Design, landscape & methods

Assessment fan deck

TU/e EINDHOVEN UNIVERSITY OF

TECHNOLOGY

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This assessment fan deck will guide you step-by-step in redesigning assessment within you course, in order to align it beter to your course learning goals.

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GENERAL - ASSESSMENT DESIGN

In order to make decisions for test design the funtion of the test first needs to be clear. Bennett (2011) distinguishes between primary and secondary objectives in a test, plotting these on two different types of tests.

Assessment design or redesign is inseparable from the learning activities and objectives of the course. In fact, the design of the assessment method is actually based on the learning objectives of the course. The learning objectives indicate what a student should know or be able to demonstrate on completion of a course.

Based on the assessment results, it must be possible to take a valid and reliable decision as to whether the student has met the learning outcomes of the course and ultimately the program. The lecturer should be able to afford insight into the relationship between the objectives / content and the assessment method – for example, in an assessment plan for the course or in the study guide. When redesigning a testing method for a course, it is advisable to take account of the manageability of the curriculum as a whole. There needs to be an even balance between study hours and the various tests during the year. Some skills will have to be tested several times and in different situations.

POSITION WITHIN THE ASSESSMENT CYCLE

The assessment cycle as applied at TU/e comprises 8 steps. Figure 1 represents the cycle visually. The assessment scheme concerns the choices and decisions that are made in the two green blocks: assessment design and assessment specification.



Documentation, stakeholders & vision

Assessment landscape

TU/E-WIDE ASSESSMENT DOCUMENTATION

At TU/e, assessment is based on four pillars:

• **Transparency:** prior to testing, students are clearly informed as to how and on what they will be tested.

• **Efficiency:** the time investment needed to arrange testing according to the above three requirements, to check the results and go through all the processes is in proportion to the benefits afforded by the testing method.

• Validity: the assessment procedure covers the learning objectives. Regarding validity, content (corresponding to the learning objectives), level (degree of difficulty) and representativity all play a role.

• **Reliability:** testing within a course accurately reflects the extent to which students have mastered the learning objectives. The quality of assessment (discriminatory capacity, minimal likelihood of guessing, clarity), the assessment circumstances (standardization and objectivity) and the manner in which the results are assessed (objectively, accurately and non-random) all play a role here. Each testing method has specific points of attention regarding validity and reliability. For some courses, a combination of testing methods will be necessary to assess all the learning objectives in a valid and reliable manner. The requirements for validity and reliability increase in proportion to the importance of the judgment you make on the student based on the test.

TEST DOCUMENTATION LANDSCAPE

A wealth of documentation and support is available on the subject of testing. Figure 2 includes a diagram representing the relationship between documentation and support.



Figure 2. Documentation Landscape



STAKEHOLDERS

Various stakeholders are involved in the test process. They are represented in the TU/e-wide assessment framework, where a distinction is made between the functions of safeguarding and providing. Figure 3 shows this as a diagram.

Figure 3. Stakeholder overview

The TU/e-wide assessment policy includes the following text on the vision for 2030 in terms of testing.

In the new TU/e strategy for 2030 (from 2018) this educational vision is elaborated on and further specified. A revised educational vision is in the making. The profile of Eindhoven engineers as T or ∏ shaped are strategic themes: engineers who combine in-depth knowledge of one or more disciplines with the skills to take on real, everyday scientific and technological challenges.

A whole range of students are selecting their own learning path and developing an attitude of lifelong learning. It is therefore vital for education to be structured in a flexible and modular manner, and be offered online as well (if possible, including an assessment component) and offered to various groups of students. As a result, the demand for remote assessment increases. The above also entails that lecturers must develop new didactic and pedagogical methods to be able to motivate and activate these different groups of students, from teaching to learning. Assessment and testing will play a role, here.

At TU/e, research and education are strongly intertwined, with challenge-based learning as a distinguishing element. Students learn by working on real engineering problems in diverse cross-disciplinary teams, making a system-level approach essential. To this end, cooperation in education (including assessment) in the TU/e ecosystem (with companies, other educational institutions, etc.) is being intensified.

When designing assessment methods for a course, it is always advisable to take a thorough look at the central documentation and the departmental assessment policy in order to arrive at a suitable assessment plan for the course.



Test design choices

GUIDELINES FOR MAKING TEST DESIGN CHOICES

The choice of a certain testing method or tool depends on various factors. Table 1 illustrates the different variables that influence the choice of a testing method or tool. This part of the assessment scheme can be run through together with a lecturer in order to set up a test plan based on the choices made, or which may have been decided based on the regulations.

STEP	DESIGN CHOICES
1	Assessment functions
2	Bachelor College or Graduate School course?
3	What are the learning objectives of the course?
4	Number of participating students
5	Experiences of current testing
6	Digital or non-digital testing
7	What fraud measures apply?
8	Where should testing take place?
9	What is described in the departmental test plan?

Table 1. 9 guidelines to design a test plan

1. DESIGN CHOICES - WHAT IS THE MOST IMPORTANT FUNCTION OF THE TEST?

In order to make decisions for test design the funtion of the test first needs to be clear. Bennett (2011) distinguishes between primary and secondary objectives in a test, plotting these on two different types of tests.

	OBJECTIVE	
ТҮРЕ	TESTS TO LEARN FOR	TESTS TO LEARN FROM
SUMMATIVE	Х	х
FORMATIVE	x	Х

X = primary objective

x = secondary objective

Within testing, a distinction is made between two objectives:

- Testing to learn from
- Testing to learn for

Here, 'from' and 'for' concern the student's learning process. A test to learn from should serve as a tool for the student, enabling them to reach an improved result in the future. This is irrefutably connected to receiving feedback. Without feedback, you have no way to improve yourself. A test to learn for means the

student is challenged to learn for the test because it has consequences (e.g. a grade or partial grade).

Much has been written on the definition of both types (formative and summative) of test. One possible definition of formative tests, for example, is to improve learning. Bloom describes formative assessment as giving feedback and correcting learners during the learning process. Activating prior knowledge and activating students during a lecture also count as formative.

Summative assessment is described as the assessment of certain performances or whether a certain goal has been attained. At first glance, the types of test and the test objectives seem to be directly connected. Formative assessment with tests from which students can learn and summative assessment with tests that students have to learn for. That is indeed true to a large extent, but a summative test can also be partly intended for students to learn from (for example, if they participate in the inspection of their examination).

IN THEORY, AN INTERIM TEST MAY TAKE THE SAME FORM AS THE FINAL EXAMINATION, ONLY IN THAT CASE, DIFFERENT REQUIREMENTS ARE SET.

In theory, an interim test may take the same form as the final examination, only in that case, different requirements are set: the student must be afforded sufficient feedback, while the requirements regarding validity and reliability are less strict. Also, an interim test may focus on a partial aspect only: a professional skill or a limited part of the knowledge domain, and require a lower competency attainment than in the final examination. When selecting a testing method for an interim test, even more account should be taken of practicability than in the case of a final examination.

PLEASE NOTE.

• Interim tests often make up but a small part of the final grade, and a final examination also provides feedback as to the extent to which the learning objectives have been achieved.

• If additional or new skills are expected for the final examination, such as working with the assessment tool, the student should preferably be given the opportunity to practice using it – for example, during the interim tests.

• Tests and examinations must be checked within a certain period. This is 5 working days for interim tests and 15 working days for final examinations.

2. DESIGN CHOICES - BACHELOR COLLEGE COURSES

The Bachelor College requires students to sit interim tests as well as a final examination. The required competency attainment increases as the course progresses: less knowledge production, more application of knowledge, analysis, synthesis and skills.

Current guidelines for Bachelor College:

- As part of every first-year course, at least two interim tests are administered, both of which count towards the final assessment of the course.
- An assessment plan or course description must be available that sets out the correlation between tests in the course.
- The final examination determines at least 50% and at most 70% of the final grade.

• Final examinations can be retaken, while interim tests cannot.



Structure TU/e Bachelor College

Figure 4. Structure Bachelor College

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3. DESIGN CHOICES - LEARNING OBJECTIVES OF THE COURSE

Ideally, learning objectives should be linked to a taxonomy describing the competence attainment for the objectives. At TU/e, frequent use is made of Bloom's taxonomy, which outlines six levels of cognitive skills.

Bloom's taxonomy is a hierarchical model used to classify educational learning objectives into six levels of complexity and specificity:

- 1. Remembering
- 2. Understanding
- 3. Applying
- 4. Analyzing
- 5. Evaluating
- 6. Creating

The verb used for a learning objective often says a great deal about the cognitive skill level. The six verbs above in the taxonomy itself are to general to be used in a learning objective. If a lecturer has a learning objective that requires students to understand the subject matter (2nd level), verbs such as 'discuss', 'explain' or 'compare' are appropriate. The following is a possible example of a good learning objective: *The student is capable of explaining why theory X contributes to ...*'

Based on the tests and final examination, you need to be able to make a valid statement on whether the student masters the learning objectives of the course at the appropriate level. Appendix 3 contains a complete overview of Bloom's taxonomy.

PLEASE NOTE.

An interim test can test at a lower competence level as long as the final examination tests for the appropriate level. The lecturer will always inform students about this so that they know what is expected of them.

4. DESIGN CHOICES - NUMBER OF STUDENTS

The number of students has a bearing on the practicability of the assessment. If you have a large group of students, a digital test with closed questions will be more appropriate than having everyone write a thesis of at least ten pages. With a large group of students, a group assessment will be more suitable than having all the students make individual designs.

PLEASE NOTE.

• Final examinations need to be tested in a valid manner. Some learning objectives cannot be assessed with closed questions.

- Take a good look at the course assessment plan. If the subject matter or skill is repeated, it may suffice to test at a lower level.
- If you opt for group assignments, make sure individual students cannot get along for the ride.



5. DESIGN CHOICES - WHAT ARE THE EXPERIENCES; WHAT DOES ASSESSMENT CURRENTLY LOOK LIKE?

If a course already exist, it's interisting to take a look at the current examination setup. The first step is to discover all learning objectives and map the used assessments on the learning objectives. Is every learning objective covered by a formative and/or a summative assessment? If this is the case, have a discussion about the experiences of the examination setup? What are disturbing factors or things that can be improved? Factors which many colleagues encounter can be found in table 2.

Factor	Possible solution(s) (depending on assessment method!)
Time intensity	 Digitization of examination material Integrate more self- or peerfeedback within examinations Integrate more formative assessment with automated feedback (do all assessment methods need to be marked by the teacher?
Low passing mark	- Look at the alignment of assessment activities with learning activities. How big is the gap between these two? In other words: do students need to do different activities during the final exam compared to what they have to do during the exam? If this is the case, it's worth to adjust either assessment or learning activities to reduce the gap.
Both low- and high passing mark	- Take a look at an assessment analysis to check the quality of your questions. A teacher supporter can help you to improve your questions.

Table 2. Assessment method factors

6. DESIGN CHOICES - DIGITAL OR NON-DIGITAL TESTS?

To be able to choose the right way of testing for you, it is important to be aware of the differences between digital and testing on paper. Digital assessment has both advantages and disadvantages vs. testing on paper.

Advantages of digital testing.

Within the TU/e it is possible to digitalize exams. There are multiple systems which are supported. All tools are discussed in the chapter further below. Within this paragraph, some advantages will be described.

- A greater variety of question types, such as hotspot and the use of multimedia (image, sound, video).
- Easier to differentiate between tests per student.
- Easier to test independently of place and time (on condition that there is a well set-up

questions database, possibly containing parametrized questions).

- Today's students indicate that they prefer to type their answer to an open question than to write it down, and typed answers tend to be easier to read.
- Possibilities for automatic feedback for students. This is fairly easy to effect, particularly in the case of closed test questions and short open questions.
- A more efficient assessment procedure: if you use closed questions, for example, the provisional results can be published immediately.

- Easier to implement test and item analyses, which can be used to improve the quality of assessment and education.
- Archiving system for test material, tests that have been performed, and assessments.
- A questions database can facilitate re-use and improvement of questions.

Disadvantages of digital testing

Initially, introducing digital tests may entail additional development time. It takes time to adjust to the system, set up a questions database and gain experience with the various types of questions. Maintaining the questions database is also time-consuming. In addition, digital tests have a number of other disadvantages (see table 3).

	TU/e APPROACH
Additional skills required of lecturer	Provide training courses and master classes, examples of applications and good prac- tices and formats, guides and detailed plans. Support is also available via ESA and Teacher supporter.
More susceptible to fraud	STEP sticks (Secure Test Environment Protocol). A USB stick that does not allow communication via internet or the use of other applications. Only available for summative final examina- tions.
Depends on the technology	Various pilots
Additional requirements for examination location	Rooms must be provided with, for example, sufficient electrical sockets, a suffi- ciently secure WiFi connec- tion and enough space to work with a laptop and a mouse.

Table 3. Disadvantages of digital assessment

7. DESIGN CHOICES -WHAT FRAUD MEASURES APPLY?

The TU/e fraud policy mentions four elements that each describe a different stage of fraud, including various measures that can be applied during the stage in question. This is described in figure 3. The first thing a lecturer can do is inform and prevent. The detection and sanctions stages only apply if fraud has actually been committed.



TU/e FRAUD POLICY

Figure 6. TU/e fraud policy

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8. DESIGN CHOICES - WHERE SHOULD TESTING TAKE PLACE?

The location of the test influences the testing method and system. Most of the tests are taken on the campus of the TU/e, due to the fact that security can be arranged better. For final exams, invigilators are arranged by the ESA department. If you have a digital assessment also spare notebooks and STEP sticks (see chapter tools) are arranged. There are also possibilities to do your tests outside the TU/e campus.

Types of digital testing can easily be accommodated outside of TU/e locations. However, this could compromise the security of the testing environment. For instance, students could use aids to complete questions, or discuss answers with each other. Primarily, site-independent testing is therefore mainly suitable for formative tests, which are designed to provide students with feedback.

Adding measures such as proctoring to assessment methods gives site-independent

assessment a new meaning. Proctoring means that an external monitor supervises the student during the test or exam.

ADDING MEASURES SUCH AS PROCTORING TO TESTING GIVES SITE-INDEPENDENT ASSESSMENT A NEW MEANING. Proctoring can be done in various ways, such as:

• A webcam, which can be used to inspect the room where the student will take the test or examination in advance.

• A second webcam (for example, via a telephone) placed in such a way that the student is in view from a different angle than on the webcam on the computer.

- Recording of key strokes.
- Recording of sound from the room.

Recordings made as described above can then be verified in various ways. Someone can view the images in real time. A random sample can be taken afterwards, or images can be retrieved if there is suspicion of fraud. Naturally, the costs of the different control methods vary. Currently, a number of pilots have been carried out with proctoring within the framework of decentralized selection. No pilot has yet taken place for regular education.

PLEASE NOTE.

Support for proctoring is not yet included as standard at the TU/e, and will therefore have to be financed from one of the funds in the form of a project or pilot.

9. DESIGN CHOICES - WHAT IS DESCRIBED IN THE DEPARTMENTAL ASSESSMENT PLAN?

Toetsbeleid is een samenhangend stelsel van maatregelen en voorzieningen die een opleiding (of faculteit) treft om de kwaliteit van de toetsing en examinering te bewaken en te bevorderen. Doel van toetsbeleid is het kunnen verantwoorden van de wijze van toetsing en het bevorderen, bewaken en borgen van de kwaliteit van toetsing. Toetsbeleid vormt binnen het huidig universitair onderwijs een belangrijk aandachtspunt gezien het belang van betekenisvolle toetsingsresultaten voor activerend onderwijs, het geven van passend studieadvies, voor verwijzing en (zelf) selectie (bijvoorbeeld BSA). Het toetsbeleid dient congruent te zijn met de Onderwijs- en Examenregeling (OER). Inhoudelijke uitgangspunten vormen de onderwijs- en toetsvisie op instellingsniveau, de daarvan afgeleide onderwijs- en toetsvisies op opleidingsniveau en de eindtermen die gelden voor een opleiding. Toetsbeleid wordt op facultair- en/of opleidingsniveau vastgesteld.

Dit impliceert: een faculteit en/of opleiding beschikt over toetsbeleid, voert dit uit, evalueert en stelt bij (kwaliteitszorgcyclus). In het beleidsplan komt de aandacht voor de facultaire visie op onderwijs, de daarop aansluitende visie op (digitaal) toetsen en aandacht voor toetsing als instrument tot het bevorderen van de studeerbaarheid en sturing van studeergedrag naar voren, zijn de verantwoordelijkheden voor de uitvoering ervan vastgesteld, evenals de wijze van periodieke evaluatie.



REMEMBER

Can the student recall or remember the information? They would be able to define, duplicate, list, memorize, recall, repeat, reproduce or state.

REMEMBER

Assessment method

Knowledge assessment	Research report
Case test	Reflection report

Can the student explain ideas or concepts?

They would be able to classify, describe, discuss, explain, identify, locate, recognize, report, select, translate or paraphrase.



UNDERSTAND

Assessment method	
Knowledge assessment	Research report
Case test	Reflection report
Open book exam	Essay
Discussion/forum	

Can the student use the information in a new way?

They would be able to choose, demonstrate, dramatize, employ, illustrate, interpret, operate, sketch, solve, use or write.

APPLY



Assessment method	
Knowledge assessment	Research report
Case test	Reflection report
Open book exam	Essay
Discussion / forum	Thesis
Performance assessment / simulation	Stage
Werkstuk (model)	Design

Can the student distinguish between the different parts?

They would be able to compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question or test.



ANALYZE

Assessment method	
Portfolio assessment	Research report
Case test	Reflection report
Open book exam	Essay
Discussion / forum	Thesis
Performance assessment / simulation	Stage
Werkstuk (model)	Design
Interview	

Can the student justify a stand or decision?

They would be able to evaluate, appraise, argue, defend, judge, select, support, value and evaluate information.



EVALUATE

Assessment method	
Portfolio assessment	Reflection report
Open book exam	Essay
Performance assessment / simulation	Thesis
Werkstuk (model)	Stage
Interview	Design

Can the student create a new product or point of view?

They would be able to assemble, construct, create, design, develop, formulate, write or invent.





Assessment method	
Werkstuk (model)	Stage
Thesis	Design

What to choose?

Assessment form

ASSESSMENT FORM - WHAT TO CHOOSE?

Several considerations play a role in choosing a assessment form:

- Which assessment form fits the learning objectives and learning activities best? It is important these objectives and activities are aligned (constructive alignment) (Biggs & Tang, 2011).
- What does the assessment program look like and how does the new assessment fit in?
- The choice of assessment form is determined by the intended learning outcomes of the course / module.

You will find the different assessment forms of the TU/e in this chapter, under the following numbers:

1	Knowledge assessment
2	Case test
3	Open book exam
4	Research report
5	Reflection report
6	Essay
7	Thesis
8	Portfolio assessment
9	Performance assessment / simulation

ASSESSMENT FORM MODES

Each assessment method can be applied in a different way. There are four modes defined, which are written down below. A definition is given for each mode and for the settings of that mode. After the description of the modes, the assessment fan deck shows how an assessment method can be applied through what modes.

ASSESSMENT

Way of judgement of answers and assignments.

- **Self:** Student can check their own answers themselves, at the moment they need the answers
- **Peer:** A way in which students are involved in formulating the criteria for assessment, conducting the assessment and/or providing feedback to fellow-students
- **Computer:** fully automatically assessment: automatically assessment of the answers on a test, automatically generated scores, and feedback (suitable for closed-ended questions)

• **Teacher:** Judgement of answers on a test is done by the teacher (suitable for open ended questions/assignments).

SET-UP

Whether it is possible to apply the assessment method to either an individual or a group.

- **Individual:** unique test per individual within a course-set up or an open-ended assignment that has no standard solution.
- **Group:** one closed assignment or test for a (sub)group of the students

TEST METHOD

The way of taking the exam including consequences regarding preparation, scheduling, and other logistical processes as laid down in the central exam regulation.

- Written: Students need to write their answers on an answer sheet.
- **Digital:** Students give their answer in an online system, which can be secured by STEP sticks (only for final exams).

There are two possible written assessment methods which are facilitated during final exams.

- 'Regular' written exams, where paper based exams are marked by hand, offline.
- Written with barcode (Ans Delft exams), where paper based exams are digitized after making the exam, so the teacher can mark online.
- **Oral:** Oral exams are not facilitated by the central examination location, but can be a good way to test students. This method is used outside the examination periods.

LOCATION

The place where students can make the exam. There are pilots done to test an online proctor system, to better secure the off-campus assessments. So far, it's not possible to do large-scale exams off-campus with security measures in place so the exam is fraud-proof.

- At home: Students can make the exam home. Digital examination can be extremely suitable for this. For self-study purposes this can be very effective.
- On campus: All final examinations are held on-campus, during the examination periods.

IF YOU DECIDE TO PERFORM INTERIM ASSESSMENTS ON CAMPUS. BE AWARE THAT SECURITY MEASURES SUCH AS INVIGILATORS AND STEP-STICKS ARE NOT ARRANGED FOR INTERIM ASSESSMENTS.

ASSESSMENT FORM - KNOWLEDGE ASSESSMENT

A knowledge assessment is ment to test whether the student can reproduce and does understand information of a course. Closed ended questions like multiple choice or multiple response are suitable to assess this control level. Open ended questions (e.g. a short essay) are more suitable to test whether a student can apply certain knowledge of a course. The main difference between closed- and open ended questions is whether there is one (or more) fixed answers. If there are no fixed answers (in other words, when the marking needs to be done manually), it is an open ended question.



ASSESSMENT FORM - CASE TEST

With a case test, students need to answer questions based on information that has been provided to them in a case or multiple cases. The questions can be both closed- and open ended. The case can be open ended, so students need to use their skills to find a solution for the case. There are multiple ways to solve the case. The case is always based on a real life situation or problem.



ASSESSMENT FORM - OPEN BOOK EXAM

An open book exam is an exam at which students may use course materials or tools which can help them to make the exam. Examples tools are software programs, graphical calculators, etc. The course materials that the students may use varies from (parts of) handbooks or notes of a lecture up until all kinds of materials which are found by students (articles, books, etc.).



ASSESSMENT FORM - RESEARCH REPORT

A research report is a complex assignment where knowledge from theory and practice is combined in a (practice) oriented research. Most likely, the research question originates from the industry. The complexity of a research report can increase as the level of experience of a student increases. Bearing this in mind, the goal of the assignment can be: collecting knowledge (low complexity), apply skills in practice or generate new knowledge (high complexity).



ASSESSMENT FORM - REFLECTION REPORT

In general, five steps are being taken in a reflection report:

- Looking back on experiences in a learning environment
- Investigate and interpretate these experiences
- (Re)structure the knowledge and experiences
- Learn from these restructured knowledge
- Report all findings

It's important to clearly indicate why this assignment is important for students and on what aspect(s) they have to reflect on. Provide insight in the way reflection is shaped within the educational setup.



ASSESSMENT FORM - ESSAY

A written report or a discussion of a student regarding a specific topic. Depending on the level of the student, he or she provides an answer on a (research) question, based on sources. The students describes, analyses, summarizes and evaluates these sources. A conclusion based on this analysis can be given by the student as well as follow-up questions. Align with other teachers whether they also give the essay assignment in the same timeframe as it is an assignment that takes a lot of time. Make clear what the requirements of the essay are (amount of words, pages, fontsize, margins of the page, etc.). Also, give a clear due date for students.



ASSESSMENT FORM - THESIS

A thesis is the last product a student makes to finalize the education. By making this product, the student proves that he or she is ready for either a follow up study or to start working in industry or research. The thesis is a research question which the student tries to answer. The student needs to combine both practice and theory to solve this complex problem. The student needs a coach or a professional which can help the student with the planning of the thesis and the questions he or she has regarding the content.



ASSESSMENT FORM - PORTFOLIO ASSESSMENT

In a portfolio assessment, the student proves his or her competencies by handing in evidence such as assignments, reflection reports and experience reports. In general, the student executes five steps:

- Create the portfolio (this can take a few months, depending on the amount of assignments he or she needs to hand in
- Evaluate on the portfolio
- Discuss both the product and process in order to justify the choices made
- Create a verdict on the portfolio (self-evaluation)
- Give feedback on other portfolios

Use this assessment form in a limited, but effective extent after the student had a lot of experiences in practice.



ASSESSMENT FORM - PERFORMANCE ASSESSMENT / SIMULATION

A simulation is an assessment method where the behavior of the student is observed and assessed while he or she is executing critical professional tasks. A simulation takes place in a simulated imitation of an authentic situation. This assessment is done to assess competencies that are visible in behavior only and not in products such as a portfolio.

In general, four steps are being taken in a simlation:

- Observe the behavior of the student
- Discuss the findings with the student
- Give a mark to the student
- Give feedback to the student



keuzeboom



DIGITAL ASSESSMENT TOOLS - TOOL LANDSCAPE

To be able to choose the right way of testing for you, it is important to be aware of the differences between digital and testing on paper. Digital assessment has both advantages and disadvantages vs. testing on paper.

ASSESSMENT TOOLS - CANVAS QUIZ

What is a Canvas Quiz?

The Canvas quiz tool is used to create and administer online quizzes and surveys.

How does it work?

Courses within Canvas are created by the program administration. Teachers then fill the courses with materials and information, and registered students get access once the course period starts.

As an instructor you can create a quiz in Canvas, which can be graded or non-graded. Within this functionality, many options are available. For example, you can decide if a participant can do multiple attempts to make the quiz or whether the result is a part of the final grade. Also, you can make the quiz in such manner that it provides students with feedback right away.

Why would I want to use Canvas Quizzes?

Quizzes are a perfect tool to provide formative feedback to students. You could for example create weekly practice quizzes to provide extra practice material.

ASSESSMENT TOOLS - FEEDBACK-FRUITS

What is Feedbackfruits?

Enrich the possibilities of your study materials with the FeedbackFruits plugins for Canvas. You can use it to add interactive moments to videos, and documents, including PDF, Word files and YouTube videos.

How does it work?

FeedbackFruits is a perfect way to activate and engage your students. Answers to quiz questions in self-study documents and videos are gathered online. You can even make answering questions mandatory before moving to the next part of a document or video.

Some tasks, like reading papers, can be very passive. Quiz questions, such as analyzing a flaw or strong point, make it easier to read a paper attentively.

Why would I want to use Feedbackfruits?

If any of the following points apply to you, you might like FeedbackFruits!

- I want to engage my students
- I want to motivate students to interact more about the subject matter
- I want to get feedback from students quickly
- I want to prepare my lectures around concepts I know my students struggle with
- I want to know in which topics my students are succeeding or struggling
- I want to foster discussion among students and learn what they think

ASSESSMENT TOOLS - ANS-DELFT

What is Ans Delft?

Ans Delft is a web-based application for assessment and is available for all teachers within TU/e. With Ans Delft students take the exam on paper but the rest of the

process is digitalized (creation, marking, grading and archiving). Multiple teachers can work together to create an exam, and reviewers can review and mark the questions simultaneously (both horizontally and vertically). Different question types are supported (e.g., open-ended questions and multiple-choice questions).

How does it work?

You can find the system via https://www.ans-delft. nl/. You have the best performance in the Google Chrome web browser. You can reach your personal environment by clicking on 'sign in'. The only thing you have to do is click on 'Technische Universiteit Eindhoven'.

Each exam you print has a unique barcode. This barcode is used by the system to recognize each scanned exam and connect this to a student-ID.

The TU/e offers the possibility to secure the whole examination process. You can find more information in the 'Teacher guide Printing and Scanning' exams.

Why would I want to use Ans Delft?

The system has multiple advantages for you as a teacher:

- Time- and place-independent grading
- Automated grading of multiple-choice questions
- Semi-automated grading of open-ended questions
- Automated calculation of score & grade
- Several graders can mark an exam at the same time
- Time- and place-independent review and feedback
- moments for students
- More fraud-proof & less error-prone
- Less transport of paper-exams
- Easy analyses of grades and grading
- Better tracking of paper-exams

ASSESSMENT TOOLS - CIRRUS

What is CIRRUS?

Cirrus is a web-based environment for digital assessments. You can use it for both final exams in a secure online environment and informal practice examinations. Cirrus at TU/e is also set up to deal with mathematical equations and other scientific formatting.

How does it work?

You create a question bank with a variety of questions: true/false, multiple choice and open questions, but also mathematical questions and more. Parameterized questions are very interesting, where each student gets a unique test.

You create assessments out of your questions library. Teacher Support will help you with scheduling: for final exams in a secure web environment, you will get an examination room that is set up for laptop use, the support of ESA Educational Logistics, and USB security dongles. A great benefit of Cirrus is its analysis capability. How did your students do? Which parts were consistently difficult? Are there questions that low-scoring students do better on than high-scoring students? All information that points to potential issues.

Why would I want to use Cirrus?

Do any of the following points apply? Then Cirrus may be an interesting tool for you!

- I want to save time on creating and grading exams
- I want to use less paper
- I want to offer exam questions with rich media such as images, videos and documents
- I want to offer my students ways to practice
- I want to give my students immediate feedback on quiz questions
- I want parameterized exam questions
- I want to increase the quality of my exam questions
- I want to create a reusable question library

ASSESSMENT TOOLS - STEP

What is a STEP stick?

The TU/e has developed the Secured Test Environment Protocol (STEP), which is a bootable USB stick. By using the USB stick, the student can only reach the test environment, without making use of any software/files of their own system.

How does it work?

When a student presses the boot menu button, the boot process of the laptop is interrupted. A student can now choose for the USB stick, which prevents the hard disk (with all software and files) to start.

The only thing that will start is an operating system with the necessary things to start a browser. The student logs on to the WiFi of the TU/e and is automatically redirected to a landing page. From there, the student will have a normal browsing experience.

PLEASE NOTE.

All methods to escape from this environment are blocked and are logged so that a case can be made in case of suspected fraud.

Why would I want to use STEP?

The STEP stick is the method on the TU/e to secure the digital exams with Cirrus and other web-based applications during the exam periods organized by the central examination organization. As the organization of the STEP sticks takes some time, please indicate in the course guide that you're going to make use of the STEP sticks. You teacher supporter can help you arrange this.

EXTRA INFORMATION - SOURCES

If you need some extra information on the different assessment tools or need help innovating/ setting up your assessment, please feel free to contact us!



EMAIL

ESA Teacher Support teachersupport@tue.nl

ESA helpdesk esahelpdesk@tue.nl



WEBSITE

Canvas https://canvas.tue.nl/

FeedbackFruits https://feedbackfruits.com/home

> Ans-delft https://www.ans-delft.nl/

Cirrus https://cirrus.tue.nl/