

Context of the Quality Agreements

In 2018, the University of Twente developed a Quality Agreement Plan in response to the sector agreement Investing in Quality of Education. These Quality Agreements will be effective for a period of six years, from 2019 until 2024. This plan is the result of an intensive process that has been coordinated at faculty level by the Vice-Deans of Education. Since March 2018, all faculties have been formulating their own plans that describe the aspired and required development of education to which the income of the WSV-budget¹ will contribute. All of the faculty-specific plans combined form the Quality Agreement Plan of the UT.

Faculty of Science & Technology

Within the Faculty of Science & Technology Students and educational staff have contributed to the development of faculty-specific plans by sharing ideas and suggestions to enhance the quality of education. The planning, carrying out, monitoring and adjusting and updating of the Quality Agreements Plan is embedded in the PDCA-cycle for the Quality assurance of the annual education plans of programs and the faculty. To ensure persisting participation of students in the monitoring of the execution of the plans and whether the intended outcomes are achieved, bi-annual meetings will be organized by the Faculty Council with representatives from the Faculty Board, the Program Committees, and the Study Associations. The Faculty Council has the right to annually approve the allocation of the WSV-budget. The Faculty Board will discuss the plans with the Executive Board during the *Spring Meetings* in April and the *Autumn Meetings* in connection with the annual plans of the faculty.

In the remainder of this document, the vision of faculty and the plans for the quality agreements for the upcoming years are described.

VISION ON TEACHING AND LEARNING FOR THE FACULTY OF S&T

Within the faculty of Science & Technology, we underline the importance of educating 'T-shaped professionals'. We want to educate students that have in-depth knowledge and skills, combined with a broad scope of problem-solving skills either in a mono or a multi-disciplinary domain. Our students should be experts dealing with future problems, have a pro-active attitude in problem solving and be perfect team players in individual and group projects that go beyond the knowledge taught in the program. For student learning, we believe it is important to have a strong community of students, teachers and staff. We therefore value the quality of our students higher than student quantity, implying that our focus is on small scale teaching where possible, e.g., project work, lab work, tutorials.

It is our mission to offer excellent education for both students in health and sciences. For the upcoming years, we therefore want to improve *our learning environment* to support students' learning in project work, lab-classes, e-learning; give our highly qualified teachers and student assistants more options to *continue and deepen their educational professionalization*; and put effort in strengthening our student community so that they can feel @home, meet each other, discuss and work on (interdisciplinary) projects, networks, activities etc.

The faculty attaches strong importance to this inclusive community feeling and the strong student engagement, and considers the WSV-funds as an ideal means to further strengthen these. The allocation of the WSV fund are directly coupled to the wishes and goals of our students, to enhance their learning experience. The faculty will

¹ <https://www.rijksoverheid.nl/documenten/brieven/2015/04/01/inwerkingtreding-wet-studievoorschot-hoger-onderwijs>

make additional resources, e.g. from the Sectorplan Bèta and Van Rijn initiatives, available to further support the necessary personnel and infrastructure investments that underlie these goals.

LEARNING FACILITIES

<i>Ambition:</i>	<p>Within the Twente Education Model (TEM), projects are key to applying and deepening domain knowledge and skills. To make project work really work, students need well equipped locations where they can meet, discuss and work on their projects. At the moment, students have to find a spot all over the university, often far away from teaching staff. We believe it is important that students do have good project rooms near the faculty, so that student groups can easily discuss with each other (and if necessary can easily walk to the teachers for some advice). In science, demonstrations of phenomena can help the learning process. Teachers have asked for a special location where they can give demonstrations (a room with a high table, gas, water, etc.)</p> <p>In addition to projects, most of our programs offer high quality lab-classes. We want to offer all our students opportunities to work with state of the art equipment. As influx of students has increased, and technology develops, we need to redesign our lab facilities.</p> <p>All in all, it is our ambition to have well equipped project rooms near the faculty and to update our lab facilities to the changed needs.</p>						
<i>Measures</i>	<ol style="list-style-type: none"> 1. Extending the number of dedicated learning spaces, in particular with spaces suited for the project-based education that is inherent to the Twente Education Model (TEM). 2. Expansion and upgrade of the student lab facilities with state-of-the-art equipment. 						
<i>Target until 2021:</i>	<ol style="list-style-type: none"> 1. Extra 207 m² project rooms/study cubicles. In addition, one special lecture room particularly equipped for education involving practical demonstrations. 2. Extra 86 m² RT5 lab space equipped with equipment for bio-oriented practical education. 						
<i>Intended effects for students:</i>	<ol style="list-style-type: none"> 1. A readily available suitable high-quality learning environment has been identified by our students as a pre-requisite for their effective learning. In particular, for the project-based education within TEM the suitable spaces will facilitate (the engagement in) group-wise activities. Evaluation will be on 'actual implementation': are the learning spaces suited for project work and are these locations used by our students (observations) and on 'student opinion' in the regular quality assurance activities for bachelor's and master's programs² (e.g. panel meetings and surveys). 2. Lecture room for demonstrations: Evaluation of this measure will be on the actual use of this location: how often is the lecture hall reserved? How often demonstrations are given. Throughout the coming years, we expect to see an increasing number of demonstrations. Evaluation will also be on the 'student opinion' through the regular quality assurance activities for bachelor's and master's programs. 3. Lab facilities. Evaluation of the extension of lab facilities should lead to increasing numbers of students being able to follow lab classes). New state of the art lab facilities will enable the opportunity for new types of lab classes (skills). To evaluate this measure, we will ask the teachers who use this lab facility what new types of lab classes they have developed. 						
<i>Budget:</i>		2019	2020	2021	2022	2023	2024
	Ambition						
	- Measure 1		36	72	72	72	72
	- Measure 2	50	50	50	50	50	50

² Described in four PDCA cycles, two for quality assurance of bachelor's programs, two for master's programs. One for module or course level and two for the curriculum level of the bachelor's respectively master's program.

<i>Ambition:</i>	E-learning unites Learning and Technology. The developments in technologies give ample opportunities for teachers to deliver their teaching. We want to give our teachers the opportunity to profit from new E-learning technologies (e.g., voting tools, pencasts, MOOC, web lectures) and in that way also support our students' learning. In order to support teachers in discovering applicable tools and trends in E-learning, we want to have E-learning specialists in our faculty.						
<i>Measures</i>	1. Appoint dedicated E-learning specialists to implement digitalization in learning by helping teachers to provide their educational materials in an appropriate digital form, identify and introduce new educational software to the teachers, and by introducing new methods for digital testing.						
<i>Target until 2021:</i>	1. Two E-learning specialists have been appointed.						
<i>Intended effects for students:</i>	At the moment, many lecturers start working with e-learning tools like pencasts, online lectures, and digital assessments. The E-learning experts will support teachers in using these tools in a proper way and in the upcoming years a vision on E-learning within the faculty will be developed. This measure will be evaluated by monitoring what kind of activities have been developed and by making an inventory of the unasked remarks of students in the regular quality assurance activities in this respect.						
<i>Budget:</i>		2019	2020	2021	2022	2023	2024
	Ambition						
	- Measure 1	147	147	147	147	147	147
<i>Ambition:</i>	The quality and the student's appreciation of the education of the different programs is strongly correlated with the involvement, availability and accessibility of the teaching staff for students. At the moment, some research groups have relatively high teaching loads. In particular in the Health domain where due to rising student numbers, some research groups have relatively high teaching loads. Our ambition is to safeguard the small-scale characteristics and reduce staff workload by improving the student-to-staff-ratio (focus on health domain).						
<i>Measures</i>	1. Extend existing groups with assistant (UD)/associate (UHD) professors, in particular those groups with relatively high teaching loads. In addition, ensure that the UD/UHDs of the three newly established research groups that will strongly contribute to the educational programs within the health domain (CRPH, M3i, MD&i) can prioritize an increased part of their time focusing on education rather than on research. 2. Employing teachers.						
<i>Target until 2021:</i>	1. 1 additional UD and 1 UHD have been appointed, 6 UD's within the three new research groups are supported to prioritize on education. 2. 2 teachers have been appointed.						
<i>Intended effects for students:</i>	For the specified research groups, the student-to-staff ratio has improved.						
<i>Budget:</i>		2019	2020	2021	2022	2023	2024
	Ambition						
	- Measure 1			219	299	299	299
	- Measure 2	32	48	132	132	132	132

TEACHING PROFESSIONALISATION

Ambition: Changes in the educational process (e.g., higher and more international student influx, demands from the government on quality of education, implementation of the new educational model TEM, demands from the work field on the final qualifications of our students) requires from our teachers to be able to continuously adapt and improve their teaching.

Related to these demands on our teaching staff, we have formulated three ambitions.

- 1. At the moment, around 55% of the teaching staff has a UTQ (or equivalent). It is our ambition to increase the participation of teachers in training programs like UTQ, SEQ, SUTQ, LOL or educational conferences.**

Measure: In conformity with the criteria of the University, staff involved in education obtain the University Teaching Qualification (UTQ), all teachers will be encouraged to continuously improve and professionalize their teaching by following courses and workshops and attending relevant events.

Target until 2021: 5 teachers participate(d) in the training programs Senior University Teaching (SUTQ) Qualification, Senior Examination Qualification (SEQ), and Educational Leadership (LOL). 3 teachers attend(ed) a conference or other event focused on education.

Intended effects for students: We expect that students will benefit from the direct advances in the quality of our education ensued by the continued improvement and professionalization of our educators. Although direct measurement of the 'quality of education' is impossible, we will check the expected increase in students' satisfaction on this aspect by analyzing our internal regular surveys and the National Student Survey results on this theme.

Budget:	2019	2020	2021	2022	2023	2024
Ambition						
- Measure 1	75	75	75	75	75	75

Ambition: 2. In academia, teachers can professionalize and pursue their career by doing high quality research in combination with their teaching tasks. Improving this balance between research and education in career paths is a way to show that we value education skills in our teachers very much.

- Within TNW we would like to explore opportunities for our academic researchers to become an authority in education in their own field of study.**

Measure: Enable and promote the aspirations of researchers that have the potential to become an authority in education in their own field of study

Target until 2021: Identify 2 Professors with focus on Education

Intended effects for students: We expect that students will benefit from the direct advances in the quality of our education ensued by the continued improvement and professionalization of our educators. Although direct measurement of the 'quality of education' is impossible, we will check the expected increase in students' satisfaction on this aspect by analyzing our internal regular surveys and the National Student Survey results on this theme.

Budget:	2019	2020	2021	2022	2023	2024
Ambition						
- Measure 1				152	152	152

Ambition: 3. We want to safeguard our 'small scale education' and at the same time provide students with ample feedback on different parts of their project work, while not increasing the workload of the teachers. To support our teachers in all their tasks, throughout the

years, student assistants have been trained to e.g., help out in tutorials and lab sessions. Recently, we realized that we could extend this professionalization opportunity for teaching assistants. In discussions with students, it seems that quite some students would be interested in such a trajectory.

It is our ambition to develop an extended training for additional student assistants so that they can engage in teaching, tutoring and in professionalizing themselves.

<i>Measure:</i>	Construct a Learning Assistant program in which enrolled students will engage in teaching and tutoring <i>and</i> follow a program designed to develop their didactical skills and their vision on teaching and learning.						
<i>Target until 2021:</i>	A Learning Assistant program must have been successfully launched per 2021 with participating students from the TNW faculty. The program is set-up in joint collaboration with the faculty of Engineering.						
	50 LAs are active and 0.4 FTE is appointed to develop and manage the program. The number of LAs is in addition to the regular number of student assistants that is generally active within the educational programs.						
<i>Intended effects for students:</i>	The major outcome is that the students participating in the LA program will have the opportunity to develop their didactical skills and vision on learning, and that they at the same time can probe if they should/could pursue an education-oriented future career. The first evaluation will be on 'is the LA-program' available and what are the opinions on the pilot currently running in BMT. In later years, it can be evaluated whether these LA have chosen an educational career.						
	For the students, the LAs will be able to provide timelier, more frequent, detailed, and effective feedback. Evaluation of the enhanced feedback will be carried out by analyzing students' comments about this aspect in the regular quality assurance activities for bachelor's and master's programs.						
	For the teachers, the assistance of the LAs will lower their workload (measure in the evaluation when LA's have been trained and worked as a LA).						
<i>Budget:</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>	<i>2022</i>	<i>2023</i>	<i>2024</i>	
	Ambition						
	- Measure 1	71	96	96	121	121	121

COMMUNITY BUILDING

Ambition: In all occasions where information has been gathered from students regarding priorities for allocating of the WSV funds, the students have indicated that establishing a *Home Base* for a community has the highest priority. The inviting character of shared physical space provided by the Home base will promote engagement of the students to participate in joint study and social activities.

It is our ambition to have a physical environment that strongly promotes active interactions between students from different programs and in different stages of their studies.

<i>Measure:</i>	The rooms of the respective Study Associations will be relocated to be close to each other, separated by spaces that are specifically designed for students to meet and socialize. The home base will be in close proximity of the offices of the educational programs staff, the faculty management, and the lecture rooms including the newly invested learning spaces mentioned above in the section Learning Facilities. In unison, the Study Associations of the Health related educational programs will be accommodated in the newly refurbished Technohal-building together with the Technical Medical Centre.
<i>Target until 2021:</i>	1. Completed in 2020

Intended effects for students: The home base will increase interactions between students from the different educational programs and at different stages in their studies. Students will benefit from their experiences with peers with cultural or otherwise distinct backgrounds and develop a stronger awareness and understanding of the implications of working or existing in an international context. Students will be able to develop a more extensive and stronger network and long-lasting relations with their peers.
 Evaluation of this measure: The boards of the Study Associations will report on student use of this home base (is it in use, how is it used, interactions between students of different programs/nations/backgrounds).

<i>Budget:</i>	2019	2020	2021	2022	2023	2024
Ambition						
- Measure 1	98	152	207	207	207	207

Ambition: **In relation to the previous ambition and in stimulating the mutual interactions, it is our ambition to facilitate interaction between the diverse student populations/study associations, in particular across the domains**

Measure: 1. Promote and support activities that increase interaction between the different student populations.

Target until 2021: 1. Per year financial support for joint student-organized activities, such as 'S&T Do You Agree'

Intended effects for students: The joint activities of student populations will further amplify the positive effects that will result from establishing the home bases mentioned above. We will monitor how many of this type of events are organized by the students.

<i>Budget:</i>	2019	2020	2021	2022	2023	2024
Ambition						
- Measure 1	25	25	25	25	25	25

TALENT DEVELOPMENT

Ambition: Soft skills like writing, presenting, giving feedback, collaboration, and information literacy are considered to be essential skills in life. However, these soft skills are hard to teach and learn.

As we acknowledge that this learning process can be hard, it is our ambition to appoint dedicated staff to further increase and align learning trajectories for these skills.

Measures:

1. Appoint dedicated staff to further increase, align, and explicate the educational activities aimed at the development of students soft-skills.
2. Further improve the role of teachers in project-based learning by providing more instructions and training to teachers.

Target until 2021:

1. 0.5 FTE has been appointed for soft skills
2. 0.5 FTE has been appointed for training

Intended effects for students: The group-work that is inherent to the TEM tutorship is very important, yet the teachers are not yet fully accustomed to their new role in project-based education. Students will benefit from an increased proficiency of teachers regarding this new role.

Evaluation of this measure: The presence of some learning trajectories for these skills, suitable assessment tools in student programs. Presence of workshops for teachers to improve project supervising skills.

<i>Budget:</i>	2019	2020	2021	2022	2023	2024
Ambition						

- Measure 1	32	48	48	48	48	48
-Measure 2	30	30	30	30	30	30