. After a first assessment, written work can be handed in once more for final improvements, subject to approval by the course coordinator or project supervisor.
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. The Examinations Board may deviate from the above regulations for the benefit of students.

Article B-4.7 – Further conditions for participation in units of study and examinations

1. Students must individually register for participation in units of study, unless they are automatically registered.
2. Individual registration can only take place during specifically designated periods. The registration periods and procedures shall be established by the dean by June 1 and shall be published on the website: <https://student.uva.nl/se/shared/studentensites/fnwi/esc-gedeelde-content/en/az/course-registration-fnwi/course-registration.html>
3. Students who do not wish to sit the examination of any unit of study for which they are registered must inform the course coordinator accordingly prior to the day of examination.

Article B-4.8 – Further conditions for examination opportunities

Not applicable.

Article B-4.9 – Participation in practical exercises, tutorials and study group sessions

1. Participation in practical exercises, tutorials and study group sessions is obligatory.
2. Detailed rules are laid out in the study guide and/or the course catalogue for each unit of study.
3. Under exceptional circumstances the Examinations Board may, upon the written, motivated request of the student, grant exemption from presence requirements, provided the assessment of the intended skills is still feasible with a diminished percentage of participation.
4. The Examinations Board may impose additional requirements when applying the rules stated in paragraph 3.

Article B-4.10– Further conditions for exemption

1. A maximum of 12 EC of the curriculum may be obtained through granted exemptions.
2. Upon the written, motivated request of a student the Examinations Board may grant exemption from units of study, provided the student can sufficiently demonstrate to have acquired equivalent knowledge or skills either through a Master level course at another university with at least 6 EC or through equivalent industrial work experience.
3. No exemption is granted for the courses Preparation Master Project and Master Project Software Engineering.

Article B-4.11 – Validity period of results

1. The validity period of successfully completed (interim) examinations and exemptions can be limited, as described in part A (2021 – 2022), article A-4.8.
2. In addition to article A-4.8.2 of part A 2021 - 2022), all components that are listed in article B-4.2 and B-7.2 can be tested on grounds of present-day scientific insights when a student wants to include results of successfully completed examinations and/or granted exemptions older than 4 years in his/her study programme. If the contents of those components no longer corresponds to the present-day insights and/or the objectives of the programme, the Programme Director may decide that the results of successfully completed examinations have expired, and the Examinations Board will select replacing components.
3. In addition to article A-4.8.4 of part A (2021 - 2022) results of interim examinations which include theoretical course material are valid throughout the period of the course in question. Results of practical examinations are valid until the end of the academic year in which they were achieved.

Article B-4.12 – Degree

1. Students who have successfully completed all units of study as described in article B-4.2 shall be awarded the degree Master of Science.
2. The degree awarded shall be stated on the degree certificate.

Chapter 5. Academic student counselling

Article B-5.1 - Academic student counselling

The academic student counselling consists of individual coaching by the lecturers, in particular during the course Preparation Master Project, as well as by the Faculty Study Adviser.

Chapter 6. Teaching evaluation

Article B-6.1 - Teaching evaluation

1. Teaching evaluation is organised both on a per-course and on a per-programme basis.
2. At the end of each unit of study, excluding Master Project Software Engineering, each student receives a detailed questionnaire via the UvA Q system.
3. After graduation each student receives a final questionnaire via the UvA Q system.

Chapter 7. Transitional and final provisions

Article B-7.1 - Amendments and periodic review

1. The dean will adopt any amendment to the Teaching and Examination Regulations after taking advice, and if necessary approval, by the relevant Programme Committee. 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 as stated in the WHW.
3. An amendment to the Teaching and Examination Regulations is only permitted to concern an academic year already in progress if this demonstrably does not damage the interests of students.

Article B-7.2 – Transitional provisions

1. In the academic year 2018/2019 two units of study were discontinued, i.e. *Software Architecture* and *Software Construction*, and two new units of study were introduced to the curriculum, i.e. *Embedded Software and Systems* and *DevOps and Cloud-based Software*.
2. In the academic year 2018/2019 the course *Software Testing* was renamed to *Software Specification, Verification and Testing*.
3. Students who first enrolled prior to the academic year 2018/19 and did not pass one or more of the discontinued or renamed courses from the original curriculum substitute courses as follows:
 - a) *Software Testing* is substituted by *Software Specification, Verification and Testing*;
 - b) *Software Architecture* is substituted either by *Embedded Software and Systems* or by *DevOps and Cloud-based Software*, subject to the student's choice;
 - c) *Software Construction* is substituted either by *Embedded Software and Systems* or by *DevOps and Cloud-based Software*, subject to the student's choice.
4. Either of the new units of study can only be used once as a substitute for a discontinued unit of study.
5. Curriculum transitions following the above rules do not require the approval of the Examinations Board.

Article B-7.3 - Publication

1. The Dean of the Faculty of Science 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 B-7.4 – Effective date

Section B of these Regulations enter into force with effect from 1 September 2021 and up to and including 31 August 2022. If no new or amended TER B have been adopted by that date, the current TER B will be extended by a maximum of 6 months.

Thus drawn up by the Dean of the Faculty of Science on 16 November 2021.