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TU/e

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[TU/E EXAM FRAMEWORK]

This memorandum was adopted by the TU/e Education Board on 23-05-2019

Contents

Summary

This TU/e Exam framework provides the backbone for the terms and conditions that have been established at university level that apply to every program at TU/e. It gives direction to substantive issues that need to be covered in the departmental assessment policy plans. Chapter 1 defines assessment policy and positions the exam framework with respect to the 2014 version.

Assessment and education are inextricably linked. Chapter 2 describes the TU/e vision on education. The subsequent vision on testing is elaborated in Chapter 3. Chapter 4 describes the TU / e's vision on quality of testing, separate attention is given to the quality of graduation projects. Chapters 5 and 6 successively deal with support, TU / e-wide regulations and procedures that have been set up to ensure that the review runs smoothly. Chapter 7 provides insight into powers and responsibilities. These are detailed in Appendix 3.

Chapter 8 zooms in on the departmental assessment policy plans. Essential elements for departmental assessment policy plans derived from the framework are described in Appendix 1, and an example elaboration is given in Appendix 2. Chapter 9 describes the next steps after establishing this exam framework and the way in which implementation will be safeguarded.

1. Introduction

Exam policy is a cohesive system of measures and provisions taken by a study program (or department) to monitor and enhance the quality of testing and examinations (definition by Education Inspectorate[1]). The purpose of the exam policy is to provide justification for the method of testing, and to enhance, monitor, and safeguard the quality of testing.

In today's university education, exam policy forms a major area of focus, given the importance of meaningful exam results for motivational education, of giving appropriate study recommendations, of referrals, and self-selection (BSA, for example). Exam policy should be compatible with the Program and Examination Regulations (OER). The starting points are formed by the university's vision on teaching and testing, and the vision on teaching and testing at program level derived, as well as the descriptors that apply to a program.

As well as a vision, exam policy encompasses a description of measures and provisions, organizational and procedural aspects concerning testing and assessment, and the method used for safeguarding the quality of exams and assessments.

This exam framework states the terms and conditions that have been set down at university level, which apply to every program at TU/e. The terms and conditions are in keeping with the quality assurance system, accreditation requirements, and the Higher Education and Research Act (WHW).

The Executive Board (mandated to the Deans Bachelor College (BC) and Graduate School (GS)) and the departmental dean have final responsibility at university and departmental level respectively for the quality of teaching and the awarding of degrees. Their role involves safeguarding and enhancing quality at their respective levels, with regard to teaching and testing, and ensuring that any measures and support that are needed are forthcoming. The Examination Committee has a specific task here with regard to safeguarding the level of the program and the quality of exams (see Appendix 4 for a diagrammatical representation of the safeguarding and monitoring duties).

This revised exam framework follows the TU/e Exam Framework[2] that was adopted by the Executive Board on 23 October 2014. The Implementation of Exam Policy and Examination Committees project was launched as a support mechanism, in accordance with the WHW. In the project several actions were executed to support the implementation of the framework. This has resulted in independent, expert examination committees in accordance with WHW. In order to support their professionalization a brochure was designed, and instructional training is offered twice a year to all (new) members of exam committees. Moreover, a regular meeting for the chairs of these committees is facilitated, the Advisory Committee on Bachelor's and Master's Programs Examinations (AEB/AEM). Besides that, in order to guarantee the quality of administration of written exams, the regulations concerning the procedures and regulations relating to organized written examinations by TU/e were officially laid down in 2014 (TU/e Central Examination Regulations), and a fraud policy was established[3][4][5]. All information has been made available on the intranet.

Next to the project described above, as stated in the Exam Framework 2014, the program digital assessment has been launched. It consists of several projects that have resulted in an extensive landscape of assessment tools[6], such as Cirrus (in partnership with SoWiSo) which is a system that enables digital testing, STEP, a protocol that forms a solution for securely taking large-scale tests using student laptops which is also being put into effect, and a new tool for detection of plagiarism, as well as options for formative assessments in Canvas. In the near future this will be extended with a tool for authentic assessment.

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[1] Inspectie van het Onderwijs (2003). Zicht op toetsen. Toetsing en examinering in het hoger onderwijs: de stand van zaken. Utrecht: Inspectie van het Onderwijs. (In Dutch only)

[2] Exam framework Lilian Halsema, Henk Swagten, Working Group on the implementation of the Exam Policy project, October 2014.

[3] Evaluatie extern lid examencommissies, Werkgroep project implementatie Toetsbeleid, ,

[4] Fraud Policy TU/e education, Ludo van Meeuwen, Trijntje Kraak, March 2015

[5] CvB1703229 Wijziging Model-faculteitsreglementen

[6] Final report on digital testing at TU Eindhoven vd Heuvel et al.

In this revised version of the Exam Framework changes were made based on the advice of the Central Committee for Educational Quality Assurance, CCKO[7]: changes were added based on recent development in Master's programs and developments around the implementation of the program for digital testing. The approach was updated for the purposes of the implementation of the original plan.

This framework is updated every six years. In the meantime, the implementation is ensured through annual evaluation of annual reports from Examination Committees under the auspices of the Education Board. Moreover, in the context of the Mid-term of the Institutional Audit (ITK), a test audit is anticipated aimed at the implementation of departmental assessment policy plans.

2.   TU/e vision of education

Testing is an integral part of education. Exam and Education Policy are inextricably linked. To determine the TU/e vision on testing, this section summarizes the TU/e vision on education. TU/e is training a new generation of future-proof academic engineers. The 2013 essay 'Engineers for the Future' describes a vision of education at TU/e in 2030.[8] This vision directs the educational design of the Bachelor College and the Graduate School. It states that 'personal interaction and exchange of knowledge between teachers and students is the core of academic education' (p. 27). Small scale is necessary for effective learning and digital education can be used to to maintain a small scale. Being small scale contributes to the desired profile of the 'Eindhoven engineer', as well as the 'design-oriented' education in workshops and laboratories developed in Eindhoven, in which, in addition to knowledge, skills are also learned. For students, this vision means that they themselves actively shape

their study program, and there will be more differentiation in learning processes in which ICT will play a supporting role. The greater diversity (in terms of gender, nationality and engineering profile[9]) within the student population requires teachers to play a coaching role, so that students are supported personally in their learning process. Lifelong learning is a skill that students (and teachers) must develop in order to be able to keep up in the future. Cooperation with industry is also very important in this context. In the new TU/e strategy 2030 (from 2018), this vision of education is further elaborated and refined.

Strategic themes are the profile of the Eindhoven engineer as T or Π shaped. There is a diversity of students, who choose their own learning path and develop an attitude of lifelong learning. This requires education to be flexible and modular, and that it also can be offered online (if possible including assessment components) and to various groups of students. This will increase the request for assessment –at-a-distance, so it will be necessary for teachers to develop new didactic and pedagogical methods in order to be able to motivate and activate these different groups of students. Assessment can support this. The research and education at TU/e is strongly interwoven, challenge-based learning being the distinguishing element. Students learn by working in (various, cross-disciplinary) teams on real engineering problems, in which a system-level approach is essential. To this purpose, collaboration in education (including testing) is being intensified in the TU/e eco-system (companies, other educational institutes, etc.).

The TU/e Bachelor College has decided on an ambitious study climate where, for students, enrollment is synonymous with participation, and participation is synonymous with success. The 'studiability' of the programs is achieved through an optimum balance between contact hours and private study, motivational teaching and types of exam, a standardized structure and timetabling of teaching, intensive supervision of students, and clear work and performance requirements. The

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[7] CCKO Evaluation of Exam Policy TU/e, Exam Framework and departmental assessment policy, reference date January 1, 2016, drs. H.M. Peters, dr. ir. L.W. van Meeuwen

[8] Meijers, A.W.M. & Broek, den, P.J. (2013) Ingenieurs voor de toekomst. Een essay over het onderwijs aan de TU/e in 2030 (in Dutch)

[9] https://www.pbt-netwerk.nl/betamentality (in Dutch)

Graduate School offers students the option of designing their own course of studies, with the support of a mentor or thesis supervisor. They alternate between individual and group-based work. Programs are embedded in the Graduate Program to which the PhD and PDEng programs are connected as well. The aim is for all Master's students to have international experience in a research or education setting by the end of their degree program. At the beginning of their program, all students participate in a skills assessment that guides their further development. A sizable part of the Master's program is taken by the graduation phase, in which the necessary skills must be demonstrated. A considerable share of the students must complete an assignment, under the auspices of the scientific staff, at one of the companies that belong to the Brainport.

3. TU/e vision of testing

TU/e is aware of the influence that tests have on the behavior of students and what students learn, and therefore aims to use exams as a 'tool *of* learning' and as a 'tool *for* learning'. The interrelationship between the final exam and the interim exams fulfills both functions in the present Bachelor College. The interim exams are intended to motivate students, to give them prompt feedback on how they stand, and to enable them to prepare properly for the final exam.
Together with other measures that have been introduced the above contributes to high success rates and higher yields. In the first year of study, students have the additional stimulus of at least two interim tests for all courses that both count towards the final assessment of a course.

In order that the interim exams are effective and are properly embedded in the teaching process, a number of guidelines have been drawn up in the Bachelor College, such as the requirement that compensatory exams be introduced to study components so that a minimum of 50% and no more than 70% of the final mark for the study component is determined by the final exam, that for every study component an exam schedule should be available showing the position of the exam within the course, that interim exams may not be retaken, and that the validity of exam results is limited in order to prevent students deferring their studies, and that exams should be assessed on the basis of clear criteria so that the assessments can be used by students as feedback (see TU/e Bachelor College Guideline, adopted by the Executive Board on 19 April 2018).

Within the setting of challenge-based education, where students learn by working in (various multidisciplinary) teams on real engineering problems from within their own degree programs, giving direction to personal development is becoming increasingly important. The experiences gained with this in competency-oriented education within the Department of Industrial Design have been inspirational. Similarly, there are recent developments in HBO involving testing developing towards assessment of learning, in which assessment is contextualized and integrated in the learning process, thus supporting intrinsic motivation (Dochy et al.).[10] The ability to reflect on the quality of one's own work and that of others presupposes a professional feedback culture (Geitz and de Geus).[11] Testing supports the development of this ability and the TU/e advisory report on peer feedback[12] provides leads for this.

Moving towards 2030, the TU/e is making room for a completely new education setting (including testing), such as for example the Innovation Space. The early involvement of Examination Committees is essential to ensure that such experimental settings degree certificate quality is guaranteed, but also to gain insight into how quality can be guaranteed for new types of testing. The chair meeting AEB/AEM offers a platform to explore at supra-departmental level and to advise the Deans for

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[10] Assessment as Learning: De volgende stap in de toetsrevolutie. Filip Dochy, Wibran Dochy and Margo Janssens, In: Toetsrevolutie. Naar een feedbackcultuur in het hoger onderwijs. Dominique Sluijsmans, Mien Segers, 2018 (in Dutch);

[11] Duurzame feedback: de student en het leerproces centraal, Gerry Geitz and Jan de Geus In: Toetsrevolutie. Naar een feedbackcultuur in het hoger onderwijs. Dominique Sluijsmans, Mien Segers, 2018 (in Dutch);

[12] Adviesnota peerfeedback bij summatieve assessment, TU Eindhoven, L.M. van Meeuwen, 2014 (in Dutch)

education.

Vision on digital testing

Making digital testing possible is a high priority from the advice on blended learning (Advies Blended Learning, 2015 (in Dutch)). Digitization of the testing process can help to solve a number of problem areas. For example because it offers opportunities with regard to increasing study success, particularly with respect to tests to learn from (SURF, 2014). Digital testing can support the interaction process between teachers and a growing number of students. This means that digital testing can not only lead to an efficiency improvement and quality improvement in relation to the analogue testing process, but can also enable a feedback loop for large numbers of students. Assessment and feedback are important links in the learning process of students (Farrel, 2014). This can be supported by digital means, while reducing the workload of teachers and quality improvement (for example, in relation to fraud prevention) is to be expected (SURF, 2014).

Wherever possible, hardware and software will be used to implement or support the various stages of the exam cycle[13]. The starting points here, in relation to the various stages of the exam cycle,, are the optimal alignment between learning goals and assessment (in relation with tool of learning), the optimization and safeguarding of processes so that they take place efficiently and without fraud; in relation to the tool for learning, giving students feedback effectively, individually, and as quickly as possible; and, in relation to blended learning and blended assessment, enabling students to shape and evaluate their own learning processes (extracted from adopted document of December 2015 from the Steering Group for Digital Testing[14]).

Assessment for selection

A special function of assessment as a tool of learning involves the assessments that takes place in order to qualify for a restricted intake study program. This test function is outside of the responsibility of the Examination Committees and therefore outside of the scope of this Exam Framework.

TU/e vision on fraud

A TU/e diploma is highly valuable. Students, society and the labor market need to be able to trust the value of this diploma. TU/e is aware of this fact and therefore makes a continuous effort to safeguard this value. In addition to trusting the content of the degree, people also need to be able to trust that a TU/e degree was obtained honestly.

The Code of Scientific Conduct (2014), developed by TU/e, is a point of reference for this fraud policy. This code was based on the national VSNU Code of Conduct, which states that: "(employees of) institutes that fulfill a societal role are held to a proper exercise of their duties."

The five key principles of TU/e are:
1. Reliability
2. Intellectual honesty
3. Openness
4. Independence
5. Social responsibility

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[13] 1 The exam cycle shows the various stages of the exam process: 1. Design of exam, 2. Exam construction, 3. Exam composition, 4. Holding an exam, 5. Exam processing and analysis, 6. Determining grades, 7. Evaluation, data interpretation, and registration of grades. In phase 1 of the next cycle, the results of the evaluation from phase 7 of the previous cycle are taken into consideration (Halsema, L., Swagten, H., Werkgroep project implementatie toetsbeleid (2014), Toetskader TU/e. Eindhoven: Technische Universiteit Eindhoven).

[14] Digitaal toetsen TU/e, De potentie van digitale functionaliteiten en richtingen voor het management van een digitaal landschap ten aanzien van toetsen en beoordelen t.b.v. digitaal toetsen, Van Meeuwen, Van der Aalst, Van Diggelen, Verhoeff, 2015). (in Dutch)

Compliance with these five principles safeguards the high value attached to science. It is therefore important for study programs to teach students – who are prospective scientists – to be aware that some actions are unacceptable in a culture of academic integrity.

As a prospective scientist, a student must be actively informed of the boundaries, as well as of the established regulations and guidelines. Violating these regulations and guidelines in any way is an action that goes against academic integrity. Fraud therefore is a violation of the trust in honest action, now and in the future.

Fraudulent action is triggered by three things: opportunity for fraud, motivation for fraud and the rationalization of fraud. These three elements are also referred to within the framework of fraud detection in higher education (e.g., Becker, Connolly, Lentz, & Morrison, 2006[15]; the Dutch Parliament, 2007-2008[16]). This means that fraud can occur when an opportunity presents itself, when there is sufficient temptation or pressure to commit fraud, and when the person committing fraud can rationalize the fraudulent action. Students must therefore be clearly informed during their studies that fraud is not compatible with an academic study program, that fraud is not easy, that the probability of being caught is high and that fraud is rare. To this end, the Executive Board has commissioned the compilation and further development of the TU/e-wide Fraud Policy described in this document. Plagiarism is a specific type of fraud and fighting it falls within the scope of this policy document.

The policy paper TU/e Fraud Policy gives an overview of how the execution of agreements between the student and institution are supervised pertaining to the theme of fraud. All parties involved in an academic study program must conform to the principles regarding fraud that have been established by the university:

- Society is able to trust that TU/e diplomas have the value that is expected of them.
- Studying takes place in a culture of academic integrity in which fraud is unacceptable.

Cheating on tests and on applications for exemptions and examinations comprises any action or failure to act on the part of a student that makes it partially or completely impossible for the examiner to form an accurate opinion of his or her knowledge, understanding and skills, and/or deliberate attempts on the part of a student to influence any part of the examination process for the purpose of influencing the results of the examination.

Plagiarism is a specific type of fraud. This equally applies to any facilitatory or complicit actions of student assistants who make it partially or completely impossible for the examiner to form an accurate opinion of a student or students' knowledge, understanding and skills.The influencing of any part of the examination process for the purpose of changing the results of the examination falls under this heading too (added in 2018 on the advice of AEB/AEM).

At the start of their studies, students are trusted to behave in accordance with the code of scientific conduct. If the student violates this code, they will breach this trust, thereby demonstrating that they are not suited to being a scientist. TU/e therefore has an integral policy consisting of four elements for the purpose of maintaining a culture of academic integrity. Within this culture, it is made clear to students that committing fraud is incompatible with the conduct that is expected of them as scientists. The holistic approach of the policy of four elements corresponds to a variety of literature describing the four elements that a fraud prevention policy should consist of (Bloothoofd, Hoiting, & Russel, 2004; Duggan 2006; Park, 2003; cf. Rienties & Arts, 2004).

1. **Informing**: The boundaries of what is permissible are communicated to the student in a clear manner by the university.
2. **Prevention**: Any situations conducive to fraud will be avoided by the university and its students.
3. **Detection**: The University will ensure that no cheating occurs during examinations.

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[15] Becker, A., Connolly, J., Lentz, P., Morrison, J, (2006). Using the business fraud triangle to predict academic dishonesty among business students. Academy of Educational Leadership Journal, 10, 1-12.
[16] Tweede Kamer, vergaderjaar 2007–2008, Signaleren van Fraude. 31 388, nr. 2

4. **Imposing sanctions**: In the event of fraud, sanctions will be imposed on the offending students that, in light of the breach of trust, are appropriate to the type of fraud committed.

In the case of suspicion of fraud, the examination committee of the department in question is responsible for dealing with the student. Due to the share of elective courses and the supra-departmental basic courses, where there is collaboration in multidisciplinary teams, an action protocol has been designed for supra-departmental courses, to ensure equal treatment of students from different study programs and to prevent setting precedents.

In the case of the suspicion of fraud by student assistants both the examination committee and the supervisor of the student assistant are responsible for dealing with them. A protocol is being developed to guide this process.

TU/e vision of the quality of testing

Examiners have primary responsibility for assessing students on study components. Examiners are appointed by the Examination Committee. TU/e assumes an appropriate level of professionalism on the part of teachers when it comes to ensuring that exams are valid and reliable and that the exams have a clear link to learning objectives and teaching activities (of the course), and that they are also relevant to the descriptors of the curriculum/competency framework and the TU/e and departmental education vision (such as the departmental interpretation of the OGO (Design-Based Learning)). The program management ensures that this vision is conveyed as broadly as possible and that the relevant bodies (program committee, or examination committee) safeguard the quality of how the vision is put into practice.

Every examiner/assessor is competent and preferably qualified in their specific role in the examination program; the 'testing and assessment' competency, as described in the university teaching qualification[17], is the minimum starting point (see box below)

Testing and assessment; the lecturer can:

1. design a test plan, including assessment criteria and, using this, develop tests to check whether the students have met the learning objectives sufficiently well

2. assess the learning process in groups of and individual students

3. use student test results to assess whether learning objectives have been achieved

4. analyze test results and draw conclusions on the quality of learning, teaching and testing

Organizing and coordinating teaching; the lecturer can: (3) describe university and departmental regulations that are relevant to the teaching process, such as the Course and Examination Regulations and the role of relevant bodies, such as the Examination Committee, Program Committee and the departmental administration

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Students, PhD's and post-doctoral researchers, if they have the right expertise, can offer valuable assistance in testing and assessment under the supervision of an examiner. However, the use of assistants demands a number of requirements and measures to guarantee reliability and validity and to restrict the chances of fraud (the exam framework follows the AEB/AEM advice[18] and the related regulations formulated for the use of Teaching Assistants (TA's)[19]).

Hence, the following restrictions apply with regard to the use of students
- Students cannot be used as proctors for final testing.
- Students cannot be used to process grades.
- Students have no access to final tests and the associated response models before the tests have been administered.

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[17] Handbook University Teaching Qualification (UTQ/BKO) portfolio, Professional Development/ TEACH , 2015

[18] 27042018 Advies AEB AEM, inzake inzet derden bij toetsing

[19] Regelgeving en professionaliseringsplan Teaching/ Teacher Assistants, September 2018 (in Dutch)

- Students must also approach the responsibilities delegated to them upon appointment with professionalism and integrity. To this end, contracts must be signed specifying the rights and obligations of the student and the university. Signing for non-disclosure concerning confidential information (e.g. student details) constitute an important part of these contracts.

The quality of examiners is safeguarded through monitoring and through the provision of feedback on the quality of exams and assessments. The annual reports by the examination committees include reports on the activities relating to the expertise of the examiners.

Exams are expected to be reliable - the exam makes a meaningful distinction between the students who easily meet the learning objectives, and those who do not; valid (the exam covers the learning objectives), transparent (before the exam, it is made clear to students how they are being tested, and on what subject matter) and efficient: the information obtained through testing outweighs the teacher's investment

TU/e believes there are several ways of guaranteeing the quality of exams (that is, their reliability, validity, transparency and efficiency). This can be achieved by using independent reviewers or a departmental exam committee mandated by the examination committee, but also by a system of exam meetings, for example, where a preset exam matrix is used to construct the questions, including the draft answer model, in combination with an assessment by independent reviewers. It is essential that before an exam is held, a check takes place to see whether it is relevant to the learning objectives, whether the questions are properly constructed, and whether an adequate assessment model is available. In such cases, the examiner must be able to supply the required quality information, e.g. for an examination committee to ensure, or if there are complaints from students. Afterwards, when the exam has been held and assessed, the exam results are analyzed and evaluated by course surveys, for example. If the analysis makes it necessary, the pass mark or assessment model will be adjusted[20]. The quality assurance circle is closed by using the results from the analyses and evaluations to improve the quality of the exams.

The way in which the departments actually put these processes into practice may be partly prompted by the quality-assurance culture that exists in the department, or by the expertise, sources and resources available to the department. Following the future-proof reorganization of the education support organization, the TOO operation, each department has a ESA teacher support officer who provides support. The education management ensures that the various stages of the exam cycle proceed as efficiently and effectively as possible. Where necessary, facilities are offered to specific students in line with TU/e policy concerning studying with a functional impairment to allow for realiable and valid testing. Ultimately, it is the relevant examination committee, acting proactively as much as possible, that safeguards the level of quality achieved. It presents its findings and areas for improvement in its annual report.

For students, transparency is the most obvious quality criterion. An important element here is that the exams and assessments are fair. This is achieved by giving students a clear and timely understanding of what subject matter is being tested and how grades are arrived at (pass mark, guess-correction, how grades are rounded up or down), and by adhering to agreements (such as those laid down in the Program and Examination Regulations, Student Statute, the TU/e academic code of conduct, and the examination regulations). There is a careful balance between the rights and obligations of students regarding rules, procedures, and penalties. The joint program committee (JPC) (advisory), the University Council (approval), the Bachelor's programs advisory committee for examination (AEB), and the Master's programs advisory committee for examination (AEM) have an important task here.

In addition, students have to be able to prepare properly for an exam. Homework assignments, interim exams and final exams are interlinked in a logical fashion. Giving information on, preventing, detecting and imposing penalties for fraud are also part of a system of fair testing. A sound fraud policy is very much in keeping with a sound academic culture, and is expressed across the TU/e to inform parties about fraud and scientific integrity and by preventing fraud.

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[20] The assessment may not be adjusted to the disadvantage of students.

Quality of graduation assignments

The graduation project is a special kind of test. The resulting final work of a degree program is a symbol of the university, its degree programs and the graduate. During degree program accreditation they are an essential element to demonstrate that the intended learning objectives have been realized (standard 4, The Assessment Framework for the Higher Education Accreditation System NVAO).

To guarantee the validity, reliability and transparency, a number of framework agreements have been made through the BC, GS guidelines and the model OER, and graduation regulations have been included in the Examination Regulations of degree programs. In the box below, aspects are listed that require agreements based on the applicable agreements for 2018-2019. A separate framework document is being developed for the Graduate School in which all generic agreements will be set down.

* Graduation assignments have an individual assessment component even if they are part of a larger group project.

* The desired size of the final projects are set by the institution (guideline): Bachelor's final projects are 10 credits and Master's graduation projects are between 30 and 45 credits. For internal double degrees specific guidelines have been established for BC[21] and GS[22].

* Institutional agreements are set down in the model OER regarding the minimal level students must comply with to initiate the final project. Discipline-specific requirements may be added to this.

* The Examination Committees guarantee the quality of the assignments and the composition of the graduation committee (Model ER) in advance.

* The examination committees supervise transparency by determining graduation regulations as part of the Examination Regulations.

* Integrity of final pieces of work is explicitly guaranteed through the use of plagiarism detection; students must sign explicitly for the integrity of the work submitted..

* Through the ER model, it has been agreed that reliability of assessment is guaranteed by having each degree program design an assessment form with a specification of the assessment criteria. Post-hoc the Examination Committee must at least carry out spot checks on the assignments and assessment to guarantee quality.

In addition to the above, the following applies to the Master's degree program, in accordance with the GS guidelines and OER

* The assessment of professional skills completed during graduation are part of the assessment of the graduation project.

* For transparency in the course catalogue mention is made whether and at which point interim evaluation of Master's theses take place.

* A graduation project consists of 30 and/or 45 ECTS.

* The graduation project can be 60 ECTS, but only if the core courses have a maximum of 15 ECTS, subject to approval by the departmental board acting on the advice of the program director.

* The Graduation Committee consists of at least three members who are appointed as examiners, of which at least one is an external member from a different research group, department or university

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[21] Directive Executive Board TU/e with regard to internal double degrees for Bachelor's programs, Adopted by the Executive Board on June 15, 2017
[22] Directive Executive Board TU/e with regard to internal double degrees for Master's programs, Adopted by the Executive Board on June 15, 2017

4. Support and the enhancement of expertise

In order to assist teachers, program management, and committees, specific training courses and master classes are available, as are examples of applications and good practices and formats, and manuals. There also are resources on hand, offered by ESA, cluster Teacher Support & Quality Assurance, for deploying expertise during teaching days, conferences or workshops, and when giving feedback on exam plans and when analyzing exam data and the like.

With the introduction of the TU/e digital assessment system, the use of ICT in the exam cycle has the full attention of the ESA teacher supporters. They can advise which type of test best matches the learning objectives to be assessed and which tool can best be used as regards test authenticity and required security for testing. They also support the test committee by for example designing test and item analyses. There are key users who can support the use of digital systems.

Support is also given in the provision of services. A number of these services are centrally based, including the scheduling of exam timetables, arranging of professional invigilators for centralized exams, and secure printing. There is also an option available for teachers to present their exams to a central point, after which the duplication of the exam papers, the distribution of forms, the holding of the exam, the collection of the forms and the answers, as well as the distribution of the work among the examiners, can take place in a secure manner. These services will be optimized with the help of a description and analysis of all exam-related processes. To this purpose, a coordinator was appointed within TOO for the Exam Planning and Fraud chain who guarantees the coordination and quality of the various services (see ESA development plan for the Exam Planning and Fraud chain).

5. Regulations

A further aspect of departmental exam policy is the drawing up of the Program and Examination Regulations (WHW, Section 7.13) and rules and regulations of the examination committee (the TU/e examination regulations) concerning assessment and fraud, among other things (WHW, Section 7.12b). The Program and Examination Regulations contain proper and clear information about the program or group of programs.

The composition of the examination committee must comply with the law (WHW, Section 7.12a). The desired composition in the department regulations model, which serves as a guideline for the various department regulations .

There is a complaints procedure (about exams and exam-related aspects) and appeal options for students. Students can easily find and view all relevant information on regulations, such as the Program and Examination Regulations and the examination committee guidelines.

There are Central Examination Regulations that indicate how (written) exams must be administered. The regulations formulate the organization and procedures around the administration of central exams, guaranteeing the quality of the administration of exams. This related to the changes to the WHW as of September 1, 2015, in which the responsibility for the organization of exams and the final examination was transferred to the institute board and taken from the Examination Committees. Simultaneously, this regulation is a result of quality care surrounding testing and fraud prevention, stemming from the need for improvement in that area. The regulation is regularly updated if there are new developments or after evaluations. Based on the 2016 evaluation, an appendix or separate regulation regarding digital testing will be included or designed. Where needed rules shall be added for the process of delivery, storage, and replication of exams (PAVOT).

6. Departmental policy

Departmental interpretation of the exam policy should be a joint product, under the responsibility of the program director, of the program management, the examination committees, and the program

committee. The Program Director consults with the Departmental ESA Manager to guarantee the executability of departmental assessment policy.

The most important aspects of a departmental assessment policy, the assessment policy document, are included in Appendix 1. Appendix 2 contains a list of contents of a logically constructed departmental assessment policy document, based on these aspects. These overviews are primarily intended to help the departments identify relevant components that could feature in the assessment policy document; therefore, they are not intended to be comprehensive or prescriptive. However, it is the case that many of the points mentioned in the appendices are derived from current legal requirements concerning testing, which now place a greater emphasis on the measurability and transparency of performances by institutes of higher education (both at central and departmental level) and students.

7. Roles and powers

For the parties involved (such as the dean, program director, examination committee, teachers, or students), a description and a detailed version of the roles, duties, responsibilities and powers in relation to everything regarding testing and assessing is available. An understanding of each other's roles, duties, etc. and holding each other to account in respect of responsibilities are a precondition for a functional testing organization. Mutual coordination and communication play an important role here. A brief overview of the responsibilities covered by the assessment policy is shown below, as well as the various interrelationships and the desired method of coordination. Appendix 3 includes an overview of the duties and responsibilities of various parties in the testing procedure.

The examination committee fulfills an essential and authoritative role regarding testing and assessment policy at program level. Through the joint chair meeting AEB/AEM, advice is regularly provided to the Deans BC and GS. The examination committee, whose members are appointed by the dean, operates according to the role, responsibilities and duties set out in the WHW, and in a visibly independent and expert manner. Since 2013, following changes to the WHW, the area of focus of the examination committee has emphatically encompassed the substantive quality of exams and assessments, in addition to the setting down of guidelines and instructions within the framework of the Program and Examination Regulations; the examination committees ensure that exams/tests (and their organization) are in order and guarantee that students who obtain their diploma fulfill the descriptors. If necessary, the examination committee will initiate further investigations to this end. In the event of any problems, the committee will inform the parties responsible, and monitor the measures taken and their effects.

In the central format agreed by the chairs of the Examination Committees for the annual report of the Examination Committees, it was determined that this shall be reported on. The annual report is discussed together with the department board. Possible actions taken for improvement are described in the annual report for education. There also is an annual plan in which the resolutions of the Examination Committee to shape or improve the safeguarding of quality are set for the next report period. On the basis of the annual report and the annual plan, at least two consultative meetings are organized with the Department Board. At the request of the Department Board and/or the Examination Committee, the program director and/or the graduate program director are invited to this consultative meeting.[23]

The safeguarding of the quality of testing and assessing is covered in the TU/e examination committee examination regulations; there is also an additional focus on the composition, appointments, work methods, and duties of the examination committee. For the details of the departmental approach to testing and assessment policy, reference is made in the examination regulations to the departmental assessment policy document.

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[23] See guideline in the Art 2.13c TU/e Department Regulations Model

8. Plan of action

The following actions have been planned within the Assessment Framework and its implementation in the departmental assessment policy.

Subject	Who	Start	Finish
Revision Exam framework	Policy officer for Testing at ESA	Sept	Jan 2018
Alteration of departmental assessment policy	Directors of education/policy officers for education	Dept. agreement action plan	June 2019 (target date)
Evaluation departmental testing plans	Policy advisor Assessment ESA	Jan 2020	March 2020
Testing implementation of departmental assessment policy	CCKO-Audit assessment policy, mid-term ITK	2022	2023
Update exam framework	To be determined	2024	2025

Since the first version of the exam framework, important steps have been taken in the field of fraud policy and digital testing, in accordance with the action plan. Results have been processed in the altered exam framework 2019. However, education and testing are always developing, which has an effect on exam and fraud policy, and thus on the exam framework. The overview of 'testing and innovation' in Appendix 5 shows running and desired innovations in the field of testing and the links to regulations that will have an impact on the assessment policy of the future.

It is a point of departure that where these often experimental set-ups involve the responsibility of the Examination Committee and department management there is cooperation with them.

Appendix 1: Departmental assessment policy format

Below are seven ingredients for the departmental assessment policy document. These components, which are set out point by point, are intended as guidelines/a format for the departments for the purpose of shaping the assessment policy document.

Quality assurance for assessment policy and testing

- Assessment policy is set down at departmental and/or program level. This implies that a department and/or program has an assessment policy, carries it out, and modifies it (quality assurance cycle). There is a prominent focus in the policy plan on the departmental vision on teaching and the related vision on digital and other forms of testing, and a focus on testing as an instrument for enhancing 'studiability' and influencing study behavior. It also contains the responsibilities for its implementation, as well as the method used for holding periodic evaluations.

- For each degree program there is a testing plan stating how (in which courses, to what extent, the type of test, and the assessment function) all the descriptors are assessed. The testing plan is based on the teaching method, the curriculum, and the learning trajectories. Because of the changeable nature of teaching and education, there is a description of how to ensure that the testing plan is kept up to date (monitoring, or implementing changes).

- The program has guidelines for drawing up, holding, assessing, and analyzing exams, for determining the pass mark, and for the administrative and archiving procedures. There is an archiving system for the all the relevant exam material (in accordance with the prevailing Program and Examination Regulations).

- The quality of testing and assessing, and the level of education attained by the students, are regularly checked at program level, with prompt and appropriate action being taken whenever any problems are identified.

- Examination committee members possess the expertise needed for fulfilling their roles to the desired level. The dean gives the members a hearing and appoints them, and has final responsibility for their performance, and for that of the committee. There are schooling, advice, and support options available to the examination committees.

- The examination committee accounts for (and reflects on) its activities in an annual report. The annual report is discussed with the dean and the program director.

- The department ensures that the expertise of the examiners is transparent in relation to testing and assessing. They create opportunities for schooling, advice, and support by exam experts.

Safeguarding the final level of attainment by students

- When monitoring the final level of attainment, specific attention is paid to the authenticity and standard of the theses and final assignments as an indication of the level of attainment of the graduates. Clear assessment criteria can be a useful guide for achieving this.

- With regard to the authenticity of the work of students, the program has set out a fraud policy covering the following aspects: providing information on fraud, preventing fraud, detecting fraud, and penalties imposed on those guilty of fraud.

- There is a quality assurance system for monitoring and safeguarding the final level of attainment by students (Bachelor's and Master's level).

- Any investigation into the level of attainment by students may involve the professional field, experts, and alumni. International benchmarking may also be considered.

Subject of testing

- Clear descriptors have been formulated for the program, which are in keeping with the Dutch qualification structure and meet international requirements. The starting points are the Dublin Descriptors and the 3TU Criteria for Academic Bachelor's and Master's Curricula.

- The descriptors are translated into learning trajectories and learning objectives for the various curriculum components.
- The program ensures a clear and sound relationship between the descriptors of the program, the learning trajectories and learning objectives, and the testing of the learning objectives.
- Exam methods depend on the learning objectives, and are sufficiently relevant to them.
- The exam methods selected are consistent with the mode of teaching and the learning objectives of the curriculum component.

Exam schedule

- The exam schedule/testing plan is set up in such a way that it quickly becomes clear, especially in the early stages, whether students are going to be able to successfully complete their studies.
- By the authority of the examination committee, the exam timetable for any given semester is published at least one month before the start of the semester in question, including the dates and times of the exams. The time or location of a scheduled exam may only be altered with the permission of the examination committee.

Types of exam and requirements of exams

- For each curriculum component or course, there is a visible link between the learning objectives, modes of teaching, and the type of exam. There are checks on the links between learning objectives, modes of teaching, and type of exam. Account is also taken of the functions of the 'tool of learning' and 'tool for learning' exam aspects.
- Every exam meets the admission criteria, is transparent, valid, and reliable:
  o Transparent: before the exam, it is made clear to students how they are being tested, and on what subject matter.
  o Valid: the exam covers the learning objectives. Content (consistent with the learning objectives), level (the degree of difficulty) and a good representation of the subject matter are key aspects of validity.
  o Reliable: the exam makes a meaningful distinction between the students who easily meet the learning objectives, and those who do not. The quality of the exam plays a role here (individual ability, minimal chance of guessing the right answers, lack of ambiguity), as do the circumstances in which the exam is held (standardization and objectivity) and the method used for assessing the results (objective, not random, accurate).
- Appropriate assessment procedures and models (such as answer models, assessment criteria, and rubrics) are available for each exam. The means by which the pass mark is determined is set down in advance, with the reasons.
- Exams are evaluated on the basis of an analysis of the results. If the analysis of the exam gives rise for doing so, the pass mark and assessment may be adjusted. The course evaluation data may result in the teaching and the exam being modified for the next academic year.

Organizational matters, procedures, rules and guidelines

- Accountability for how attention is paid to the adequate regulation of various matters is given in the assessment policy document, including:
  o the period within which exams must be assessed, administration, publication of the results;
  o the drawing up, holding, assessment, analysis, and evaluation of exams;
  o communication with students;
  o scheduling of exams;
  o preventing, identifying, and dealing with plagiarism and fraud;
  o rules for the use of student assistants for testing and assessment;
  o complaints, appeals options for students.

A clear distinction is made here between ensuring and safeguarding.

- The examination committee has drawn up rules and guidelines (for examiners in particular) concerning assessing, as stated in WHW, Section 7.12b.
- The program has guidelines for drawing up, holding, assessing, and analyzing exams, and for administrative and archiving procedures (all in accordance with the Program and Examination Regulations).
- There is a good archiving system available for the exam material, students' answers, and assessments.
- The rules and guidelines drawn up by the program and the examination committee are actively brought to the attention of the examiners (teachers) and other relevant parties. The information is easy to find and understand.
- There is a complaints procedure (about exams and exam-related aspects) and appeal options for students.
- All relevant information about regulations, such as the Program and Examination Regulations, the Student Statute, the complaints procedure (about exams and exam-related aspects) and appeals options, is easily available for students, and is set out in clear terms.

Future developments
- In assessment policy attention is paid to the plans and projects for the near future with an eye to developments in the field of education and testing. Connections can be found with university-wide development plans, such as that recorded in the exam framework (Appendix 5) and departmental plans for educational innovation.
- Innovation projects in the field of testing are described in this.
- Action Plan in the field of testing as a result of the assessment of the program accreditation..

Appendix 2: Example of contents of departmental assessment policy document

Introduction

Ideally, the introduction should contain a description (and an organizational chart) of the organizational structure behind exams.

1. Vision of teaching and examinations

<u>1.1</u> Vision of teaching

- Descriptors of the program

  see Subject of Testing aspect, subject 1:

  - Clear descriptors have been formulated for the program, which are in keeping with the Dutch qualification structure and meet international requirements. The starting points are the Dublin Descriptors and the 3TU Criteria for Academic Bachelor's and Master's Curricula.

- Translating descriptors into learning objectives see Subject of Testing aspect, subjects 2 and 3:

  - The descriptors are translated into learning trajectories and learning objectives for the various curriculum components.

  - The program ensures a clear and sound relationship between the descriptors of the program, the learning trajectories and learning objectives, and the testing of the learning objectives.

- Connections between learning objectives and types of exam

  see Types of Exam aspect and requirements of exams, subject 1 first part + Subject of Exam, subjects 3, 4, and 5:

  - For each curriculum component or course, there is a visible link between the learning objectives, modes of teaching, and the type of exam.

  - The program ensures a clear and sound relationship between the descriptors of the program, the learning trajectories and learning objectives, and the testing of the learning objectives.

  - Exam methods depend on the learning objectives, and are sufficiently relevant to them.

  - The exam methods selected are consistent with the mode of teaching and the learning objectives of the curriculum component.

- Monitoring

  see Types of Exam aspect and requirements of exams, subject 1 second part + Subject of Exam, subject 4:

  - There are checks on the links between learning objectives, modes of teaching, and type of exam.

  - Account is also taken of the functions of the 'tool of learning' and 'tool for learning' exam aspects.

<u>1.2</u> Vision of exams

  see Quality assurance for assessment policy and testing aspect, subject 1 second part and Scheduling of Exams, subject 1:

  - There is a prominent focus in the policy plan on testing as an instrument for enhancing 'studiability' and influencing study behavior. It also contains the responsibilities for its implementation, as well as the method used for holding periodic evaluations.

  - The exam schedule is set up in such a way that it quickly becomes clear, especially in the early stages, whether a student is going to be able to successfully complete his or her studies.

- The vision on digital testing. The vision is discussed in relation to future developments in education and innovation of testing. Connection can be made with the university-wide development plans as laid down in the test framework (Appendix 5) and departmental development plans for educational innovation.

It is important that a link be made between the vision of teaching and exams of the department and TU/e.

2. Safeguarding the quality of exams

see Quality assurance for assessment policy and testing aspect, subject 1 first part:

- Assessment policy is set down at departmental and/or program level. This implies that a department and/or program has an assessment policy, carries it out, and modifies it (quality assurance cycle).
- Policy on fraud is set out centrally and implemented by each department.
- The board ensures the quality of exams and describes this in its documents. The examination committee safeguards the quality of exams and describes how it does so in its documents.

2.1 Exam plan

see Quality assurance for assessment policy and testing aspect, subject 2:

- The program has an exam plan stating how all the descriptors are assessed. The exam plan is based on the teaching method, the curriculum, and their learning trajectories.
- Because of the changeable nature of teaching and education, there is a description of how to ensure that the exam plan is kept up to date (monitoring, modifications).

see Scheduling of Exams aspect, subject 2:

- By the authority of the examination committee, the exam timetable for any given semester is published at least one month before the start of the semester in question, including the dates and times of the exams. The time or location of a scheduled exam may only be altered with the permission of the examination committee.

2.2 Procedures for drawing up, submitting (by teachers), holding, and assessing exams see Organizational matters, procedures, rules and guidelines aspect, subject 1:

- Accountability for how attention is paid to the adequate regulation of various matters is given in the assessment policy document, including:
  o the period within which exams must be assessed, administration, publication of the results;
  o the drawing up, holding, assessment, analysis, and evaluation of exams;
  o determining the pass mark;
  o communication with students;
  o scheduling of exams;
  o preventing, identifying, and dealing with plagiarism and fraud;
  o complaints, and appeals options for students.

see Quality assurance for assessment policy and testing aspect, subjects 3 and 4:

- The program has guidelines for drawing up, holding, assessing, and analyzing exams, for determining the pass mark, and the administrative and archiving procedures.
- There is an archiving system for the all the relevant exam material (in accordance with the prevailing Program and Examination Regulations).

see Organizational matters, procedures, rules and guidelines aspect, subject 5:

- The rules and guidelines drawn up by the program and the examination committee are actively brought to the attention of the examiners (teachers) and other relevant parties. The information is easy to find and understand.

- Procedure for drawing up exams

see Types of Exam aspect and requirements of exams, subject 2:

- Every exam meets the admission criteria, is transparent, valid, and reliable and efficient:
  o Transparent: before the exam, it is made clear to students how they are being tested, and on what subject matter.
  o Valid: the exam covers the learning objectives. Content (consistent with the learning objectives), level (the degree of difficulty) and a good representation of the subject matter are key aspects of validity.
  o Reliable: the exam makes a meaningful distinction between the students who easily meet the learning objectives, and those who do not. The quality of the exam plays a role here (individual ability, minimal chance of guessing the right answers, and lack of ambiguity), as do the circumstances in which the exam is held (standardization and objectivity) and the method used for assessing the results (objective, not random, and accurate).
  o Efficient: the information obtained through testing outweighs the teacher's investment (test development and correction and test taking) and student, especially in terms of time

- Procedures for delivering the exams (by teachers)
- Procedures for holding exams

  see Organizational matters, procedures, rules and guidelines aspect, subjects 6 and 7:

  - There is a complaints procedure (about exams and exam-related aspects) and appeal options for students.

  - All relevant information about regulations, such as the Program and Examination Regulations, the Student Statute, the complaints procedure (about exams and exam-related aspects) and appeals options, is easily available for students, and is set out in clear terms.

- Procedures for assessing exams

  see Types of Exam aspect and requirements of exams, subject 3 and Organizational matters, procedures, rules and guidelines aspect, subject 2:

  - Appropriate assessment procedures and models (such as answer models, assessment criteria, and rubrics) are available for each exam.

  - The means by which the pass mark is determined is set down in advance, including reasons.

  - The examination committee has drawn up rules and guidelines (for examiners in particular) concerning assessing, as stated in WHW, Section 7.12b. See aspect.

2.3 Measuring results: instruments for measuring the quality of exams

see Quality assurance for assessment policy and testing aspect subject 4:

- The quality of testing and assessing, and the level of education attained by the students, are regularly checked at program level, with prompt and appropriate action being taken whenever any problems are identified.

see Types of Exam aspect and requirements of exams, subject 4:

- Exams are evaluated on the basis of an analysis of the results. If the analysis of the exam gives rise to doing so, the pass mark and assessment may be adjusted. The course evaluation data may result in the teaching and the exam being modified for the next academic year.

2.4 Fraud policy

see 2.2 Procedures for drawing up, delivery (by teachers), holding, and assessing exams: preventing, identifying, and dealing with plagiarism and fraud;

2.5 Responsibilities of examination committee and dean

see Quality assurance for assessment policy and testing aspect, subjects 5 to 7:

- Examination committee members possess the expertise needed to fulfil their roles to the desired level. The dean gives the members a hearing and appoints them, and has final

responsibility for their performance, and for that of the committee. There are schooling, advice, and support options available to the examination committees.

- The examination committee accounts for (and reflects on) its activities in an annual report.
- The annual report is discussed with the dean and the program director.
- The department ensures that the expertise of the examiners is transparent in relation to testing and assessing. They create opportunities for schooling, advice, and support by exam experts.

3. Safeguarding the final level of attainment by students

3.1 Level of BSc and MSc theses

see Safeguarding the final level of attainment by students aspect, subject 1

- When monitoring the final level of attainment, specific attention is paid to the standard of the theses and final assignments as an indication of the level of attainment of the graduates. Clear assessment criteria can be a useful guide for achieving this.

3.2 Quality assurance of BSc and MSc theses

see Safeguarding the final level of attainment by students aspect, subject 2

- There is a quality assurance system for monitoring and safeguarding the final level of attainment by students (Bachelor's and Master's level).

3.3 Involvement of stakeholders

see Safeguarding the final level of attainment by students aspect, subject 3

- Any investigation into the level of attainment by students may involve the professional field, experts, and alumni. International benchmarking may also be considered.

4. Innovation

- Discussion of innovation projects related to testing.
- Possible innovation projects in the field of assessment are described and how they are attuned with Examination Committees concerning their duties guaranteeing adequate assessment. .
- Plan of action with regard to testing as related to the SWOT-analysis in the self-evaluation report and the advisory report of the assessment panel.

Appendix 3: Roles and powers

Preconditions	CvB (via Dean)	Department Dean	Director of Education	Examination Committee	Program Committee	Department council	University Council/JPC	Examiner	Manager ESA department	CM[24] Exam planning- and fraud	CM Study progress	Student	invigilator	Exam planner	Exam coordinator	Requirements
Composition of and appointment to examination committee		a/r	c	c	i	i		i	i		i	i				WHW, Section 7.12, 7.12a and 7.12b, and OER, Article 2.10B and 2.11B
Examination committee annual report		a	c	r				i	i							WHW, Section 7.12c paragraph 1
Examination committee annual report		a	i	r	i	i		i	i			i				WHW, Section 7.12b paragraph 5, and model departmental regulations[25], Article 2.13B
Model OER	a/r	c	c		c [26]	c [27]	c		c [28]							TU/e Guideline BC + GS
Program and Examination Regulations program		a	r	c	c	c		i	r			i				WHW, Section 7.13 and Section 7.14
University-wide assessment policy	a/r	c	c	c	c	c	c	i	c [29]	i	i					TU/e Exam framework
Program assessment policy (content)	i	a	r	c	c	i		i	c			i				TU/e Exam framework
Examination regulations	i		i	a/r	i	i		i	i				i	i	i	i	OER + WHW artikel 7.12b lid 1b
Quality of examiners		a	r	c	i	i		r								TU/e Exam framework

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24CM Chain Manager ESA

[25] As guideline fort he departmental regulations

26 Via JPC

27 Via UR

28 Also central ESA manager,

29 idem

Teaching and examination processes	CvB (via Dean)	Department Dean	Director of Education	Examination Committee	Program Committee	Department council	Examiner	Manager ESA department	CM Exam planning- and fraud	CM Study progress	Student	invigilator	Exam planner	Exam coordinator	Requirements
Safeguarding the quality of testing	i	i	c/i	a/r	c/i		c/i	i							Examination Regulations (WHW, Article 7.12b)

a=accountable, r= responsible c= to be consulted, i= to be informed

Teaching and examination processes	CvB (via Dean)	Department Dean	Director of Education	Examination Committee	Program Committee	Department council	Examiner	Manager ESA department	CM Exam planning- and fraud	CM Study progress	Student	invigilator	Exam planner	Exam coordinator	Requirements
Program goals/ descriptors	i	a	r	c	c		i				i				Dublin descriptors or ACQA Accreditation (WHW, Section 5a.8, 5a.10a, 5a.13f and 5a.13g) WHW, Section 7.13 par 2c, OER
Program exam plan	i	c	a/r	c	c		i				i				TU/e Exam Framework
Course exam plan			c	i	i		a/r	i			i				BC regulations/ OER
Learning objectives for each course	i		a	c	c		r	i			i				Curriculum
Making sample exams available				i			a/r				i				BC regulations/ OER
Exam matrix/exam schedule				i			a/r				i				Assessment policy and program exam plan
Exam + exam quality			i	i			a/r				i				Examination regulations
Assessment procedures and model				i			a/r				i				OER, and Examination
Determining the pass mark/ guess correction				i			a/r				i				OERs, and Examination [30]

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[30] at the least: make clear in advance how pass mark is determined ; opportunities for modifications later are clear; how to deal with borderline cases.

	CvB (via Dean)	Department Dean	Director of Education	Examination Committee	Program Committee	Department council	Examiner	Manager ESA department	Manager ESA central	CM Exam planning- and fraud	CM Study progress	Student	invigilator	Exam planner	Exam coordinator	Requirements
Assessment			i				a/r				i					Examination regulations
Exam analysis and evaluation		i	a	i			r	r								Examination regulations

a=accountable, r= responsible c= to be consulted, i= to be informed

Organization of testing		CvB (via Dean)	Department Dean	Director of Education	Examination Committee	Program Committee	Department council	Examiner	Manager ESA department	Manager ESA central	CM Exam planning- and fraud	CM Study progress	Student	invigilator	Exam planner	Exam coordinator	Requirements
Registering for scheduled exams								i	i			a	r	i	i		OER
Holding an exam	Deliver exam for holding			a				r	i							i	OER, TU/e central examination regl., PAVOT
	The actual holding itself			i				r		a			r	r		r	OER, TU/e central examination regulations
	Organization/management in order to hold the exams			c/i	c/i			i		a	c/i			i		r	TUe Exam Framework/ TUe policy concerning studying with a functional impairment
Scheduling of exams				c	c			c	r	a	c/i	i	i	i	r	c/i	Examination regulations

24

Exemptions and degree certificates	CvB (via Dean)	Department Dean	Director of Education	Examination Committee	Program Committee	Department council	Examiner	Manager ESA department	CM Exam planning- and fraud	CM Study progress	Student	invigilator	Exam planner	Exam coordinator	CBE[31]	Requirements
Exemptions			i	a/r/			c	i			r[32]/i					WHW Section 7.12b lid 1d
Degree certificate			i	a/r/			r				r[33]/i					WHW Section 7.11
Double degree				a/r/ i				i			r[34]/i					Directive Executive Board TU/e with regard to internal double diplomas

Fraud and complaints	CvB (via Dean)	Department Dean	Director of Education	Examination Committee	Program Committee	Department council	Examiner	Manager ESA department	CM Exam planning- and fraud	CM Study progress	Student	invigilator	Exam planner	Exam coordinator	CBE	Requirements
Prevention of and information about fraud			a/r	r			r	r			r	i		r	i	departmental assessment policy, and TU/e wide agreements on communication regarding fraud prevention
detection of cases of suspicion of fraud				i			a/r	i			c/i	r				OER, Student statute and Examination Regulations and TU/e fraud policy
Dealing with cases of suspicion of fraud		i	i	a/r			c/i				c/i	c/i				WHW, Section 7.12b paragraph 2, procedure for cases of fraud that affect more than one department
Dealing with complaints in relation to exams				r[35]/c				i			c/i				a/r	WHW, Section 7.12b paragraph 3 and 4 Program and Examination Regulations

31 CBE: Examinations Appeals Board
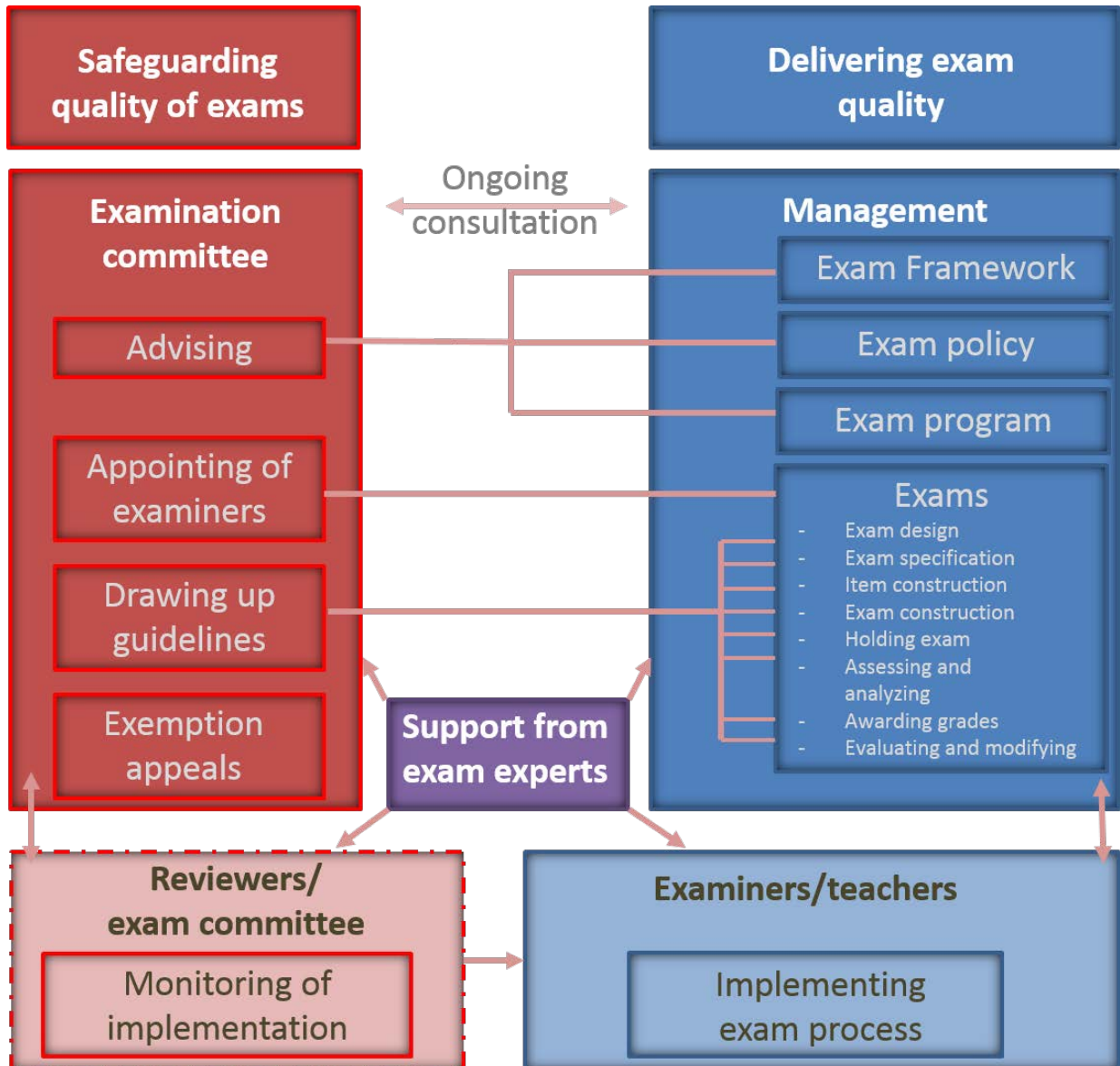32 At request of student
33idem
34 idem
35 amicable settlement

Appendix 4: Ensuring versus safeguarding

The division of the responsibilities of the examination committee and management at TU/e

Based on Van Zijl & Jaspers (2012), Joosten-ten Brinke & Van der Linen-Straatman (2012). Reviewers can assess the quality of an exam before it is held; a test committee may be appointed by the examination committee, whether or not with specific points of attention concerning the safeguarding of the quality of exams.

Appendix 5 Overview of running and expected projects for Testing and Innovation

Subject	Actions	Who	Points of attention	Start	Finish
Digital testing	Authenticity of digital testing project	Ludo van Meeuwen (pl Youp Horst)	Alignment learning objectives and types of exams		
	Stimulating use of digital tests through Cirrus and Canvas	Teacher support chain, departmental assessment policy	Both interim and final tests		
	Digital testing on paper (QR-code) project	Youp Horst (pl Christine Praasterink-Huig			
	Use of STEP with Notebook exams project	Ouafa El'Fahmi (pl Youp Horst)	Adoption by the existing organization	July 2018	Sept 2019
Pre-assessment	Follow-up 'Handelen in voorkennis'		Support		
Graduation	Framework regulation graduation in the Graduate School	Dean GS		2018	
Central administration of exams regulations	Procedure use of central printer facilities (PAVOT)	Ouafa El 'Fahmi (pl vacancy)		2018	2019
	Adjustment of central administration of exams regulations	Mr E de Brouwer, Dieuwke de Haan	digital testing Processing CCKO evaluation		December 2018 (written)
Exam planning	Exam planning project	Chain manager Ouafa pl. E. Havekes	Closure of the Pavilion Building Administration through notebooks		
Testing 2030	Multidisciplinary education and testing	Collaboration with Innovation Space	Guidebook testing multidisciplinary assignments with own learning objectives		

			BEP agreements		
	Distance examination (proctoring)	Fred Gaasendam, pl. to be determined			2019
	From interim tests to feedback	To be determined	Design good feedback moments in blended learning		
Fraud	Reinforcing information about fraud	De Haan	Communication to teachers about boundaries in fraud and rules information for students,		
	Protocol for dealing with a suspicion of fraud for student assistants	Education lawyer	For examination committees		Jan 2019

Appendix 6 Abbreviations

AEB	Advisory Committee on Bachelor's Programs Examinations
AEM	Advisory Committee on Master's Programs Examinations
BC	Bachelor College
BKO	Basic Teaching Qualification
CvB	College van Bestuur
EC	Examination Committee
ESA	Education and Student Affairs
GS	Graduate School
ITK	Insitutional Audit for Quality Assurance
JPC	Joint Program Committee
OER	Program and Examination Regulations
OGO	Design-Based Learning
Pavot	process of delivering, storing, and replicating exams
STEP	Secure test environment protocol
TA	Teaching assistant
TOO	future-oriented education organization
TS&QA	Teacher Support and Quality Assurance
WHW	Higher Education and Scientific Research Act