## FACULTY OF GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

#### **INTRODUCTION**

In November 2018 the ITC Faculty Board, with approval of the ITC Faculty Council and the Programme Committee of the master's programme M-GEO and M-SE, approved the plan for the quality agreements (investment of the 'WSV gelden') for the Faculty ITC.

In June 2019, the CvB asked the faculties to provide an adjusted plan based on new insights and developments. This document presents the updated plan, including the ambitions and intentions regarding the quality agreements for the Faculty ITC for the period 2019-2024. The plan has the consent of the ITC faculty council, the programme committee of the ITC master's programme as well as the programme committee of the bachelor's programme ATLAS.

The agreements on the quality of education apply to initial education ("bekostigd onderwijs"). Until 2018, the Faculty ITC has been offering only the following types of initial education:

- The master programme Spatial Engineering that started in September 2018.
- the HTHT minor courses (2\*15EC) Geographic Information System (GIS) and Earth Observation (EO) during the third year of the UT bachelor programme (within ITC called "the UT minor").

From 1 January 2019, University College ATLAS joined the Faculty ITC. The process of integration in the faculty is still ongoing. However, the plans of the Faculty ITC had been developed already before UCT joined the Faculty. Therefore UCT has developed separate Quality Agreements that are included as an addendum to the Faculty ITC's agreements. In the following years, the faculty will work towards a further synthesis and integration of the different agreements and measures.

Annually, the Faculty will report on the progress and realization of the ambitions and measures. At UT level, there will be two moments where the realization of the intentions will be assessed; a mid-term assessment in 2022 based on the progress until 2021 and a final evaluation based on the results until 2024.

## **FACULTY ITC (WITHOUT UCT)**

Education and the master's programme of the faculty ITC have a very strong and widely recognised international orientation. The mission of the faculty and the diversity of backgrounds of incoming students requires didactic concepts that not only accommodate the different backgrounds, but also let students learn from each other with a clear orientation towards their further career. The international classroom as well as lifelong learning skills are part of this.

A considerable part of ITC's education is post-initial education. As a result, the allocated WSV resources for the Faculty ITC are relatively small (compared to other UT Faculties as well as to the entire Faculty's budget). The earmarked resources for ITC sum to €17K in 2019; €17K in 2020; €27K in 2021; and €35K in 2012; and €36K per year in 2023-2024¹.

Next to that, ITC is presently investing already considerably in the quality of its master's programmes. The Master's programme Spatial Engineering (M-SE) just started and the post-initial accredited Master's programme Geo-information Science and Earth Observation (M-GEO) was restructured from an 18-month to a 2-year programme, which started in this setup for the first time in September 2018.

Therefore, the definition of these quality agreements at programme and at faculty level are of limited relevance for ITC. Still, ITC saw the quality agreements as an opportunity to develop a structural plan with proposed actions to further improve the quality of education at programme and faculty level and define elements of a quality agenda for 2019-2024 in which the vision on educational quality is made explicit.

<sup>&</sup>lt;sup>1</sup> Please note these figures can be subject to change because of changing student numbers

In the formulation of the quality agreements, the Faculty ITC opted for an approach in which use is made of the existing ambitions and plans within the present Master's programmes and at the faculty at large. A summary of these ambitions and plans were used as a basis for feedback from the representative bodies within the faculty in which the students play an active role (Faculty Council and Programme Committees).

This has resulted into a set of themes and objectives along the lines of which improvements in education will be made during the period 2019-2024. These ambitions will only to a small extent be fulfilled through the investments of WSV resources. The remainder of the resources required to fulfil the ambitions originate from the regular budget and already planned investments. So the investment of WSV should be considered in a broader framework for ongoing educational improvement within the Faculty ITC.

### **UCT-ATLAS**

The Bachelor's programme in Technology and Liberal Arts and Sciences (ATLAS) was founded to address the need for a new kind of engineer. Modern engineering solutions require not only technical but also social perspectives and understanding. They require an integrated socio-technical perspective and an understanding of how technical solutions function in the real world. They require engineers who can identify connections across boundaries between disciplines and see interrelatedness of problems and solutions across different fields. They require a new kind of engineer.

The ATLAS programme was developed to address this need for a new type of engineering education (*content*), using a radical vision on learning (*concept*), under the premise that a strong *community* of learners is essential. These three pillars - content, concept, and community - embody the ATLAS programme. Together, they support not so much a curriculum or a programme, but rather a distinctive learning and teaching experience. The ATLAS programme puts the student in the lead, and the individual academic development of students at the heart of the curriculum. Apart from ensuring an academic foundation through required domains, the programme is not based on a specific set of prescribed courses, nor on curriculum requirements or restrictions. ATLAS students are encouraged to explore academic opportunities within and beyond what is offered by the programme. The academic development of each student is guided and driven by the intended learning outcomes of the programme, that are translated into learning goals for each semester. Students plan courses and projects to achieve the semester goals and set out milestones around which they design their own path.

The ambitions from UCT for the Quality Agreements are based on the feedback that was received in the recent accreditation (December 2018), on the Student Chapter that was written for the accreditation report (by twenty students that together represented every ATLAS cohort so far), and on the many informal conversations the programme continuously has with current students.

# FACULTY OF GEO-INFORMATION SCIENCE AND EARTH OBSERVATION (WITHOUT UCT)

#### LINK BETWEEN AMBITIONS OF ATLAS WITH UT QUALITY AGREEMENT PROGRAMMES

The Quality Agreement Programmes formulated at UT level are:

- 1. Learning facilities
- 2. Community building
- 3. Teaching professionalisation
- 4. Talent development of students
- 5. Global citizens

The ambitions of the Faculty ITC related to education quality originated in first instance from the ambitions as laid down and formulated in a number recent plans and reports (ITC vision 2020, accreditation report 2015, synthesis of on-going renewal and restructuring of education at ITC, programme development plans, results alumni survey, pilot project evaluation teaching achievement). A synthesis of these ambitions resulted in the formulation of five major themes, which are further explained in the attached original ITC plans.

The Quality Agreement programmes of the UT are being addressed by the ITC Faculty themes for quality improvement of education as outlined in the table below:

Quality Agreement programmes at the UT	Faculty ITC themes
Learning facilities	Study facilities
	E-learning and blended learning
Community building	Study facilities
	Internationalisation
Teaching professionalization	Staff development and evaluating teaching achievement
Talent development of students	Career support
	Staff development
Global citizens	Internationalisation
	Career support

Motivation to be active in each of the UT Quality Agreement programmes:

#### 1. Learning facilities

The housing developments for the Faculty ITC will address in a direct manner the further development of the study and learning facilities. In the plan of requirements for the new housing for the faculty ITC a number of points of departure are formulated that relate explicitly to development of learning facilities that support the learning experience of students.

ITC has always at the forefront of integrating digital technologies in learning (as exemplified through the high adoption rate and diverse use of the LMS) and offering parts of its education programme at a distance. ITC wishes to continue along those ways for which up-to-date and modern technologies and facilities are required.

## 2. Community building

The international and diverse community at the faculty of ITC (students and staff) requires the Faculty to support explicitly the further development and building of a community. The new housing of the Faculty ITC aims explicitly to create a home for staff and students and being inclusive for other groups at the campus at the same time.

## 3. Teaching professionalization

Faculty ITC was one of the first faculties that adopted a pilot project on teaching evaluation. The faculty aims to continue giving follow-up to the recommendations of this pilot project in the frame of the university-wide policy and actions on evaluating teaching achievement. New educational approaches in the master programmes will require the enhancement of skills of staff in the mentoring and support of the highly diverse group of students.

#### 4. Talent development of students

The elements that the Faculty aims at in terms of talent development of students refer to the activities in the field of career development (internship positions; entrepreneurship; lifelong learning activities). Further, student are more and more interested to study in a more flexible way and follow courses offered by other faculties and at other Universities. These opportunities will be better facilitated. Besides, staff will be further trained to assume a more coaching rather than advising role in their teaching to move more towards student-centered learning for an international diverse student community.

#### 5. Global citizens

Global citizenship and internationalisation will continue to be at the core of the mission and education of ITC. Although the international aspect seems a given at the Faculty ITC, the Faculty will continue to invest in maintaining and fulfilling this image. A number of elements regarding internationalisation seem implicit, but educational performance and learning and assessment trajectories requires ITC to make these elements more explicit. The Faculty will continue to further strengthen and develop joint programmes with international partners and increase the possibilities for international exchange..

In what follows, a summary is given of the ITC ambitions, measures, targets and effects and budget for the UT Quality Agreement programmes. Please note: regarding the budget only the WSV resources are indicated. The complementary resources from the Faculty itself to realise the various ambitions are not included in this overview (please note: a summary of allocation of WSV resources only is provided on p.8)..

## COMMUNITY BUILDING & LEARNING FACILITIES

Ambition:

- Offer facilities for students that enhance and support their learning and allow for different types of education and maintain student appreciation regarding learning facilities at high level.
- Create a home for staff and students and being inclusive for other groups at the campus at the same time.

Measure:

 Principles that ITC earlier defined for learning environment will be applied when ITC will move to the UT campus. In addition explicit attention will be given to the home-base concept.

Target until 2021:

 Modern study facilities are available and actively used. Student appreciation regarding learning facilities remains at high level (relocation of Faculty ITC to UT campus estimated beginning 2022-so the impact of his measure will be beyond 2021).

Intended effects for students:

Availability and active use of modern study facilities. Student appreciation regarding learning facilities (source: National Student Survey) will provide an indication on this effect.

Budget:

	2019	2020	2021	2022	2023	2024
Ambition	p.m. <sup>2</sup>	p.m.	p.m.			
Measure 1	p.m.	p.m.	p.m.			

<sup>&</sup>lt;sup>2</sup> *Pro memori*: required resources originate from regular budget and planned investments and from WSV-resources

#### LEARNING FACILITIES

Ambition: Further develop and integrate e-learning in education to enhance learning and make education and learning more efficient.

Measure:

- 1. Develop policy on e-learning and blended learning
- 2. Further develop and professionalise the e-learning and distance education programme
- 3. Improve infrastructure for e-learning and distance education to allow for modalities of education for a diverse student population

Target until 2021:

- 1. Limited number of active e-learning (distance) courses (+ 5) are developed
- 2. Increased enrolment in e-learning/distance courses (60+ per year)
- 3. 5-10 graduates from blended master's programme (i.e. master's programmes partly face-to-face and partly at a distance)
- 4. Improved infrastructure for e-learning and distance education

Intended effects for students:

Material and didactics from e-learning courses will also be used in the regular programmes. Next to that, there will be more opportunity for students to follow e-learning/blended/distance courses.

Budget:

	2019	2020	2021	2022	2023	2024
Ambition	17	10	10	10	10	10
Measure 1	p.m.	p.m.	p.m.			
Measure 2	p.m.	p.m.	p.m.			
Measure 3	17	10	10			

#### TEACHING PROFESSIONALISATION

Ambition: Develop and maintain high standards for staff in their educational performance

Measure:

1. Participation of staff in University Teaching Qualification Programme and Senior University Teaching Qualification Programme

Target until 2021:

- 1. 90 percent of the staff possess a University Teaching Qualification
- 2. 8 staff possess a Senior University Teaching Qualification

Intended effects for students:

Benefit from improved and good educational performance from staff. Student appreciation regarding lecturers (source: National Student Survey) will provide an indication on this effect.

Budget:

	2019	2020	2021	2022	2023	2024
Ambition	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.
Measure 1	p.m.	p.m.	p.m.			

Ambition: Reward teaching within the faculty and offer more possibilities for teachers' professional development in a quality culture in which this is facilitated and supported.

Measure:

- Run Pilot Stimulating Teacher Evaluation and Professionalisation (STEP) and evaluate outcomes
- 2. Develop and implement a toolbox on teaching evaluation and development for teaching staff (e.g. with tools on peer review, design, evaluation)
- 3. Prepare for addressing teaching development as a standard recurrent issue in annual performance interviews

Target until 2021:

- The pilot is completed and lessons learned are used to enhance the quality culture.
- 2. A toolbox teaching evaluation and development for teaching staff is developed and used
- 3. Professional development in teaching is a recurrent issue in annual performance interviews

Intended effects for students:

More committed and motivated teachers. Student appreciation regarding lecturers (source: National Student Survey) will provide an indication on this effect.

Budget:

	2019	2020	2021	2022	2023	2024
Ambition	p.m.	3	5.	p.m.	p.m.	p.m.
Measure 1	p.m.	3	p.m.			
Measure 2	p.m.	p.m.	5	p.m.	p.m.	p.m.
Measure 3	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.

Ambition: Further professionalization of the study advice

Measures:

- 1. Developing a more formalised system of study advice
- 2. Training for staff in professional mentoring and coaching skills for an international diverse student community.

Target until 2021:

- 1. 15 staff developed professional mentoring skills
- 2. Study advisors have a BKS

Intended effects for students:

Clear defined and more formalised roles in the chain of study advice, taking into account the specific needs of the ITC student for study career counselling, with advisors that have acquired the BKS. Student appreciation regarding study advice, mentoring and coaching (source: National Student Survey) will provide an indication on this effect.

Budget:

	2019	2020	2021	2022	2023	2024
Ambition	p.m.	4	5	5	p.m.	p.m.
Measure 1	p.m.	p.m.	p.m.			
Measure 2	p.m.	4	5			

## TALENT DEVELOPMENT

Ambition: Offer effective support towards students in their further professional and academic development during and after completion of their study

Measure:

- 1. Developing an internship programme with national and international internship positions by appointing an internship coordinator
- 2. Facilitate and offer more opportunities for students to follow courses offered by other faculties and at other Universities.
- 3. Further incorporate elements of international entrepreneurship and entrepreneurial skills into Master's programmes' curricula
- 4. Further strengthen activities towards career support and ITC alumni, e.g. offering meetings with professional organisations, offering refresher courses and organising professional and social events for alumni (strengthened alumni programme towards career development)

Target until 2021:

- 1. An internship programme with national and international internship positions is developed
- 2. Demand by students to follow courses offered by other faculties and at other Universities is fulfilled.

- 3. Enrolment of students in ITC international entrepreneurship course
- In-house tailor-made programme for career development for students (linked to UT career services)
- 5. Active alumni programme

Intended effects for students: To enhance their further career, students have the possibility to gain (extra) international experience by doing an internship abroad or in the Netherlands, and they also have the chance to follow courses on entrepreneurship. After finishing their studies, students have the opportunity to further develop their skills through the alumni programme (lifelong learning). Student appreciation regarding career support (source: National Student Survey) will provide an indication on this effect.

Budget:

	2019	2020	2021	2022	2023	2024
Ambition	p.m.	p.m.	7	15	21	21
Measure 1	p.m.	p.m.	p.m.			
Measure 2	p.m.	p.m.	p.m.			
Measure 3	p.m.	p.m.	3			
Measure 4	p.m.	p.m.	4			

## **GLOBAL CITIZENS**

Ambition: Achieve high standard in internationalisation in education; i.e. offering education that is highly recognised as an example of internationalisation in education

Measure:

- Implement action to acquire the distinctive feature internationalization for the master programme Spatial Engineering. Preserve this feature for the master programme Geo-Information Science and Earth Observation. Formulate the M-GEO learning outcomes around internationalization more explicit and align assessment according to these outcomes.
- 2. Further develop policy on joint educational partnerships
- 3. Enhance the existing educational partnerships and identify potential new partnerships
- 4. Develop and implement exchange policy at faculty level

Target until 2021:

- 1. Distinctive feature internationalization (with "good" on all standards)
- 2. Partner (JEP) policy and exchange policy in place
- 3. Enhanced educational partnerships to be further specified upon availability (and content) of new policy and partnerships

Intended effects for students:

The certificate for the distinctive feature in internationalization guarantees continued attention for genuine internationalisation. Next to that, there will be more opportunities for students from educational partners to study (partly) at ITC and/or obtain ITC degrees and vice versa.

Budget:

	2019	2020	2021	2022	2023	2024
Ambition	p.m.	p.m.	5	5	5	5
Measure 1	p.m.	p.m.	p.m.			
Measure 2	p.m.	p.m.	p.m.			
Measure 3	p.m.	p.m.	p.m.			
Measure 4	p.m.	p.m.	5			

# Summary of measures and allocation of WSV-resources<sup>3</sup>, Faculty ITC (excl. UCT)

Budget:	Measure <sup>4</sup>	2019	2020	2021	2022(*)	2023(*)	2024(*)
Learning facilities					10	10	10
	Improve infrastructure for e-learning and distance education	17	10	10			
Teaching Professionalisation	Run Pilot Stimulating Teacher Evaluation and Professionalisation (STEP) and evaluate outcomes		3				
	Develop and implement a toolbox on teaching evaluation and development for teaching staff (e.g. with tools on peer review, design, evaluation)			5			
	Training for staff in professional mentoring and coaching skills		4	5	5		
Talent Development					15	21	21
	Further incorporate elements of entrepreneurship and entrepreneurial skills into Master's programmes' curricula			3			
	Further strengthen activities towards career support and ITC alumni, e.g. offering meetings with professional organisations, offering refresher courses and organising professional and social events for alumni (strengthened alumni programme towards career development)			4			
Global citizens					5	5	5
	Develop and implement exchange policy at faculty level			5			
total		17	17	27	35	36	36

(\*) at ambition level

<sup>&</sup>lt;sup>3</sup> Amounts refer only to WSV-resources

<sup>&</sup>lt;sup>4</sup> Details are given in the earlier sections.

## **UNIVERSITY COLLEGE TWENTE - ATLAS**

#### LINK BETWEEN AMBITIONS OF ATLAS WITH UT QUALITY AGREEMENT PROGRAMMES

University wide, Quality Agreement Programmes have been formulated and the aims and goals of ATLAS align well with these.

## 1. Learning facilities

The housing developments for ATLAS will largely influence the learning experience that ATLAS can offer her students. In the plan of requirements for the new housing for ATLAS, very detailed aspects are formulated that explicitly address how learning facilities are meant to support the learning experience of students.

### 2. Community Building

ATLAS is a small-scale, tight-knitted, international learning community of students and teachers alike. ATLAS strives to be not just a study programme, but an inclusive home to all who are part of this community. This requires facilitation to further maintain and develop of this community on many different levels; from curriculum design that fosters this community to learning facilities that allow for interaction.

# 3. Teaching professionalization

The unique approach to teaching and learning in ATLAS requires the continuous development of skills of staff in educational approaches. The small and dedicated pool of teaching staff makes that teachers fulfill multiple roles beyond teaching, which requires the development of skills and competencies in these diverse roles.

## 4. Talent development of students

ATLAS students aspire goals beyond the semester goals and appreciate that this is acknowledged, stimulated, and given feedback on by the programme. As a result, students develop talents (skills and expertise) beyond the intended learning outcomes of the programme. Resources are needed to facilitate this further in the future.

## 5. Global Citizens

Target until 2021:

ATLAS is one of the most internationally oriented BSc. programmes at the UT, an image that ATLAS needs to continue to invest in maintaining and fulfilling. Besides, the international aspect largely dominates the shaping of the learning community, adding highly to students becoming global citizens.

## COMMUNITY BUILDING & LEARNING FACILITIES

Ambition: Facilitate hands-on learning to develop hands-on skills and to satisfy students appreciation of learning by doing.

Measure:

1. In the new building, create an ATLAS maker lab that enables students to build design prototypes and have research materials readily available.

Increase the availability and use of 3D printers, electronics, and sensors.
 Ensure that these are well used in the projects and courses (eg. sensors for movement and temperature in Physics courses, Arduino's and 3d Printers in projects, etc).

Intended effects for students:

Enhanced learning experience through learning by doing, better understanding of theory in practise. Course and project evaluations will be used to evaluate the hands-on skill development

Budget:

	2019	2020	2021	2022	2023	2024
Ambition	6	5	5	17	17	17
Measure 1	6	5	5			

#### TEACHING PROFESSIONALISATION

Ambition:

Offer opportunities for UCT staff to continuously develop the skills, that the unique approach to teaching and learning at UCT requires, and foster continuous development of these 'innovative education' skills by drawing experience from how education is approached at other places.

Measure:

- 1. Set-up a programme with CELT on the role of feedback in ATLAS education and how it can be put into practise. Including how to make the process of providing feedback more efficient, which is needed to facilitate the growth of ATLAS.
- 2. Visit other educationally inspiring programmes and visit educational conferences to share our ideas and knowledge on our unique approaches to education and to gain new insights and inspiration on how to improve it.

Target until 2021:

- 1. Together with CELT, setup and run an ATLAS specific project on feedback in ATLAS.
- 2. ATLAS attends at least three other programmes or conferences a year.

Intended effects for students:

Benefit from improved quality of feedback.

Benefit from state-of-the-art T&LAS educational approaches.

NSE scores (specifically the student appreciation regarding lecturers) and the related student-programme discussions will be used to evaluate

Budget:

	2019	2020	2021	2022	2023	2024
Ambition	12	10	10	40	40	40
Measure 1	12	10	10			
Measure 2	0	0	0			

Ambition:

ATLAS has several integrative projects, but the integration of natural and social science should also take place in more theoretical, course settings. These need to be developed. This development will stimulate not only the interdisciplinary mindset in students, but also in our teachers.

Measure:

 Have teaching staff collaborate on developing more in-house interdisciplinary electives. Which would be integrative courses where natural and social sciences meet; and where teachers need to understand each other's discipline in order to teach successfully.

Target until 2021:

1. Develop and run three more in-house ATLAS-like electives.

Intended effects for students:

Greater possibilities for students to join ATLAS-like electives, which is a way of learning is much more appreciated by ATLAS students.

Course and project evaluation will be used to evaluate.

Budget:

	2019	2020	2021	2022	2023	2024
Ambition	8	8	8			
Measure 1	8	8	8			

#### TALENT DEVELOPMENT

Ambition:

ATLAS students aspire goals beyond the semester goals and appreciate that this is acknowledged, stimulated, and given feedback on by the programme. As a result, students develop talents (skills and expertise) beyond the intended learning outcomes of the programme.

Measure:

1. Setup and run a process through which ATLAS can provide feedback on the development of the personal goals and ambitions of the students.

Target until 2021:

1. Students and teachers design a process that allows for feedback on the personal goals, yet is time efficient. ATLAS implements the process.

Intended effects for students:

Students receive feedback on their personal goals and their relation to their academic goals. This should ensure a stronger set of talents.

NSE scores and the related student-programme discussions will be used to evaluate.

Budget:

	2019	2020	2021	2022	2023	2024
Ambition	0	11	20	20	20	20
Measure 1	0	11	20			

## **GLOBAL CITIZENS**

Ambition:

ATLAS is one of the most internationally oriented BSc. programmes at the UT, an image that ATLAS needs to continue to invest in maintaining and fulfilling. Besides, the international aspect largely dominates the shaping of the learning community, adding highly to students becoming global citizens.

Measure:

- 1. Allocated more hours to exchange coordination, to strengthen and maintain the network of partner universities and focus on expanding the number of exchange partnerships to allow students to further develop as global citizens.
- 2. Enable students to travel to conferences/international workshops etc. and be ambassadors for ATLAS.

Target until 2021:

- 1. Ensure that ATLAS can participate and use the existing UT contracts for exchange. Generate new contracts that include ITC and ATLAS.
- 2. Have 5 students per year attend an international event as 'ATLAS ambassador'.

Intended effects for students:

Students have the possibility to gain international experience by studying abroad.

Students benefit from the international community and develop as a global citizens.

Semester evaluations will be used to evaluate the effect.

Budget:

	2019	2020	2021	2022	2023	2024
Ambition	2	2	26	20	20	20
Measure 1	0	0	20			•••
Measure 2	2	2	6			

# Summary of measures and allocation of WSV-resources<sup>5</sup>, UCT

Budget:	Measure <sup>6</sup>	2019	2020	2021	2022(*)	2023(*)	2024(*)
Learning facilities					17	17	17
	Create in the new building infrastructure that enables students to build design prototypes and have research materials readily available	6	5	5			
Teaching Professionalisation					40	40	40
	Develop a more effective and efficient feedback system	12	10	10			
	Develop in-house interdisciplinary electives	8	8	8			
Talent Development					20	20	20
	Setup a feedback system about the personal development of students		11	20			
Global citizens					20	20	20
	Expand exchange coordination to strengthen and maintain the network of partner universities			20			
	Enable students to travel to international conferences	2	2	6			
total		28	36	69	97	97	97

(\*) at ambition level

<sup>&</sup>lt;sup>5</sup> Amounts refer only to WSV-resources <sup>6</sup> Details are given in the earlier sections.