

**LIBERAL ARTS AND SCIENCES**

UNIVERSITY COLLEGE TWENTE

**UNIVERSITY OF TWENTE**

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This report was finalised on 28 February 2019





# REPORT ON THE BACHELOR'S PROGRAMME TECHNOLOGY AND LIBERAL ARTS AND SCIENCES OF UNIVERSITY COLLEGE TWENTE

This report takes the NVAO's Assessment Framework for Limited Programme Assessments (September 2016) and the Assessment Framework for the Distinctive feature of small-scale and intensive education (4 November 2011) as a starting point.

## ADMINISTRATIVE DATA REGARDING THE PROGRAMME

### **Bachelor's programme Technology and Liberal Arts and Sciences**

Name of the programme:	Technology and Liberal Arts and Sciences
CROHO number:	50427
Level of the programme:	bachelor's
Orientation of the programme:	academic
Number of credits:	180 EC
Location(s):	Enschede
Mode(s) of study:	full time
Language of instruction:	English
Expiration of accreditation:	01/01/2020

The visit of the assessment panel Liberal Arts and Sciences to the University College Twente of the University of Twente took place on 6 - 7 December 2018.

## ADMINISTRATIVE DATA REGARDING THE INSTITUTION

Name of the institution:	University of Twente
Status of the institution:	publicly funded institution
Result institutional quality assurance assessment:	positive

## COMPOSITION OF THE ASSESSMENT PANEL

### *Cluster Liberal Arts and Sciences*

The assessment of the bachelor's programme Technology and Liberal Arts and Sciences (ATLAS) at University College Twente, during which also the assessment of the Distinctive Feature Small-scale and Intensive Education took place, is part of the cluster assessment Liberal Arts and Sciences. From May to December 2018, a panel assessed bachelor's programmes Liberal Arts and Sciences at eight universities. A panel of five to nine members was appointed for each site visit, based on the expertise and availability of each panel member and taking into account possible conflicts of interest.

The full panel Liberal Arts and Sciences consisted of eighteen members:

- Prof. dr. Th.L.M. (Theo) Engelen, professor in Historical Demography, and former Rector Magnificus, of the Radboud University [chair]
- Em. prof. H. L. (Laurent) Boetsch, founding executive co-director of the European Consortium of Liberal Arts and Sciences (ECOLAS) and emeritus professor Romance Languages at Washington and Lee University (United States) [vice chair]
- Prof. S. (Samuel) Abraham, co-founder and managing director of ECOLAS and founder, professor and rector of Bratislava International School of Liberal Education (BISLA, Slovakia)
- Dr. S.I. (Sylvia) Bergh, associate professor in Development Management and Governance at the International Institute of Social Studies in The Hague



- Dr. H. (Helen) Brookman, director of Liberal Arts & Pro-Vice-Dean at King's College London (United Kingdom)
- Prof. mr. M.M.T.A. (Marcel) Brus, professor in Public International Law at the University of Groningen
- Prof. W.M. (Wayne) Cranton, assistant dean (research) at the Faculty of Arts, Computing, Engineering and Sciences of Sheffield Hallam University (United Kingdom)
- Prof. C. (Carl) Gombrich, Professorial Teaching Fellow in Interdisciplinary Education, programme director of the BAsc Art and Sciences at the University College London (United Kingdom)
- Dr. K. (Katherine) Goodman, assistant professor and associate director of Inworks at the University of Colorado Denver (United States)
- Prof. dr. V. (Veronika) Lipphardt, professor in Science and Technology Studies at University College Freiburg of Albert-Ludwigs-Universität Freiburg (Germany)
- Dr. A. (Alyssa) Schneebaum, lecturer and researcher at Vienna University of Economics and Business (WU Wien) and Universität Wien (Austria)
- Dr. M. (Mark) Somerville, dean of Faculty Affairs and Development and professor of Electrical Engineering and Physics at Olin College of Engineering (United States)
- Dr. J.(Jos) Willems, former member of the board of Zuyd University of Applied Sciences and educational advisor for Higher Education
- Drs. S.C. (Sylvia) Witteveen, academic director of the Psychobiology programme at the Faculty of Science of the University of Amsterdam
- I.(Isidora) Cvetkovska, bachelor's student Liberal Arts and Sciences, University College Groningen
- Y. (Yara) van Ingen, bachelor's student Maastricht Science Programme, Maastricht University
- M. (Maya) Ouwehand, bachelor's student Liberal Arts and Sciences, Utrecht University

For the assessment of the Distinctive Feature Small-scale and Intensive Education, two panel members (Prof. dr. Th.L.M. Engelen and prof. dr. M.M.T.A Brus) were trained by the NVAO and appointed to head the assessment of the Distinctive Feature. Prof. dr. Th.L.M. Engelen was involved in all site visits. Prof. dr. M.M.T.A. Brus was involved in the site visits at Leiden University College, University College Utrecht, University College Roosevelt, Liberal Arts and Sciences at Utrecht University, Amsterdam University College, Erasmus University College, University College Venlo, University College Maastricht and Maastricht Science Programme.

The panel was supported by dr. Els Schröder as project coordinator of the cluster assessment Liberal Arts and Sciences. She also acted as secretary during the visit to Leiden University College, University College Roosevelt, University College Utrecht, Liberal Arts and Sciences Utrecht, Amsterdam University College, Erasmus University College, University College Venlo, University College Maastricht and the Maastricht Science Programme. She was supported by dr. Joke Corporaal at University College Roosevelt, University College Utrecht, Liberal Arts and Sciences Utrecht, Amsterdam University College, Erasmus University College, University College Venlo, University College Maastricht and the Maastricht Science Programme, who also wrote the reports of the first five colleges. Dr. Marianne van der Weiden acted as secretary during the site visits to Groningen University College, University College Tilburg and University College Twente.

#### *University College Twente:*

The panel that assessed the bachelor's programme Technology and Liberal Arts and Sciences consisted of six members:

- Prof. dr. Th.L.M. (Theo) Engelen, professor in Historical Demography, and former Rector Magnificus, of the Radboud University [chair];
- Em. prof. H. L. (Laurent) Boetsch, founding executive co-director of the European Consortium of Liberal Arts and Sciences (ECOLAS) and emeritus professor Romance Languages at Washington and Lee University (United States) [vice-chair];
- Prof. C. (Carl) Gombrich, Professorial Teaching Fellow in Interdisciplinary Education, programme director of the BAsc Art and Sciences at the University College London (United Kingdom);

- Dr. K. (Katherine) Goodman, assistant professor and associate director of Inworks at the University of Colorado Denver (United States);
- Dr. M. (Mark) Somerville, dean of Faculty Affairs and Development and professor of Electrical Engineering and Physics at Olin College of Engineering (United States);
- M. (Maya) Ouwehand, bachelor's student Liberal Arts and Sciences at Utrecht University Utrecht [student member].

The panel was supported by dr. M.J.H. (Marianne) van der Weiden, who acted as secretary.

For the assessment of the Distinctive Feature Small-scale and Intensive Education, Prof. dr. Th.L.M. Engelen was trained by the NVAO and appointed to head the assessment of the Distinctive Feature. The practice-based assessment took place on 6-7 December 2018 combined with the regular assessment of the bachelor's programme.

The NVAO approved the composition of the panel on 16 april 2018.

## WORKING METHOD OF THE ASSESSMENT PANEL

### *Preparation*

Before the assessment panel's site visit to University College Twente, the project coordinator received the programme's self-evaluation report, based on both the NVAO framework and the framework with the assessment criteria for the Distinctive Feature Small-scale and Intensive Education. The QANU project coordinator sent it to the panel after checking it for completeness of information. Upon reading the self-evaluation report, the panel members formulated their preliminary findings. The secretary made an overview of these preliminary findings and sent it to the panel members as a preparatory document.

The panel also studied a selection of fifteen capstone theses and the accompanying assessment forms for the programme, based on a provided list with capstone theses of the last two years. This selection was made by the panel's chair, in cooperation with the project coordinator, based on input from the other panel members. The chair and project coordinator took care that a variety of topics and disciplines was covered, and made sure that the distribution of grades in the theses selection matched the distribution of grades over all theses. The panel chair, project coordinator and programme jointly composed a schedule for the site visit. Prior to the site visit, the programme selected representative partners for the various interviews. See Appendix 4 for the definitive schedule.

### *Site visit*

The site visit to University College Twente took place from 6 to 7 December 2018. At the start of the site visit, the panel held a preparatory meeting during which it was instructed regarding all assessment frameworks and procedures. After this, the panel discussed its working method and its preliminary findings for the site visit with respect to both the regular assessment and the assessment of the Distinctive Feature. It also paid attention to the content and use of the programme's domain-specific framework of reference, which is included in Appendix 1.

The visit started with a development conversation, in which the panel and representatives of the programme discussed various developments routes for the programme. The results of this conversation are summarised in a separate report, which will be published through the programme's communication channels. The information received during the development conversation are not part of the conducted assessments.

After this initial meeting, the panel focused on its assessments. The panel conducted interviews with representatives of the programmes and toured the premises to see the available facilities, and examined materials provided by the programmes. An overview of these materials is given in Appendix 5.

The panel used the final part of the visit to discuss its findings in an internal meeting. Afterwards the panel chair gave an oral presentation, in which he expressed the panel's preliminary impressions and general observations.

#### *Report*

After the site visit, the secretary wrote a draft report with two separate chapters based on the assessment panel's findings: the first part of the report focuses on the regular NVAO programme assessment of the bachelor's programme, and the second part of the report specifically addresses the standards related to the Distinctive Feature Small-scale and Intensive Education. Subsequently, the secretary sent the report to the assessment panel and project coordinator. After processing the panel members' feedback, the project coordinator sent the draft reports to the university in order to have these checked for factual irregularities. The secretary discussed the ensuing comments with the panel's chair and adapted the report accordingly before its finalisation.

#### *Definition of judgements standards*

In accordance with the NVAO's Assessment framework for limited programme assessments, the panel used the following definitions for the assessment of both the standards and the programme as a whole.

#### **Generic quality**

The quality that, in an international perspective, may reasonably be expected from a higher education Associate Degree, Bachelor's or Master's programme.

#### **Unsatisfactory**

The programme does not meet the generic quality standard and shows shortcomings with respect to multiple aspects of the standard.

#### **Satisfactory**

The programme meets the generic quality standard across its entire spectrum.

#### **Good**

The programme systematically surpasses the generic quality standard.

#### **Excellent**

The programme systematically well surpasses the generic quality standard and is regarded as an international example.

In accordance with the NVAO's Assessment framework for the distinctive feature of small-scale and intensive education, the panel used the following definitions for the assessment of the standards:

#### **Meets the standard**

The programme meets the generic quality standard.

#### **Does not meet the standard**

The programme does not meet the generic quality standard.

The panel used the following definitions for the assessment of the programme as a whole:

#### **Positive**

All the criteria are scored as "meets the standard".

#### **Negative**

One or more of the criteria are scored as "does not meet the standard".

# SUMMARY JUDGEMENT

## *Summary Judgement Framework for Limited Programme Assessments*

### *Standard 1*

The intended learning outcomes meet the requirements of both the engineering discipline and of liberal arts and sciences. They correspond with the Dublin descriptors at bachelor's level. The linkage to the relevant frameworks is well-described and convincing. The panel appreciates the unique combination of science/engineering and social science. The panel believes that the programme has found a good balance between an open formulation of the intended learning outcomes on the one hand and their clarification in both semester goals and the profile of an ATLAS engineer, based on five core values (Self-directed learning, Integration, Excellence, Community and Trailblazing) on the other hand. The panel especially applauds the definition of excellence and the concept of trailblazing.

### *Standard 2*

The ATLAS programme is a three-year full-time programme, taught in English. Semester goals have been formulated to guide the development of both content knowledge and skills. The outline of the six semesters and their themes shows creativity and the panel likes the project work as intentionally designed experiences. The many interesting 'cross-cutting' approaches lead to a good, all-round education and interesting interdisciplinary work. The curriculum provides the framework for the students' self-directed learning. The programme's aim is to allow students to discover what needs to be learned and why. The Personal Development Plan – Self-Evaluation Report cycle (PDP-SER cycle) safeguards that the students attain the intended learning outcomes. In their Personal Pursuit, students can pursue a passion in an academic way, beyond what is offered in the regular curriculum. The programme is well defined to meet the outlined objectives. The panel appreciates that the humanities can be part of the ATLAS curriculum and feels it would be helpful to make this more explicit in the programme documents.

Even though students are guided by a mentor, the self-directed approach creates confusion and anxiety in the beginning. Second and third year students and alumni, however, are very clear in their enthusiasm for the open approach and describe the confusion in the first year as productive, not excessive. The worries of students about their initial confusion have been taken seriously. First experiences with the semester goals and a more guided PDP process are positive and seem to lead to fewer dropouts, while still leading to self-directed learners. The staff's concern for the students' well-being also shines through in the good system of academic and personal advising.

The ATLAS programme is taught by well-qualified and very motivated staff. The students appreciate their teachers. The combination of core and external staff ensures a strong feeling of community, while drawing from the university's wider resources. Teaching is the focus of ATLAS staff, which is a great asset for the programme. New staff members are introduced to the typical content and method expected from them, both before and at the beginning of their teaching at ATLAS. This works well. Staff is very committed, but the management needs to remain aware that energy of staff members is not unlimited.

### *Standard 3*

The panel is impressed by the innovative assessment system that is fully in line with the aim of a self-directed learning process and is systematically implemented. Students are required to provide evidence of their accomplishments and systematically reflect on their development. The process works well, calibration of staff's judgements takes place in assessment meetings per semester and in the Personal Pursuit committee. The ongoing feedback and feedforward cycle is a feature that is highly valued by the students. The panel hopes that over time the process can be made more efficient, to keep it sustainable.

The grading of capstone theses is carefully done, with at least one external and an internal supervisor. Students are given ample oral feedback after the defence of their capstone. The panel



advises to record this feedback in the written documentation and to ensure equal levels of feedback given by each assessor/supervisor.

The panel is assured that the composition, role and procedures of the Examination Board safeguard the quality of assessment. The Board is involved in the continuous initiatives to further finetune the assessment system.

#### *Standard 4*

The capstone theses and the meeting with alumni show that graduates have attained the programme's intended learning outcomes. The theses generally range from very high to excellent in quality. The programme has a significant added value, especially in terms of the self-directed reflective approach and confidence with which alumni are able to continue their career. Graduates find their way to selective and prestigious master's programmes of their choice easily and relatively many of them continue in PhD positions after that. The graduates' success provides ample evidence of the excellent way the programme enables students to achieve the intended learning outcomes, clearly surpassing the achievement level expected for a bachelor's degree.

The panel assesses the standards from the *Assessment Framework for Limited Programme Assessments* in the following way:

#### *Bachelor's programme Technology and Liberal Arts and Sciences*

Standard 1: Intended learning outcomes	Good
Standard 2: Teaching-learning environment	Good
Standard 3: Student assessment	Good
Standard 4: Achieved learning outcomes	Excellent
General conclusion	Good

The chair, Prof. dr. Th.L.M. Engelen, and the secretary, dr. M.J.H. van der Weiden, of the panel hereby declare that all panel members have studied this report and that they agree with the judgements laid down in the report. They confirm that the assessment has been conducted in accordance with the demands relating to independence.

Date: 28 February 2019

## *Summary judgment Distinctive Feature Small-scale and Intensive Education*

### *Standard A*

The panel considers the intended learning outcomes appropriate. The nature of the programme is interdisciplinary and aims at a broad understanding of a wide spectrum of disciplines (natural sciences, mathematics, social sciences). The five core values aptly describe how students can learn to take their role as new engineers. The panel appreciates how well these core values describe the socially skilled and initiative-rich new engineers with a wide interest in social developments and issues within an interdisciplinary context. Especially the concept of trailblazing is very appropriate for the distinctive feature.

### *Standard B*

The curriculum is well-designed and ensures that the contents of courses and projects are systematically linked to the intended learning outcomes. The assessment procedures guarantee that each graduate has achieved the programme objectives. The programme has adequately addressed the recommendations that were given on these topics by the assessment committee when ATLAS applied for the Distinctive Feature in 2012.

The Personal Pursuit is the primary example of the way in which the content of the programme is inseparably connected to relevant extracurricular activities. These projects stimulate students to bring their passion into the academic world and the other way around. The many projects and trailblazing activities convincingly show how students are able to combine their study at ATLAS with wider interests and turn this into relevant learning experiences. The active role of the study association and work of the Honour Code Committee are also strong points.

### *Standard C*

The small-scale and intensive character of the programme is evident. Students and staff are closely involved with the teaching activities. Project work in small groups makes up a large part of the programme. The small class size makes it possible to implement truly student-centered education. The panel concludes that ATLAS has created a strong learning community for its students.

### *Standard D*

The programme has a sound selection procedure in place, that is regularly refined to increase its effectiveness. The panel appreciates that the procedure is open instead of restrictive. The matching interview during the In\_Sight Day is a good instrument to ensure the proper level and best fit of students.

### *Standard E*

The teachers have the required academic knowledge and didactic skills, and are very motivated to teach in ATLAS. They are dedicated and committed to their students.

### *Standard F*

The student-staff ratio of 17.1:1 enables a good execution of the curriculum and small-scale teaching. The workload is intensive, however, and the programme management should be prepared to widen the pool of staff when the student numbers continue to grow. This concern was also raised by the assessment committee in 2012 and, although the student-staff ratio is sufficient for the current number of students, it needs continued attention when these numbers increase.

### *Standard G*

The facilities in the faculty building are good and encourage both the learning community and the social community. The panel trusts that the new building, per September 2019, will offer comparable facilities. Students start their life at ATLAS by living together on the UT campus.



### *Standard H*

The capstone theses show the bachelor's level and the interdisciplinary approach of the programme. ATLAS students perform better than other UT students. The dropout rate in year 1 is lower than at other faculties. ATLAS students graduate faster than their counterparts in UT generally. The graduates are admitted to prestigious universities. 94% have been admitted directly into the master of their choice.

### *Practice-based assessment*

The panel concludes on the basis of the practice-based assessment that the programme has shown that it meets all standards for the Distinctive Feature Small-scale and Intensive Education. The intended learning outcomes, programme and extracurricular activities, didactic approach, staff and facilities are in line with the requirements for small-scale teaching and support the development of a learning community. ATLAS students perform better than other UT students. ATLAS graduates are admitted to selective and prestigious master's programmes. The panel confirms that the programme has addressed the suggestions for improvement that were noted by the assessment committee in 2012, when ATLAS applied for the Distinctive Feature.

The panel advises the Ministry of Education, Culture and Science to grant approval for the distinctive feature Small-scale and intensive education for an indefinite period of time to the bachelor's programme Technology and Liberal Arts and Sciences of the University of Twente.

The panel assesses the standards from the *Assessment framework for the distinctive feature of small-scale and intensive education* in the following way:

### *Bachelor's programme Technology and Liberal Arts and Sciences*

Standard A: Intended learning outcomes	Meets standard
Standard B: Relationship between the goals and content of the programme	Meets standard
Standard C: Structure and didactic concept	Meets standard
Standard D: Intake	Meets standard
Standard E: Quality of staff	Meets standard
Standard F: Number of staff	Meets standard
Standard G: Available facilities	Meets standard
Standard H: Level realised	Meets standard
General conclusion	Positive

The chair, Prof. dr. Th.L.M. Engelen, and the secretary, dr. M.J.H. van der Weiden, of the panel hereby declare that all panel members have studied this report and that they agree with the judgements laid down in the report. They confirm that the assessment has been conducted in accordance with the demands relating to independence.

Date: 28 February 2019

## DESCRIPTION OF THE STANDARDS FROM THE ASSESSMENT FRAMEWORK FOR LIMITED FRAMEWORK ASSESSMENTS

The bachelor's programme under review is offered by University College Twente. The bachelor's programme Technology and Liberal Arts and Sciences (ATLAS) welcomed its first 26 students in September 2013. The college currently has an annual intake of approximately 50 students. University College Twente is a distinct unit, yet connected to all of the faculties. From the start, the ATLAS programme was hosted by the Faculty of Electrical Engineering, Mathematics and Computer Science, but, per 1 January 2019, ATLAS has become part of the Faculty of Geo-Information Science and Earth Observation (ITC). ATLAS is a residential college, situated on the campus of the University of Twente. The programme is currently housed in the Citadel building and will move to a new building, specifically designed for ATLAS, per September 2019.

The Management Team of University College Twente is responsible for all organisational, financial and strategic aspects of the College. The team consists of the dean, the programme director, the senior lecturer for curriculum development and the coordinator of educational affairs and processes. The Office of Student Affairs is the first point of contact for students and coordinates all educational affairs. This office is responsible for the recruitment and admissions process, administrative and organisational support, and the housing of students. The Programme Committee advises the programme director concerning the Education and Examination Regulations, the study programme, quality of the programme and its execution. The Examination Board is the independent body responsible for ensuring the quality of assessment and the programme's degree. The Curriculum Committee is an ATLAS-specific body with teachers from all domains, who together with the programme director plan and work on curriculum development and improvement.

### **Standard 1: Intended learning outcomes**

The intended learning outcomes tie in with the level and orientation of the programme; they are geared to the expectations of the professional field, the discipline, and international requirements.

### **Findings**

The bachelor's programme Technology and Liberal Arts and Sciences (further: ATLAS) at University College Twente aims to deliver a new kind of engineer. Modern engineering solutions require not only technical but also social perspectives and understanding. The new engineer needs an integrated socio-technical perspective and an understanding of how technical solutions function in the real world. Therefore, the intended learning outcomes are based both on the academic criteria for bachelor and master curricula designed by the consortium of Universities of Technology in the Netherlands (the so-called Meijers criteria) and on the domain-specific frame of reference of the Liberal Arts and Sciences (LAS). The panel found a detailed specification of the intended learning outcomes (see appendix 2) in the documentation provided, including an explanation of how they are aligned with the Dublin descriptors at bachelor's level. The panel confirms that the intended learning outcomes are realistic and reflect the national and international expectations of both an engineering and a LAS programme.

In an effort to clarify the intended learning outcomes for students, the programme has formulated the core values of the ATLAS engineer and linked them to the appropriate learning objectives. The panel is enthusiastic about this specific profile, summarised in the five core values:

1. Self-directed learning: taking the initiative and making conscious choices regarding both process and content of learning, based on self-understanding;
2. Integration: integrating the perspectives of social, natural and mathematical sciences;
3. Excellence: improving yourself, going beyond your established capabilities in a cooperative, non-competitive setting;



4. Community: engaging with the learning community of students and teachers and with society (design and research with and for society);
5. Trailblazing: being open to innovation, creativity and novelty, and taking initiative.

The narrative expression of this profile in the self-evaluation report is appropriate.

The intended learning outcomes have been formulated in an open fashion to allow for differences in academic profiles between students. As a consequence, they are found to be too general to guide the students' self-directed learning. The panel agrees with this observation and thinks that the recent formulation of semester goals (see standard 2) is an improvement. ATLAS intends to evaluate and possibly rephrase the intended learning outcomes in 2018-2019. The panel advises to use this opportunity to include in the new set that an engineer has to take the affordances of technology into account.

### Considerations

The panel concludes that the intended learning outcomes meet the requirements of both the engineering discipline and of liberal arts and sciences. They correspond with the Dublin descriptors at bachelor's level. The linkage to the relevant frameworks is well-described and convincing. The panel feels that the intended learning outcomes are to be assessed as more than satisfactory. The panel appreciates the unique combination of science/engineering and social science. The panel believes that the programme has found a good balance between an open formulation of the intended learning outcomes on the one hand and their clarification in both semester goals and the profile of an ATLAS engineer, based on five core values, on the other hand. The panel especially applauds the definition of excellence and the concept of trailblazing. The panel assesses this standard, therefore, as good.

### Conclusion

*Bachelor's programme Technology and Liberal Arts and Sciences:* the panel assesses Standard 1 as 'good'.

### Standard 2: Teaching-learning environment

The curriculum, the teaching-learning environment and the quality of the teaching staff enable the incoming students to achieve the intended learning outcomes.

### Findings

#### *Curriculum structure*

The ATLAS programme is a three-year full-time programme, taught in English. Semester goals have been formulated to guide the development of both content knowledge and skills:

1. Orientation & Adaptation;
2. Broadening & Direction;
3. Exploration & Focus;
4. Expertise & Integration;
5. Away & Aware;
6. Signature & Celebration.

These semester functions represent the different phases of academic development an ATLAS student goes through. Each semester has its own theme: they consist of perspectives on real world problems that have both a technological and a social angle. The themes build up in level of complexity and use scales of focus in both social science (from individual via group, organisation and local society to global society) and engineering science (from nano to giga scale). To ensure quality, availability and commitment of teaching faculty, the themes relate to the research themes of the University of Twente (UT). The themes of the first four semesters are:

1. Movement & Human Behaviour;
2. Sustainable Systems;
3. Living under Extreme Conditions;
4. System Earth: Wicked Grand Challenges.

In the fifth semester, students follow courses beyond ATLAS, either abroad, at a different faculty of the UT or a different university in the Netherlands. The sixth and final semester is for the capstone project outside of ATLAS, in one of the UT research groups. The capstone is an individual research or design project of at least 15 and maximum 20 EC. In this semester, students also follow courses, in preparation for their capstone project or the master's programme they have chosen. For an overview of the curriculum see appendix 3.

#### *Curriculum content*

In each of the first four semesters, students work together on a project (9 EC, related to the semester theme) and follow courses (18 EC) in the three different domains (natural sciences, mathematics and social sciences). In addition, they spend 6 EC in each of the three years on activities under the heading Personal Pursuit (PP).

In the projects, teams of students research problems and design solutions for self-selected challenges within a theme. The solution must be of a socio-technical nature. The projects enable students to develop their competences in research, design and organisation. During the site visit, the panel had the chance to view and discuss a number of projects and was impressed with their variety and creativity.

Content courses must always be equally spread over natural sciences, mathematics and social sciences. In the first semester, courses are obligatory and common for all students, to ensure the development of basic literacy in the three domains. In later semesters, half of the courses are common courses (9 EC) and the other half are electives. Electives can be either deepening or broadening, offered by ATLAS or another faculty. ATLAS also allows students to opt for online electives. A teacher who is knowledgeable in the particular field assesses the level and credit load of such an elective.

In their PP, students can pursue a passion in an academic way, beyond what is offered in the regular curriculum. Students write a proposal to describe their goals and activities, including the academic level and the relationship with the overall learning outcomes of the ATLAS programme. Examples of PP projects presented during the site visit are 'History and Culture of China', 'Local Wildlife Photography', 'Can you hear the shape of a drum' and 'Turning a cup of coffee into science'.

The panel has studied the student handbook and semester course guides during the site visit. These are comprehensive and helpful documents. The panel heard and saw that the electives and PP projects offer possibilities to include the humanities in a student's portfolio, e.g. philosophy, culture, history, ethics and languages. The programme management confirms that a number of students is interested to take up these subjects. The management assured the panel that the humanities fit the UT motto 'High Tech, Human Touch' well, as long as prospective students are aware that the programme focusses on science and engineering and know that they must be prepared for this specific type of LAS programme. The panel appreciates that the humanities can be part of the ATLAS curriculum and feels it would be helpful to make this more explicit in the programme documents.

#### *Didactic concept*

The curriculum provides the framework for the students' self-directed learning. The programme's aim is to allow students to discover what needs to be learned and why. They do this by, for and amongst themselves, yet with enough guidance so as to not get lost. The self-evaluation report describes the learning environment as safe enough to try out new things, yet not too comfortable: 'it itches but does not hurt'. The Personal Development Plan – Self-Evaluation Report cycle (PDP-SER cycle) safeguards that the students attain the intended learning outcomes.



At the start of each semester, students identify their current academic interests and their intended future academic profile. On this basis they formulate how these interests match the semester goals and requirements, and plan education activities within the courses and project to attain these goals. At the end of the semester they must provide evidence of their learning and show that they have achieved their goals. The choices and planning steps are laid down in a Personal Development Plan (PDP). Halfway through the semester, students evaluate their progress and calibrate their self-evaluation with that of teachers involved in the semester. Students use this Midterm Evaluation (MTE) to update their planned activities and evidence. They write and submit an updated PDP. At the end of each semester, students evaluate and reflect on their semester in a Self-Evaluation Report (SER). They explain how their evidence proves that they have attained the semester goals. The SER is then submitted for assessment (see standard 3).

Over the semesters, the students develop the quality of their goal setting, planning and self-evaluation. The growing collection of SERs illustrates their growth in a personal portfolio. On the basis of the meetings with students and staff and studying a number of PDP-SER files during the site visit, the panel agrees that the PDP-SER cycle is a good method to help students in their self-directed learning.

Even though students are guided by a mentor (see below), this self-directed approach creates confusion and anxiety in the beginning. Second and third year students and alumni, however, are very clear in their enthusiasm for the open approach and told the panel that they found the confusion in the first year productive, not excessive. They experienced it as an invitation to take their development a step further, and hope that the more explicit requirements and rubrics that have now been introduced do not disrupt the balance between freedom and structure. The programme staff is aware of this risk. The panel believes that the introduction of the semester goals and the change to a more scripted process are an improvement and commends the programme for this new direction. It appears that this adjustment leads to fewer dropouts and will still lead to the intended self-directed learners.

#### *Individual guidance*

All students have a mentor who guides them in their academic growth and helps in making decisions about their academic development. They coach students in developing effective learning strategies and in translating their thoughts and ideas into concrete plans for their PDP. They help students in aligning courses and electives to their future profile by asking questions and discussing the student's talents, opportunities and things to work on. The intensity decreases in the course of the programme. Semester coordinators get much information from teachers on how students are doing in their academic and personal development, and know who is struggling. The coordinator of academic advising also functions as the study advisor to ensure the links with other guidance and counselling opportunities and services at university level. The students confirmed that, depending on the situation, a student can be referred to a professional counsellor on campus.

Exit interviews are held with dropouts to find out the reason. The panel advises to use the outcomes of these exit interviews as input for further programme improvements. Some students may find out that ATLAS does not suit their ambitions and that they prefer a monodisciplinary programme instead. The panel would call this group 'jump outs' instead of 'dropouts'.

PP sessions and a PP market are organised to assist the students in finding suitable topics. Further information, e.g. on previous projects, can be found on the ATLAS website and from members of the PP committee, mentor, teachers and fellow students.

The panel heard from the students that, beside the teacher-mentor for the academic side, they have a student-mentor on the social side, who helps in settling in and adjusting to student life. Student-mentors can inform staff when a student doesn't feel well, so that teachers and staff can get involved if the student concerned agrees. The student-association Atlantis organises well-being sessions. The panel concludes that there is a good system for academic and personal advising.

### *Staff*

Teachers in ATLAS are either part of the core staff (staff members who are hired fulltime or for a number of days a week) or external staff (staff members who are hired for a specific course or teaching task). The panel recognises that this combination allows ATLAS to create an intensive college environment, while at the same time attracting specific experts from research groups to teach electives and coach projects.

The core staff consists of nineteen lecturers with a background in all faculties of the university. Fifteen of them hold a PhD, while the others hold at least a master's degree. This ensures that students are taught by skilled researchers and experts in their field. All lecturers are required to have their universal teaching qualification (UTQ) or to obtain it within three years of their appointment as lecturer. The focus of ATLAS staff on teaching is further illustrated by the fact that the core faculty have won several educational awards as well as a Comenius grant for innovation in Dutch higher education. The teachers told the panel that teaching at ATLAS as a core staff member is a deliberate choice. They consider ATLAS as the perfect environment to try innovative teaching styles and be the very best teacher. External teachers try to combine the best of both worlds, balancing the knowledge to become a better teacher with the research in their field.

Both teachers and students indicate that they are closely involved with each other in trying to reach the student's goals. The teachers feel the difference with teaching in other, more traditional programmes. They also appreciate that, in ATLAS, they have interaction with colleagues from different departments and the chance to step out of their own field.

New teachers know what is typically expected from teachers in ATLAS by an introductory meeting with the programme director and sessions on the educational concept. In a teacher's first year, they share the lecturing with a more experienced colleague. Classes are evaluated with colleagues and students are asked for feedback. Teachers feel they work as a team and are comfortable in asking colleagues for help or advice. The team is rather small at the moment and many have been involved with ATLAS from the beginning. Their knowledge and experience are often implicit. With further growth and new staff coming in, this will have to be made explicit. The panel agrees and adds that the programme needs to continue its search for more efficiency in the PDP-SER cycle, since the energy of staff members is not inexhaustible.

### **Considerations**

The panel is enthusiastic about the curriculum, including the Personal Pursuit as a special asset, and the didactic concept of the PDP-SER-cycle. They provide a good framework to help students in their self-directed learning. The outline of the six semesters and their themes shows creativity and the panel likes the project work as intentionally designed experiences. The many interesting 'cross-cutting' approaches – e.g. the 'scales of focus' as a design principle – lead to a good, all-round education and interesting interdisciplinary work. The programme is well defined to meet the outlined objectives. The panel advises to clarify the existing possibilities for students to include the humanities in their studies and to encourage students to understand the potential role of the humanities in the overall interdisciplinary structure.

The worries of students about their initial confusion have been taken seriously. First experiences with the semester goals and a more guided PDP process are positive and seem to lead to fewer dropouts, while still leading to self-directed learners. Although this is still work in progress, the panel commends the staff for their awareness of the needs of students in the continued development of the ATLAS concept. This concern for the students' well-being also shines through in the good system of academic and personal advising.

The ATLAS programme is taught by well-qualified and very motivated staff. The students appreciate their teachers. The combination of core and external staff ensures a strong feeling of community, while drawing from the university's wider resources. Teaching is the focus of ATLAS staff, which is a great asset for the programme. New staff members are introduced to the typical content and method



expected from them, both before and at the beginning of their teaching at ATLAS. This works well. Much of this knowledge, however, is now implicit. The panel thinks it would make the programme less vulnerable, in case of experienced staff members leaving, to have this more documented, without creating a handbook. The panel also feels that the programme management needs to remain aware that energy of staff members is not unlimited.

## Conclusion

*Bachelor's programme Technology and Liberal Arts and Sciences:* the panel assesses Standard 2 as 'good'.

### **Standard 3: Student assessment**

The programme has an adequate system of student assessment in place.

## Findings

### *Assessment method*

The starting point of assessment in ATLAS is self-assessment by the student. Assessment is the final stage of the PDP-SER cycle students go through every semester. In their SER, students collect, present and evaluate evidence of attaining the semester goals. The SER is subsequently evaluated and assessed by the semester team, consisting of faculty. In order to pass the semester, the student needs to receive a positive assessment of their SER and meet the qualitative (completion of specific educational activities, content areas and projects) and quantitative (a study load of at least 27 EC) requirements for the semester.

Approval of the PDP by the PDP committee is required to take part in the semester assessment. This is meant to assure that with this plan the student can achieve the semester goals in an assessable way. The PDP committee consists of at least three staff members, including the semester coordinator. Halfway through each semester, the staff involved in the semester reviews the student's midterm evaluation and provides feedback. The students use this feedback to calibrate their self-evaluation and adjust their planning in an updated PDP, again to be approved by the PDP committee. At the end of the semester students hand in their SER in which they provide evidence that the semester goals have been achieved, and evaluate their development throughout the semester. Evidence means a product with feedback from an expert. A group of core faculty individually assess the SERs, after they have aligned instructions and criteria. During the subsequent assessment meeting, all staff involved in the semester calibrate their draft verdicts. These meetings are audio recorded and minuted. The staff members establish what is to be assessed as a solid Pass at Honours (PH) level or as a solid Pass with Excellence (PX), and then discuss the intermediate cases to decide if they are PH or PX level. Other verdicts are a Pass with Condition (PC) and a Hold (H). Upon successful completion of the condition a PC will turn into a Pass (PA). The panel believes that this system of grading is adequate for the programme and works well. Students receive an explanatory conversion table with their transcript.

During a semester, students participate in educational activities. Only activities that have been successfully completed can be used as evidence for the semester assessment. Project feedback is on group level, but students have indicated in their PDP on which specific parts they have concentrated, so that only that part of the project feedback is used as evidence for their individual learning. Project teachers are consulted to give a calibration of the student's self-assessment. During an ATLAS course, students work on presentations, draft papers, take-home-exams, proof-of-concepts, exams etcetera. These assignments in combination with positive feedback by the teacher constitute evidence. The evidence for courses at other faculties varies from graded written reports with extensive feedback to graded multiple-choice exams. For online electives the evidence usually consists of a test score and a certificate. PP projects are assessed by the PP committee, based on the students' reflection and the supervisor's evaluation. During the site visit, the panel studied a number of PDP-SER files and is impressed by the very extensive thoughts and reflection in PDPs and SERs by the students. It shows how much they are aware of their learning process and capable of

self-correction. The teachers provide excellent feedback, showing their serious engagement with this innovation. The students emphasised in their meeting with the panel how much they value this ongoing feedback cycle. Having studied the files, the panel notes that the process of the PDP-SER cycle is quite labour-intensive for the teaching staff. The panel, therefore, agrees with the observation in the self-evaluation report that scalability and continuity depend on the continued commitment and professionalism of staff. A system of more formal guidelines and training of assessors will be useful.

The capstone projects in the final semester are supervised and assessed by at least two supervisors: one or more external content supervisors and an ATLAS co-supervisor. External supervisors can compare ATLAS capstones with bachelor theses in other programmes, which is a strong calibration tool of the BSc level. Capstones are assessed on the quality of the work, quality of the process and communication. Supervisors are provided with a supervisor manual. This includes assessment guidelines, based on the VALUE-rubrics (Valid Assessment of Learning in Undergraduate Education) of the Association of American Colleges & Universities. After the oral defence, the supervisors jointly decide on the final grades and confirm their agreed opinion by signing the assessment form. The panel considers the assessment process and actual grading to be very good, but the feedback is often rather generic. The Examination Board explained that students get feedback orally, but this is not recorded. The Board agrees with the panel that it would be better to record the specific feedback, which is also helpful for reconstruction purposes, e.g. in case of an appeal. The panel feels this would also provide evidence that equal amounts of feedback have been given from both supervisors.

#### *Examination Board*

The Examination Board consists of five members, all with their main appointment outside of ATLAS. The chair and one member are active as teachers in ATLAS. The Board comprises one former and one current programme director. The panel feels that this composition ensures both sufficient links with other university faculties and a full understanding of the specific assessment processes and requirements in ATLAS. The Board meets seven times per year to discuss appeals and issues related to quality assurance.

The Examination Board is responsible for safeguarding the quality of the assessment. The Board appoints the assessors on their educational credentials. It monitors the quality of assessment systematically by evaluating both the manuals for PDP-SER and capstone projects and a sample of assignments, tests and capstones. In order to safeguard the coherence between the intended learning outcomes at programme level and the study units' learning objectives the Board evaluates a sample of semester syllabi and course syllabi. The Board uses the recordings of the semester assessment meetings to further increase the transparency of the establishment of the verdicts and formulate assessment guidelines. On the basis of its meeting with the Examination Board, the panel concludes that ATLAS has a well-qualified and proactive Examination Board that keeps a very good eye on the quality of assessment.

#### **Considerations**

The panel is impressed by the innovative assessment system that is fully in line with the aim of a self-directed learning process and is systematically implemented. Students are required to provide evidence of their accomplishments and systematically reflect on their development. The process works well, calibration of staff's judgements takes place in assessment meetings per semester and in the PP committee. The ongoing feedback and feedforward cycle is a feature that is highly valued by the students. The panel hopes that over time the process can be made more efficient, to keep it sustainable.

The grading of capstone theses is carefully done, with at least one external and an internal supervisor. Students are given ample oral feedback after the defence of their capstone. The panel advises to record this feedback in the written documentation and to ensure equal levels of feedback given by each assessor/supervisor.



The panel is assured that the composition, role and procedures of the Examination Board safeguard the quality of assessment. The Board is involved in the continuous initiatives to further finetune the assessment system.

### **Conclusion**

*Bachelor's programme Technology and Liberal Arts and Sciences:* the panel assesses Standard 3 as 'good'.

#### **Standard 4: Achieved learning outcomes**

The programme demonstrates that the intended learning outcomes are achieved.

### **Findings**

The intended learning outcomes are assessed at the final level in the capstone project and thesis. Prior to the site visit, the panel read a selection of fifteen theses and their assessment forms. It confirms that all theses show the intended bachelor level. The theses generally range from very high to excellent in quality. The panel characterises a number of theses as impressively advanced, with sometimes creative topics and usually good clarity of purpose. They are generally well-written and organised. The panel would have liked to see more evidence of ethical considerations, although this certainly does not detract from the panel's positive assessment of the theses. The panel is satisfied to hear from the Examination Board that the staff is currently discussing how to integrate social implications and ethical considerations in all theses.

The panel found the grading overall to be fair and consistent and even on the strict side. Often, the panel would have given a higher grade, taking into account that the level of e.g. physics is comparable to that of monodisciplinary physics theses.

The self-evaluation report describes that ATLAS currently has 60 graduates, most of whom have continued into engineering masters, either directly or after taking a gap year. A full list has been provided of all alumni destinations. 94% have been admitted directly into the master of their choice, including at prestigious high-ranking universities. The master's programmes entered into by ATLAS graduates are diverse: they include the purely natural science programmes, mathematical, classical engineering and new engineering and social science programmes. Ten ATLAS graduates have already completed a master's degree and moved on. The information shows that they are now getting into PhD positions at prestigious institutes, are helping the world forward by working for the United Nations Framework Convention on Climate Change and are trailblazing in start-ups.

During the site visit, the panel met with a number of alumni. They confirmed the information in the self-evaluation report, and showed convincingly how they had gone into different directions, using the self-directed reflective approach and feeling confident to reach out. They describe ATLAS as an environment where students can explore and develop the possibilities they have in them. Their ability to consider different perspectives is clearly visible. The level of self-awareness is exceptional. They are able to integrate the wide range of social, natural and engineering sciences in their work. The panel is duly impressed by the outcomes of the programme. The alumni also indicated that they remain in touch with ATLAS through the alumni committee and are willing to play a role in giving inside information to prospective students. The panel commends the programme for the way it keeps in touch with its graduates.

### **Considerations**

The panel concludes on the basis of the theses and the meeting with alumni that graduates have fully attained the programme's intended learning outcomes. The theses are generally of very high quality. The programme has a significant added value, especially in terms of the self-directed reflective approach and confidence with which alumni are able to continue their career. Graduates find their way to selective and prestigious master's programmes of their choice easily and relatively many of them continue in PhD positions after that. The graduates' success provides ample evidence



of the excellent way the programme enables students to achieve the intended learning outcomes, clearly surpassing the achievement level expected for a bachelor's degree.

**Conclusion**

*Bachelor's programme Technology and Liberal Arts and Sciences*: the panel assesses Standard 4 as 'excellent'.

## GENERAL CONCLUSION

The intended learning outcomes show the appropriate level, are convincingly described in terms of five core values and express a unique combination of science/engineering and social science. The curriculum enables the students to develop themselves as self-directed learners in an innovative cycle of Personal Development Plans and Self-Evaluation Reports. The staff is well-qualified, very motivated and committed to the students. The programme has a creative and innovative system of student assessment that fits the self-directed learning philosophy and an active Board of Examiners to safeguard its quality. The theses and careers of the graduates persuasively show that they have achieved the intended learning outcomes at a level that surpasses what is expected for a bachelor's degree.

**Conclusion**

The panel assesses the *bachelor's programme Technology and Liberal Arts and Sciences* as 'good'.



# DESCRIPTION OF THE STANDARDS FROM THE ASSESSMENT FRAMEWORK FOR THE DISTINCTIVE FEATURE OF SMALL-SCALE AND INTENSIVE EDUCATION

## Introduction

The bachelor's programme Technology and Liberal Arts and Sciences (ATLAS) at the University of Twente (UT) is a relatively young programme. ATLAS opened its doors in September 2013 and has since then grown from an intake of 26 students to approximately 50 in 2018-2019. ATLAS has its own building, where curricular and extracurricular activities are hosted. First-year students live together on campus. Up to September 2018, ATLAS has had 60 graduates, spread over three cohorts.

Given the prominence of its educational approach, the bachelor's programme was awarded the Distinctive Feature Small-scale and Intensive Education in 2012. It allows the programme to select every year a group of first-year students, for which an elaborate admission procedure has been established. In addition to the regular assessment of the bachelor's programme, which is discussed separately in the preceding chapter of this report, the panel performed a practice-based assessment to verify whether the distinctive, small-scale and intensive character of the bachelor's programme can be reaffirmed. Two panel members were specifically trained and appointed by the NVAO to lead the assessment of this Distinctive Feature. The practice-based assessment took place in combination with the regular assessment of the bachelor's programme. The initial advisory report of the Distinctive Feature in 2012 contains no specific recommendations to be checked in the practice-based assessment.

### A. Intended learning outcomes

The intended learning outcomes are not only aimed at achieving a high level in the relevant academic discipline and/or professional practice, but also have a broader aim: to train socially skilled and initiative-rich scholars and/or professionals with a wide interest in social developments and issues within a multidisciplinary and/or interdisciplinary context.

## Findings

The intended learning outcomes are aimed at achieving high levels in the student's individual academic profile through the implementation of basic literacy in the three domains of natural sciences, mathematics and social sciences and interdisciplinary projects. Modern engineering solutions require not only technical but also social perspectives and understanding. This new type of engineers understands how technical solutions function in the real world. Three learning outcomes are specifically aimed to train socially skilled and initiative-rich new engineers:

- #7: the ATLAS graduate is competent in cooperating and communicating;
- #8: the ATLAS graduate takes account of the temporal and social context;
- #9: the ATLAS graduate behaves in a socially responsible manner and is able to take leadership.

The profile of an ATLAS engineer is summarised in the core values of the programme:

1. Self-directed learning: taking the initiative and making conscious choices regarding both process and content of learning, based on self-understanding;
2. Integration: integrating the perspectives of social, natural and mathematical sciences;
3. Excellence: improving yourself, going beyond your established capabilities in a cooperative, non-competitive setting;
4. Community: engaging with the learning community of students and teachers and with society (design and research with and for society);
5. Trailblazing: being open to innovation, creativity and novelty, and taking initiative.

The self-evaluation report describes how the core values are related to the intended learning outcomes.



## Considerations

The panel considers the intended learning outcomes appropriate. The nature of the programme is interdisciplinary and aims at a broad understanding of a wide spectrum of disciplines (natural sciences, mathematics, social sciences). The five core values aptly describe how students can learn to take their role as new engineers. The panel appreciates how well these core values describe the socially skilled and initiative-rich new engineers with a wide interest in social developments and issues within an interdisciplinary context. Especially the concept of trailblazing is very appropriate for the distinctive feature.

## Conclusion

*Bachelor's programme Technology and Liberal Arts and Sciences:* the panel assesses Standard A as 'meets the standard'.

### **B. Relationship between the goals and content of the programme**

The content of the programme is inseparably connected to relevant extra-curricular activities, which ensures a high level and broadening of interests as set down in the intended learning outcomes.

## Findings

ATLAS safeguards that all students attain the intended learning outcomes through semester goals, semester functions, semester themes and the capstone project. The semester coordinators and curriculum committee monitor this systematically and make sure that the semester projects allow the students to achieve the learning objectives. In the self-directed learning process that is characteristic of ATLAS, students write a Personal Development Plan (PDP) at the start of each semester, and provide evidence in a Self-Evaluation Report (SER). Students receive academic advising when writing their PDP and need approval of their PDP by the PDP Committee to take part in the semester assessment. A group of core faculty individually assess the SERs, after they have aligned instructions and criteria. During the subsequent assessment meeting, all staff involved in the semester calibrate their draft verdicts. A similar approval and assessment procedure are in place for the Personal Pursuit (PP) projects. PP projects are assessed by the PP committee, based on the students' reflection and the supervisor's evaluation. The panel is confident that these mechanisms guarantee a direct link between the programme contents and the intended learning outcomes.

The panel has studied the student handbook and semester course guides during the site visit. These are comprehensive and helpful documents.

In addition to formal educational activities, students and staff join in several activities that go beyond the curriculum and that broaden their horizons. During the site visit the panel was introduced to various initiatives and committees. The study association Atlantis organises a range of activities that link what happens within the curriculum to what happens outside. They help improve the education through feedback to teachers and by organising the PP market. The yearly study trip is fully integrated in the academic calendar so that all students and teachers can join. Other initiatives organised by one of the many committees are fun activities, company visits, the BookBuzz and discussion about world topics.

ATLAS students have written an honour code declaring the values of the ATLAS community, such as (academic) integrity. The Honour Code Committee stimulates students to adhere to this set of values, which changes as the community changes. The code is integrated into the teaching and learning and is referenced in the Education and Examination Regulations.

A number of trailblazing activities was exhibited, such as participation in the Netherlands Asia Honors Summer School in Hong Kong, founding 'Sustain' as a formal association to support sustainability at UT, the ATLAS Journal of Social Science as an opportunity to collaborate and publish articles in a scientific magazine, the organisation of the first sociotechnical Model United Nations in the

Netherlands, participation in the RoboTeam Twente to build an autonomous robot soccer team and the Solar Team Twente to build an innovative solar car for a race in Australia, and a project in Curitiba, Brazil on sustainable mobility. In all these activities, students apply their academic and (inter)disciplinary competences in extracurricular projects.

The concept of Personal Pursuit (PP) as part of the curriculum steps away from the traditional distinction between curricular and extracurricular activities. PP contributes to enriching the community, as each PP includes an element of outreach to the ATLAS community, and sometimes beyond. The self-evaluation report contains an overview of all 2017-2018 PP projects, including the kind of output (essay, video, booklet, performance, exhibition, report, etc.) and outreach to the community of ATLAS, UT or the city of Enschede. Many projects are presented at the ATLAS Expo at the end of the academic year. During the site visit, the panel was shown around a number of PPs and was impressed by the wide range of interests.

### **Considerations**

The curriculum is well-designed and ensures that the contents of courses and projects are systematically linked to the intended learning outcomes. The assessment procedures guarantee that each graduate has achieved the programme objectives.

The PP is the primary example of the way in which the content of the programme is inseparably connected to relevant extracurricular activities. These PPs stimulate students to bring their passion into the academic world and the other way around. The many projects and trailblazing activities convincingly show how students are able to combine their study at ATLAS with wider interests and turn this into relevant learning experiences. The active role of the study association and the work of the Honour Code Committee are also strong points.

### **Conclusion**

*Bachelor's programme Technology and Liberal Arts and Sciences:* the panel assesses Standard B as 'meets the standard'.

### **C. Structure and didactic concept**

The concept of the programme is aimed at creating an academic and/or professional community. Key terms are small-scale and intensively organised education, leading to a high number of hours of face-to-face teaching, close involvement between students and teachers and between students among themselves and socially relevant extra-curricular activities.

### **Findings**

Interaction between students and teachers is intensive, in projects and courses, in the PDP-SER cycle and in academic advising. The students told the panel that lecturers generally find a good balance between helping to keep on track while giving freedom. Students feel invited and encouraged to take issues a step further and look into them more deeply. The annual intake has grown from less than 30 students in the first two years to approximately 50 students in the last few years. This small size, the residential housing, the peer learning activities in courses and the group work in projects lead to a close-knit community, both among students and between students and staff. Students describe their common room, 'the Aquarium', as its focal point and home base.

The panel heard from the teachers that students go through different stages over the years. They start out in what they call the ATLAS bubble, a safe space, in the first year. In the second year, the programme opens up through the electives and the PP projects, and, gradually, all students want to break out. In the third year they are ready to fly out for their fifth semester outside ATLAS and their capstone project. At the same time, they also want to come back, to the community they have built together. The panel agrees with the teachers that the balance between the inside community and the outside world is good.



Students told the panel how they look out for each other in their residential living. They feel they can ask for help from students in other years on how to deal with situations. One of the students started to organise well-being sessions recently with some other students. The students feel that teachers also look out for them.

### **Considerations**

The panel recognises the small-scale and intensive character of the programme. Students and staff are closely involved with the teaching activities. Project work in small groups makes up a large part of the programme. The small classes make it possible to implement truly student-centered education. The panel concludes that ATLAS has created a strong learning community for its students.

### **Conclusion**

*Bachelor's programme Technology and Liberal Arts and Sciences:* the panel assesses Standard C as 'meets the standard'.

### **D. Intake**

The programme has a sound selection procedure in place, aimed at admitting motivated and academically and/or professionally talented students.

### **Findings**

ATLAS has an extensive admission procedure that is aimed at finding the right match between the academic ambitions and interest of the student and the offerings and way of learning at ATLAS. Applicants send in a motivation letter, English proficiency score and high school transcript. They must have a background in mathematics and natural science, preferably physics.

Admissible students are invited for an ATLAS In\_Sight Day in Enschede. During this day, prospective students first work on a small group assignment, and second on a large group assignment, while observed by ATLAS teachers. Third, they work on a small individual writing assignment. The day ends with individual interviews with both students and teachers. The students provide information about the ATLAS educational approach and what is needed for working and learning at ATLAS, but they are not involved in the decision-making. Students who are not able to attend the In\_Sight Day in Enschede are interviewed online, again both with students and teachers. The students told the panel during the site visit that they appreciated the interview during the In\_Sight Day as an open way to explore their fit with the programme. The high degree of self-directedness expected from students is made sufficiently clear for prospective students, but it is not always easy for students to decide at 17 if they are self-directed enough. Some candidates are given a chance while they are not sure. The alumni agree that this is a difficult balance, but they told the panel that they are convinced that dropouts have the feeling they really tried it, which is also good.

### **Considerations**

The panel concludes that the programme has a sound selection procedure in place, that is regularly refined to increase its effectiveness. The panel appreciates that the procedure is open instead of restrictive. The matching interview during the In\_Sight Day is a good instrument to ensure the proper level and best fit of students.

### **Conclusion**

*Bachelor's programme Technology and Liberal Arts and Sciences:* the panel assesses Standard D as 'meets the standard'.

### **E. Quality of staff**

The teachers have high-quality knowledge of the relevant subject and feel involved in the distinctive nature of the programme.

## Findings

Teachers in ATLAS are either part of the core staff (staff members who are hired fulltime or for a number of days a week) or external staff (staff members who are hired for a specific course or teaching task). This combination allows ATLAS to create an intensive college environment, while at the same time attracting specific experts from research groups to teach electives and coach projects.

The core staff consists of nineteen lecturers with a background in all faculties of the university. Fifteen of them hold a PhD. All lecturers are required to have their universal teaching qualification (UTQ) or to obtain it within three years of their appointment as lecturer. The focus of ATLAS staff on teaching is further illustrated by the fact that the core faculty have won several educational awards as well as a Comenius grant for innovation in Dutch higher education. The teachers told the panel that teaching at ATLAS as a core staff member is a deliberate choice. They consider ATLAS as the perfect environment to try and be the very best teacher. External teachers try to combine the best of both worlds, balancing the knowledge to become a better teacher with the research in their field.

Both teachers and students indicate that they are closely involved with each other in trying to reach the student's goals. The teachers feel the difference with teaching in other, more traditional programmes. They also appreciate that, in ATLAS, they have interaction with colleagues from different departments and the chance to step out of their own field. New teachers know what is typically expected from teachers in ATLAS by an introductory meeting with the programme director and sessions on the educational concept. In a teacher's first year, they share the lecturing with a more experienced colleague. Classes are evaluated with colleagues and students are asked for feedback. Teachers feel they work as a team and are comfortable in asking colleagues for help or advice.

## Considerations

The panel concludes that the teachers have the required academic knowledge and didactic skills, and are very motivated to teach at ATLAS. They are dedicated and committed to their students.

## Conclusion

*Bachelor's programme Technology and Liberal Arts and Sciences:* the panel assesses Standard E as 'meets the standard'.

### **F. Number of staff**

There is sufficient staff available to provide small-scale and intensive education and to ensure and develop individual contact between teachers and students.

## Findings

The self-evaluation report mentions that the student-staff ratio for education and assessment has gradually increased from 11.1:1 in 2013-2014 to 17.1:1 in 2017-2018. In addition, support staff is available to take care of other needs of students. The panel feels that this ratio is sufficient for the small-scale and intensive educational programme.

## Considerations

The panel concludes that the student-staff ratio of 17.1:1 enables a good execution of the curriculum and small-scale teaching.

## Conclusion

*Bachelor's programme Technology and Liberal Arts and Sciences:* the panel assesses Standard F as 'meets the standard'.



### **G. Available facilities**

The programme has its own infrastructure with facilities for small-scale and intensive education and common extra-curricular social activities.

#### **Findings**

ATLAS is a residential college on the campus of UT. The Citadel building in which ATLAS is currently housed, has been reshaped in January 2017. The offices and project rooms were merged into two large open spaces: the active zone and the focus zone. The active zone is equipped with flexible seating arrangements that allow for active peer-learning and group work. Smaller meetings rooms are available for group discussions. For coffee and one-on-one chats there is the foyer. The focus zone is furnished to accommodate individual work. Adjacent to each zone there is an office for lecturers who either need to do solitary work (focus zone) or need to work together (active zone). All of these spaces are also available for the organisation of extra-curricular activities. Per September 2019, ATLAS will have a new building in which this concept is further developed.

Other workshop facilities and labs are available in the DesignLab at the UT campus. Students use the mechanical and electrical workshops for their semester projects and PPs. The facilities of Artez, University of the Arts are also frequently used for PPs.

Student residences are located on the campus. ATLAS students live together in houses in different location on campus. Starting in 2019-2020, housing for first year students will be on the top floors of the new building. This is expected to further stimulate the sense of learning community and a community of learners.

#### **Considerations**

The panel concludes that the facilities in the faculty building are good and encourage both the learning community and the social community. The panel trusts that the new building, per September 2019, will offer comparable facilities. Students start their life at ATLAS by living together on the UT campus.

#### **Conclusion**

*Bachelor's programme Technology and Liberal Arts and Sciences*: the panel assesses Standard G as 'meets the standard'.

### **H. Level realised**

The content and the level of the final projects are in line with the level and the broadening of interests as set down in the intended learning outcomes. Graduates are admitted to prestigious postgraduate programmes and/or jobs. The success rates are substantially higher than those of other relevant programmes.

#### **Findings**

The intended learning outcomes are assessed at the final level in the capstone project and thesis. All theses that were studied by the panel, show the intended bachelor level. Almost all of them are of high quality and some are even excellent. The panel would have liked to see more evidence of ethical considerations and is satisfied to hear from the Examination Board that the staff is currently discussing how to integrate social implications and ethical considerations in all theses.

ATLAS currently has 60 graduates, most of whom have continued into engineering masters, either directly or after taking a gap year. A full list has been provided of all alumni destinations. 94% have been admitted directly into the master of their choice, including at prestigious high-ranking universities. The master's programmes entered into by ATLAS graduates are diverse: they include the purely natural science programmes, mathematical, classical engineering and new engineering and social science programmes. Ten ATLAS graduates have already completed a master's degree and moved on. The information shows that they are now getting into PhD positions at prestigious

institutes, are helping the world forward by working for the United Nations Framework Convention on Climate Change and are trailblazing in start-ups.

During the site visit, the panel met with a number of alumni. They confirmed the information in the self-evaluation report, and showed convincingly how they had gone into different directions, using the self-directed reflective approach and feeling confident to reach out. The ability to consider different perspectives is clearly visible in the alumni. The level of self-awareness is exceptional.

The self-evaluation report shows that dropout rates tend to be lower than in other UT programmes, with the exception of cohort 2017-2018. In that year, first year dropout doubled from 12-14% in preceding years to 27%. Both staff and students informed the panel that this was not so much an effect of the programme, but rather an unfortunately high number of students with personal problems. Also, some students found out that ATLAS did not suit their ambitions and that they preferred a monodisciplinary programme instead. The panel would call the latter group jump outs instead of dropouts. Between 61% (cohort 2015-2016) and 78-80% (cohorts 2013-14 and 2014-2015 respectively) of the remaining students are able to complete the programme within three years. After four years all students of the first cohort (2013-2014) and 90% of the second cohort (2014-2015) graduated successfully. The panel considers these success rates to be good.

### **Considerations**

The panel concludes that the capstone theses show the bachelor's level and the interdisciplinary approach of the programme. ATLAS students perform better than other UT students. The dropout rate in year 1 is lower than at other faculties. ATLAS students graduate faster than their counterparts in UT generally. The graduates are admitted to prestigious universities.

### **Conclusion**

*Bachelor's programme Technology and Liberal Arts and Sciences*: the panel assesses Standard H as 'meets the standard'.

## **GENERAL CONCLUSION**

The ATLAS programme has been granted the Distinctive Feature of Small-scale and Intensive Education in 2012. The panel concludes on the basis of the practice-based assessment that the programme has shown that it meets all standards for the Distinctive Feature. The intended learning outcomes, programme and extracurricular activities, didactic approach, staff and facilities are in line with the requirements for small-scale teaching and support the development of a learning community. ATLAS students perform better than other UT students. ATLAS graduates are admitted to selective and prestigious master's programmes.

The assessment panel in 2012, when ATLAS applied for the Distinctive Feature, has given no specific recommendations to be checked in this practice-based assessment. The panel advises the Ministry of Education, Culture and Science to grant approval for the Distinctive Feature Small-scale and Intensive Education for an indefinite period of time to the bachelor's programme Technology and Liberal Arts and Sciences of the University of Twente.

### **Conclusion**

The panel assesses the *bachelor's programme Technology and Liberal Arts and Sciences* as 'positive'.





# APPENDICES



## APPENDIX 1: DOMAIN-SPECIFIC FRAMEWORK OF REFERENCE

This reference framework is intended for the Liberal Arts and Sciences (LAS) programs in the Netherlands. This includes selective University Colleges as well as non-selective LAS programs situated within a university. These programmes are a constituent part of Dutch “scientific” or “scholarly” education (wetenschappelijk onderwijs). The LAS education framework articulated here distinguishes itself from (emerging) broad programs through its proximity to academic inquiry and research and through its commitment to wide-ranging intellectual formation not chiefly aimed at preparing students for particular professions.

As this accreditation process is reviewing an ever more diverse range of programs, this framework of reference is short rather than extensive. Rather, it is a reference framework that reflects shared educational aims with each of the programs under review.

Liberal arts and Sciences emphasises intellectual growth through both broad and deep learning as the foundation of the curriculum. Standing in the liberal arts tradition that seeks to free the individual through intellectual and ethical engagement, LAS encourages inquiry through profoundly open curricula that allows students to explore a diversity of academic fields from the Humanities, Social Sciences and Natural Sciences. This enables them to attain depth in disciplinary, multidisciplinary or interdisciplinary concentration areas of their own choosing. By combining the disciplinary depth and multi- or interdisciplinary learning with undergraduate research and communication skills, students develop their creativity, initiative-taking, skills in working together. Often conducted in a strongly international context, LAS programs regardless of setting promote intercultural understanding abilities and societal engagement.

LAS takes place within distinct learning and social communities. The formal program and extracurricular activities are often linked and in such cases students, faculty and staff participate actively in the governance of the program and the community. Teaching and learning experiences are typically characterized by small-scale and intensive education, with a high level of interaction between students and teachers and among students themselves. Giving this emphasis on active discussion and debate, LAS programs strive for diversity in their student population in terms of nationality, ethnicity, gender and cultural and socio-economic backgrounds and offer dynamic environments that invite curricular experimentation and educational innovation and attract academics dedicated to excellence in teaching.

Liberal Arts & Sciences programs have intended learning outcomes that include:

- a. multidisciplinary familiarity in the humanities, social sciences and natural sciences combined with depth of knowledge in a chosen concentration area;
- b. ability to approach complex questions or issues in an inter- or multidisciplinary way;
- c. advanced academic skills in communication, quantitative and qualitative methods, critical thinking, research and learning;
- d. attitudes and skills for engaged citizenship, including international and intercultural understanding, social skills and a will to contribute to solving societal issues;
- e. intellectual curiosity, reflexivity, integrity and an open mind, learning skills necessary for subsequent graduate studies and the workplace.

Approved in Tilburg on October 25, 2017 by

- Dean Amsterdam University College: prof. dr. Murray Pratt
- Dean Erasmus University College: prof. dr. Maarten Frens
- Dean Leiden University College The Hague: prof. dr. Judi Mesman
- Dean University College Groningen: prof. dr. Hans van Ees
- Dean University College Maastricht: prof dr. Matthieu Zegers
- Dean University College Roosevelt: prof. dr. Bert van den Brink
- Dean University College Tilburg: prof dr. Alkeline van Lenning
- Dean University College Twente: prof. dr. Jennifer Herek



- Dean University College Utrecht: prof. dr. James Kennedy
- Director Liberal Arts and Sciences @ Utrecht University: dr. Iris van der Tuin

## APPENDIX 2: INTENDED LEARNING OUTCOMES

Upon graduation, the ATLAS graduate:

### **1. Is competent in at least one technical and one social science academic subject**

- a. Understands the knowledge base of the relevant fields (theories, methods, techniques).
- b. Understands the structure of the relevant fields, and essential connections between sub-fields.
- c. Has knowledge of and some skills in the way in which truth-finding and the development of theories and models takes place in the relevant fields.
- d. Has knowledge of the way in which interpretations of texts, data, problems, and results take place in the relevant fields, and is able to apply this knowledge.
- e. Has knowledge of and some skills in the way in which experiments, gathering of data and simulations take place in the relevant fields.
- f. Has knowledge of and some skills in the way in which decision-making takes place in the relevant fields.
- g. Is aware of the presuppositions of the standard methods and their importance.
- h. Is able (with supervision) to spot gaps in their own knowledge and overcome this through study.

### **2. Is competent in carrying out scientific research**

- a. Is able to reformulate ill-structured research problems, taking into account the boundaries of systems. Is able to defend new interpretations against various stakeholders.
- b. Is observant, and has the creativity and the capacity to discover in apparently trivial matters certain connections and new viewpoints.
- c. Is able (with supervision) to produce and carry out a research plan including selection of the appropriate research methodology, both for technical as well as for social science problems.
- d. Is able to work at different levels of abstraction.
- e. Has an interdisciplinary mindset, and so can understand the importance and relevance of various disciplines and approaches.
- f. Is aware of, and can handle, the unpredictability of the research process due to changing external circumstances or new insights.
- g. Is able to discern the usefulness of existing research on the subject.
- h. Is able (with supervision) to contribute to the development of scientific knowledge in one or more areas of the subjects concerned.

### **3. Is competent in design**

- a. Is able to reformulate ill-structured design problems, taking into account the boundaries of the system. Is able to defend this new interpretation against various stakeholders.
- b. Uses creative skills to analyse design problems and to synthesize different aspects and approaches.
- c. Is able (with supervision) to produce and carry out a design plan, both for technical as well as for social science problems.
- d. Is able to work at different levels of abstraction including the system level.
- e. Understands the importance of other subjects (interdisciplinarity) and can integrate them where appropriate.
- f. Is aware of, and can handle, the unpredictability of the design process due to changing external circumstances or new insights.
- g. Is able to integrate existing knowledge in a design.
- h. Has the skill to take design decisions, and to justify and evaluate these in a systematic manner.

### **4. Is competent in organizing**

- a. Is able to evaluate the usefulness, relevance, and restrictions of prototypes with respect to scaling products or processes.
- b. Is able to understand, evaluate and value the likely effect of perspectives and propositions of stakeholders, potential users and 'society' on the process of change.
- c. Is able to adjust and optimize the process of change (implementation) accordingly by optimizing the outcomes of 4a and 4b.



## **5. Has an academic approach**

- a. Is inquisitive and has an attitude of lifelong learning; can assess own knowledge and skills, indicate their limits, find ways to improve the aforementioned points, and is able to test and evaluate their own learning progress.
- b. Has a systematic approach to their work, characterized by the development and use of theories, models and interpretations.
- c. Has the knowledge and the skill to use, justify, and assess the value of models for research and design, and is able to adapt models for a specific purpose. (Here the term 'model' can be used broadly, from mathematical models to scale-models).
- d. Has insight into the nature of science and technology (such as purpose, methods, differences and similarities between scientific fields, nature of laws, theories, explanations, role of the experiment, and objectivity).
- e. Has insight into academic and professional practice (such as research systems, relations with clients, publication systems, and the importance of integrity).
- f. Is able to adequately document the results of research and design with a view to contributing to the development of knowledge in the field and beyond.

## **6. Has intellectual skills**

- a. Has the self-awareness to critically reflect (with supervision) on their own thinking, decision-making, and acting, and adjust these accordingly on the basis of said reflection.
- b. Is able to reason logically within the field and beyond, through the use of 'why', 'how', and 'what-if' reasoning.
- c. Is able to recognise modes of reasoning (such as induction, deduction, and analogy) within the field.
- d. Is able to ask relevant questions, and has a critical, yet constructive, attitude towards analysing and solving problems in the field.
- e. Is able to form a well-reasoned opinion where data are incomplete or irrelevant.
- f. Is able to take a cultivated standpoint with regard to an academic or professional argument in the field.
- g. Possesses basic numerical skills, and has an understanding of orders of magnitude.

## **7. Is competent in cooperating and communicating**

- a. Is able to communicate (in writing and verbally) with colleagues and non-colleagues about the results of learning, thinking, and decision-making.
- b. Is able to follow and contribute to debates about a field and its place in society.
- c. Is able to comfortably handle 7.a and 7.b, both verbally and in writing, in English.
- d. Is characterised by professional behaviour, including drive, reliability, commitment, accuracy, perseverance, and independence.
- e. Is able to perform project-based work, is pragmatic and has a sense of responsibility.
- f. Is able to deal with limited resources and risks, and is able to make compromises.
- g. Is able to work within an interdisciplinary team and to contribute to its functioning.
- h. Has insight into, and is able to deal with, team roles and social dynamics.

## **8. Takes account of the temporal and social context**

- a. Is aware of developments in the history of the fields concerned. This includes the interaction between the internal developments (of ideas) and the external (social and technological) developments.
- b. Is able to analyse and to discuss with colleagues and non-colleagues the social consequences (economic, social, cultural) of new (technological) developments in relevant fields.
- c. Is able to analyse the consequences of academic and professional thinking and acting on the environment and on sustainable development.
- d. Is able to analyse and to discuss with colleagues and non-colleagues the ethical and the normative aspects of the consequences and assumptions of academic thinking and acting (both in research and in designing).
- e. Notices and can understand the roles that different professionals play in society.

## **9. Behaves in a socially responsible manner and is able to take leadership**

- a. Is aware of both the intended and unintended effects of their opinions and actions.
- b. Values the principles stipulated in the ATLAS Honour Code.
- c. Will take initiative where appropriate.
- d. Empathizes with, and can understand the viewpoints of, people from different cultures, and those who hold different values and perspectives, as well as people from different levels of education and socioeconomic status.

- e. Is able to value the contribution of others and generates input themselves.
- f. Is aware of their own 'natural' leadership style, its strengths and weaknesses, and will actively work to better their leadership where applicable.

**10. Prepared to make decisions about their future**

- a. Has a realistic view of their own capacities, skills, and motives.
- b. Is able to make well-reasoned decisions and carry them out.



# APPENDIX 3: OVERVIEW OF THE CURRICULUM

## SEMESTER ONE

**Orientation & Adaptation**

This is the start and introduction into ATLAS. Working on a project based on Movement and Human Behaviour, you will dive into a world of Newtonian Mechanics, Calculus and Social Sciences. You are introduced into all domains in the ATLAS name, giving you a solid foundation for future work in ATLAS.

## SEMESTER TWO

**Broadening & Direction**

The introduction in the domains in semester two allows you to start broadening your horizon through the choice of electives offered at UCT or at the UT. These electives will help you find direction. You will apply the knowledge and skills from your electives and ATLAS courses in Multivariate Analysis, Thermodynamics and Innovation in Business and Society, to a project on Sustainable Systems.



## SEMESTER THREE

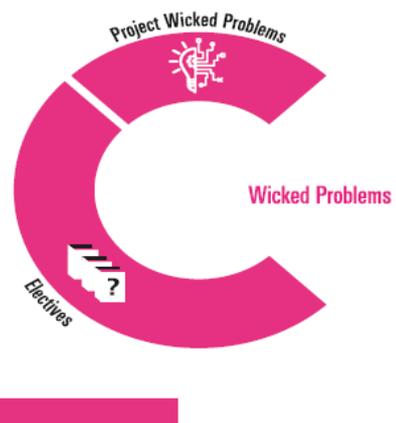
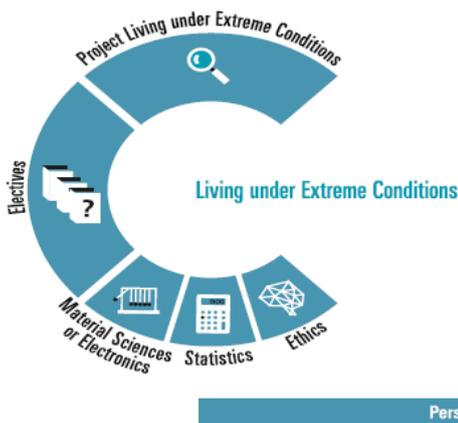
**Exploration & Focus**

The second year has begun and so has your specialisation. You will further explore to find your focus. You will choose electives based on your interests while simultaneously further develop your literacy in the domains; through Statistics, Ethics and either Material Science or Electronics. You will conduct experimental research on living under extreme conditions.

## SEMESTER FOUR

**Expertise & Integration**

Your fourth semester will challenge you even further through Wicked Problems. You will be confronted with complex problems, not easily solved if solvable at all! Acquire the knowledge to analyse Big Data and apply Statistics to your findings.



## SEMESTER FIVE

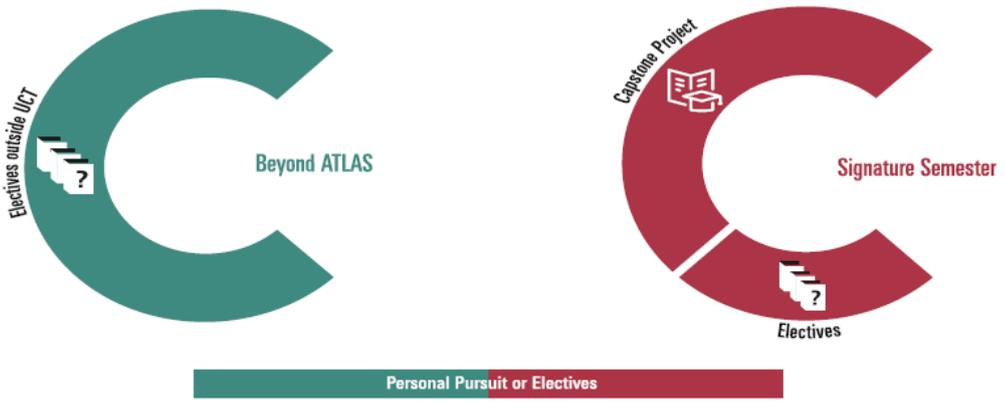
Away & Aware

The semester beyond ATLAS allows you to get out of your comfort zone and experience other learning styles and teaching cultures. While away, you will need to transfer and draw upon your skills and become aware of your own educational experiences.

## SEMESTER SIX

Signature & Celebration

In the final semester, you showcase your academic profile in the Capstone project. You have developed a foundation in year one, found your focus and developed expertise during year two and now, in your final semester year you turn your chose profile into your signature. It is time to celebrate. You are a New Engineer!



		Sem1	Sem2	Sem3	Sem4	Sem5	Sem6	PP	Total	
Framework ATLAS	Domain Natural Science	6	3	3					12	
	Domain Social Science	6	3	3					12	
	Domain Mathematics	6	3	3					12	
	Project	9	9	9	9				36	72
Student choice	Electives		9	9	18	27	12-7		75(70)	
	Capstone						15-20		15(20)	
	Personal Pursuit	6		6	6		18		18	
		27	27	27	27	27	27	18		108
										<b>180</b>

Illustration 3: Credit distribution in the ATLAS curriculum

## APPENDIX 4: PROGRAMME OF THE SITE VISIT

Thursday 6 December ATLAS UCTwente		Friday 7 December ATLAS UCTwente	
9.00 - 12.30	<i>(Travel to Enschede)</i>	8.45 - 9.00	<i>Arrival panel/welcome</i>
		9.00 - 10.15	<i>Tour + treasure trove</i>
		10.15 - 10.30	<i>Break</i>
		10.30 - 11.15	<i>Students (including programme committee members)</i>
		11.15 - 12.15	<i>Teachers and tutors (including programme committee members)</i>
		12.15 - 12.45	<i>Alumni</i>
		12.45- 14.45	<i>Lunch and panel meeting</i>
12.30 - 12.45	<i>Arrival panel/welcome</i>	14.45 - 15.15	<i>Programme management</i>
12. 45 - 14.15	<i>Lunch &amp; panel meeting UCTwente</i>	15.15 - 15.30	<i>Preparation findings</i>
14.15 - 14.30	<i>Short programme presentation</i>	15.30 - 15.45	<i>Presentation findings</i>
14.30 - 15.15	<i>Development dialogue</i>	15.45 - 16.00	<i>Goodbye and thank you</i>
15.15 - 16.00	<i>Programme management</i>		
16.00 - 16.15	<i>Break</i>		
16.15 - 16.45	<i>Board of Examiners</i>		
16.45 - 17.30	<i>Internal panel meeting</i>		





## APPENDIX 5: THESES AND DOCUMENTS STUDIED BY THE PANEL

Prior to the site visit, the panel studied fifteen theses of the bachelor's programme Technology and Liberal Arts and Sciences. Information on the selected theses is available from QANU upon request.

During the site visit, the panel studied, among other things, the following documents (partly as hard copies, partly via the institute's electronic learning environment):

- Self-assessment report 2018
- Assessment report accreditation 2012 and decision NVAO
- Assessment report Distinctive Feature Small-scale and Intensive Education 2012 and decision NVAO
- Domain specific framework of reference Liberal Arts & Sciences and the ATLAS ILOs
- Overview of Staff
- Study success during programme
- Study Success in completing the programme
- Semester 5 Exchange destinations
- Capstone Projects
- Capstone assessment summary
- Graduation and distinctions
- Alumni destinations
- Personal Pursuits in 2017-2018
- ATLAS Honour code 2017-2018
- Education and Examination Regulations 2018-2019 (EER)
- Student handbook
- Semester syllabi
- Elective course list
- ATLAS expo's
- Assessment Manual June 2018