NVAO • THE NETHERLANDS

INITIAL ACCREDITATION

MASTER

HUMANITARIAN ENGINEERING

University of Twente

FULL REPORT

6 MARCH 2024

Content

1 Peer review

The Accreditation Organisation of the Netherlands and Flanders (NVAO) determines the quality of a new programme on the basis of a peer review. This initial accreditation procedure is required when an institution wishes to award a recognised degree after the successful completion of a study programme.

The procedure for new programmes differs slightly from the approach to existing programmes that have already been accredited. Initial accreditation is in fact an ex ante assessment of a programme. Once accredited the new programme becomes subject to the regular review process.

The quality of a new programme is assessed by means of peer review. A panel of independent peers including a student reviews the plans during a site visit to the institution. A discussion amongst peer experts forms the basis for the panel's final judgement and the advisory report. The agenda for the panel visit and the documents reviewed are available from the NVAO office upon request.

The outcome of this peer review is based on the standards described and published in the limited NVAO Assessment framework for the higher education accreditation system of the Netherlands (Stcrt. 2019, nr. 3198). Each standard is judged on a three-point scale: meets, does not meet or partially meets the standard. The panel reaches a conclusion about the quality of the programme, also on a three-point scale: positive, conditionally positive or negative.

NVAO takes an accreditation decision on the basis of the full report. Following a positive NVAO decision with or without conditions the institution can proceed to offer the new programme.

This report contains the findings, analysis and judgements of the panel resulting from the peer review. It also details the commendations as well as recommendations for follow-up actions. A summary report with the main outcomes of the peer review is also available.

Both the full and summary reports of each peer review are published on NVAO's website www.nvao.net. There you can also find more information on NVAO and peer reviews of new programmes.

2 New programme

2.1 General data

Institution	University of Twente
Programme	Master Humanitarian Engineering
Variants	Fulltime: Yes. Parttime: No. Dual: No.
Degree	Master of Science
Tracks	-
Locations	Enschede
Study load	120 EC[1]

2.2 Profile

The Master programme Humanitarian Engineering aims to improve the well-being of economically constrained communities by developing appropriate technological solutions that are affordable, sustainable and tailored to local resources and community needs. The programme prepares students to become humanitarian engineering professionals who are equipped with the necessary set of skills and knowledge to address cultural and ethical challenges when working in economically constrained regions. The proposed programme responds to a demand from the working field and has its own unique composition. It distinguishes itself from comparable programmes by including a focus on socio-cultural aspects of humanitarian engineering. The proposed programme will be offered by the University of Twente and is a joint initiative of the faculties of Engineering Technology, Geo-Information Science and Earth Observation and Behavioural, Management and Social sciences. The programme will be hosted by the faculty Engineering Technology.

Peer experts

- Prof. dr. Isa Baud, chair assessment committee NWA, 2011-2016 president of EADI European Association of Development Research and Training Institutes and emeritus Professor International Development Studies, Development at University of Amsterdam;
- Drs. Judith Sargentini, chair Supervisory Board ASKV/ Refugee support center was director of Médecins Sans Frontières Nederland until June 2023, previously Member of the European Parliament for Groenlinks;
- Dr. Nazli Y. Aydin, assistant professor at the Faculty of Technology, Policy and Management, Systems Engineering section at TU Delft;
- Vincent van der Wolf, student of the Master programme Population Health Management at Leiden University.

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Assisting staff

Ikrame Faris (secretary)
Reina Louw (NVAO policy advisor and process coordinator)

Site visit

Enschede, 9 February 2024

[1] European Credits

3 Outcome

The NVAO approved panel has reached a positive conclusion regarding the quality of the master programme Humanitarian Engineering offered by the University of Twente. The programme complies with all standards of the limited NVAO framework.

The Master Humanitarian Engineering seeks to bridge the gap between innovative technologies and the socio-cultural realm, preparing engineering professionals to operate effectively in complex societal settings characterised by social, cultural, and economic constraints. Humanitarian engineering professionals are equipped to collaborate with a wide range of stakeholders and co-create appropriate technological solutions for communities that have limited resources. There is a high demand for these professionals in the global labour market and the graduate profile has been refined in consultation with representatives of the working field. The intended learning outcomes are well aligned with (international) professional needs, demands and standards. The panel advises to safeguard continued and sustainable involvement of the professional field to ensure the programme is kept up-to-date.

Strong elements of the teaching-learning environment include the didactic principles of challenge-based learning and community-based learning, the content of the curriculum and the quality of the teaching staff. The panel is also enthusiastic about the flexibility provided in the programme and the state-of-the-art facilities that are available for students. Given the diversity in the composition of the teaching staff, the panel recommends investing in a shared vision on a support and guidance system specific to the programme Humanitarian Engineering. The panel also encourages the management to once again request the Executive Board of the UTwente to make the list of countries exempt from the English language test more inclusive by enhancing accessibility for students from non-Anglo-Saxon but mainly English-speaking countries. This will provide access to potential students from the Global South.

The programme has a sound and transparent system of student assessment in place. The Examination Board plays an important role in ensuring the quality of (final) examinations and has taken up a proactive advisory role to the management. A wide variety of assessment methods is deployed and validity, reliability and transparency are guaranteed by several procedures. The panel supports the suggestion of the Examination Board to include individual assessments in the CBL-projects and recommends ensuring consistency and quality in formative assessments among the teaching staff through calibration of standards through peer review by the staff.

Standard	**Judgement**
1. Intended learning outcomes	Meets the standard
2. Teaching-learning environment	Meets the standard
3. Student assessment	Meets the standard
Conclusion	*Positive*

4 Commendations

The programme is commended for the following features of good practice.

1. Societal and scientific need – The programme addresses an important societal and scientific need in the field of humanitarian engineering. The panel is particularly appreciative of the combination of socio-cultural and engineering focus of the programme, which shows the programme's recognition that knowledge generation and application of technical solutions has to combine technical aspects and social contexts within an interdisciplinary approach to become effective.

2. Didactic approach – The didactic principles of challenge-based learning and community-based learning are considered highly suitable for the objectives of the programme, and reflect inter- and trans-disciplinary approaches.

3. Teaching staff – The enthusiasm and dedication displayed by the teaching staff are noteworthy. The staff members bring in a wide array of expertise from various disciplines. This instills confidence in their ability to create a stimulating learning environment.

4. Flexibility – The flexibility provided within the programme gives students the opportunity to define and shape their learning path according to their own interests and personal ambitions.

5. Available facilities – The programme offers state-of-the-art facilities that students can utilise at various moments during their study.

5 Recommendations

For further improvement to the programme, the panel recommends a number of follow-up actions.

1. Involvement of the professional field – Safeguard continued and sustainable involvement of the professional field to ensure the programme is kept up-to-date.

2. English language requirements – Adopt a more inclusive list of countries that are exempt from the English language test to encourage enrolment beyond Anglo-Saxon countries, acknowledging students from the Global South.

3. Support and guidance system – Establish a more structured student support and guidance system, specifically designed for the programme Humanitarian Engineering, to provide clear accountability within the programme.

4. Individual assessment CBL-project – Adopt the advice of the Examination Board to include an individual assessment (oral exam) in the CBL-projects.

5. Quality formative assessments – Strengthen cohesion and coherence among the teaching staff (from different faculties) by organising regular calibration sessions to standardise and guarantee quality of formative assessments.

6. Part-time programme – Consider offering a part-time programme in the future. This will improve the accessibility of the programme for specific groups, such as working professionals aspiring to new career opportunities.

6 Assessment

6.1 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.

Judgement

Meets the standard.

Findings, analysis and considerations

The world is facing increasing humanitarian challenges, such as climate change, food insecurity and (armed) conflicts. These challenges disproportionately affect constrained communities, demanding the development of appropriate technical solutions that are tailored to the needs of local communities and available local resources. The master programme Humanitarian Engineering prepares students to fulfill this role. Students learn to (1) adopt an integrative approach and synthesise knowledge from different technology and social science disciplines, (2) cultivate necessary skills and competences to work within challenging and complex societal contexts and (3) develop appropriate and viable technological interventions for (economically) disadvantaged regions and communities. This holistic approach ensures that graduates become humanitarian engineering professionals that can bridge the gap between innovative technologies and the socio-cultural realm.

The programme Humanitarian Engineering focuses on three domains: Humanitarian Aid Engineering, Resilience Engineering and Responsible and Sustainable Entrepreneurship. These domains focus respectively on immediate relief and response, the ability and capacity to adapt to unanticipated events, and the implementation and value creation from technology in a local and volatile context. By doing so, the full cycle necessary to effectively address humanitarian challenges is covered. The master Humanitarian Engineering is a joint venture between three faculties[2] of the University of Twente (UT) and, therefore, interdisciplinary by nature. A limited number of programmes with comparable focus exist outside of the Netherlands, but it is new to the Dutch educational landscape. The programme ties in well with the strategy of the UT, Shaping 2030, and contributes to several UN Sustainable Development Goals.

The panel appreciates the rationale behind the programme and the envisioned graduate profile. It particularly finds the social orientation a strong and distinctive feature of the programme, contributing to its unique positioning within the humanitarian engineering domain. The panel also values the integrative approach across domains, which ensures graduates have a solid foundation in both technology and social science disciplines and the skills to navigate through a complex environment with multiple (local) stakeholders. The importance of creating socio-technological solutions was echoed throughout the site visit, including consultations with representatives of the professional field, student presentations[3] and even in the visit to the Working Group on Development Techniques. The panel was highly appreciative of these contributions and ascertained that the programme responds to an expressed need within the field of humanitarian engineering.

The role of the representatives from the working field in the development of the programme was limited. However, the delegation the panel has spoken to has convincingly argued that the programme will contribute to a graduate profile that is well-aligned with (international) professional needs and demands. The panel shares this view and advises the programme to safeguard continuous, systematic, and sustainable involvement of the professional field. This will help keep the programme aligned to evolving needs within the sector.

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[2] Engineering Technology, Geo-Information Science and Earth Observation and Behavioural, Management and Social sciences.

[3] The presentations addressed the topics of thermal energy storage and the development of a digital logger for a tokentapp.

The profile of the programme has been translated into six programme intended learning outcomes (PILOs), reflecting the focus on the three domains (PILO 1), international and resource-limited context (PILO 2), socio-technical solutions (PILO 3), a wide variety of stakeholders with a diverse cultural background (PILO 4), solving complex societal problems (PILO 5) and taking a pro-active role (PILO 6). The intended learning outcomes fit the master's level as prescribed by the Dutch Qualification Framework (NLQF level 7) and the Meijers Criteria Framework. The relationship between the PILOs and both frameworks are outlined and made transparent in matrices. The panel established that the end-qualifications are in line with the requirements at master level and fit the intended graduate profile.

Based on these impressions and observations, the panel commends the efforts by the University of Twente to develop a programme that addresses an important scientific and societal need in the field of humanitarian engineering. The interdisciplinary profile of the programme is geared towards the expectations of the national and international professional field and the added value of humanitarian engineering professionals for the labour market is recognised. The panel also determines that the well-balanced set of intended learning outcomes will help to achieve the envisioned graduate profile. As a recommended course of action, the programme is encouraged to ensure structural involvement of the professional field. In sum, the panel concludes that this standard is met.

6.2 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.

Judgement

Meets the standard.

Findings, analysis and considerations

The master Humanitarian Engineering is a two-year full-time programme of 120 EC. The curriculum design is aimed to provide graduates, who are humanitarian engineering professionals with knowledge of the domains of Humanitarian Aid Engineering, Resilience Engineering and Responsible and Sustainable Entrepreneurship and the necessary skills to create sustainable solutions. In the course *Introduction to Humanitarian Engineering* (10 EC) students are introduced to these three domains and learn to analyse contexts from different cultural, geographical and political perspectives. This course also familiarises students with challenge-based learning (CBL). The first quarter is concluded with a 5 EC-course on *Ethics & Science in Humanitarian Engineering*. The remainder of year 1 follows a uniform structure, consisting of a compulsory course focusing on one of the humanitarian engineering domains (5 EC), a parallel CBL-project (5 EC) and an elective course offered by one of three involved faculties (5 EC).

In the first quartile of year 2 students can choose from three elective packages with a total of 15 credits. They can obtain these credits by opting for (1) an internship of 15 EC, (2) three electives courses of each 5 EC or (3) one elective course of 5 EC and the 10 EC *Master Insert*, a transdisciplinary programme offered by the UT. The process of choosing a suitable package is guided by the study advisor. The programme concludes with a *Research Proposal* course of 5 EC and a *Master Thesis* of 40 EC. The panel was presented with possible topics for the master thesis, such as '*Designing a study lamp for Syrian refugees who live in camps in Jordan*', which have been developed by a student from another already-existing programme.

The panel finds the curriculum to be carefully thought-out. Its design allows for a continuous interplay between in-depth knowledge on the three domains, the development of students´ skills in tackling actually existing complex problems and the possibility to tailor the programme towards the students' own needs and interests. The panel is also of the opinion that the interdisciplinary character of the programme is well-reflected in the course curriculum, combining both technical domain approaches and social science frameworks and research methodologies (such as rapid appraisals). More attention can be paid to the

integration of the analytical frameworks from the three domains, for building up a synthesised humanitarian engineering framework.

The panel appreciates that students can continue to shape their own learning pathway in the second year of the programme. However, it did inquire whether a proportionate distribution of credits between the internship and thesis was considered. In the affirmative staff response it was explained that different variations exist within the faculties. The programme chose to prioritise the thesis over the internship, as it better showcases the achievement of learning outcomes. Nonetheless, they do agree that the choice for either an extended internship duration or a prolonged thesis period always remains a trade-off. Therefore, students that wish to gain broader international experience are accommodated where possible and could, for example, complete their thesis abroad. Due to the joint collaboration between three faculties, the programme has a wide array of potential partners that can provide internships. However, agreements with external organisations for the master Humanitarian Engineering have yet to be made. For all studies abroad, the university follows the travel advice of the Ministry of Foreign Affairs. During the discussion, team members expressly clarified that international experience and the development of professional skills are not exclusively acquired during the internship. They asserted that it already starts in the classroom through interactions between students from different backgrounds and with different values, where a solid communal basis is formed. Internationalisation and professionalisation aspects are also integrated in the curriculum, notably in the CBL-projects as well as faculty-wide workshops to strengthen intercultural skills. The panel values the perspective of the programme on international experience and understands the motivation behind the proposed allocation of credits. It advocates facilitating internships, as it perceives practical experience to be particularly enriching for a student's learning journey.

UT proposes that the programme has a duration of two years (120 EC). Arguments concern the breadth of the curriculum that is necessary to reflect the interdisciplinary character of the programme and the requirements of the professional field. The panel agrees that the qualifications the graduates should have in order for them to be competitive in the international academic job market cannot be achieved in a programme of less than two years. The panel also welcomes the intention to provide a part-time programme in the future. This will improve the accessibility of the programme for specific groups, such as working professionals aspiring to new career opportunities.

The programme applies two educational frameworks: challenge-based learning (CBL) and community-based learning (COM). Both concepts are central to the projects. Challenge-based learning is an educational framework based on collaborative and multidisciplinary learning for solving complex problems. The focus lies on experiential learning experiences within relevant societal contexts involving various stakeholders. In this process open-ended problems and multiple solutions are possible and the learning process is prioritised over the outcome or solution in the first CBL project. The personal development of students lies at the heart of the projects and the learning progress is tracked in a portfolio. CBL-projects build upon each other and increase in complexity over time while simultaneously scaling down student guidance. Community-based learning is incorporated in later CBL-projects and focuses on learning together, with and from local communities. These collaborations are reciprocal and mutually beneficial to both students and communities. Finally, the programme also stimulates a flexible learning environment by providing possibilities for students to shape their own learning paths.

The panel lauds the didactical approach and finds it highly suitable for the ambitions of the programme. It suggested to have further internal debate among the staff on the trans-disciplinarity principle embedded in the CBL and COM approaches, in order to showcase it more explicitly in the future. The panel expressed some concerns on the possible implications of scaffolding CBL-projects for students' study progress. Following discussions with team members, the panel felt that this aspect lacked thorough consideration. The programme foresees a particularly important role for CBL-teachers and coaches to support students in this process, and although the panel understands this train of thought, it still recommends to devise a

clear plan to reduce risks of study delay and to not underestimate the workload for teachers and coaches, especially should the intake of students increase.

The panel asked the programme about their recruitment and admissions policy. In response, the management and team members explained that they wish to attract students from different backgrounds. The programme will be admissible for students who hold a bachelor's degree with mathematics and statistics from a (Dutch) research university. For candidates who do not meet the requirements and need to compensate for any deficiencies, tailor-made pre-master programmes are offered. In addition, candidates need to demonstrate a sufficient level of English language proficiency. What stands out in this respect is that international students with a bachelor's degree from Australia, Canada (English-speaking part), Ireland, New Zealand, United Kingdom or the United States of America are exempted from this requirement.

The panel finds the restrictive rule on English-language speaking countries to be incompatible with the objectives of the programme and the wish to have a diverse student population. Panel members raised serious concerns on the accessibility of the programme for students from the Global South, both in terms of the selective entry requirements as well as lack of financial support. The management and staff concur with these concerns, but explained that English language requirements are set by the university. Intensive discussions were held between several faculties to extend the list of countries to be exempted from the English language test, but to no avail on the date of the site visit[4]. With regard to funding, the UT offers limited scholarship programmes such as the Twente Mobility Funds or the NL Scholarship. The programme itself has no additional budget, but it strives to provide other forms of assistance to (international) students such as proper guidance and the option to utilise available network resources. The panel compliments the programme staff on their efforts to raise the issue of expanding the list of countries exempt from the English language test. The panel strongly urges the programme management to make a renewed attempt to convince the Executive Board of the importance of making this list more inclusive. Finally, the panel advises specifying the admission criteria for mathematics and statistics to ensure equal entry levels of students.

The panel considers the programme management and teaching staff well-equipped to implement and coordinate the programme. The composition of the teaching staff reflects the involvement of different faculties and thus the interdisciplinary nature of the programme. Teachers are systematically trained in their teaching and assessment skills through the University Teaching Qualification (UTQ), ensuring their competency to design curricula, teach and supervise students and assess in a valid and reliable manner. Opportunities for continuous professionalisation exist at the Centre of Expertise in Teaching and Learning. General supporting roles are included to provide proper support to students. Important roles are reserved for the study advisor in the overall guidance of students, the internship coordinator with respect to organising and monitoring internships and CBL-teachers and coaches in monitoring student progress in CBL-projects. Finally, students can draw on university-wide facilities, such as the career service, student support services and training services for further support.

When speaking to representatives of the teaching staff, the panel was met with great enthusiasm. The teaching staff is a well-rounded blend from the various involved faculties and harbours considerable expertise in the relevant domains. The teachers were closely involved in the programme development process and ready to invest strongly in making this new programme work. In the discussion the panel noticed that the teaching staff relies on their individual experiences within other programmes, but that a shared vision and strategy for this specific programme, for example on guiding (international) students, is

[4] The panel is pleased to receive the news that several more countries have been exempted from restrictive rules on English-language requirements. It is noted, however, that countries with higher education systems in English, such as Kenya and South Africa, are still not included.

lacking. Panel members therefore advise to invest in (further) team alignment and to develop a comprehensive concrete approach for student guidance that is specifically tailored for the master Humanitarian Engineering. A designated support and guidance system for this programme will provide clear accountability between staff and students. Given the dedication of the teaching staff and the existing infrastructure within the UT and ET-faculty, the panel is confident that this recommendation will be acted upon accordingly. Another issue that was touched upon concerned the role of external supervisors from hosting organisations. The panel asked to what extent these supervisors are equipped in providing necessary guidance to students. It received contrasting responses, varying from informal agreements made with external supervisors to sharing unified guidelines. The panel encourages the programme to formalise this process and set common standards for it.

The language of instruction is English. The programme management substantiates this choice by arguing that the profile of the programme and the internationally diverse influx of students who will be working in a global labour market, necessitate an English-taught programme. The panel supports the considerations of the management and finds the name of the programme equally appropriate.

Students can make use of the excellent facilities present on the campus of the University of Twente. They have access to various modern labs that can be used for the CBL-projects. Examples are the RapidPrototyping Lab, Virtual Reality Lab and GeoScience lab. Collaboration between students, researchers and (external) organisations is also possible in the DesignLab. Particularly impressive was the visit to the Working Group on Development Techniques, a student organisation engaged in designing and testing technologies for low-income regions, where various pumping systems were demonstrated to the panel. The digital learning environment, Canvas, is also deemed of adequate quality. Based on this information, the panel determines that a proper infrastructure is in place to provide students with a stimulating learning environment.

In sum, the panel is convinced that the programme offers a strong teaching-learning environment. The didactic approach, content of the curriculum and commitment of the teaching staff are impressive and will enable incoming students to achieve the intended learning outcomes. The panel has advised the management to undertake a renewed effort to discuss the adoption of a more inclusive list of countries exempt from the English language test with the Executive Board of the UTwente and to establish a more structured support and guidance system, specifically designed for the master Humanitarian Engineering. As a whole, the panel judges this standard as met.

6.3 Standard 3: Student assessment

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

Judgement
Meets the standard.

Findings, analysis and considerations
The assessment system of the master programme Humanitarian Engineering is guided by the policies and guidelines of the University of Twente and the Faculty of Engineering Technology. The assessment system covers the vision on assessment, assessment organisation and the quality assurance system. Information on education and examination regulations is described in the Education and Examination Regulations, the Student Charter and the Rules and Guidelines of the Examination Board, which were reviewed by the panel prior to the site visit. An important principle of the assessment policy is constructive alignment, which ensures that the level and methods of assessment are in line with the course's learning outcomes and the teaching methods and learning activities. The programme makes use of both formative and summative assessments. This combination allows for the evaluation of the student´s learning process as well as their overall understanding, knowledge and performance. Formative assessment instruments are applied in the CBL-projects, where personal and professional competence development is monitored through continuous

reflections in personal learning logbooks. CBL-teachers and coaches provide formative feedback on these portfolios. For other courses a wide variety of assessment methods is employed, such as written and oral exams, presentations, poster presentations and essays. The relationship between the assessment methods of individual courses, both summative and formative, and the intended learning outcomes are visualised in a matrix.

The panel considers the university and faculty-wide assessment policy, and its translation to the programme, sound and clear. It also finds the adoption of both formative and summative assessment suitable, given the educational philosophy of the programme. The Examination Board informed the panel that the programme was advised to include individual assessment in the CBL-projects (such as an oral exam), in addition to the summative assessment of group work. The panel fully endorses this proposal and believes that measuring the individual contribution of students mitigates potential risks of free-riding. The panel sees room for improvement in ensuring consistency in the quality of coaches providing feedback to students and maintaining assessment integrity. This could, for example, be done through regular peer review calibration. Additionally, the incorporation of examination based on scaffolding CBL-projects may potentially extend the duration of the students' programme. To mitigate this, provisions should be made for re-examination or opportunities for project revision without necessitating an expansion of the study programme.

The assessment of the internship takes place after students have submitted an internship product. This happens within two weeks after completion of the internship. The final grade of the internship is defined by the UT internship supervisor. The external supervisor fulfills an advisory role, but has no assessment authority. The master thesis project is assessed at the colloquium and consists of a thesis report and an oral presentation. At least three examiners are involved in the assessment procedure: (1) the chair, (2) the daily supervisor, and (3) an external assessor from a different faculty to the daily supervisor. This arrangement is in place to ensure the multidisciplinary composition of the assessment committee. Additionally, if the graduation assignment is done externally, at least one external supervisor will be present. The final grade is determined through mutual agreement among all examiners. In case of disagreements, the final decision lies with the chair. Standardised assessment forms and rubrics are developed for both the internship and the thesis.

The panel positively evaluates (the assessment of) the internship and master thesis and determines that it meets master level requirements. It also establishes that validity, reliability and transparency are guaranteed in several ways, for example by using clear assessment criteria in the form of rubrics and by providing clear information on examinations in matrices, course manuals and thesis guidelines. The panel is positive that these procedures safeguard high quality in assessment. Also, the role of the Programme Committee in the quality assurance process will support continuous improvement of the programme.

Each programme within the ET-faculty has its own Examination Board, consisting of a minimum of three members, with at least one being an external member. The board strives to include teaching staff from each involved faculty. Additionally, at least one member of the Examination Board must hold a Senior University Examination Qualification (SUEQ) to further ensure the quality of assessment and the assessment processes within the programme. The Examination Board confirmed that it was closely involved in the development of the programme. It has given advice on several aspects of the programme, including the assessment forms used in the CBL-projects. The panel is satisfied with the involvement of the Examination Board in the development of the programme and appreciates the proactive role the Board has taken up in proposing changes to the assessment methods.

The panel concludes that the master programme has a sound and transparent system of assessment in place. It is characterised by a clear vision on assessment, which is translated in several (policy) documents. A wide variety of assessment methods is deployed and validity, reliability and transparency are guaranteed by several procedures. The panel established that the Examination Board has the necessary level of

independence, fulfills it tasks in line with its statutory duties and together with the Programme Committee plays an important role in ensuring assessment quality. The panel supports the suggestion of the Examination Board to include individual assessments in the CBL-projects and recommends ensuring consistency and quality in formative assessments among the teaching staff. The few gaps and flaws should be addressed before the programme starts. Overall, the panel judges this standard as met.

6.4 Degree and field of study

The panel advises awarding the following degree to the new programme: Master of Science.

Abbreviations

CBL	Challenge-based learning
COM	Community-based learning
EC	European Credit
ET	Engineering Technology
NLQF	Dutch Qualification Framework
PILO	Programme Intended Learning Outcomes
NVAO	Netherlands Flanders Accreditation Organisation
SUEQ	Senior University Examination Qualification
UT	University of Twente
UTQ	University Teaching Qualification

The full report was written at the request of NVAO and is the outcome of the peer review of the new programme M Humanitarian Engineering of Universiteit Twente

Application no: AV-2209

NVAO

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