Faculty of Science
& Technology

UNIVERSITEIT TWENTE.

Programme-specific appendix of the programme part of the students' charter including the Education and Examination Regulations for the bachelor's programme in Chemical Science and Engineering

(art. 7.13 and 7.59 of the Higher Education and Research Act)

Contents

Preamble

1. The rules in this appendix apply to the full-time bachelor's programme in Chemical Science and Engineering.
2. This programme-specific appendix and the general section (TNW20.477/vdh) together constitute the programme part of the students' charter, including the Education and Examination Regulations for the bachelor's programme in Chemical Science and Engineering at the University of Twente.
3. The rules established by the Chemical Science and Engineering Examination board with regard to the performance of its duties and powers in accordance with 7.12b of the Law are included in the 'Rules and Guidelines of the Chemical Science and Engineering Examination board'.

Reference: TNW/20.480/ate/lk/vdh
Date: 14 July 2020

Article 1 Programme objectives

The objectives of the bachelor's programme in Chemical Science and Engineering are as follows:

a) to educate students theoretically and practically at a basic level and to provide them with skills needed for research, design and organisation in the areas of chemistry, materials science and process engineering,
b) to offer a broad curriculum which enables students to orientate themselves within the discipline and beyond the boundaries of the discipline,
c) primarily, to prepare for a master's programme in the field of chemical engineering and related disciplines,
d) alternatively, to prepare for a direct entrance to the labour market for technical positions at a bachelor's level in the field of chemical engineering research, design and teaching.

The competence areas and intended learning outcomes for the holder of a bachelor's degree in Chemical Science and Engineering are elaborated in article 3.

Article 2 Connecting master's degree programme

Successful completion of the bachelor's exam grants access to the master's programme in Chemical Engineering at the Faculty of Science & Technology of the University of Twente.

Article 3 Intended learning outcomes for the programme

The intended learning outcomes for this programme have been described on the basis of the 3TU Academic Competencies, better known as the Meijers' criteria[1]. These criteria have been approved by the Dutch-Flemish Accreditation Organisation (NVAO)[2] and provide an excellent framework that systematically defines the general intended learning outcomes for an academic master's programme, in which specific aspects for individual programmes may also be included.

A university graduate in a technical field can be characterised using seven competence areas. He or she:

1. is competent in one or more scientific disciplines
2. is competent in doing research
3. is competent in designing
4. has a scientific approach
5. possesses basic intellectual skills
6. is competent in cooperating and communicating
7. takes account of the temporal and the social context

These competences can be divided into three groups (see Fig. 1):

(a) programme domain (1,2,3)
(b) academic approach to thinking and acting (4, 5, 6)
(c) context of conducting scientific research (7)

Each competence area comprises a combination of knowledge, skills and attitude

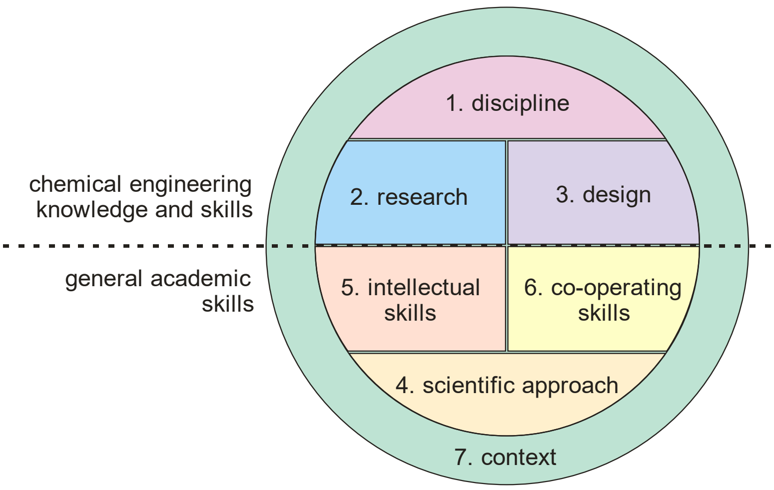

Figure 1. Seven competence areas of Chemical Science and Engineering according to Meijers' criteria

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1 Meijers, A. W. M., Borghuis, V. A. J., Mutsaers, E. J. P. J., Overveld, van, C. W. A. M., & Perrenet, J. C. (2005). Criteria voor academische bachelor en master curricula = Criteria for academic bachelor's and master's curricula. (2e, gewijzigde druk. ed.) Eindhoven: Technische Universiteit Eindhoven.

2 Dutch-Flemish Accreditation Organization.

The competence areas are elaborated on in the various competences. For each competence, it is indicated whether its emphasis is on knowledge (k) and/or skills (s) and/or attitude (a).

The bachelor graduate Chemical Science and Engineering (CSE):

1. *understands the basics of and has some skills in the field of chemical engineering.*
   A CSE bachelor graduate is (1) familiar with the basics of existing scientific knowledge and has some skills to increase and develop this through study [a, b, e, f], and (2) has developed basic experimental skills [c, d].

1a.	Understands the knowledge base and the structure of the relevant fields in chemical engineering: • chemistry: analytical chemistry, inorganic chemistry (properties), organic chemistry (synthesis and properties), biochemistry, physical chemistry, catalysis, • inorganic and organic materials science (synthesis and properties), • process engineering: physical transport phenomena, chemical reactors, separation technology, process design of existing processes, • the supporting disciplines: applied mathematics, physics and applied computer science. The BSc-CSE understands the relevant key concepts, theories, methods, and techniques. [ks]
1b.	Understands the structure of these relevant fields, and the connections between sub-fields. [ks]
1c.	Has knowledge of and some skill in the way in which the following activities take place in chemical engineering: [ks] • truth-finding and the development of theories and models, • interpretations of texts, problems, data, and results, • experiments, gathering of data and modelling, • decision-making based on data and modelling.
1d.	Has some experimental skills in the relevant fields [ks]: • chemistry and materials science: synthesis and qualitative and quantitative determination of properties of chemical substances, • process engineering: qualitative and quantitative characterisation of chemical processes.
1e.	Is aware of both the presuppositions of the standard methods and their importance. [ksa]
1f.	Is able (with supervision) to reflect on his/her own knowledge, and to revise and extend knowledge through study. [ks]

2. *has the basic knowledge and skills for doing research in the field of chemical engineering.*
   A bachelor graduate CSE can, under supervision of a senior researcher, contribute to increasing scientific knowledge.

2a.	Is aware of the research methodology in the field of chemical engineering [ksa]
2b.	Is, under supervision, able to do research at bachelor's level: • analyse research problems in the field of chemical engineering with a limited complexity, • use the relevant knowledge base, • formulate the research objectives and, if relevant, the appropriate hypothesis, • formulate a research plan including the required theoretical and experimental steps, assumptions and approaches, • execute the different activities of the research plan, • analyse and evaluate the research results in respect to the defined problem, • assess research results on its usefulness, • defend the results against the parties involved. [ksa]
2c.	Is observant, and has the creativity and the capacity to discover certain connections and new viewpoints. [ksa]
2d.	Is able to work at different levels of abstraction and detail. [ks]
2e.	Is able to recognise, systematically collect, analyse, select and process relevant scientific information [ks]
2f.	Understands, the importance of other disciplines, where necessary; is able to interconnect these and to cross disciplinary boundaries (interdisciplinarity). [ka]
2g.	Is aware of the changeability of the research process through external circumstances or advancing insight. [ka]
2h.	Is, under supervision, able to contribute to the development of scientific knowledge in one or more areas of the disciplines involved in chemical engineering. [ks]

3. *has the basic skills for designing a chemical product or process in the field of chemical engineering.*
A bachelor graduate CSE is familiar with the steps of the design process and able to carry them out in a not-complex situation.

3a.	Is aware of the design methodology in the field of chemical engineering and is aware of design being a cyclic process. [ksa]
3b.	Is able to design at bachelor's level under supervision: • analyse design problems in the field of chemical engineering with a limited complexity, • integrate the relevant knowledge base in a design, • formulate the design requirements, objectives and boundaries, taking into account some safety, sustainability, environmental and economic aspects, • formulate and execute the different activities of the design plan, • defend the results against the parties involved. [ksa]
3c.	Is able to integrate existing knowledge in a design. [ks]
3d.	Is able to systematically collect, analyse, select and process relevant design information from literature, patents, databases and websites and is able to estimate lacking information [ks]
3e.	Has creativity and synthetic skills with respect to design problems. [ksa]
3f.	Is able to work at different levels of abstraction and detail including the system design level. [ks]
3g.	Is aware of the changeability of the design process through external circumstances or advancing insight. [ka]
3h.	Understands the importance of other disciplines (interdisciplinarity) and their contribution to the design process. [ks]

4. *has knowledge of a scientific approach.*

A bachelor graduate CSE has a systematic approach characterised by the use of theories, models and coherent interpretations.

4a.	Is inquisitive and has an attitude of life-long learning. [ka]
4b.	Has a systematic approach characterised by the application of theories, models and coherent interpretations. [ksa]
4c.	Has the knowledge and the skill to justify and use models for research and design and assess their value ('model' is understood broadly: from mathematical model to scale model). [ks] Is able to adapt models for his/her own use. [ks]
4d.	Has the ICT skills to process data and models.
4e.	Has insight into the nature of sciences and technology (purpose, methods, differences and similarities between scientific fields, nature of laws, theories, explanations, role of the experiment, objectivity etc.) [k]
4f.	Has some insight into scientific practice (research system, relation with stakeholders, publication system, importance of integrity etc.) [k]
4g.	Is able to document adequately the results of research and design. [ksa]

5. *possesses some basic intellectual skills such as reasoning, reflecting and forming a judgment.*
A bachelor graduate CSE has some skills in reasoning, reflecting, and forming a judgment.

5a.	Is able (with supervision) to reflect critically on his/her own thinking, decision making and acting, and able to adjust his/her behaviour on the basis of this reflection. [ks]
5b.	Is able to reflect on his/her more strong and weak capabilities with regard to his/her role as researcher, designer, organiser, and teacher/advisor and is able to adjust on the basis of this reflection. [ks]
5c.	Is able to reason logically and apply methods of reasoning. [ks]
5d.	Is able to ask adequate questions, and has a critical yet constructive attitude towards analysing and solving simple problems in chemical engineering. [ks]
5e.	Is able to form a well-reasoned opinion in the case of incomplete or irrelevant data or uncertainty. [ks]
5f.	Is able to take a standpoint with regard to a scientific argument in chemical engineering. [ksa]
5g.	Possesses basic numerical skills and has an understanding of orders of magnitude. [ks]

6. *is able to cooperate in projects and communicate.*

A bachelor graduate CSE is able to work with and for others. This requires not only adequate interaction, a sense of responsibility, and leadership, but also good communication with colleagues and other stakeholders.

6a.	Is able to communicate in writing (logbook, research and design report, poster), and verbally in English (scientific presentation) about the results of learning, thinking and decision-making with colleagues, non-colleagues and managers. [ks]
6b.	Is able to interpret English written scientific literature and textbooks and to understand discussions and scientific debates in English. [s]
6c.	Is characterised by professional behaviour. This includes: reliability, integrity, commitment, accuracy, perseverance and independence as well as respect for others irrespective of their age, social economic status, education, culture, philosophy of life, gender, race or sexual nature. [ksa]
6d.	Is able to perform project-based work: is pragmatic and has a sense of responsibility; is able to deal with limited sources; is able to deal with risks, is able to negotiate compromises. [ksa]
6e.	Is able to work and communicate within an interdisciplinary team. [ks]
6f.	Has insight into, and is able to deal with, team roles and social dynamics. [ks]

7. *is aware of the social, environmental, sustainability and safety context.*

A bachelor graduate CSE is aware that beliefs and methods have origins and that decisions have social consequences in time.

7a.	Is aware of the social, environmental, sustainability and safety aspects of the chemical and related industries and is familiar with Life Cycle Analysis. [ks]
7b.	Has an eye for the different roles of chemical engineering professionals in society: researcher, designer, organiser, teacher/advisor. [ks]
7c.	Is able to analyse the place of chemical engineering in society and to discuss the social, environmental, sustainability and safety consequences of new developments in relevant fields with colleagues and non-colleagues. [ks]
7d.	Is able to analyse and to discuss the ethical and the normative aspects of the consequences and assumptions of scientific thinking and acting with chemical engineering colleagues and non-colleagues (in research, designing and applications). [ks]
7e.	Optional: is familiar with and has experience with the technological organisational processes of a chemical engineering company. [ksa]

Article 4 Language

1. The bachelor's degree programme in Chemical Science and Engineering is an English-taught programme. All study materials are in English.
2. In module evaluations and student panel meetings the English language proficiency of teaching staff will be a standard subject. If evaluation results indicate that improvement is necessary, the programme board will urgently appeal for the involved staff member to improve his/her English proficiency.

Article 5 Bachelor's final examination

The bachelor's final examination consists of the programme taught in the first, second and third years of study (B1, B2 and B3). The core programme consists of the B1 and B2 programmes.

The B1 programme has a study workload of 60 EC and consists of 4 modules of 15 EC each. The modules consist of a number of individual study units. The study units of the B1 programme are:

Module name	Study units & content	Education design[3] and assessment	EC
Chemistry	Fundamentals of chemistry (8.5 EC): chemistry project, (in-)organic structures, reaction categories, reaction mechanisms, polymers (synthesis), molecular spectroscopy Lab course 1: basic skills & synthesis (2.5 EC), incl. safety, error theory / MATLAB and basic skills & practical on organic synthesis. Mathematics: Intro Math, Calculus 1A (4 EC): Introduction to Maths: logic, proofs, combinatorics; Calculus 1A: functions, limits, derivatives, vectors	Project: in groups. Assessment based on group report and individual presentation. Mathematics and chemistry: lectures and tutorials, supervised self-study. Assessment based on written test. Practicum: Assessment based on participation, lab journals, and error theory test.	15
Process engineering	Thermodynamics & Process engineering (9.5 EC): mass and energy balances, process diagram, basic equipment; 1st and 2nd law, free energy equations. Project. Lab course 2 (2.5 EC): practical on process technology, including error theory / MATLAB. Mathematics (3 EC): Calculus 1B: integration, differential equations, complex numbers	Project: in groups. Assessment based on a group report and individual oral test. Mathematics, thermodynamics and process technology: lectures and tutorials. Assessment based on written test. Practicum: Assessment based on participation and lab journals.	15
Materials science	Material science, theory and project (9.5 EC): quantum phenomena, structure and properties of materials, polymer materials, materials science case study Lab course 3: Materials (2.5 EC): practical on materials science Mathematics: Linear Algebra (3 EC): linear equations, matrix algebra	Case study: in groups. Assessment based on group report and poster presentation. Mathematics and materials science: lectures and tutorials. Assessment based on written test. Practicum: assessment based on participation and lab journals.	15
Physical chemistry and Electrochemistry	Physical chemistry (5.5 EC): chemical equilibria, phase diagrams, project. Electrochemistry (6.5 EC): Electrochemistry theory, practicum, project Conceptual Modelling. Mathematics: Calculus 2 (3 EC): partial derivatives, multiple integrals	Projects: in groups. Assessment based on group report. Mathematics, physical chemistry and electrochemistry (theory): lectures and tutorials. Assessment based on written test Practicum: in groups; individual assessment based on participation, lab journals and reports.	15
Total B1			60

[3] This table seeks to present the programme as accurately as possible. No rights can be derived from the contents specified here. For more detailed information, including the intended learning outcomes, please refer to the Osiris education catalogue and the Canvas sites of the respective modules or study units.

The B2 programme has a study workload of 60 EC. The study units of the B2 programme are:

Module name	Study units & content[2]	Education design and assessment[4]	EC
Industrial processes	Industrial chemistry and processes, sustainable industrial chemistry project (8.5 EC) Catalysis and reaction kinetics (4.5 EC) Mathematics: Vector calculus (2 EC): vector fields, integral theorems	Project: in groups. Assessment based on report and presentation. Mathematics, catalysis and reaction kinetics, industrial chemistry and processes: lectures and tutorials. Assessment based on written test.	15
Physical transport	Physical Transport Phenomena (7.5 EC): flow theory, energy transport, substance transport + practical on transport phenomena Numerical methods (3.5 EC) Transport phenomena project (4 EC)	Project: in groups. Assessment based on report and presentation. Theory: lectures and tutorials. Assessment based on written test. Practical: assessment based on participation and reports. Numerical methods: lectures and tutorials. Assessment based on assignments.	15
Molecules and materials	Organic and bio-organic chemistry (6 EC): (bio)organic chemistry theory on synthesis. Lab course: Organic and bio-organic chemistry (2 EC) Colloid & Nanochemistry (7 EC): Colloid & nanochemistry theory and project on nanochemistry.	Project: in groups. Assessment based on report/poster. Organic chemistry, colloid and nanochemistry: lectures and tutorials. Assessment based on written test. Practical: assessment based on participation and reports.	15
Process design Or	Chemical technology project (7 EC): designing an industrial process Separation methods (4 EC): theory of industrial separation techniques and practical on distillation, absorption or adsorption . Introduction to chemical reactor engineering (4 EC): theory of basic reactors for 1-phase systems and residence-time distribution	Project: in groups. Assessment based on (group) report and individual oral examination. Introduction to Chemical reactor science, separation methods: lectures and tutorials. Assessment based on written test. Practical: assessment based on participation and reports.	15
Materials science & Technology	Advanced materials: theory and project, incl. 2 practicums (7 EC) Chemistry and technology of inorganic materials (4 EC) Chemistry and technology of organic materials (4 EC)	Project: in groups, assessment based on (group) report. AM, CTOM and CTIM: lectures and tutorials. Assessment based on written test.	15
Total B2			60

This programme applies to students belonging to the 2015 generation and later cohorts.
For students belonging to the 2014 and earlier generations, different B1, B2, and B3 programmes apply. Further information on transitioning between the programmes for these generations can be found on the website of the programme in question, in accordance with Article 9 of this appendix.

[4] This table seeks to present the programme as accurately as possible. No rights can be derived from the contents specified here. For more detailed information, including the intended learning outcomes, please refer to the Osiris education catalogue and the Canvas sites of the respective modules or study units.

The B3 programme has a study workload of 60 EC. The study units of the B3 programme are:

Name	Education design[5]	EC
Minor / optional course profile	Differs per minor. Please refer to the Osiris education catalogue and https://www.utwente.nl/en/education/electives/minor (The 'options matrix' on the website shows which minors CSE students are eligible to take.)	30
Preparations bachelor thesis	Research/Science (2.5 EC): lectures and tutorials. Assessment based on assignments and written test. Ethics (2.5 EC): lectures and tutorials. Assessment based on group assignments and written tests. Preparations for the final bachelor's assignment (2 EC): tutorials. Assessment based on oral and written assignments. Statistics (3 EC): lectures and tutorials. Assessment based on assignments and written test. Elective (5 EC): choice from biochemistry, process equipment design, study tour preparation, bionanotechnology, and polymer physics. Alternatively, a student can ask approval from the Examination board to choose another elective course.	15
Final bachelor's assignment CSE	Assessment based on report and presentation. Approval to start the final bachelor's assignment must be requested from the Board of examiners by submitting the form 'Agreement final bachelor's assignment CE' in a timely fashion (no later than 1 month before starting the project). The bachelor's project must address a topic belonging to the field of chemical engineering. If the project is not carried out with a research group affiliated with the Chemical Science and Engineering department within the Faculty of Science and Technology, the student in question must specify in the proposal which components of the project will be of a Chemical Science and Engineering-related nature.	15
Total B3		60

The project will generally be scheduled for the fourth quarter. Conditions for participation in the final bachelor's assignment module are specified in Articles 7.3 and 7.4 of this programme-specific appendix.

Article 5a Resits and validity of test results

1. In addition to Article 4.4 paragraph 5f of the general section of the bachelor's Education and Examination Regulations, students must always be permitted to participate in resits.
2. In the event that a module has not been completed satisfactorily, all modules from the B1 and B2 programme, and module 11 from the B3 programme are subject to the following rules with regard to the validity of test results registered in Osiris:
   a) The validity of all study units as defined in Article 5 that have been completed is unlimited.
   b) A math study unit in one of the modules 1-4 that was completed with a grade in the range 5.0-5.4 counts as a pass and has un unlimited validity when at least 1 other math study unit in another module (from module 1-4) was completed with a grade ≥ 6.5.
   c) Individual students who qualify for the Fobos regulations due to special circumstances, activism, participation in top sports or top cultural activities, may deviate with the aim of limiting study delays as much as possible. This exception may be granted if the student in question has submitted and had approved a multi-year study plan. This study plan must be drawn up in consultation with the study adviser and must be approved by the programme board, prior to the period in which the exception is to apply, see also Article 6.2.4 of the general section of the Education and Examination Regulations.

Article 6 Safety

There are certain safety requirements for working in a laboratory. Students are obliged to take note of these rules[6] and to comply with them. Students are not allowed to work in any of the chemical laboratories until after they have passed the introductory safety test that is part of Lab Course 1.

5 This table seeks to present the programme as accurately as possible. No rights can be derived from the contents specified here. For more detailed information, including the intended learning outcomes, please refer to the Osiris education catalogue and the Canvas sites of the respective modules or study units.

6 See the Health & Safety and Environmental Regulations at and the information provided by the Practical Department of the Faculty of Science & Technology, at https://www.utwente.nl/en/tnw/slt/.

Article 7 Order of study units

1. Before the start of a unit of study, the student must meet the prior knowledge requirements for that unit of study. The prior knowledge requirements can be found in the Osiris education catalogue.
2. When starting a minor, the student must have amassed at least 90 EC from the B1 and B2 programmes of the bachelor's programme in Chemical Science and Engineering.
3. For students wishing to start the final bachelor's assignment in the fourth quarter and belonging to the 2012-2013 and earlier cohorts, who have not been transferred to the 2013/2014 programme (or later), the following conditions apply:
   - the student has passed the propaedeutic exam and has completed all exam components, adding up to 60 EC, in the B1 phase;
   - the student has failed no more than 1 study unit in the entire B2 programme and in the B3 programme up to and including the second quarter;
   - the student has completed no more than 2 study units with a 5, which meet the criteria for compensated 5s as specified in the rules and guidelines of the Chemical Science and Engineering Examination board;
   - at the time of application, the study units from the third quarter of the B3 programme have not yet been completed with a passing grade, but they have been completed.
4. For students from the 2013/2014 cohort and later, and students from earlier cohorts who were transferred to the 2013/2014 or later programmes who wish to begin the final bachelor's assignment in the fourth quarter, the following conditions apply:
   1. The student has completed all exam components, totalling 60 EC, in the B1 phase;
   2. The student is yet to complete no more than 30 EC in the B2 and B3 programmes, excluding the final bachelor's assignment, but including the module that must be completed in the quarter prior to the final bachelor's assignment.
5. The Examination board is authorised to grant exemptions from the conditions stated in paragraphs 2,3 and 4 of this article, in the event that the strict application of the conditions included therein would entail an unjustifiable delay in the studies of the student in question. To this end, the student must submit a request to the Examination board.
6. Students who can demonstrate that they already acquired competences that are comparable in content, size and level to one or more study units or parts thereof, e.g. on account of exams or final examinations in the higher education domain passed earlier, or knowledge or skills acquired outside the higher education domain, can make a request to the Examination board to be exempted for the respective study units. The total study load of exemptions for a student cannot exceed 60 EC for the entire bachelor programme.

Article 8 Student guidance

a) When starting a degree programme, all students are assigned a mentor.

b) The mentor follows the progress of all students assigned to him or her, providing them with advice when asked or when deemed necessary. The mentor actively stays in touch with students who have a pace of study of less than 75% of the nominal pace of 60 EC per year.

c) In their first year at university, students are entitled to at least two progress meetings with their mentor, of which one meeting is scheduled during the first quartile. Students are entitled to at least one progress meeting per year with their mentor after their first year at university.

d) The study advisor is tasked with advising individual students about all aspects of their degree programmes, as well as informing the programme director about the progress of the students in question.

Article 8a (Binding) recommendation (BSA)

The additional requirements that students must meet, as intended in article 6.3 paragraph 3c of the general section of the Education and Examination Regulations, include that no fewer than 3 of the math study units of modules 1-4 must have been completed with a passing grade (grade recorded in Osiris ≥ 6.0).

Article 8b Quality assurance

1. The programme board is responsible for evaluating the programme.
2. The quality assurance coordinator of the Faculty of Science & Technology (Science & Technology cluster), and the quality assurance officer are tasked with providing internal quality assurance for the degree programme in Chemical Science and Engineering. They are supported by the CSE Education Quality Committee, consisting of students and the quality assurance coordinator. The quality assurance coordinator is the chairperson of the CSE Education Quality Committee.
3. The following instruments are used for internal quality assurance:
   a) panel discussions with students;
   b) the UT Student Experience Questionnaire (UT-SEQ);
   c) web surveys about entire modules or study units[7];
   d) drawing up overviews of quantitative results, such as pass rates;
   e) lecturer panel discussions with module lecturers and representatives of the student panels, in which all evaluation results in sections a-d are discussed.
4. The results of internal quality assurance efforts are published as follows:
   a) An evaluation report is drawn up for each module, based on the report of the lecturer panel discussion specified in paragraph 3e. This evaluation report is shared with the relevant lecturers, staff members involved in the study programme, and the programme committee;
   b) overviews of quantitative results, summaries of web surveys and evaluation reports will be published on the Canvas organisation quality assurance and evaluation ChE, which is accessible to all students and lecturers of the Chemical Science and Engineering degree programme.
5. The following internal and external evaluations are used to evaluate the curriculum and the degree programme as a whole:
   a) the exit survey for the entire bachelor's programme;
   b) the National Student Survey (NSE);

   The programme board must respond to these evaluations and submit an improvement plan. The evaluation and the improvement plan are then submitted to the programme committee.
6. The programme board and programme committee agree which improvements will be made to modules, study units, or the entire curriculum. These improvements will be recorded in the quality assurance action plan.
7. The programme board must draw up an improvement plan annually, based on internal and external evaluations, as well as new insights.
   a) the improvement plan is then discussed with the programme committee;
   b) the improvement plan is included in the faculty's annual plan.
   c) the dean and the portfolio holder for education will discuss the faculty's annual plan with the Executive Board in their autumn meeting.

Article 9 Changes and transitional arrangement

1. If the study programme included in article 5 of this appendix is altered or one of the other articles included in the general section or this programme-specific appendix is changed, the programme director will draw up and publish a transitional arrangement.
2. Article 8.4 of the general section sets out the conditions and requirements that a transitional arrangement must meet.
3. The transitional arrangement will also be published on the website of the Chemical Science and Engineering degree programme.
4. In the event that changes are made to this programme-specific appendix, the provisions set out in articles 8.3 and 8.4 of the general section apply.

Article 10 Entry into force

This programme-specific appendix will come into effect on 1 September 2020 and will replace the appendix dated 19 July 2019.

Adopted by the board of the faculty in consultation with the Programme Committee for Chemical Science and Engineering, with the consent of the Faculty Council with articles 5a and 8a, and with the consent of the Programme Committee for Chemical Science and Engineering with articles 3, 5, 6 and 8b.

Enschede, 14 July 2020.

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[7] New or largely renewed modules will be followed by web surveys. This also applies to entire modules or study units which were awarded an average grade below 6.0 by students in the UT-SEQ or in a previous web survey.