

Assessment report
Limited Framework Programme Assessment

Bachelor Chemistry

University of Amsterdam and VU Amsterdam

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1. Executive summary

In this executive summary, the panel presents the main considerations, which led to the assessment of the quality of the joint-degree Bachelor Chemistry programme of University of Amsterdam and VU Amsterdam. The programme was assessed according to the standards of the limited framework, as laid down in the NVAO Assessment framework for the higher education accreditation system of the Netherlands, published on 20 December 2016 (Staatscourant nr. 69458).

The panel regards the collaboration of the two Faculties of University of Amsterdam and VU Amsterdam to be well-organised and successful. The panel welcomes the Universities' initiatives to offer this broad bachelor programme, offering students many options in this field. The panel suggests to further align the administrative procedures of the two Universities with respect to the programme.

The programme objectives are sound. The panel appreciates the breadth of the programme, educating students comprehensively in the chemistry discipline and addressing relevant sub-disciplines. The programme is well aligned with current scientific research in this domain and offers up-to-date education.

The objectives of the programme are within the boundaries of the domain-specific reference framework for academic chemical sciences programmes. The panel appreciates the efforts by the joint programmes in chemical sciences in the Netherlands to draft this framework and regards this to be a sound and up-to-date description of this domain. The profile of this University of Amsterdam and VU Amsterdam programme may be clearly distinguished within the framework.

The panel understands and supports the programme position to educate students to continue their studies at master level and not so much to enter the labour market. The panel appreciates students being given the opportunity to become grade-two qualified teachers in Chemistry in Dutch secondary education.

The objectives have been well-translated into the intended learning outcomes of the programme, are comprehensive and are conform to the bachelor level.

The panel is pleased to see the number of incoming students and feels there may be room for further growth. The panel suggests to consider using the study and laboratory facilities at both campuses to alleviate constraints. The entry requirements and admission procedures are appropriate.

The curriculum matches the programme intended learning outcomes. The panel appreciates the contents of the curriculum, the courses covering the chemistry discipline, offering a solid foundation in chemistry and introducing students to research in this domain. The curriculum is balanced in terms of theoretical and practical education. The academic skills training is appropriate. The curriculum is considered by the panel to be well-thought-through and to be coherent, being structured along the learning trajectories. The panel regards the curriculum to be up-to-date and to include new trends, such as digitalisation. The panel suggests to involve the professional practice more intensively in the curriculum. The coming adaptation of the curriculum may give students opportunities to learn more about application of chemistry in society.

The lecturers in the programme are a coherent team of well-reputed researchers and qualified teachers. The panel greets the positive opinion of students about the lecturers.

The educational concept and the study methods of the programme are appropriate, promoting student-activating learning. The panel suggests to pursue the introduction of new study methods more actively. The number of laboratory courses is adequate. The students-to-staff ratio and the number of hours of face-to-face education in the programme meet the standards. The study guidance by the study advisor as well as in the tutorship groups is appreciated by the panel. The panel considers the programme to be feasible and the study load to be evenly distributed. The students success rates are appropriate.

The panel regards the examination and assessment regulations for the programme to be up to standard.

The examination methods adopted in the programme are consistent with the goals and contents of the courses. The panel is pleased to see academic competencies being assessed separately. The panel is positive about measures being taken to counter free-riding and to prevent fraud and plagiarism.

For the Bachelor projects, students are offered appropriate supervision. The assessment processes for the projects are up to standard as well. The panel advises to add more extensive written comments on the Bachelor projects' assessment forms. In addition, the panel suggests to implement rubrics scoring forms for the projects to further increase the reliability of the assessments.

The panel welcomes the assessment plan, specifying the measures to be taken to ensure the validity, reliability and transparency of examinations and assessments. The panel notes not all of these measures have yet been fully adopted by examiners. The panel is confident this will be done in the near future.

The course examinations are appropriate. The Bachelor projects qualify as academically sound research projects. The level of the projects differed, which was duly reflected in the grades. The panel generally supports the grades awarded to the Bachelor thesis projects by the programme examiners. In a few cases, the grades were overrated.

The panel considers the graduates of the programme to have reached the intended learning outcomes and regards these graduates to be well prepared to continue their studies at master level. The panel appreciates graduates of the programme being admitted to a wide range of master programmes in this domain.

The panel which conducted the assessment of the joint-degree Bachelor Chemistry programme of University of Amsterdam and VU Amsterdam assesses this programme to meet the standards of the limited framework, as laid down in the NVAO Assessment framework for the higher education accreditation system of the Netherlands, judging the programme to be satisfactory. Therefore, the panel recommends NVAO to accredit this programme.

Rotterdam, 7 March 2019

Prof. dr. M.A. Cohen Stuart
(panel chair)

drs. W. Vercouteren
(panel secretary)

2. Assessment process

The evaluation agency Certiked VBI received the request by University of Amsterdam and VU Amsterdam to support the limited framework programme assessment process for the joint-degree Bachelor Chemistry programme of these Universities. The objective of the programme assessment process was to assess whether the programme would conform to the standards of the limited framework, as laid down in the NVAO Assessment framework for the higher education accreditation system of the Netherlands, published on 20 December 2016 (Staatscourant nr. 69458).

Management of the programmes in the assessment cluster WO Scheikunde convened to discuss the composition of the assessment panel and to draft the list of candidates.

Having conferred with management of the Bachelor Chemistry programme of University of Amsterdam and VU Amsterdam, Certiked invited candidate panel members to sit on the assessment panel. The panel members agreed to do so. The panel composition was as follows:

- Prof. dr. M.A. Cohen Stuart, professor emeritus, chair of Physical Chemistry & Colloid Chemistry, Wageningen University, professor emeritus of Physical Surface Chemistry, University of Twente, professor East China University of Science and Technology, Shanghai, China (panel chair);
- Prof. dr. A.H.T. Boyen, associate professor emeritus, Faculty of Sciences and Bio-engineering Sciences, Faculty of Medicine and Pharmacy, Vrije Universiteit Brussel (panel member);
- Prof. dr. R.M.J. Liskamp, professor, chair Chemical Biology and Medicinal Chemistry, School of Chemistry, University of Glasgow, United Kingdom, professor of Molecular Medicinal Chemistry, Utrecht University (panel member);
- Drs. O. de Vreede, head Innovation and Human Capital, VNCI, Association of the Dutch Chemical Industry (panel member);
- A.E.M. Melcherts BSc, student Master in Nanomaterials Science, Utrecht University (student member).

On behalf of Certiked, drs. W. Vercoouteren served as the process coordinator and secretary in the assessment process.

All panel members and the secretary confirmed in writing being impartial with regard to the programme to be assessed and observing the rules of confidentiality. Having obtained the authorisation by the University, Certiked requested the approval of NVAO of the proposed panel to conduct the assessment. NVAO have given their approval.

To prepare the assessment process, the process coordinator convened with management of the programme to discuss the outline of the self-assessment report, the subjects to be addressed in this report and the site visit schedule. In addition, the planning of the activities in preparation of the site visit were discussed. In the course of the process preparing for the site visit, programme management and the Certiked process coordinator regularly had contact to fine-tune the process. The activities prior to the site visit have been performed as planned. Programme management approved of the site visit schedule.

Well in advance of the site visit date, programme management sent the list of final projects of graduates of the programme of the most recent years. Acting on behalf of the assessment panel, the process coordinator selected the theses of 15 graduates from the last few years. The grade distribution in the selection was ensured to conform to the grade distribution in the list, sent by programme management.

The panel chair and the panel members were sent the self-assessment report of the programme, including appendices. In the self-assessment report, the student chapter was included. In addition, the expert panel members were forwarded a number of theses of the programme graduates, these theses being part of the selection made by the process coordinator.

Several weeks before the site visit date, the assessment panel chair and the process coordinator met to discuss the self-assessment report provided by programme management, the procedures regarding the assessment process and the site visit schedule. In this meeting, the profile of panel chairs of NVAO was discussed as well. The panel chair was informed about the competencies, listed in the profile. Documents pertaining to a number of these competencies were presented to the panel chair. The meeting between the panel chair and the process coordinator served as the briefing for panel chairs, as meant in the NVAO profile of panel chairs.

Prior to the date of the site visit, all panel members sent in their preliminary findings, based on the self-assessment report and the final projects studied, and a number of questions to be put to the programme representatives on the day of the site visit. The panel secretary summarised this information, compiling a list of questions, which served as a starting point for the discussions with the programme representatives during the site visit.

Shortly before the site visit date, the complete panel met to go over the preliminary findings concerning the quality of the programme. During this preliminary meeting, the preliminary findings of the panel members, including those about the theses were discussed. The procedures to be adopted during the site visit, including the questions to be put to the programme representatives on the basis of the list compiled, were discussed as well.

On 31 October 2018, the panel conducted the site visit on the University of Amsterdam campus. The site visit schedule was as planned. In a number of separate sessions, the panel was given the opportunity to meet with representatives of the Faculties of both universities, programme management, Examinations Board members, lecturers and final projects examiners, and students and alumni.

In a closed session at the end of the site visit, the panel considered every one of the findings, weighed the considerations and arrived at conclusions with regard to the quality of the programme. At the end of the site visit, the panel chair presented a broad outline of the considerations and conclusions to programme representatives.

Clearly separated from the process of the programme assessment, assessment panel members and programme representatives met to conduct the development dialogue, with the objective to discuss future developments of the programme.

The assessment draft report was finalised by the secretary, having taken into account the findings and considerations of the panel. The draft report was sent to the panel members, who studied it and made a number of changes. Thereupon, the secretary edited the final report. This report was presented to programme management to be corrected for factual inaccuracies. Programme management were given two weeks to respond. Having been corrected for these factual inaccuracies, the Certiked bureau sent the report to the Board of University of Amsterdam, being the administrative host institution for this programme, to accompany their request for re-accreditation of this programme.

3. Programme administrative information

Name programme in CROHO: B Scheikunde/B Chemistry (joint degree programme)
Orientation, level programme: Academic Bachelor
Grade: BSc
Number of credits: 180 EC
Specialisations: n.a.
Location: Amsterdam
Mode of study: Full-time (language of instruction Dutch)
Registration in CROHO: 21PK-55012/21PL-55012

Name of institutions: University of Amsterdam and VU Amsterdam
Status of institutions: Government-funded Universities
Institutions' quality assurance: Approved

4. Findings, considerations and assessments per standard

4.1 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.

Findings

The joint-degree Bachelor Chemistry programme is offered by the Faculty of Science of University of Amsterdam and the Faculty of Science of VU Amsterdam, University of Amsterdam being the administrative host institution. The collaboration of the Universities with respect to this joint degree programme is governed by their agreement of cooperation. In the year 2015, the programme has been awarded the official joint degree programme status. Before that year, the programme was already offered jointly by the two Universities. The Boards of the Faculties mentioned are jointly responsible for the programme quality. In organisational terms, the programme is part of the College of Science of the Faculty of Science of University of Amsterdam. The director of the programme is appointed by the deans of both Faculties. Being assisted in the programme coordination team by the programme coordinator, study advisor, coordinator academic skills and communication advisor, he takes care of programme management. One set of Teaching and Examination Regulations applies for the programme. The joint Programme Committee, consisting of an equal number of lecturers and students, advises programme management on quality issues. The equally joint Examinations Board has the authority to ensure the quality of examinations and assessments of the programme. Members of the Programme Committee and the Examinations Board are appointed by the Faculty Boards of both Universities.

The joint-degree programme Bachelor Chemistry allows the two Universities to benefit from the research and educational capacities of both institutions and to offer the broad spectre of subjects in the chemistry discipline at bachelor level.

The Bachelor Chemistry programme is a three-year, research-based, broad bachelor programme in chemistry, addressing the chemistry sub-disciplines of inorganic, organic, computational, physical and analytical chemistry as well as biochemistry. The programme objectives are to educate students comprehensively in this discipline and these sub-disciplines, to train them in academic research in this domain, to offer them practical skills to perform research and to offer students the academic attitude in this field and the skills to take ethical and societal dimensions of research in this field into account.

The objectives of the programme conform to the domain-specific reference framework for the chemical sciences in the Netherlands, which has been drafted by the joint programmes of this assessment cluster in the Netherlands. In this domain-specific framework, reference has been made to international frameworks and benchmark statements. This University of Amsterdam and VU Amsterdam programme is conform to this framework and may be regarded to be positioned in the chemistry sub-domain of chemical sciences.

The programme aims to prepare students for chemistry or related molecular science programmes at master level. Students may proceed to enter the labour market, but this is not the main objective. Students may, however, take the educational variant of the programme, allowing them to become grade-two qualified teachers in Chemistry in Dutch secondary education.

The programme has been compared to other programmes in the Netherlands as well as to programmes in Germany. From this comparison it may be deduced that the programme resembles these programmes, but to be somewhat broader than most other programmes in the Netherlands.

The objectives of the programme have been translated into the intended learning outcomes. The main intended learning outcomes are knowledge and understanding of basic concepts and principles of the chemistry discipline and the sub-disciplines, scientific research knowledge and skills, academic skills, such as problem-solving skills and numerical skills, communication and collaboration skills, planning and time management skills, ethical commitment and competencies to work autonomously.

The intended learning outcomes correspond to the Dublin descriptors, showing these to match the bachelor level.

Considerations

The panel regards the collaboration of the two Faculties of University of Amsterdam and VU Amsterdam to be well-organised and successful. The panel welcomes the Universities' initiatives to offer this broad bachelor programme, allowing students to acquire comprehensive education in the chemistry domain, and offering students many options in this field. The panel recommends to further align the administrative procedures of the two Universities with respect to the programme.

The panel considers the programme objectives to be sound. The panel appreciates the breadth of the programme, educating students comprehensively in the chemistry discipline and addressing relevant sub-disciplines. The programme is well aligned with current scientific research in this domain and offers up-to-date education.

The objectives of the programme are within the boundaries of the domain-specific reference framework for academic chemical sciences programmes. The panel appreciates the efforts by the joint programmes in chemical sciences in the Netherlands to draft this framework and regards this to be a sound and up-to-date description of this domain. The profile of this University of Amsterdam and VU Amsterdam programme may be clearly distinguished within the framework.

The panel understands and supports the programme position to educate students to continue their studies at master level and not so much to enter the labour market. The panel appreciates students being given the opportunity to become grade-two qualified teachers in Chemistry in Dutch secondary education.

The objectives have been well-translated into the intended learning outcomes of the programme. The intended learning outcomes are comprehensive and are conform to the bachelor level.

Assessment of this standard

These considerations have led the assessment panel to assess standard 1, Intended learning outcomes, to be satisfactory.

4.2 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.

Findings

The number of incoming students in the programme fluctuated somewhat, going from 64 students in 2011 to 76 students in 2013 to 68 students in 2015. The programme has set the target for the student influx at maximum 100 students, since with this number small-scale education is still feasible. Applicants with the Dutch pre-university secondary school diploma, including mathematics B, physics and chemistry are admitted to the programme. Other students are admitted, if they can report prior education in the same subjects at the required level. The Board of Admissions or the Examinations Board may grant exemptions. Students are to take part in the matching event, scheduled prior to the beginning of the programme and allowing them to obtain information on the programme. Based on the results of an on-line questionnaire having been filled out, prospective students receive a non-binding study advice.

The curriculum has a study load of 180 EC and takes three years to complete. Programme management presented a table, mapping the curriculum components to the intended learning outcomes. The curriculum has been organised along eight learning trajectories, having been derived from the intended learning outcomes. Five of these learning trajectories cover the chemistry sub-disciplines mentioned above. The other three trajectories address the supportive disciplines physics and mathematics, laboratory skills and academic competencies. Each of the courses in the curriculum is part of one of the learning trajectories. Every one of the learning trajectories is overseen by one of the staff members. Lecturers involved in each of the trajectories discuss at least once per year the quality and coherence of the trajectory. The mandatory part of the curriculum comprises 126 EC, whereas 18 EC are semi-optional courses and 36 EC are elective courses. The first and second year courses are predominantly compulsory. In the first two years, practical courses are scheduled and practical exercises are part of courses. In addition, students do small projects in the research groups. In the first year, students take tutorship classes to acquire academic skills, such as critical thinking, scientific writing and presentation skills. The groups are about 15 students, meeting weekly. They are guided by third-year or master student mentors. The academic skills are assessed in assignments in the regular courses. In the second and third year, academic skills training is part of the regular courses. Before starting the Bachelor project, students submit the portfolio to report on their academic competencies. In the second year, students do one or two chemistry internship projects (6 EC or 12 EC) in one of the research groups contributing to the programme. Students may do one of these projects in the area of business studies or education. In the third year, students may take one of the minors of 30 EC or separate courses. Students are encouraged to go abroad in this semester. Some 10 % of the students do. At the end of the curriculum, students conduct the Bachelor project, which is an individual research project (18 EC). The curriculum was renewed in 2013 and 2016 and will again be adapted the coming years.

A total number of 72 lecturers are involved in the programme. The lecturers are mainly researchers at one of the research groups of the Van 't Hoff Institute for Molecular Sciences or the Amsterdam Institute of Molecules, Medicines and Systems. Researchers from other research institutes take part as well. The research quality of these institutes was rated very high in the recent research review. As lecturers of both Universities are involved, the spectre of expertise offered is substantial. All staff members have PhDs. About 75 % of the total number of lecturers are BKO-certified with another 9 % of them being in the process of becoming BKO-certified. Lecturers meet two times per year to discuss the programme. PhD students and postdocs are involved in the programme as teaching assistants and daily supervisors of Bachelor projects. Students expressed appreciating the lecturers and considering them to be easily approachable.

The educational concept of the programme is research-based learning. The study methods adopted are lectures, tutorials, practical lab classes, tutorship groups and self-study. Lecturers are informed about ICT-based teaching methods. The average number of hours of face-to-face education in the curriculum is 20 hours per week in the first year, 17 hours per week in the second year and 11 hours per week in the third year. The practical classes are about 25 % of total face-to-face education in the first two years and 10 % in the third year. The overall students-to-staff ratio is 23 : 1. In the lectures, student groups may have maximum size of 100 students. In the tutorials, classes are about 20 to 25 students. The tutor groups in the first year are limited to 15 students. As the laboratory facilities at the University of Amsterdam campus are constrained, the programme considers moving practical classes to the VU Amsterdam campus. Students are guided by the programme study advisor on study progress, curriculum choices and in case of study problems. The study advisor confers in this respect with the academic competencies coordinator and the student mentors. In the first year, students have to achieve 42 EC (Binding Study Advice). If they do not succeed, they have to leave the programme. The programme balances the study load. The average student success rates are 38,9 % after three years and 67,7 % after four years (figures for last three to four cohorts, proportions of students re-enrolling in second year).

Considerations

The panel is pleased to see the number of incoming students in the programme and feels there may be some room for further growth. The panel suggests to fully use study and laboratory facilities at both campuses to alleviate constraints in this respect. The entry requirements and admission procedures of the programme are appropriate.

The curriculum matches the programme intended learning outcomes. The panel appreciates the contents of the curriculum, the courses covering the chemistry discipline, offering a solid foundation in chemistry and introducing students to research in this domain. The curriculum is balanced in terms of theoretical and practical education. The academic skills training is appropriate. The curriculum is considered by the panel to be well-thought-through and to be coherent, being structured along the learning trajectories. The panel regards the curriculum to be up-to-date and to include new trends, such as digitalisation. The panel suggests to involve persons working in and information of professional practice more intensively in the curriculum. The pending adaptation of the curriculum may give students opportunities to learn more about application of chemistry in society.

The lecturers in the programme are perceived by the panel as a coherent team of well-reputed researchers and qualified teachers. The panel regards the lecturers' educational capabilities to be up to standard. The panel greets the positive opinion of students about the lecturers.

The panel regards the educational concept and the study methods of the programme to be appropriate, promoting student-activating learning. The panel suggests to pursue the introduction of new study methods more actively. The number of laboratory courses is adequate. The students-to-staff ratio and the number of hours of face-to-face education in the programme meet the standards. The study guidance by the study advisor as well as in the tutor groups is appreciated by the panel. The panel considers the programme to be feasible and the study load to be evenly distributed. The student success rates are satisfactory.

Assessment of this standard

These considerations have led the assessment panel to assess standard 2, Teaching-learning environment, to be satisfactory.

4.3 Standard 3: Student assessment

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

Findings

The examinations and assessments in the programme are governed by the Teaching and Examination Regulations and are in line with the assessment policy documents of both Universities and Faculties. The quality of examinations and assessments are monitored by the University of Amsterdam Faculty-wide Examinations Board. The Board has installed two committees, to ensure the examinations' quality and to detect and sanction fraud and plagiarism. The Examinations Board for this programme is one of the sub-committees of this Faculty-wide Board, and is composed of two members of each of the two Universities.

The examination methods in the courses are, among others, written examinations, project reports and presentations. For the academic skills learning trajectory, students are to submit the portfolio to report on their academic competencies. The number of group products in the programme is limited. In case of group products, the programme has taken measures to counter free-riding. Students are informed about fraud and plagiarism in the academic skills trajectory. All Bachelor projects are screened for fraud and plagiarism. Screening has been adopted in the case of written assignments.

The final Bachelor project is an individual research project, to be completed in three months. Students are expected to find their own project. Research groups and PhD students working in these groups present ongoing research and research internship options two times per year. Most projects are conducted at one of the research groups, participating in the programme. Projects may, however, be done outside of the Universities. The project is supervised by supervisors of one of the research groups. Day-to-day supervisors may be PhD students, acting under the responsibility of supervisors. At completion of the project, students are to submit the written report and are to present and defend the results. The project is assessed by two staff members, the supervisor and the second reader. They use scoring forms for their assessment, which include assessment criteria for quality of research done, written report and oral presentation.

In the programme, measures have been taken to ensure the validity, reliability and transparency of examinations and assessments. These measures have been listed in the assessment plan of the programme. Measures include draft examinations to be peer-reviewed, the use of test matrices for examinations, assessment criteria for examinations, model answers for students, and the analysis of examinations with deviant grade distributions (pass rates below 50 % or more than 90 %). Course and examination dossiers and samples of Bachelor projects are reviewed on a regular basis.

Considerations

The panel regards the examination and assessment regulations for the programme to be appropriate.

The panel approves of the examination methods adopted in the programme, noting these to be consistent with the goals and contents of the courses. The panel is pleased to see academic competencies being assessed separately. The panel is positive about measures being taken to counter free-riding and to prevent fraud and plagiarism.

For the Bachelor projects, students are offered appropriate supervision. The assessment processes for the projects are up to standard as well, including two examiners and the usage of standardised assessment scoring forms. The panel advises to add more extensive written comments on the Bachelor projects' assessment forms. In addition, the panel recommends to implement rubrics scoring forms for the projects to further increase the reliability of the assessments.

The panel welcomes the assessment plan, specifying the measures to be taken in the programme to ensure the validity, reliability and transparency of examinations and assessments. The panel notes not all of these measures have yet been fully adopted by examiners. The panel is confident this will be done in due time.

Assessment of this standard

The considerations have led the assessment panel to assess standard 3, Student assessment, to be satisfactory.

4.4 Standard 4: Achieved learning outcomes

The programme demonstrates that the intended learning outcomes are achieved.
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Findings

The panel studied the examinations of a number of courses of the programme.

The panel reviewed the Bachelor projects of fifteen graduates of the programme with different grades. In the projects, students have to demonstrate to be able to conduct an individual research project within the domain of the programme. The average grades of the Bachelor projects of the last four years are 7.7 (in 2013/2014), 7.8 (in 2014/2015 and 2015/2016) and 8.0 (in 2016/2017). The proportion of cum laude has increased to over 10 % for the last two cohorts. The proportion of students taking the honours programme has risen to 20 % to 30 % for the last two cohorts.

As has been indicated, programme graduates may enter master programmes in chemistry or in related molecular science programmes. Nearly 80 % of the graduates continue their studies in the joint degree Master Chemistry programme of University of Amsterdam and VU Amsterdam. The other graduates mainly proceed to diverse programmes in this domain either in Amsterdam or at other universities in the Netherlands.

Considerations

The panel regards the course examinations, which were reviewed by panel members, to be appropriate.

The Bachelor projects studied by panel members, qualify as academically sound research projects. The level of the projects differed, which was duly reflected in the grades. The panel generally supports the grades awarded to the Bachelor thesis projects by the programme examiners. In a few cases, the grades were overrated.

The panel considers the graduates of the programme to have reached the intended learning outcomes and regards these graduates to be well prepared to continue their studies at master level. The panel appreciates graduates of the programme being admitted to a wide range of master programmes in this domain.

Assessment of this standard

The considerations have led the assessment panel to assess standard 4, Achieved learning outcomes, to be satisfactory.

5. Overview of assessments

Standard	Assessment
Standard 1. Intended learning outcomes	Satisfactory
Standard 2: Teaching-learning environment	Satisfactory
Standard 3: Student assessment	Satisfactory
Standard 4: Achieved learning outcomes	Satisfactory
Programme	Satisfactory

6. Recommendations

In this report, a number of recommendations by the panel have been listed. For the sake of clarity, these have been brought together below.

- To further align the administrative procedures of the two Universities with respect to the programme.
- To consider using the study and laboratory facilities at the two campuses to alleviate constraints in this respect.
- To involve persons working in and information of the professional practice more intensively in the curriculum.
- To pursue the introduction of new study methods more actively.
- To implement rubrics scoring forms for the Bachelor projects.
- To add more extensive written comments on the Bachelor projects' assessment forms.