

Teaching and Examination Regulations

Master's programme in Computer Science (joint degree) Faculty of Science

Academic year 2022-2023

A. Faculty section

B1. Programme specific section - general provisions

B2. Programme specific section - content of programme

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Section A: Faculty section

1. General provisions

Article 1.1 Applicability of the Regulations

1. These Regulations apply to anyone enrolled in the programme, irrespective of the academic year in which the student was first enrolled in the programme. This applies to both the faculty section (part A), and the programme-specific section (part B) of these Teaching and Examination Regulations.	Advice OLC, approval FGV (9.38 sub b)
2. These Regulations enter into force on 1 September 2022.	Advice OLC, approval FGV (9.38 sub b)
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.	Advice OLC, approval FGV (9.38 sub b)

Article 1.2 Definitions

The following definitions are used in these Regulations (*in alphabetical order*) :

- a. academic year: the period beginning on 1 September and ending on 31 August of the following calendar year;
- b. CvB: the Executive Board of Vrije Universiteit Amsterdam;
- c. double degree programme: joint programme in the context of cooperation between Vrije Universiteit Amsterdam and an educational institution within or outside the Netherlands, as to gain a double university degree; of the VU and the educational institution concerned; though not being the same as a 'joint degree programme' according to the art. 7.3c WHW;
- d. EC (European Credit): A course credit with a workload of 28 hours of study;
- e. examination: the final examination of the bachelor's programme (in accordance with the WHW: the entirety of all interim examinations within the programme);
- f. exemption: exemption from an examination/practical/fieldwork based on an earlier successfully completed examination, or knowledge/skills of a similar content, level and scope gained outside higher education;
- g. FGV: Faculty joint assembly – assembly of the faculty student council and faculty staff council;
- h. interim examination: an assessment of the student's knowledge, understanding and skills relating to an educational component. The assessment is expressed in terms of a final mark. An interim examination may consist of one or more partial examinations. A resit of an interim examination covers the same material as the original interim examination;
- i. joint degree: a degree awarded by an institution together with one or more institutions in the Netherlands or abroad, after the student has completed a study programme (a degree programme, a major or a specific curriculum within a degree programme) for which the collaborating institutions are jointly responsible;
- j. OLC: programme committee;
- k. period: a part of a semester;

- l. practical exercise: the participation in a practical training or other educational learning activity, aimed at acquiring certain (academic) skills. Examples of practical exercises are:
- researching and writing a thesis or dissertation
 - carrying out a research assignment
 - taking part in fieldwork or an excursion
 - taking part in another educational learning activity aimed at acquiring specific skills, or
 - participating in and completing a work placement;
- m. pre-Master's enrollee: person enrolled in a pre-Master's programme, who is not a student from a legal perspective;
- n. programme: the totality and cohesion of the units of education, teaching activities/methods, contact hours, testing and examination methods and recommended literature;
- o. SAP/SLM: the student information system (*Student Lifecycle Management*);
- p. semester: the first (September - January) or second half (February - August) of an academic year;
- q. specialization: optional route of study within a degree programme indicating a deepening of the (inter/multi) disciplinary context of the programme;
- r. student statute: sets out the rights and responsibilities of students on the one hand, and of Vrije Universiteit Amsterdam on the other hand, including those derived from the law and those derived from university regulations. The Executive Board (CvB) officially confirms the student statute once its completeness has been approved by the University Student Council (USC);
- s. study guide: the guide for the study programme that provides further details of the courses, provisions and other information specific to that programme. The Study Guide is available electronically at:
<https://www.vu.nl/en/study-guide/>;
- t. study monitor: dashboard for students and academic advisors with data of the student (*studiemonitor*);
- u. subject: see 'unit of education';
- v. substituting course/unit of education: see under c (double degree programme). A course obtained at the educational institute, within the context of cooperation, that is mentioned in the diploma supplement as such; not being an 'exemption';
- w. track: a study pathway within a broader Bachelor's or Master's degree programme, such as a fully English-language study pathway within a Dutch-language Bachelor's or Master's programme;
- x. thesis/internship work placement: scientific research, always resulting in a written report;
- y. unit of education: a unit of study of the programme within the meaning of the WHW;
- z. university: Vrije Universiteit Amsterdam;
- aa. WHW: the Dutch Higher Education and Research Act (*Wet op het Hoger Onderwijs en Wetenschappelijk Onderzoek*);
- bb. workload: the workload of the unit of study to which an interim examination applies, expressed in terms of credits = EC (ECTS = European Credit and Transfer Accumulation System). The workload for 1 year (1,680 hours) is 60 EC.

The other terms have the meanings ascribed to them by the WHW.

2. Study programme structure

Article 2.1 Structure of academic year and units of education

1. The study programme will be offered in a year divided into two semesters.	Ordinance CvB, see Appendix III
2. Every semester consists of three consecutive periods. The first two periods each consist of eight weeks, and the final period consists of four weeks.	Ordinance CvB, see Appendix III
3. A unit of education comprises 6 EC or a multiple thereof.	Ordinance CvB, see Appendix III
4. By way of exception to paragraph 3, the Executive Board may in special cases and on request of the Faculty Board, stipulate that a unit of study comprises 3 EC or a multiple thereof.	Ordinance CvB, see Appendix III

3. Assessment and examination

Article 3.1 Signing up for education and interim examinations

1. Every student must sign up to participate in the units of education of the programme, the interim examinations and resits. The procedure for signing up is described in an annex to the Student Charter.	Ordinance CvB, see Appendix III
2. Signing up may only take place in the designated periods.	Ordinance CvB, see Appendix III

Article 3.2 Type of examination

1. At the examiner's request, the Examination Board may permit a different form of interim examination than is stipulated in the study guide.	Advice OLC, Approval FGV (7.13 l)
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Article 3.3 Oral interim examinations

1. An oral assessment is public unless the Examination Board determines otherwise.	Advice OLC; approval FGV (7.13 l and n)
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Article 3.4 Determining and announcing results

1. The examiner determines the result of a written interim examination within fifteen working days. By way of departure from that stipulated in the first clause, the marking deadline for theses and final assignments is no longer than twenty working days. The examiner will then immediately ensure that the marks are registered and also ensures that the student is immediately notified of the mark, taking due account of the applicable confidentiality standards.	Ordinance CvB, see Appendix III
2. a. The examiner determines the result (i.e. mark) of an oral examination as soon as possible, but at the latest within one working day after the examination has finished and informs the student accordingly. The third clause of the first paragraph applies. b. The examiner determines the result of a(n) (partial) interim examination at least five working days prior to the next (partial) interim examination opportunity, with the exception of weekly assignments.	Advice OLC; approval FGV (7.13 o)
3. In the case of assessments other than oral or written examinations, the Examination Board determines in advance how and by what deadline the student will be informed of the results.	Advice OLC; approval FGV (7.13 o)

Article 3.5 Examination opportunities

1. a. Per academic year, two opportunities to take examinations will be offered for each unit of education. b. By way of exception to a., the options for retaking practical exercises, work placements and theses are detailed in the relevant work placement manual, teaching regulations or graduation regulations.	Ordinance CvB, see Appendix III
2. The most recent mark will apply in the event of a resit. A resit is allowed for both passed and failed units of study.	Ordinance CvB, see Appendix III
3. The resit for a (partial) interim examination must not take place within ten working days of the announcement of the result of the (partial) examination being resat.	Advice OLC; approval FGV (7.13 j)
4. The Examination Board may allow a student an extra opportunity to sit an interim examination if that student: a) lacks only those credits to qualify for their degree; and b) has failed the interim examination during all the previously offered attempts unless participation in an interim examination was not possible for compelling reasons. The extra opportunity can only be offered if it concerns a written examination, a paper or a take home examination. This provision excludes the practical exercises and the Master's thesis. Requests for an additional examination opportunity must be submitted to the Examination Board no later than 15 July. If necessary, the method of examination may deviate from the provisions in the study guide.	Ordinance CvB, see Appendix III
5. If a unit of education is no longer offered in the following academic year and disappears from the curriculum, one opportunity will be provided to sit the interim examination(s) or parts thereof in the following academic year at the latest and a transitional arrangement for the subsequent period will be included in the programme-specific section of the Teaching and Examination Regulations (part B).	Advice OLC, approval FGV (7.13 j)

Article 3.6 Marks

1. Partial marks are given on a scale from 1 to 10 with no more than one figure after the decimal point.	Ordinance CvB, see Appendix III
2. A final mark between 5 and 6 will be rounded to the nearest whole number: final marks below 5.50 will be rounded down; final marks of 5.50 or higher will be rounded up. All other final marks will be expressed in whole or half marks. In case the examination of a component consists of two or more parts, each of which are graded separately, the (weighted) mean of these marks (meaning: the final mark) must be rounded off using the following table:	Ordinance CvB, see Appendix III

From	To	Grade
1.00	1.24	1.0
1.25	1.74	1.5
1.75	2.24	2.0
2.25	2.74	2.5
2.75	3.24	3.0
3.25	3.74	3.5
3.75	4.24	4.0
4.25	4.74	4.5
4.75	5.49	5.0
5.50	6.24	6.0
6.25	6.74	6.5
6.75	7.24	7.0
7.25	7.74	7.5

	7.75	8.24	8.0		
	8.25	8.74	8.5		
	8.75	9.24	9.0		
	9.25	9.74	9.5		
	9.75	10.0	10		
3. To pass a given course or unit, a final mark of 6 or higher is required.					Ordinance CvB, see Appendix III
4. The Examination Board can allow the use of symbols rather than numbers, for example; v(oldaan), g(oed), n(iet)v(ol)d(aan), etc. In case a student does not take part in any (interim) examination, the examiner will register the mark 'ns' (c.q. no show).					Ordinance CvB, see Appendix III

Article 3.7 Exemption

1. At the written request of the student, the Examination Board may exempt the student from taking one or more examination components, if they: a) have either passed a unit of education of a university or higher professional education programme that is equivalent in terms of content and level; b) or have demonstrated through their work and/or professional experience that they have sufficient knowledge and skills with regard to the relevant unit of education.	Advice OLC; approval FGV (7.13 r)
2. The Master's thesis is excluded from this exemption possibility.	Advice OLC; approval FGV (9.38 sub b)
3. a. A maximum of 18 EC for a one-year master programme and 36 EC for a two-year master programme can be accumulated through granted exemption. The substituting courses (courses obtained at another educational institute within the context of a double degree, see art. 1.2) are not included. b. This regulation does not apply if a student is (simultaneously) enrolled in multiple programmes, which lead to multiple degrees, where courses may be part of both programmes. In such a case, the examination board may deviate from the regulations under a.	Advice OLC; approval FGV (9.38 sub b)

Article 3.8 Validity period for results

1. The validity period of interim examinations passed and exemption from interim examinations is unlimited, unless otherwise specified in Section B.	Legal provision
2. The validity period of a partial examination is limited to the academic year in which it was sat or until the end of the unit of study concerned, as stipulated for the relevant unit of study in Section B.	Advice OLC; approval FGV (9.38 sub b)

Article 3.9 Right of inspection and post-examination discussion

1. Within twenty working days after the announcement of the results of a written interim examination, but at least ten working days before the resit opportunity for that interim examination, the student can submit a request to inspect their assessed work, the questions and assignments set in it, as well as the standards applied for marking. The place and time referred to in the previous clause will be announced on VU.nl Dashboard or Canvas in all cases.	Advice OLC; approval FGV (7.13 p and q)
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2. If a collective post-examination discussion has been organized, individual post-examination discussions will be held only if the student has attended the collective discussion or if the student was unable to attend the collective discussion through no fault of their own.	Advice OLC; approval FGV (7.13 q)
3. Students who meet the requirements stipulated in paragraph 2 can submit a request for an individual post-examination discussion to the relevant examiner. The discussion shall take place at a time and location to be determined by the examiner within the regular timetable, on campus or online.	Advice OLC; approval FGV (7.13 p and q)

4. Academic student counselling and study progress

Article 4.1 Administration of study progress and academic student counselling

1. The faculty board is responsible for the correct registration of the students' study results. After the assessment of a unit of education has been registered, every student has the right to inspect the result for that component and also has a list of the results achieved at their disposal in VU.nl Dashboard.	Advice OLC; approval FGV (7.13 u)
2. Enrolled students are eligible for academic student counselling. Academic student counselling is in any case provided by - The Student General Counselling Service - Student psychologists - Faculty academic advisers	Advice OLC; approval FGV (7.13 u)

Article 4.2 Facilities for students with a disability

1. A student with a disability can submit a request via VU.nl Dashboard to qualify for one or more special facilities with regard to teaching, practical exercises and interim examinations. These facilities will accommodate the student's individual disability as much as possible, but may not alter the quality or degree of difficulty of a unit of study or an examination. In all cases, the student must fulfil the exit qualifications for the study programme.	Advice OLC; approval FGV (7.13 m)
2. The request referred to in the first paragraph must be accompanied by a statement from a doctor or psychologist. If possible, an estimate should be given of the potential impact on the student's study progress. In case of a chronic disability a single (one time) request suffices.	Advice OLC; approval FGV (7.13 m)
3. Students who have been diagnosed with dyslexia must provide a statement from a BIG-, NIP- or NVO-registered professional who is qualified to conduct a psychological evaluation.	Advice OLC; approval FGV (7.13 m)
4. The faculty board, or the responsible person on behalf of the faculty board, decides on teaching facilities and facilities regarding logistics. The Examination Board will decide on requests for facilities with regard to examinations.	Advice OLC; approval FGV (7.13 m)
5. In the event of a positive decision in response to a request as referred to in paragraph 1, the student can make an appointment with the academic adviser to discuss the details of the provisions.	Advice OLC; approval FGV (7.13 m)
6. A request for one or more facilities can be refused if it would place a disproportionate burden on the organization or the resources of the faculty or university were it upheld. Any such refusal will be substantiated.	Advice OLC; approval FGV (7.13 m)
7. If the disability justifies an extension of the interim examination time, the responsible person on behalf of the Examination Board will register in SAP this entitlement to an extension. If a disability justifies other measures to be taken, the Examination Board	Advice OLC; approval FGV (7.13 m)

will advise the Faculty Board on the necessary measures to be taken. The student can consult the study monitor to check which facilities have been granted to them.	
8. The decision as referred to in paragraph 4 is valid for a maximum period of one year with the exception for chronic diseases and disabilities.	Advice OLC; approval FGV (7.13 m)

5. Hardship clause

Article 5.1 Hardship clause

In instances not regulated by the Teaching and Examination Regulations or in the event of demonstrable extreme unreasonableness or unfairness, the faculty board responsible for the study programme will decide, unless the matter concerned is the responsibility of the Examination Board.	Advice OLC; approval FGV (9.38 sub b)
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Section B1: Programme specific – general provisions

6. General programme information and characteristics

Article 6.1 Study programme information

1. The Master programme Computer Science (joint degree), with CROHO number 65014, is offered on a fulltime basis.	Advice OLC; approval FGV (7.13 i)
2. The programme is offered in partnership with the University of Amsterdam (UvA) and leads to a joint degree.	Advice OLC; approval FGV (9.38 sub b)

Article 6.2 Teaching formats used and modes of assessment

1. The programme uses the teaching formats as specified in the study guide.	Advice OLC; approval FGV (7.13 x)
2. The modes of assessment used per unit of education are specified in the study guide.	Advice OLC; approval FGV (7.13 l)

Article 6.3 Academic student counselling

1. The programme offers the following counselling in addition to the student counselling mentioned in Section A: - There is an academic advisor for the Master Computer Science.	Advice OLC; approval FGV (7.13 u)
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7. Further admission requirements

Article 7.1 Intake date(s)

1. The programme starts twice a year: on 1 September and on 1 February. From 2023-2024, the programme starts once a year: on 1 September.	Advice OLC; approval FGV (9.38 sub b)
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Article 7.2 Admission requirements

1. Admission to the Master's programme is possible for an applicant who has obtained a Bachelor's degree obtained at an institution of academic higher education, which demonstrates the following knowledge, understanding and skills: a. knowledge: programming, computer systems, software design, formal methods and logic b. understanding: the role of Computer Science in society and related ethical issues; empirical aspects of Computer Science, especially the evaluation of various types of systems, both in qualitative and quantitative terms c. skills: ability to communicate professionally and at an academic level, both orally and in writing; an analytical and problem-solving attitude; ability to reflect on his or her own activities and thought processes. Any applicant with a Bachelor's degree in Computer Science from a Dutch University meets the requirements referred to in this article.	Advice OLC, approval by FGV (9.38 sub b)
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2. Not applicable.	Advice OLC; approval by FGV (9.38 sub b)
3. Applicants with a bachelor's degree obtained at an institution outside the Netherlands may be asked for additional methods to prove that they meet the admission requirements.	Advice OLC; approval FGV (9.38 sub b)
4. Not applicable.	
5. Applicants should demonstrate that they have a sufficient level of proficiency in English by meeting at least one of the following standards, no more than two (2) years before the start of the programme at VU Amsterdam: - (academic) IELTS: 6.5 - TOEFL paper-based test: 580 - TOEFL internet-based test: 92	Advice OLC; approval FGV (9.38 sub b)
6. Applicants who: - completed an English-taught secondary or higher education degree in Canada, the United States, the United Kingdom, Ireland, New Zealand or Australia; or - have earned a Bachelor's or Master's degree in an English-taught programme accredited by NVAO in the Netherlands; or - have earned a Bachelor's or Master's degree in an accredited English-taught programme in another member state of the European Union; or - have obtained a Cambridge Certificate of Proficiency in English (CPE) or a Cambridge Certificate of Advanced English (CAE) with at least a score of A, B or C are exempted from the requirements referred to in paragraph 5.	Advice OLC; approval FGV (9.38 sub b)
7. The Admission Board will investigate whether the applicant meets the admission requirements.	Advice OLC; approval FGV (9.38 sub b)

Article 7.3 Selection criteria

1. In addition to the admission requirements referred to in Article 7.2, the Faculty board also sets (at least two of) the following selection criteria: Not applicable	Advice OLC; approval FGV (9.38 sub b)
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Article 7.4 Pre-Master's programme

1. Applicants with a Bachelor's degree from a university of applied sciences (HBO) or a Bachelor's degree from a research university (WO) who wish to enter the programme but do not fulfill the admission requirements as stipulated in Article 7.2 can request admission to the pre-Master's programme.	Advice OLC; approval FGV (9.38 sub b)
2. Candidates must, in addition to paragraph 1 above, also satisfy the following requirements regarding: Knowledge: Have obtained a Bachelor's degree from the field of Science, Technology, Engineering, and Mathematics (STEM). Insight: Ability to reason about software systems and computers in general.	Advice OLC; approval FGV (9.38 sub b)

Skills: A high-level of academic skills, demonstrated by an average mark for the Bachelor's degree programme of at least 7.5 on the scale used in the Netherlands, or equivalent.	
3. A candidate must demonstrate that they meet the language requirements, as specified in Article 7.2.	
4. The pre-Master's programme has a size of 30 EC. The Faculty Board, or a body acting on behalf of the Faculty board, will draw up the pre-Master's programme, based on the educational shortcomings of the pre-Master's student with respect to the entry requirements of the intended Master's programme, the prior education and the Master programme's track of choice. The pre-Master's enrollee will be informed of the programme in writing. The following terms also apply: a. If the pre-Master's enrollee is completing an individualized pre-Master's programme, this is to be communicated to the enrollee in writing. b. The Examination Board can, if the pre-Master's enrollee submits a written request, exempt the enrollee from one or more examinations.	Advice OLC; approval FGV (9.38)
5. Evidence that the pre-Master's programme has been completed successfully will entitle the enrollee to admission to the relevant Master's programme in the following academic year.	Advice OLC; approval FGV (9.38)
6. The pre-Master's programme must be completed within one academic year.	Advice OLC; approval FGV (9.38)

8. Interim examinations and results

Article 8.1 Sequence of interim examinations

1. Students may participate in the components below only if they have passed the interim examination or examinations for the components mentioned hereinafter: - XM_0011 Master Project Computer Science after accumulating a minimum of 84 EC from MSc Computer Science courses. Exemptions to the article above may be granted under extenuating circumstances and need to be approved by the Academic Advisor.	Advice OLC; approval FGV (7.13 h, s & t)
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Article 8.2 Validity period for results

1. The validity period of the interim examinations and exemptions from interim examinations below, is limited as follows: See Article 3.8 of the Teaching and Examination Regulations, section A. No further specific provisions.	Advice OLC; approval FGV (7.13 k)
2. A student may request the Examination Board to extend the validity of an exam. If the student's knowledge is demonstrably outdated, or if the student's skills and insights are demonstrably outdated, the Examination Board may impose a supplementary examination, impose a replacement examination or refuse to extend the period of validity.	Legal provision
3. In situations where a limited period of validity applies, the period of validity of examinations may be extended in the event of extenuating circumstances as stipulated in WHW Article 7.51, paragraph 2, with at least the period of allocated financial assistance specified in WHW Article 7.15, paragraph 1.	Legal provision

Section B2: Programme specific – content of programme

9. Programme objectives, tracks/specializations, exit qualifications and language

Article 9.1 Workload

1. The programme has a workload of 120 EC.	Advice OLC; (7.13 a)
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Article 9.2 Tracks and/or specializations

The programme has the following tracks and/or specializations: - BDE: Big Data Engineering; - CSS: <i>Computer Systems Security*</i>; - FCC: Foundations of Computing and Concurrency; - IWT: Internet and Web Technology; - PCS: Parallel Computing Systems; - SEG: Software Engineering and Green IT - International track GSEEM: Global Software Engineering European Master - International track SE4GD: Software Engineers for Green Deal *The track Computer Systems Security has been discontinued but students who started before 2022-2023 are still allowed to complete it until August 31, 2024. No diplomas will be issued starting from September 1, 2024.	Approval OLC; (7.13 a)
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Article 9.3 Programme objective

1. The programme aims at providing students with the knowledge, experience and insights which are needed to autonomously carry out professional duties as a computer scientist. It is designed to offer students a solid basis for a career in the industry at an academic level, prepare them for further education to become a scientific researcher, and provide them with an understanding of the position of Computer Science in a broader societal and scientific context. The programme educates students in the broad domain of Computer Science, while allowing them to specialize in a direction related to computer systems, security, software engineering, big data, or theory. The aim of the master programme is to extend and enhance the student's knowledge and, by concentrating on specific areas within the Computer Science domain, lead the student towards the frontiers of design and application, as well as major research issues in the chosen specialization.	Advice OLC; (7.13 a)
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Article 9.4 Exit qualifications

1. A graduate of the study programme will have: - knowledge and understanding in the field of Computer Science. A graduate of the Master's programme in Computer Science: 1) possesses solid academic knowledge and insight in the field of computer science, including the required background knowledge from other academic disciplines, which builds upon and goes beyond the level of a Bachelor's degree;	Approval OLC (7.13 c)
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2) has knowledge, insight and skills of a specialist nature in at least one area of computer science (additional final attainment levels to be given for each specialization separately); 3) is able to acquire specialist knowledge, insights and skills in other areas of computer science within a reasonable period of time, and to keep his or her abilities up to date throughout his or her whole professional career; 4) has acquired practical skills in relevant sub-areas of the field of computer science at Master level; 5) is aware of the applications of computer science in general and of the chosen specialization in particular, and is able to apply his/her knowledge and skills to new or otherwise unknown problems; 6) is capable of designing a research or project plan on the basis of a realistic problem description in the field of computer science and can contribute to its progress with original solutions; 7) is able to carry out research independently, both individually and in small teams. 8) is able to consult and use the international professional literature in the relevant sub-areas of the field of computer science; 9) is able to formulate, analyse and evaluate scientific results, and to use them to draw conclusions; 10) is able to function in professional situations in an international context where scientific knowledge and skills in computer science are required; 11) has developed a critical, scientific attitude and a societal perspective on information technology; 12) is able to communicate with others at a professional level and can give clear oral and written presentations of the results of his/her work; 13) is thoroughly prepared for further education at doctorate level or for further postgraduate education as a professional computer scientist.	
2. Without prejudice to the provisions of paragraph 1: a. a graduate of the track/specialization Big Data Engineering will have the following knowledge and understanding in the field of: 1) BDE-1. Architecture and scalability of data processing platforms and their programming models; 2) BDE-2. The world wide web as a global information source; 3) BDE-3. Conducting experiments on data processing systems, and be able to properly interpret data that result from such experiments. b. a graduate of the track/specialization Computer Systems Security will have the following knowledge and understanding in the field of: 1) CSS-1. Security issues in system-level software including weaknesses and defenses; 2) CSS-2. Static and dynamic analysis techniques for software (benign and malicious); 3) CSS-3. Security implications of modern hardware features (side channels, hardware bugs, and hardware-based protection). c. a graduate of the track/specialization Foundations of Computing and Concurrency will have the following knowledge and understanding in the field of: 1) FCC-1. Models of computation; 2) FCC-2. Models of concurrency; 3) FCC-3. Automated verification; d. a graduate of the track/specialization Internet and Web Technology will have the following knowledge and understanding in the field of:	Approval OLC (7.13 b)

1) IWT-1. Distributed computer systems, notably in the form of capabilities for designing networked systems and with emphasis on efficient information processing on the Internet; 2) IWT-2. Programming large and complex pieces of (possibly low-level) systems-oriented software. 3) IWT-3. Conducting experiments on networked applications and distributed systems, and be able to properly interpret data that result from such experiments. e. a graduate of the track/specialization Parallel Computing Systems will have the following knowledge and understanding in the field of: a. PCS-1. Design and architecture of parallel and distributed computing systems; b. PCS-2. Performance and efficiency of application programs and the related runtime systems and middleware services; c. PCS-3. Conducting experiments as a means for the analysis of high-performance systems, and be able to properly interpret data that result from such experiments. f. a graduate of the track/specialization Software Engineering and Green IT will have the following knowledge and understanding in the field of: a. SEG-1. Reconciling conflicting software project objectives, finding acceptable compromises within limitations of cost, time, knowledge, existing systems, organisations, and societal aspects of software technology; b. SEG-2. Understanding and applying current theories, models and techniques that provide a basis for decision making on IT investment issues, problem identification and analysis, software architecture, software design, development, implementation, testing, documentation and reengineering; - SEG-3. Designing and conducting experiments (and empirical studies in general) to analyse and assess the relation between software systems, energy efficiency and sustainability issues.	
3. Language proficiency may be taken into account in the assessment of (interim) examinations.	Approval OLC (7.13 c)

Article 9.5 Language of instruction

1. The language of instruction is English.	Approval OLC (9.18)
2. The 'Gedragcode vreemde taal' (Code of conduct foreign languages) applies.	Ordinance CvB, see Appendix III

10. Curriculum structure

Article 10.1 Composition of the programme

1. The programme comprises at least a package of compulsory components and an individual Master's thesis or academic internship.	Ordinance CvB, see Appendix III
2. Additionally, the programme can offer: - Practical electives - Electives.	Advice OLC; (7.13 a)
3. Units of education are categorized as specialized (400), research-oriented (500) and highly specialized (600) level.	Ordinance CvB, see Appendix III

Article 10.2 Compulsory units of education

A detailed description per unit of education can be found in the Study Guide.

Track Big Data Engineering				Advice OLC; (7.13 a)
Unit of education	Course code	Nr of EC	Level	
<i>Year 1</i>				
Large Scale Data Engineering	X_405116	6	500	
Web Data Processing Systems	XM_40020	6	400	
Web Services and Cloud-based Systems	XMU_418110	6	400	
Data Mining Techniques	X_400108	6	500	
<i>Year 2</i>				
Master Project Computer Science	XM_0011	30	500	
<i>Constrained choice (students must obtain at least 6 EC of each theme below)</i>				
<u>Foundations of Computation and Concurrency (students must choose at least 6 EC)</u>				
Protocol Validation	X_400117	6	500	
Logical Verification	X_400115	6	500	
Distributed Algorithms	X_400211	6	500	
Advanced Logic	X_405048	6	500	
<u>Mathematics (students must choose at least 6 EC)</u>				
Dynamic Programming and Reinforcement Learning	XM_0093	6	400	
Performance of Networked Systems	X_405105	6	400	
Coding and Cryptography	X_405041	6	500	
Experimental Design and Data Analysis	X_405078	6	400	
<u>Software Engineering (students must choose at least 6 EC)</u>				
Software Asset Management	X_400412	6	400	
Service Oriented Design	X_405061	6	400	
Digital Architecture	XM_0127	6	400	
Software Testing	X_400439	6	400	
<u>Societal Perspectives on Computer Science (students must choose at least 6 EC)</u>				
History of digital cultures	XMU_418107	6	400	
Entrepreneurship in Analytics and AI	XM_0090	6	400	
E-Commerce Law	R_E.commerc	6	500	
ICT4D	X_405101	6	400	
ICT4D in the field	XM_0008	6	400	
<u>Security (students must choose at least 6 EC)</u>				
Software Security	X_400127	6	400	
Network Security	XM_0100	6	400	
Security Experiments and Measurements	XM_0098	6	400	
Verification for Security	XM_0099	6	400	
Software Threat Analysis	XM_0124	6	400	
Cryptographic Engineering	XMU_0047	6	400	

<u>Research Skills (students must choose at least 6 EC)</u>				
Research Project Computer Science	XM_0129	6	500	
Literature Study	XM_0131	6	500	

Track Foundations of Computation and Concurrency				Advice OLC; (7.13 a)
Unit of education	Course code	Nr of EC	Level	
<i>Year 1</i>				
Protocol Validation	X_400117	6	500	
Logical Verification	X_400115	6	500	
Term Rewriting Systems	XM_400121	6	400	
Advanced Logic	X_405048	6	500	
Distributed Algorithms	X_400211	6	500	
<i>Year 2</i>				
Master Project Computer Science	XM_0011	30	500	
<i>Constrained choice (students must obtain at least 6 EC of each theme below)</i>				
<u>Mathematics (students must choose at least 6 EC)</u>				
Dynamic Programming and Reinforcement Learning	XM_0093	6	400	
Performance of Network Systems	X_405105	6	400	
Coding and Cryptography	X_405041	6	500	
Experimental Design and Data Analysis	X_405078	6	400	
<u>Programming (students must choose at least 6 EC)</u>				
Advanced Operating Systems	XM_40014	6	400	
Programming Large-scale Parallel Systems	XM_40017	6	400	
Advanced Computer Networks	X_405082	6	400	
Parallel Programming Practical	X_400162	6	400	
Programming Multi-core and Many-core Systems	XMU_40018	6	400	
Project Systems Testing	X_405124	6	400	
Individual Systems Practical	XM_405088	6	500	
<u>Software Engineering (students must choose at least 6 EC)</u>				
Software Asset Management	X_400412	6	400	
Service Oriented Design	X_405061	6	400	
Digital Architecture	XM_0127	6	400	
Software Testing	X_400439	6	400	
<u>Societal Perspectives on Computer Science (students must choose at least 6 EC)</u>				
History of digital cultures	XMU_418107	6	400	
Entrepreneurship in Analytics and AI	XM_0090	6	400	
E-Commerce Law	R_E.commerc	6	500	
ICT4D	X_405101	6	400	
ICT4D in the field	XM_0008	6	400	

<u>Security (students must choose at least 6 EC)</u>				
Software Security	X_400127	6	400	
Network Security	XM_0100	6	400	
Security Experiments and Measurements	XM_0098	6	400	
Verification for Security	XM_0099	6	400	
Software Threat Analysis	XM_0124	6	400	
Cryptographic Engineering	XMU_0047	6	400	
<u>Research Skills (students must choose at least 6 EC)</u>				
Research Project Computer Science	XM_0129	6	500	
Literature Study	XM_0131	6	500	

Track Internet and Web Technology				Advice OLC; (7.13 a)
Unit of education	Course code	Nr of EC	Level	
<i>Year 1</i>				
Storage Systems	XM_0092	6	400	
Distributed Systems	X_400130	6	400	
Advanced Computer Networks	X_405082	6	400	
Web Services and Cloud-based Systems	XMU_418110	6	400	
Distributed Algorithms	X_400211	6	500	
<i>Year 2</i>				
Master Project Computer Science	XM_0011	30	500	
<i>Constrained choice (students must obtain at least 6 EC of each theme below)</i>				
<u>Mathematics (students must choose at least 6 EC)</u>				
Dynamic Programming and Reinforcement Learning	XM_0093	6	400	
Performance of Networked Systems	X_405105	6	400	
Coding and Cryptography	X_405041	6	500	
Experimental Design and Data Analysis	X_405078	6	400	
<u>Software Engineering (students must choose at least 6 EC)</u>				
Software Asset Management	X_400412	6	400	
Service Oriented Design	X_405061	6	400	
Digital Architecture	XM_0127	6	400	
Software Testing	X_400439	6	400	
<u>Societal Perspectives on Computer Science (students must choose at least 6 EC)</u>				
History of digital cultures	XMU_418107	6	400	
Entrepreneurship in Analytics and AI	XM_0090	6	400	
E-Commerce Law	R_E.commerc	6	500	
ICT4D	X_405101	6	400	
ICT4D in the field	XM_0008	6	400	

<u>Security (students must choose at least 6 EC)</u>				
Software Security	X_400127	6	400	
Network Security	XM_0100	6	400	
Security Experiments and Measurements	XM_0098	6	400	
Verification for Security	XM_0099	6	400	
Software Threat Analysis	XM_0124	6	400	
Cryptographic Engineering	XMU_0047	6	400	
<u>Research Skills (students must choose at least 6 EC)</u>				
Research Project Computer Science	XM_0129	6	500	
Literature Study	XM_0131	6	500	

Track Parallel Computing Systems			
Unit of education	Course code	Nr of EC	Level
Year 1			
Programming Large-scale Parallel Systems	XM_40017	6	400
Parallel Programming Practical	X_400162	6	400
Programming Multi-core and Many-core Systems	XMU_40018	6	400
Performance Engineering	XMU_40016	6	500
Year 2			
Parallel System Architectures	XMU_40015	6	400
Master Project Computer Science	XM_0011	30	500
Constrained choice (students must obtain at least 6 EC of each theme below)			
Foundations of Computation and Concurrency (students must choose at least 6 EC)			
Protocol Validation	X_400117	6	500
Logical Verification	X_400115	6	500
Distributed Algorithms	X_400211	6	500
Advanced Logic	X_405048	6	500
Mathematics (students must choose at least 6 EC)			
Dynamic Programming and Reinforcement Learning	XM_0093	6	400
Performance of Networked Systems	X_405105	6	400
Coding and Cryptography	X_405041	6	500
Experimental Design and Data Analysis	X_405078	6	400
Software Engineering (students must choose at least 6 EC)			
Software Asset Management	X_400412	6	400
Service Oriented Design	X_405061	6	400
Digital Architecture	XM_0127	6	400
Software Testing	X_400439	6	400
Societal Perspectives on Computer Science (students must choose at least 6 EC)			
History of digital cultures	XMU_418107	6	400

Advice OLC;
(7.13 a)

Entrepreneurship in Analytics and AI	XM_0090	6	400	
E-Commerce Law	R_E.commerc	6	500	
ICT4D	X_405101	6	400	
ICT4D in the field	XM_0008	6	400	
<u>Security (students must choose at least 6 EC)</u>				
Software Security	X_400127	6	400	
Network Security	XM_0100	6	400	
Security Experiments and Measurements	XM_0098	6	400	
Verification for Security	XM_0099	6	400	
Software Threat Analysis	XM_0124	6	400	
Cryptographic Engineering	XMU_0047	6	400	
<u>Research Skills (students must choose at least 6 EC)</u>				
Research Project Computer Science	XM_0129	6	500	
Literature Study	XM_0131	6	500	

Track Software Engineering and Green IT				
Unit of education	Course code	Nr of EC	Level	
<i>Year 1</i>				
Service Oriented Design	X_405061	6	400	
Digital Architecture	XM_0127	6	400	
Fundamentals of Adaptive Software	XM_0128	6	400	
Software Testing	X_400439	6	400	
<i>Year 2</i>				
Green Lab	X_418158	6	400	
Master Project Computer Science	XM_0011	30	500	
<i>Constrained choice (students must obtain at least 6 EC of each theme below)</i>				
<u>Foundations of Computation and Concurrency (students must choose at least 6 EC)</u>				
Protocol Validation	X_400117	6	500	
Logical Verification	X_400115	6	500	
Distributed Algorithms	X_400211	6	500	
Advanced Logic	X_405048	6	500	
<u>Mathematics (students must choose at least 6 EC)</u>				
Dynamic Programming and Reinforcement Learning	XM_0093	6	400	
Performance of Networked Systems	X_405105	6	400	
Coding and Cryptography	X_405041	6	500	
Experimental Design and Data Analysis	X_405078	6	400	
<u>Programming (students must choose at least 6 EC)</u>				
Advanced Operating Systems	XM_40014	6	400	
Programming Large-scale Parallel Systems	XM_40017	6	400	

Advice OLC;
(7.13 a)

Advanced Computer Networks	X_405082	6	400
Parallel Programming Practical	X_400162	6	400
Programming Multi-core and Many-core Systems	XMU_40018	6	400
Project Systems Testing	X_405124	6	400
Individual Systems Practical	XM_405088	6	500
<u>Societal Perspectives on Computer Science (students must choose at least 6 EC)</u>			
History of digital cultures	XMU_418107	6	400
Entrepreneurship in Analytics and AI	XM_0090	6	400
E-Commerce Law	R_E.commerc	6	500
ICT4D	X_405101	6	400
ICT4D in the field	XM_0008	6	400
<u>Security (students must choose at least 6 EC)</u>			
Software Security	X_400127	6	400
Network Security	XM_0100	6	400
Security Experiments and Measurements	XM_0098	6	400
Verification for Security	XM_0099	6	400
Software Threat Analysis	XM_0124	6	400
Cryptographic Engineering	XMU_0047	6	400
<u>Research Skills (students must choose at least 6 EC)</u>			
Research Project Computer Science	XM_0129	6	500
Literature Study	XM_0131	6	500

Article 10.3 Elective units of education

1. The student can take one or more of the following electives without prior consent from the Examination Board:				Advice OLC, (art 7.13a)
Unit of education	Course code	Nr of EC	Level	
Industrial Internship	XM_405080	6	400	
Individual Systems Practical	XM_405088	6	500	
Large Research Project Computer Science	XM_0130	12	500	
Introduction to Computational Science	XMU_418111	6	400	
Advanced Operating Systems	XM_40014	6	400	
Programming Large-scale Parallel Systems	XM_40017	6	400	
Evolutionary Computing	X_400111	6	400	
Protocol Validation	X_400117	6	500	
Software Asset Management	X_400412	6	400	
Service Oriented Design	X_405061	6	400	
Knowledge Organization	X_405065	6	500	
Large Scale Data Engineering	X_405116	6	500	
Green Lab	X_418158	6	400	
Lambda Calculus	XMU_418108	6	400	
Concurrency Theory	XMU_0012	6	500	
Storage Systems	XM_0092	6	400	
Dynamic Programming and Reinforcement Learning	XM_0093	6	400	

Web Data Processing Systems	XM_40020	6	400
Logical Verification	X_400115	6	500
Distributed Systems	X_400130	6	400
Digital Architecture	XM_0127	6	400
Fundamentals of Adaptive Software	XM_0128	6	400
Advanced Computer Networks	X_405082	6	400
The Social Web	X_405086	6	400
Performance of Networked Systems	X_405105	6	400
High Performance Computing and Big Data	XMU_40013	6	400
Parallel System Architectures	XMU_40015	6	400
Software Containerization	XM_0091	6	400
Parallel Programming Practical	X_400162	6	400
Data Protection Technology	XMU_0046	6	400
Programming Multi-core and Many-core Systems	XMU_40018	6	400
Systems Seminar	XM_0122	6	600
Term Rewriting Systems	XM_400121	6	400
Coding and Cryptography	X_405041	6	500
Advanced Logic	X_405048	6	500
Experimental Design and Data Analysis	X_405078	6	400
Performance Engineering	XMU_40016	6	500
Web Services and Cloud-based Systems	XMU_418110	6	400
Data Mining Techniques	X_400108	6	500
Distributed Algorithms	X_400211	6	500
Software Testing	X_400439	6	400
ICT4D	X_405101	6	400
ICT4D in the field	XM_0008	6	400
Machine Learning for the Quantified Self	XM_40012	6	400
Project Systems Testing	X_405124	6	400
2. If the student wishes to take a different unit of education than listed, advance permission must be obtained in writing from the Examinations Board.			

Article 10.4 Practical exercise

Not applicable

Article 10.5 Participation in practical training and tutorials

1. In the case of a practical training, the student must attend the number of practical sessions indicated by the course coordinator. Should the student attend fewer than the number of practical sessions indicated by the course coordinator, he or she must repeat the practical training, or the Examinations Board may have one or more supplementary assignments issued.	Approval OLC (7.13 d)
2. In the case of a tutorial, the student must attend the number of tutorial sessions indicated by the course coordinator. Should the student attend fewer than the number of tutorial sessions indicated by the course coordinator, he or she must repeat the tutorial, or the Examinations Board may have one or more supplementary assignments issued.	Approval OLC (7.13 d)

11. Evaluation and transitional provisions

Article 11.1 Evaluation of the education

1. The education provided in this programme is evaluated in accordance with the document 'Kwaliteitszorg Onderwijs BETA'.	Approval OLC (7.13 a1)
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Article 11.2 Transitional provisions

By way of departure from the Teaching and Examination Regulations currently in force, the following transitional provisions apply for students who started the programme under a previous set of Teaching and Examination Regulations:

- From the academic year 2021/2022 onwards, Computer and Network Security X_400127 has been split, and replaced by Software Security X_400127 and Network Security XM_0100. Students who need Computer and Network Security as a part of their curriculum are expected to take Software Security X_400127 instead. Students who have already passed Computer and Network Security X_400127 cannot claim credits for either Software Security X_400127 or Network Security XM_0100.
- The course Individual Project 5284INDP6Y, offered by the University of Amsterdam, is no longer available in 2022-2023; students who took the course in 2021-2022 and did not receive a passing grade should take Research Project Computer Science XM_0129 offered at the VU instead as a resit option.
- Literature Study and Seminar X_405111 has been replaced by Literature Study XM_0131 in 2022-2023. This is just a name change; students who took Literature Study and Seminar X_405111 in 2021-2022 and did not obtain a passing grade should enrol in Literature Study XM_0131 in 2022-2023.
- Adv. Topics in Distributed Systems X_405022 has been replaced by Systems Seminar XM_0122 in 2022-2023. This is just a name change; students who did not successfully complete Adv. Topics in Distributed Systems X_405022 in 2021-2022 should enrol in Systems Seminar XM_0122 in 2022-2023.
- Software Architecture X_400170 has been replaced by Digital Architecture XM_0127 in 2022-2023. This is just a name change; students who did not successfully complete Software Architecture X_400170 in 2021-2022 should enrol in Digital Architecture XM_0127 in 2022-2023.
- Software Asset Management X_400412 is no longer mandatory in the SEG track; it has been replaced by Fundamentals of Adaptive Software XM_0128. Software Asset Management X_400412 is still offered as an elective and the students who did not pass the course in 2021-2022 can enrol again in 2022-2023.
- Security and Machine Learning XM_0101 was cancelled in 2021-2022 and has been removed from the curriculum in 2022-2023; students can choose one of the other courses in the Security constrained choice module.
- The Computer Systems Security (CSS) track of the Master Computer Science will be terminated on September 1, 2024; no diplomas will be issued after August 31, 2024. The CSS track includes the following courses:

Track Computer Systems Security			
Unit of education	Course code	Nr of EC	Level
Year 1			
Software Security	X_400127	6	400
Distributed Algorithms	X_400211	6	500
Binary and Malware Analysis	X_4051006	6	500
Year 2			
Advanced Operating Systems	XM_40014	6	400

Advice OLC (7.13 a)

Hardware Security	XM_40019	6	500
Master Project Computer Science	XM_0011	30	500
Literature Study	XM_0131	6	400
<i>Constrained choice (students must obtain at least 6 EC of each theme below)</i>			
<u>Foundations of Computation and Concurrency (students must choose at least 6 EC)</u>			
Protocol Validation	X_400117	6	500
Logical Verification	X_400115	6	500
Distributed Algorithms	X_400211	6	500
Advanced Logic	X_405048	6	500
<u>Mathematics (students must choose at least 6 EC)</u>			
Dynamic Programming and Reinforcement Learning	XM_0093	6	400
Coding and Cryptography	X_405041	6	500
Experimental Design and Data Analysis	X_405078	6	400
<u>Software Engineering (students must choose at least 6 EC)</u>			
Software Asset Management	X_400412	6	400
Service Oriented Design	X_405061	6	400
Digital Architecture	XM_0127	6	400
Software Testing	X_400439	6	400
<u>Societal Perspectives on Computer Science (students must choose at least 6 EC)</u>			
History of digital cultures	XMU_418107	6	400
Entrepreneurship in Analytics and AI	XM_0090	6	400
E-Commerce Law	R_E.commerc	6	500
ICT4D	X_405101	6	400
ICT4D in the field	XM_0008	6	400

Approval of the Programme Committee of the curriculum structure (submitted via UAS), on 22 December 2021.

Advice and approval by the Programme Committee (with the exception of the curriculum structure), on 22 June 2022.

Approved by the Faculty Joint Assembly, on 28 June 2022.

Adopted by the board of the Faculty of Sciences on 1 July 2022.

Appendix I Overview of articles that must be included in the OER

Based on Article 7.13, paragraph 2, of the WHW and other Articles of the Act.

Section A: Faculty section

2. Study programme structure	
Article 2.1 Structure of academic year and units of education	7.13 paragraph 2 sub e
3. Assessment and examination	
Article 3.2 Type of examination	7.13 paragraph 2 sub h, l, j
Article 3.3 Oral interim examinations	7.13 paragraph 2 sub l, n
Article 3.4 Determining and announcing results	7.13 paragraph 2 sub o
Article 3.5 Examination opportunities	7.13 paragraph 2 sub h, j
Article 3.7 Exemption	7.13 paragraph 2 sub r
Article 3.8 Validity period for results	7.13 paragraph 2 sub k
Article 3.9 Right of inspection and post-examination discussion	7.13 paragraph 2 sub p, q
4. Academic student counselling and study progress	
Article 4.1 Administration of study progress and academic student counselling	7.13 paragraph 2 sub u
Article 4.2 Facilities for students with a disability	7.13 paragraph 2 sub m

Section B1: Programme specific – general provisions

6. General programme information and characteristics	
Article 6.1 Study programme information	7.13 paragraph 2 sub i, r
Article 6.2 Teaching formats used and modes of assessment	7.13 paragraph 2 sub l, x
[option:] Article 6.3 Academic student counselling	7.13 paragraph 2 sub u
7. Further admission requirements	
Article 7.2 Admission requirements	7.30b paragraph 1
Article 7.3 Selection criteria	7.30b paragraph 2, 5
8. Interim examinations and results	
Article 8.1 Sequence of interim examinations	7.13 paragraph 2 sub h, s, t
[option 1:] Article 8.2 Validity period for results	7.13 paragraph 2 sub k
[option 2:] Article 8.2 Validity period for results	7.13 paragraph 2 sub k

Section B2: Programme specific – content of programme

9. Programme objectives, tracks/specializations, exit qualifications and language	
Article 9.1 Workload	7.13 paragraph 2 sub g
Article 9.2 Tracks and/or specializations	7.13 paragraph 2 sub a
Article 9.3 Programme objective	7.13 paragraph 2 sub a
Article 9.4 Exit qualifications	7.13 paragraph 2 sub b, c
Article 9.5 Language of instruction	9.18 (implementation expected in 2020)
10. Curriculum structure	
Article 10.1 Composition of the programme	7.13 paragraph 2 sub a
Article 10.2 Compulsory units of education	7.13 paragraph 2 sub a
[Optional] Article 10.3 Elective units of education	7.13 paragraph 2 sub a
[Optional] Article 10.4 Practical exercise	7.13 paragraph 2 sub d
Article 10.5 Participation in practical training and tutorials	7.13 paragraph 2 sub d
11. Evaluation and transitional provisions	
Article 11.1 Evaluation of the education	7.13 paragraph 2 sub a1
Article 11.2 Transitional provisions	7.13 paragraph 2 sub a

Appendix II Overview of advisory and approval rights of Programme Committees (OLC) and Faculty Joint Assembly (FGV)

(English below)

Onderwerpen Onderwijs – en Examenregeling (OER) 7.13 lid 2 WHW	FGV		OplC	
	I	A	I	A
a. de inhoud van de opleiding en van de daaraan verbonden examens				
a1. de wijze waarop het onderwijs in de desbetreffende opleiding wordt geëvalueerd				
b. de inhoud van de afstudeerrichtingen binnen een opleiding				
c. de kwaliteiten op het gebied van kennis, inzicht en vaardigheden die een student zich bij beëindiging van de opleiding moet hebben verworven				
d. waar nodig, de inrichting van praktische oefeningen				
e. de studielast van de opleiding en van elk van de daarvan deel uitmakende onderwijseenheden				
f. de nadere regels, bedoeld in de artikelen 7.8b, zesde lid, en 7.9, vijfde lid (BSA)				
g. ten aanzien van welke masteropleidingen toepassing is gegeven aan artikel 7.4a, achtste lid (verhoogde studielast)				
h. het aantal en de volgtijdelijkheid van de tentamens alsmede de momenten waarop deze afgelegd kunnen worden				
i. de voltijdse, deeltijdse of duale inrichting van de opleiding				
j. waar nodig, de volgorde waarin, de tijdvakken waarbinnen en het aantal malen per studiejaar dat de gelegenheid wordt geboden tot het afleggen van de tentamens en examens				
k. waar nodig, de geldigheidsduur van met goed gevolg afgelegde tentamens, behoudens de bevoegdheid van de examencommissie die geldigheidsduur te verlengen				
l. of de tentamens mondeling, schriftelijk of op een andere wijze worden afgelegd, behoudens de bevoegdheid van de examencommissie in bijzondere gevallen anders te bepalen				
m. de wijze waarop studenten met een handicap of chronische ziekte redelijkerwijs in de gelegenheid worden gesteld de tentamens af te leggen				
n. de openbaarheid van mondeling af te nemen tentamens, behoudens de bevoegdheid van de examencommissie in bijzondere gevallen anders te bepalen				
o. de termijn waarbinnen de uitslag van een tentamen bekend wordt gemaakt alsmede of en op welke wijze van deze termijn kan worden afgeweken				
p. de wijze waarop en de termijn gedurende welke degene die een schriftelijk tentamen heeft afgelegd, inzage verkrijgt in zijn beoordeelde werk				
q. de wijze waarop en de termijn gedurende welke kennis genomen kan worden van vragen en opdrachten, gesteld of gegeven in het kader van een schriftelijk afgenomen tentamen en van de normen aan de hand waarvan de beoordeling heeft plaatsgevonden				
r. de gronden waarop de examencommissie voor eerder met goed gevolg afgelegde tentamens of examens in het hoger onderwijs, dan wel voor buiten het hoger onderwijs opgedane kennis of vaardigheden, vrijstelling kan verlenen van het afleggen van een of meer tentamens				
s. waar nodig, dat het met goed gevolg afgelegd hebben van tentamens voorwaarde is voor de toelating tot het afleggen van andere tentamens				
t. waar nodig, de verplichting tot het deelnemen aan praktische oefeningen met het oog op de toelating tot het afleggen van het desbetreffende tentamen, behoudens de bevoegdheid van de examencommissie vrijstelling van die verplichting te verlenen, al dan niet onder oplegging van vervangende eisen				
u. de bewaking van studievoortgang en de individuele studiebegeleiding				
v. indien van toepassing: de wijze waarop de selectie van studenten voor een speciaal traject binnen een opleiding, bedoeld in artikel 7.9b, plaatsvindt (excellentietraject <u>binnen</u> een opleiding)				
x. de feitelijke vormgeving van het onderwijs				
alle overige onderwerpen die in de OER zijn geregeld maar die niet als zodanig zijn genoemd in art. 7.13 WHW onder a t/m x.				

De lettering komt overeen met de lettering van artikel 7.13 lid 2 WHW

Afkortingen:

FGV:	Facultaire Gezamenlijke Vergadering
OplC:	Opleidingscommissie
I:	Instemmingsrecht
A:	Adviesrecht

Appendix II (English) Overview of advisory and approval rights of Programme Committees (OLC) and Faculty Joint Assembly (FGV)

Disclaimer: this is a translation which only serves as an aid. No rights may be derived from it. The Dutch document prevails.

Article 7.13, paragraph 2, of the Higher Education and Research Act	FGV		OplC	
	I	A	I	A
a. content of the programme and associated examinations				
a1. the manner in which teaching and education in the relevant programme are evaluated				
b. the content of the specializations offered as part of the programme				
c. the programme's final attainment levels with regard to the knowledge, understanding and skills				
d. where applicable, the design of practical exercises				
e. the workload of the programme and of each of its constituent educational units				
f. the detailed rules referred to in Article 7.8b, sixth paragraph, and Article 7.9, fifth paragraph (recommendation on continuation of studies)				
g. the Master's programmes to which Article 7.4a, eighth paragraph, applies (elevated workload)				
h. the number and sequence of interim examinations and the times at which these can be taken				
i. the full-time, part-time or work-study structure of the programme				
j. where necessary, the order, and the periods in which and the number of times per academic year that the opportunity to sit interim examinations and final degree assessments is given				
k. where necessary, the period of validity for pass grades awarded for interim examinations, notwithstanding the authority of the Examination Board to extend this period of validity				
l. whether interim examinations are administered in oral, written or another form, notwithstanding the authority of the Examination Board to decide otherwise				
m. the way in which students with a disability or chronic health condition are given a reasonable opportunity to take the interim examinations				
n. the public nature of oral interim examinations, subject to the right of the Examination Board to determine otherwise in special cases				
o. the period within which the results of an interim examination must be announced, together with details of whether this period can be altered and if so in what way				
p. the way in which and the period within which students who have taken an interim examination are given the opportunity to inspect their marked work				
q. the way in which and the period within which information can be provided about the questions asked and exercises given in the framework of a written interim examination and about the standards used for assessment				
r. the grounds on which the Examination Board could grant exemption from the taking of one or more interim examinations to students who have previously passed interim examinations in higher education or have acquired knowledge or skills outside higher education				
s. where necessary, the stipulation that students must pass certain interim examinations as a condition for admission to other interim examinations				
t. where necessary, the obligation to take part in certain practical exercises with a view to admission to the interim examination in question, subject to the authority of the Examination Board to grant exemption from this obligation, with or without the imposition of alternative requirements				
u. the monitoring of academic progress and individual student support and guidance				
v. where applicable, the manner in which students are selected for a special track within a programme as referred to in Article 7.9b (excellence track within a programme)				
x. the actual design of the education provided				
<i>All other matters that are regulated in the Academic and Examination Regulations but which are not mentioned as such in Article 7.13 of the Higher Education and Research Act under points a to x.</i>				

Abbreviations used:

- FGV: Faculty Joint Assembly
 OplC: Programme Committee
 I: right of approval
 A: right of advice

Appendix III Ordinances VU CvB and Binding Guidelines (richtlijn)

Section A, article:	Concerns:	CvB ordinance / guideline
2.1.1, 2.1.2	Year planning two semesters 8-8-4 (uniform year calendar VU-UvA)	29-9-2008 (period 2009-2015) 22-05-2014 (period 2016-2025)
2.1.3, 2.1.4	Units of education	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
3.1	Signing up for education and interim examinations	CvB ordinance 30-09-2010, prior consent USR.
3.4.1	Determination and publication of the results (1) Grading deadline exams ten working days (2) Theses twenty working days	(1) Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017 (2) Quality demand 11 from the VU assessment policy, CvB ordinance 15-05-2012
3.5.1	Two possibilities to take examinations per year	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
3.5.2	Retake: Most recent grade is valid A pass can be retaken	Taken from the UvA guidelines, as part of the harmonization, CvB ordinance 24-02-2014
3.5.4	One-time extra resit in relation to examination requirement	Included in (prior) model OER 16-17 following a request from committee O&O and adopted by CvB op 27-10-2015
3.6	Grades	CvB ordinance 30-09-2010, with University council's consent. As a result of harmonization UvA, the guideline: 5.5 is a pass, has been added. CvB ordinance 24-02-2014.
Section B1, article:	Concerns:	CvB ordinance / guideline
7.2	Admission criteria; at least WO Bachelor's degree	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
7.3	Selection criteria; type of criteria	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
Section B1, article:	Concerns:	CvB ordinance / guideline
10.1	Composition programme	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
10.2	Categorization of units	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017

Appendix IV Article 2.1 of the Higher Education and Research (Implementation) Act (Uitvoeringsbesluit)

(English below)

1. De persoonlijke omstandigheden bedoeld in de artikelen 7.8b, derde lid, en 7.9, derde lid, van de wet, zijn uitsluitend:

- a. ziekte van betrokkene,
- b. lichamelijke, zintuiglijke of andere functiestoornis van betrokkene,
- c. zwangerschap van betrokkene,
- d. bijzondere familie-omstandigheden,
- e. het lidmaatschap, daaronder begrepen het voorzitterschap, van:

1. bij universiteiten: de universiteitsraad, faculteitsraad, het orgaan dat is ingesteld op grond van de medezeggenschapsregeling, bedoeld in artikel 9.30, derde lid, onderscheidenlijk artikel 9.51, tweede lid, van de wet, het bestuur van een opleiding of de opleidingscommissie, alsmede het lidmaatschap van het bestuur van een stichting die blijkens haar statuten tot doel heeft de exploitatie van voorzieningen, behorende tot de studentenvoorzieningen, dan wel van een daarmee naar het oordeel van het instellingsbestuur gelet op de taak gelijk te stellen orgaan,

2. bij hogescholen: de medezeggenschapsraad, deelraad, studentencommissie of opleidingscommissie.

f. andere in de regelingen, bedoeld in de artikelen 7.8b, zesde lid, en 7.9, vijfde lid, van de wet door het instellingsbestuur aan te geven omstandigheden waarin betrokkene activiteiten ontplooit in het kader van de organisatie en het bestuur van de zaken van de instelling,

g. het lidmaatschap van het bestuur van een studentenorganisatie van enige omvang met volledige rechtsbevoegdheid, dan wel van een vergelijkbare organisatie van enige omvang, bij wie de behartiging van het algemeen maatschappelijk belang op de voorgrond staat en die daartoe daadwerkelijk activiteiten ontplooit.

h. andere in de onderwijs- en examenregeling, bedoeld in artikel 7.13 van de wet, op grond van artikel 7.13, tweede lid, onderdeel f, van de wet, vast te leggen persoonlijke omstandigheden,

i. andere dan in de onderdelen a tot en met h bedoelde persoonlijke omstandigheden die, indien zij door het instellingsbestuur niet in de beoordeling zouden worden betrokken, zouden leiden tot een onbillijkheid van overwegende aard.

2. Het instellingsbestuur kan voor de toepassing van het eerste lid, onderdeel g, nadere regels vaststellen omtrent het aantal bestuursleden dat ten hoogste per organisatie per studiejaar in aanmerking komt, zomede omtrent welke bestuursfuncties in aanmerking komen.

Appendix IV (English) Article 2.1 of the Higher Education and Research (Implementation) Act

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1. The extenuating personal circumstances referred to in Article 7.8b, paragraph 3 and 7.9, paragraph 3 of the Act (WHW) are limited to:

- a. illness of the person concerned,
- b. physical, sensory or other impairment of the person concerned,
- c. pregnancy of the person concerned,
- d. extenuating family circumstances,
- e. membership, including the chairmanship of:

- 1. universities: the university council, faculty council, the body established under the participation regulation referred to in Article 9.30, paragraph 3, or Article 9.51, paragraph 2, of the Act, the programme management or the programme committee, or membership on the board of a foundation whose bylaws allow for the exploitation of facilities belonging to the student services, or an equivalent body with regard to its activities in the opinion of the board of the institution,
- 2. universities of applied sciences: the participation council, district council, student committee or programme committee,

- f. other circumstances to be designated by the board of the institution in the regulation as referred to in Article 7.8b, paragraph 6, and Article 7.9, paragraph 5, of the Act in which the person concerned engages in activities within the framework of the organization and the administration of the affairs of the institution,
- g. membership on the board of a student organization of a certain size with full legal capacity, or a similar organization of a certain size, whose primary task regards general societal interest and which actually develops activities for this purpose,
- h. other personal circumstances set out in the Teaching and Examination Regulations as referred to in Article 7.13 of the Act, pursuant to Article 7.13, paragraph 2, clause f of the Act,
- i. personal circumstances other than those referred to in a – h above which, if overlooked by the governing bodies of the institution, would lead to an obviously unfair outcome.

2. The institutional board may, for the purposes of the first paragraph, part g, establish specific rules regarding the maximum number of eligible board members per organization per academic year, as well as the eligible administrative offices.

Appendix V Addendum Teaching and Examination Regulations Master's degree programmes 2022-2023

Several articles for the 2022-2023 academic year will be temporarily suspended or amended as a result of the consequences of the measures to stop the spread of COVID-19. These amendments apply exclusively to the teaching and examination regulations mentioned below.

Applicability

This addendum applies to the following Master's degree programmes:

- Master's programme in Artificial Intelligence
- Master's programme in Biomedical Technology and Physics
- Master's programme in Biomolecular Sciences
- Master's programme in Business Analytics
- Master's programme in Computer Science (joint degree)
- Master's programme in Earth Sciences
- Master's programme in Ecology and Evolution
- Master's programme in Global Health (research)
- Master's programme in Hydrology
- Master's programme in Information Sciences
- Master's programme in Neurosciences (research)
- Master's programme in Science, Business and Innovation

This addendum applies to the following pre-master's programmes:

- Pre-master's programme in Artificial Intelligence
- Pre-master's programme in Biomedical Technology and Physics
- Pre-master's programme in Business Analytics
- Pre-master's programme in Computer Science (joint degree)
- Pre-master's programme in Earth Sciences
- Pre-master's programme in Ecology and Evolution
- Pre-master's programme in Hydrology
- Pre-master's programme in Information Sciences
- Pre-master's programme in Science, Business and Innovation

Teaching and Examination Regulations for Master's students, Section B1: Programme-specific section

Article 7.2 Admission requirements

Supplementary to Article 7.2.1, students* are also admissible for the 2022-2023 academic year [admission in September 2022] if, by 31 August 2022 at the latest, they have earned at least 150 EC from the university (WO) Bachelor's programme or 210 EC from the HBO Bachelor's programme, under the following conditions: • The Bachelor's degree certificate must still be obtained before 1 September 2023 or before the Master's degree certificate is obtained, whichever comes first. If this condition is not met, the student will not be able to continue or complete the Master's programme. • Additional admission requirements (not EC related) remain applicable. • English language proficiency requirements remain applicable. also admissible, students* who, by no later than 31 August 2022, have earned at least 24 EC from the bridging or pre-Master's programme, under the following conditions: • The bridging or pre-Master's programme must still be completed successfully before 1 September 2023 or before the Master's examinations can be passed,	Based on additional Section 7:37e WHW University Student Council's advice on policy (9:33a Higher Education and Research Act, second paragraph)
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whichever comes first. If this condition is not met, the student will not be able to continue or complete the Master's programme. • Additional admission requirements (not EC related) remain applicable. • English language proficiency requirements remain applicable. *The above supplementary requirements do not apply to non-EEA students who must complete a Bachelor's programme outside of the Netherlands.	Advice of the OLC on each programme via the Teaching and Examination Regulations
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Article 7.4 Bridging or pre-Master's programme

Supplementary to Article 7.4.1, students* are also admissible for the 2022-2023 academic year [admission in September 2022] if, by 31 August 2022 at the latest, they have earned at least 150 EC from the designated university (WO) Bachelor's programme or 210 EC from the designated HBO Bachelor's programme, under the following conditions: • The Bachelor's examinations must still be passed before 1 September 2023, or before the bridging or pre-Master's programme is completed, whichever comes first. If this condition is not met, the student will not be able to complete or continue the programme. • Additional admission requirements (not EC related) remain applicable. • English language proficiency requirements remain applicable. *The above supplementary requirements do not apply to non-EEA students who must complete a Bachelor's programme outside of the Netherlands.	Based on additional Section 7:37e WHW University Student Council's advice on policy (9:33a Higher Education and Research Act, second paragraph) Advice of the OLC on each programme via the Teaching and Examination Regulations
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