

***Programme-specific appendix
of the Chemical Engineering (ChE)
Master's Programme
Course and Examination Regulations
(art. 7.13 and 7.59 WHW)***

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Date: 26th March 2010

Preamble

- a. The rules in this appendix apply to the full-time Chemical Engineering Master's programme (Croho-number 60437).
- b. Together with the General Section (TNW100001/vdh) and the Chemical Engineering Board of Examiners Rules (TNW 100009/vdh), this appendix constitutes the programme part of the Student Statute, including the course and examination regulations of the Chemical Engineering Master's programme of the Faculty of Science and Technology at the University of Twente.
- c. In the event of disagreement, the Dutch appendix and not this English version of the appendix is legally-binding.
- d. The Act refers to the Higher Education and Research Act (WHW).

Article 1 Programme objectives

The University of Twente's Chemical Engineering Master's programme aims:

1. to train students to practice their profession independently. In this case it entails conducting fundamental or application-driven scientific research, as well as working with existing scientific knowledge and applying it to continuously different and new practical situations.
2. to stimulate interdisciplinary cooperation in scientific development based on chemical background knowledge.
3. to develop skills in, knowledge of and insights into a specialism of the discipline, with the onus on insight into and approach to scientific problem-formulation;
4. to offer student-oriented education of high quality in terms of international standards.
5. to enable acquisition of part of the knowledge and insight within an international context;
6. to offer an inspiring academic learning environment and routes with appropriate workloads to a demanding and heterogeneous student population;
7. to develop the capability of conveying acquired knowledge to others.

The programme aims to impart such knowledge, skills and insight regarding the field of chemical engineering, so that students are capable of independently practising their profession or being eligible for potential subsequent education to become a scientific researcher, technological designer or teacher.

Article 2 Programme learning outcomes

The level at which the discipline must be practised during and after the programme is established internationally. Graduates:

1. must be capable of keeping specialist literature on relevant sub-areas up to date generally and using it.
2. must be capable of familiarising themselves with a sub-area of chemical engineering in a reasonable amount of time;
3. must be capable of formulating a research plan of action based on generally-formulated question in a sub-area of chemical engineering;
4. must be capable of analysing and interpreting research results and must be capable of drawing conclusions from them.
5. must be employable in positions where knowledge and research skills in the field of chemical engineering are required;
6. must have sufficient insight into the social role of chemistry and/or chemical engineering to be able to choose and practise a profession responsibly;
7. must have insight into the role of chemical engineering in a sustainable society;
8. must be capable of working with others, conveying knowledge to others, giving a lecture, writing a report or an internationally-accessible scientific publication and of participating in a discussion about a specialist subject.
9. must be capable of devising, conducting and evaluating experiments and their corresponding controls independently;
10. must be able to place the obtained results and conclusion within the framework of results obtained by others;

Process Technology track graduates:

11. must be capable of designing a realistic process, including sub-phases, such as devising flow diagrams, describing equipment and process flows and calculating the behaviour of process equipment; as well as indicating alternatives for these sub-phases.
12. must have insight into the possible influences of the process on the properties of the product, possible bi-products or waste products and insight into the general rules for methods of preparation of certain types of combinations and products, and must be able to contribute to devising possible methods of preparation.

Molecules and Materials track graduates:

13. must possess knowledge of the formulation of various products, the specifications, methods of analysis and the interaction between components, and of the essential physical and mechanical methods required for the manufacture of chemical and technological products.

Water Technology track graduates:

14. must possess knowledge of fermentation, organic-chemical, bioelectrical and biochemical conversions, as well as of physicochemical phenomena in water technology; must be able to formulate goals and research hypotheses for research and possess skills for development and regulation in the field of water technology.

Article 3 Admission commission

1. The Dean of the TNW Faculty establishes an admissions commission for the purpose of admitting students to the Master's programme for whom the Master's programme in question is not a follow-on Master's as stipulated in article 7.30a of the Act.
2. The commission, as stated in clause 1, has been authorised by the Executive Board (reference S&C/387.191/lk) to admit or reject applicants.
3. The admission commission consists of a minimum of two members, including:
 - a. the Programme Director;
 - b. in the case of foreign students, the professor of the Chair where the student wishes to graduate and the internationalisation coordinator;
 - c. in the case of HBO (university of applied sciences)-students, the HBO coordinator;
 The Programme Director is the chairperson of the admission commission.
 If the chairperson of the commission deems it necessary, the secretary of the board of examiners and/or study advisor can be added to the commission.

Article 4 Admission to the programme

1. Direct admission to the programme can be obtained by:
 - a. A degree from one of the Chemical Engineering Bachelor's programmes at a Dutch university.
 - b. Proof of admission to the programme, issued by the admission commission.
2. When assessing a request for admission to the Master's programme, the admission commission may require that certain subjects are passed before proof of admission to the Master's programme is issued.
3. When issuing proof of admission to the Master's programme, the admission commission may award exemptions from certain components of the Master's, with the exception of the final project.
4. When issuing proof of admission to the Master's programme, the admission commission may stipulate conditions to the student for the specific Master's programme content and determine that admission is only to a certain track.
5. Rulings referred to in clause 3 and 4 of this article made by the admission commission, require approval from the board of examiners.
6. Under certain conditions, Master's students from foreign universities who are well advanced in their Master's programme may be admitted to the Condensed Master's Programme of the Chemical Engineering Master's programme (article 6 of this programme appendix).

- a. The Condensed Master's Programme comprises a minimum of 75 ECs.
 - b. Only students who are granted an exemption totalling 45 ECs by the Chemical Engineering programme's board of examiners can be admitted to the programme.
 - c. A student is only admitted to the Condensed Master's Programme if the student's specific programme, including the exemption to be given, is approved by the Chemical Engineering programme's board of examiners.
7. Those whose prior education was in a technical or physical sciences area and who work in the commercial sector, may be admitted to the 'PT-course' training programme. The training programme is stipulated in article 7 of this programme appendix. Having passed the supplementary sections, those who have successfully completed the PT-I and PT-II courses, can be admitted to the programme's Master's examination. The procedure for admission to the Master's examination for those in possession of the PT-I and PT-II certificates, is stipulated in article 8 of this programme appendix.
8. The following applies to students with a Chemical or Chemical Engineering HBO-diploma:
- a. They can be admitted to a pre-structured pre-Master's programme totalling 25 EC, whereby they are also given permission to do part of a stipulated homologation programme and a number of subjects from the Master's programme.
 - b. If the admission commission detects serious gaps in a student's prior education, extra requirements totalling a maximum of 30 ECs may be stipulated besides the pre-structured pre-Master's programme.
 - c. If they meet the corresponding requirements stipulated by the board of examiners during their first year of study, they will be granted permission, if still applicable, to complete the pre-structured pre-Master's programme and any extra requirements of the homologation programme, and to continue with the Master's programme as is applicable to them.
 - d. After completing the pre-structured pre-Master's programme and any extra requirements, they may be admitted to the Master's programme, whereby they are also exempted from the internship (19379900, 20 ECs), and instead of this they must include a homologation programme of 20-21 ECs in their Master's programme.
- The pre-Master's programme, homologation programme and the Master's programme for students with a Chemical Engineering or Chemistry HBO-diploma, determined by the board of examiners, are stipulated in article 9 of this programme appendix. The requirements which they must meet during their first study year are stipulated in article 10 of this programme appendix.
9. Students who have an Advanced Technology Bachelor's degree are admissible to the standard Master's programme if, within their Bachelor's programme, they have met the conditions for their pre-Master's course list, stipulated in article 11 of this programme appendix. The content of the pre-Master's course list chosen by the student determines if the student is to be admitted to the Molecules and Materials (MM), Process Technology (PT) or Water Technology (WT) tracks.
10. Students who have a foreign degree must be able to demonstrate their proficiency in English, both oral and written. Proof that their score on a certified test meets the standard may be an admission requirement. Namely, a total score of 6.0 or higher on the IELTS test or a score of 80 or higher on the internet-based TOEFL test¹. Students with a Bachelor's degree from countries with English only as the language of instruction in higher education² are exempted from this language requirement.
11. Students who are enrolled in the University of Twente's Chemical Engineering Bachelor's programme may submit a request to the Programme Director to take subjects from the Master's programme. In order to obtain this permission, all the following minimal conditions must be met:
- a. students have passed the first year of the Chemical Engineering programme;
 - b. students have passed a minimum of 90 ECs from the B2 and B3 programmes and/or have obtained an exemption.
 - c. the Master's subjects students wish to follow are explicitly stated in the request;
 - d. the request from the student in question includes a study plan;
 - e. the aforementioned plan has been signed by the study advisor..
- The study plan referred to in d. and e. can demonstrate that a student's study progress will

¹ IELTS: International English Language Testing System; TOEFL: Testing of English as a Foreign Language; see the UT website regarding admission to the Master's programmes: <http://www.utwente.nl/admissionoffice/master/internationaal/>

² List of countries can be found on <http://www.utwente.nl/admissionoffice/master/internationaal/> under General Admission Requirements.

supposedly be delayed if the request is not granted, but can also show that a student has a high study rate and wishes to do more subjects than is minimally required by the Bachelor's examination.

Before the Programme Director makes a decision, he/she requests advice from the board of examiners.

Article 5 Standard Master's programme

The Master's programme has three specialisations (tracks), namely:

1. Molecules and Materials (M&M),
2. Process Technology (PT).
3. Water Technology (WT).

The structure of the M&M and PT track programme is as follows:

1. four (PT) or five (M&M) compulsory subjects of 5 ECs;
2. a compulsory project of 10 ECs (the design subject Process Plant Design for the PT track and two Advanced Molecules and Materials (AMM) projects of 5 ECs for the M&M track);
3. the final project commission's chairperson determines 15 ECs of electives, in consultation with the student;
4. a number of electives, such that the programme in total comprises a minimum of 120 ECs, taking into account that:
 - a maximum of 5 ECs may be social science subjects for the purpose of the trip abroad;
5. an external internship of 20 ECs;
6. a final project of 45 ECs within the chosen track.

The so-called 'Contract Research Project' for the purpose of the trip abroad may be registered as a Selected Topic (Capita Selecta) from a group (elective) or as the separate elective '19379970 CR Study Tour Assignment (Opdracht Studiereis)'.

The M&M and PT track compulsory subjects are:

<i>M&M track compulsory subjects</i>			<i>PT track compulsory subjects</i>		
Code	Name	ECs	Code	Name	ECs
193700030	AMM Organic materials science	5	193715020	Chemical Reaction Engineering	5
193700010	AMM Characterization	5	193720020	Multiphase Reaction Technology	5
193700040	AMM Inorganic materials science	5	193750030	Process Equipment Design	5
193700060	AMM Applications	5	193735010	Thermodynamics and Flowsheeting	5
193700020	AMM Molecular and Biomolecular chemistry and technology	5			
193700050	AMM Project Organic Materials	5			
193700070	AMM Project Inorganic Materials and Molecular Science and Technology	5	193790010	Process Plant Design	10

The structure of the WT track programme is as follows:

1. a maximum of 4 homologation subjects, which depending on the prior knowledge, are compulsory (maximum 19 ECs)
2. six profiling subjects of 4 or 5 ECs (total of 28 ECs) are compulsory for the chosen track
3. a track-specific design subject of 12 ECs is compulsory
4. a number of track-specific electives, such that the programme in total comprises a minimum of 120 ECs
5. an external internship of 20 ECs
6. a final project of 40 ECs within the WT track.

The track is taught in cooperation with Wageningen University and the University of Groningen. The homologation lectures and this track's compulsory subjects are offered by Wetsus-Institute in Leeuwarden.

Compulsory subjects for the WT track:

<i>Homologation subjects for the WT track</i>			<i>Compulsory subjects for the WT track</i>		
Code	Name	ECs	Code	Name	ECs
19379500	Mathematical Principles in Water Technology	5	19379504	Global Water Cycle	5
19379501	Transport Phenomena in Water Technology	5	19379505	Biological Water Treatment and Recovery Technology	5
19379502	Water Microbiology	5	19379506	Advanced Water Treatment Processes	5
19379503	Colloid Chemistry for Water Technology	4	19379509	Process Dynamics and Control (for Water Technology)	5
			19379507	Reactor Design for Water Treatment	4
			19379510	Bioreactor Design for Water Treatment	4
			19379508	Process Design (for Water Technology)	12

The final project is assessed by means of two grades, one for conducting chemical-technological research and one for general aspects and the report. Conducting chemical-technological research entails problem analysis (familiarisation with a particular discipline, identifying problems and formulating research questions and approach), implementation (the theoretical and experimental approach and execution) and results analysis (analysis of the results and their relevance).

The general aspects comprise independence, commitment, cooperation, originality and creativity. The report comprises the oral report (presentation of and discussion about the research) and the written report (the final project report).

The following applies to all tracks:

- The electives are selected in agreement with the final project commission's chairperson.
- The course list requires approval by the final project commission's chairperson and the board of examiners.

Article 6 Condensed Master's Programme

A student's specific programme, including the exemptions to be granted, must be approved in advance by the Chemical Engineering Master's programme board of examiners. The following rules apply in this case:

1. The Condensed Master's Programme comprises a minimum of 75 ECs: 30 ECs in subjects and 45 ECs for the final project.
2. Students who are admitted to the Condensed Master's Programme may be exempted from a maximum of two compulsory M&M and PT track subjects.
3. Students who are admitted to the Condensed Master's Programme M&M track are permitted to replace the subject 19370002 AMM Molecular and Biomolecular Chemistry and Technology with the subject 19377502 Physical Organic Chemistry.
4. Students who are admitted to the Condensed Master's Programme M&M track may be exempted from one of the M&M track Advanced Materials Science Projects.
5. A minimum of one elective must be included in the programme. Additionally, a minimum of one subject (5 ECs) is selected in consultation with the final project group as preparation for the final project.

An overview of the Condensed Master's Programme:

<i>Compulsory courses M&M track: 3 out of 5</i>			<i>Compulsory courses PT track: 2-3 out of 4</i>		
Code	Name	EC	Code	Name	EC
193700030	AMM Organic materials science	5	193715020	Chemical Reaction Engineering	5
193700010	AMM Characterization	5	193720020	Multiphase Reaction Technology	5
193700040	AMM Inorganic materials science	5	193750030	Process Equipment Design	5
193700060	AMM Applications	5	193735010	Thermodynamics and Flowsheeting	5
193700020	AMM Molecular and Biomolecular chemistry and technology	5			
<i>Sub-total</i>		15	<i>Sub-total</i>		10-15
<i>Advanced Materials Science Project: 1-2 parts</i>			<i>Design Project</i>		
193700050	AMM Project Organic Materials	5	193790010	Process Plant Design	10
193700070	AMM Project Inorganic Materials and Molecular Science and Technology	5			
<i>Sub-total</i>		5-10	<i>Sub-total</i>		10
<i>Electives: 1-2</i>		5-10	<i>Electives: 1-2</i>		5-10
<i>Internship: optional</i>			<i>Internship: optional</i>		
<i>Master's final project</i>		45	<i>Master's final project</i>		45
<i>Total</i>		min.75	<i>Total</i>		min.75

Article 7 'PT course' study programme

The faculty offers a Process Technology (PT) course. This is intended for people who have been educated in a technical field or in the field of applied physics, who work in the commercial sector and wish to acquire further qualifications in process technology. The course also provides refresher courses and extra training for or re-training of engineers (MSc., BSc) and chemists (BSc., Dr.). The course consists of two parts, PT-I and PT-II. The homologation part of PT-I consists of 5 subjects from the Chemical Engineering Bachelor's programme. Knowledge of these subjects is required for the four compulsory subjects from the Process Technology track which comprise the second part of PT-I. PT-II consists of four electives and an individual assignment. The electives can serve as a means to broaden one's knowledge or as a necessary underpinning of the individual assignment. The individual assignment is carried out in the company where the participant works and is concluded by means of a written report. Supervision and assessment is carried out by one of the Chemical Engineering Master's programme lecturers. An abstract must be sent in advance to the course coordinator and the assignment must be approved by the company and the supervisor.

Upon successfully completing the PT-I and PT-II courses, a Final Company Assignment can be carried out. If they also pass this, students will meet the requirements for the Master's final examination, stipulated by the Chemical Engineering Master's programme board of examiners. The procedure for admission to the Master's examination for those in possession of the PT-I and PT-II certificates, is stipulated in article 8 of this programme appendix.

An overview of the study programme for PT-students:

<i>PT-I</i>	<i>Homologation subjects from BSc Chemical Engineering</i>	
Subject code	Name	ECs
19134015	Equilibriums	5
19138506	Separation Technology excl. laboratory practice	3.5
19134506	Kinetics and Catalysis	4
19137009	Introduction to Physical Transport Phenomena	4
19137007	Physical Transport Phenomena excl. internship	4
	<i>Sub-total</i>	20.5
<i>PT-I</i>	<i>Compulsory subjects MSc Chemical Engineering PT-track</i>	
Subject code	Name	ECs
19371502	Chemical Reaction Engineering	5
19372002	Multiphase Reaction Technology	5
19375003	Process Equipment Design	5
19373501	Thermodynamics and Flowsheeting	5
	<i>Sub-total</i>	20
<i>PT-II</i>		
19379960	Individual assignment (incl. design)	20
	4 Electives from the PT-track electives list	20
	<i>Sub-total</i>	40
xxxxxx	Final Company Assignment	40
	<i>Total</i>	120.5

Article 8 PT-students Master's examination procedure

1. Students who have Process Technology course I and II certificates may submit a written request to the board of examiners secretary in order to be admitted to the Chemical Engineering Master's final examination. A CV with a detailed overview of course(s) followed and relevant work experience must be attached to this request.
2. Students must do a Final Company Assignment. This component comprises a written and oral report of part of the student's activities within the company where he works. The report must show that the activities are being performed at academic level. The scope of the activities must be comparable to a final project of a Master's student from the standard Process Technology track and must include research and/or design aspects.
3. For the assessment of the Final Company Assignment, the board of examiners appoints a final project commission, consisting at least of:
 - a. The professor of one of the Chairs involved in the Process Technology track;
 - b. The board of examiners secretary;
 - c. A member of the Faculty's scientific staff who is an expert in the field of the student's report.
4. The final project commission assesses whether a student has conducted chemical-technological research or has made a design of a sufficient scientific standard, which satisfies the programme learning outcomes that also apply to the final project of the standard Master's programme.

Article 9 HBO-student study programme

Students with a Chemistry or Chemical Engineering HBO-diploma may be admitted to the Master's programme if they have completed one of the pre-structured pre-Master's programmes of 25 EC's. If the admission commission detects serious gaps in a student's prior education, extra requirements totalling 30 ECs may be stipulated.

The following table shows which pre-structured pre-Master's programme must be completed in order to be admitted to the M&M track and which pre-structured pre-Master's programme is required in order to be admitted to the PT track.

Pre-structured pre-Master's programme M&M Track			Pre-structured pre-Master's programme PT track		
Subject code	Name	ECs	Subject code	Name	ECs
191512000 or 191521000	Calculus A or Calculus I excl. Maple	4	191512000 or 191521000	Calculus A or Calculus I excl. Maple	4
191521100 or 191521100	Calculus B or Calculus II excl. Maple	4	191521100 or 191521100	Calculus B or Calculus II excl. Maple	4
191512060 + 191512080 or 191521200	Linear Algebra A+B or Linear Algebra	4	191512060 + 191512080 or 191521200	Linear Algebra A+B or Linear Algebra	4
<i>Sub-total</i>		12	<i>Sub-total</i>		12
191355400	Advanced Materials Science	5	191355400	Advanced Materials Science	5
191355380	Chemistry and Technology of Organic Materials	5	191370090	Introduction to Physical Transport Phenomena	4
191350010	Equilibria II	3	191370200	Physical Transport Phenomena excl. laboratory practice	4
<i>Total</i>		25	<i>Total</i>		25

Students with a Chemistry or Chemical Engineering HBO-diploma and who have completed one of the pre-Master's programmes from the table above, will be admitted to the Chemical Engineering Master's programme, under the following conditions:

1. Admission is valid for the track for which the pre-structured pre-Master's was followed.
2. Students are exempted from the unit of study 19379900 Internship (20 ECs)
3. Students must include the homologation programme stipulated by the board of examiners for the corresponding track in their Master's programme.
4. A student's Master's programme must also meet the requirements stipulated for the standard Master's programmes in the M&M and PT tracks (article 5 of this appendix).

The following table shows the M&M and PT track homologation programmes:

M&M track homologation programme			PT track homologation programme		
191355310	Chemistry and Technology of Inorganic Materials	5	191315130	Sustainable Energy Technology	5
191340150	Equilibria	5	191340150	Equilibria	5
191340200	Physics of Atoms and Molecules	4	191385060	Separation Technology excl. laboratory practice	4
191345060 or 193902810	Kinetics and Catalysis or Interfaces and Catalysis	45	191345060 or 193902810	Kinetics and Catalysis or Interfaces and Catalysis	45
	Information acquisition course	2		Information acquisition course	2
<i>Total</i>		20/21	<i>Total</i>		20/21

Instead of the aforementioned pre-structured pre-Master's programme, students from Saxion University of Applied Sciences may also do the follow-on minor of 30 ECs during their HBO-programme. This minor consists of the same subjects as the pre-structured pre-Master's, supplemented by 19135531 Chemistry and Technology of Inorganic Materials for students who wish to be admitted to the M&M track, and 19131513 Sustainable Process Technology for students who wish to be admitted to the PT track.

Students who have done this minor have consequently already done one of the subjects from the homologation programme and as a result have 5 ECs more for electives.

Article 10 Requirements for HBO-students

1. Students who have been admitted in accordance with article 4.8 of this programme appendix to the pre-Master's and homologation programme, are given a pre-recommendation after the first term of being enrolled. This pre-recommendation is issued by the board of examiners, based on the HBO-coordinator's recommendations. For students who are admitted per 1st September, the pre-recommendation is issued at the latest in December; for students who are admitted per 1st February, the pre-recommendation is issued at the latest in June.
2. Students who have been admitted in accordance with article 4.8 of this programme appendix to the pre-Master's and homologation programme, are given a recommendation after three terms. For those students who are admitted per 1st September, the recommendation is issued at the latest in June; for students who are admitted per 1st February, the recommendation is issued at the latest in December.
3. Students who have passed all the subjects from the pre-Master's programme stipulated for them, will be given a positive recommendation.
4. Students who have not yet passed all the subjects from pre-Master's programme stipulated for them, is given a positive recommendation if they meet the following requirements:
 - a) During the first three terms of being enrolled, 25 ECs or more have been obtained;
 - b) 12 ECs or more have been obtained from the pre-structured pre-Master's programme;
 - c) at least one of the following subjects has been passed: Calculus A (19151200), Calculus B (19151202), Calculus I (19152100), Calculus II (19152110).In all other cases, students will be given a negative recommendation.
5. A positive recommendation entails that students are granted permission to complete the pre-Master's programme stipulated for them and homologation programme, and to continue with the corresponding Master's programme (see article 9 of this programme appendix). The definitions in article 15 of this programme appendix continue to apply in this case.
6. A negative recommendation entails that students may only do pre-Master's subjects and subjects in the homologation programme, and may not do other Master's subjects. This restriction comes into force in the term following the date on which the negative recommendation is issued. The restriction expires when all the pre-Master's subjects have been passed.
7. The recommendation is issued by the board of examiners.
8. In exceptional cases, the board of examiners may decide to make an exception to the aforementioned rules.

Article 11 Advanced Technology Bachelor's pre-Master's programme

An overview of the pre-Master's programme for Advanced Technology (AT) students.

Subjects from the van AT B2-programme					
Code	Name			ECs	
19390232	Modelling of physical systems			5	
19390281	Interfaces and Catalysis			5	
19390261	Production Technology			5	
19390202	Basic Chemistry (incl. laboratory practice)			5	
				<i>Sub-total</i>	20
Subjects to be included as specialisation subjects in the AT B3 programme					
<i>For the M&M track</i>			<i>For the PT or WT track</i>		
Subject code	Name	ECs	Subject code	Name	ECs
19135539	Chemistry & Technology of Organic Materials	5	19138506	Separation Technology (incl. laboratory practice)	5
19133531	Chemistry & Technology of Inorganic Materials	5	19137009	Introduction Physical Transport Phenomena	4
<i>Minimum of 2 of the following Chemical Engineering B2 subjects</i>			19137020	Physical Transport Phenomena incl. internship	6
19132001	Organic Chemistry	4	<i>Supplemented to a minimum of 20 ECs with electives from the Chemical Engineering Bachelor's. Recommended subject::</i>		
19133001	Inorganic Chemistry	3			
19135001	Equilibriums II	3			
19136025	Applied Molecular Spectroscopy	3			
<i>Supplemented to a min. of 20 ECs with electives from the Chemical Engineering Bachelor's</i>			19131513	Sustainable Process Technology	5
		<i>Sub-total</i>	20	<i>Sub-total</i>	20
		<i>Total</i>	40	<i>Total</i>	40

Article 12 Transitional regulations

1. If the study programme included in articles 5, 6, 7 and 9 of this appendix is amended, or if one of the articles included in the general section or programme appendix is amended, the Programme Director will stipulate and publish transitional regulations.
2. The conditions which transitional regulations must meet are stipulated in article 29 of the general section.
3. The transitional regulations are published on the programme's website.

Article 13 Safety

There are safety requirements for working in a laboratory. Students are obliged to inform themselves of these rules³ and to adhere to them.

Article 14 Practical exercises

It is not required to pass units of study that include practical exercises until after these practical exercises have been carried out.

³ See the 'Health & Safety and Environmental Regulations' ('Arbo- en Milieureglement') on <http://www.tnw.utwente.nl/intra/diensten/amh/> and the TNW laboratory practice group information on http://www.tnw.utwente.nl/onderwijs_overig/practical/.

Article 15 Sequence of units of study

1. Before starting a unit of study, students must meet the prior knowledge requirements of that unit of study.
2. Students whose follow-on Master's programme is the Chemical Engineering Master's programme (WHW art. 7.13, clause 3), may only begin the internship and final project if they have obtained the Chemical Engineering (Crohonummer 56960) Bachelor's degree.
3. Students may only begin the final project if they have obtained a minimum of 65 ECs of the Master's programme.
4. Before the final colloquium can be held, all other units of study need to have been passed.
5. The board of examiners is authorised to dispense with the requirements stipulated in clauses 1 to 4 of this article, in the event that strict adherence to that which is stipulated would result in an unwarranted delay in study progress. Students can submit a request for this to the board of examiners.

Article 16 Flexible programme

Contrary to that which is stipulated in articles 5, 6, 7 and 9 of this appendix, students can request permission from the board of examiners to follow a flexible programme as stipulated in art. 7.3c of the Act. The board of examiners assesses whether the programme corresponds to the programme's field, is coherent and is of a sufficient standard in light of the programme's learning outcomes.

Article 17 Student Counselling

1. The study advisor has, on the one hand the responsibility to advise students individually upon request regarding their studies, and on the other hand, to inform the programme director of students' study progress.
2. When choosing a final project Chair, the Chair professor assigns a mentor.

Article 18 Inception date and amendments

These regulations will come into effect on 1st April 2010 and replace the regulations dated 27th February 2009.

Enacted by the Dean of the Faculty, having obtained recommendations from the Faculty Council and programme commission.

Enschede, dated 26th March 2010