

**TEACHING AND EXAMINATION REGULATIONS  
(TER)  
(see Article 7.13 of the Higher  
Education and Research Act)**

**2010-2011**

**3TU MASTER'S DEGREE PROGRAMME**

**SYSTEMS AND CONTROL**

**DELFT UNIVERSITY OF TECHNOLOGY  
UNIVERSITY OF TWENTE  
EINDHOVEN UNIVERSITY OF TECHNOLOGY**

The Board of the Faculty 3mE of Delft University of Technology,

in view of articles 9.15, first paragraph, subparagraph a, 7.13, first and second paragraph, 9.38, subparagraph b, and 9.18, first paragraph, subparagraph a, of the Higher Education and Scientific Research Act of the Netherlands

having heard the recommendations of the Education Committee of the MSc programme Systems and Control,

with due observance of the consent of the Faculty Council/Faculty Student Council

**hereby establishes**

Teaching and Examination Regulations for the Systems and Control programme.

## **Section 1 - General**

### **Article 1 – Definitions of terms used**

The terms used in these regulations should be interpreted as meaning the same as in the Higher Education and Scientific Research Act, insofar as they are defined in that Act.

The following terms are to be defined thus:

- a. the Act: the Higher Education and Scientific Research Act (in Dutch, the WHW), in the Dutch Bulletin of Acts, Orders and Decrees, number 593 and as amended since;
- b. the Dean If an institution that is fully or partly responsible for the programme has opted for a Joint Faculty Board, then “Dean” will also include the Faculty Board;
- c. programme: the Master’s degree programme as denoted in Article 7.3a paragraph 1, subparagraph b of the Act;
- d. student: anyone enrolled at Delft University of Technology as a student or external student for the purpose of benefiting from education and/or for the purpose of sitting the examinations and undergoing the degree audit which form part of the programme;
- e. subject: a unit of study within the programme as referred to in Article 7.3, paragraphs 2 and 3 of the Act;
- f. practical: a practical exercise as intended in Article 7.13, paragraph 2, subparagraph d of the Act, taking one of the following forms:
  - writing a thesis
  - conducting a project or developing an experimental design
  - completing a design or research assignment
  - conducting a literature review
  - completing an internship
  - giving a public presentation
  - participating in fieldwork or an excursion
  - conducting tests and experiments
  - writing a position paper
  - or participating in other educational activities aimed at enabling participants to attain certain knowledge, insights or skills;

- j. examination: an assessment of the student's knowledge, insight and skills in relation to a subject, as well as the marking of that assessment by at least one examiner, appointed for that purpose by the Board of Examiners;
- h. degree audit: an assessment by which the Board of Examiners, in accordance with Article 7.10 of the Act, establishes whether all examinations in the various subjects that constitute the degree programme have been successfully completed (also referred to as final examination);
- i. Board of Examiners: the programme's Board of Examiners, which has been installed in accordance with Article 7.12 of the Act;
- j. examiner: the individual who, in line with Article 7.12, paragraph 3 of the Act, has been appointed to set the examinations;
- k. credit: a credit awarded in accordance with the European Credit Transfer System (ECTS); one credit denotes a study load of 28 hours;
- l. working day: Monday to Friday with the exception of recognised national public holidays;
- m. study guide: a guide to the degree programme containing specific information pertaining to the various subjects;
- n. graduation supervisor a staff member, appointed by the dean, responsible for the supervision of the graduation project.
- n. institution: Delft University of Technology
- o. disability: all conditions which are (at least for the period in question) chronic or lasting in nature and which form a structural limitation for the student in receiving education and/or sitting examinations or taking part in practicals.

## **Article 2 – Programme composition**

1. The following points regarding the programme are included in the appendix:
  - a. programme composition and relevant examinations,
  - b. whether the programme is full-time, part-time or a sandwich course,
  - c. composition of the specializations,
  - d. study load of the programme and of each of the units of study making up that programme,
  - e. number and sequence of examinations and practical exercises,
  - f. whether the examinations will be administered in an oral, written or other format,
  - g. the content of the practicals,
  - h. if and when necessary, that a satisfactory result on an examination is a prerequisite for admission to other examinations,
  - i. if and when necessary, that the requirement to participate in a practical will be part of the admission procedure to a particular examination,
  - j. the units of study from which the student may choose to fulfil programme elective requirements,
  - k. the transitional regulations as referred to in article 22.
2. The appendix forms an integral part of these regulations.

### Article 3 – The programme’s final attainment levels

The graduated Master of Systems and Control Engineering meets, to a sufficient level, the following qualifications:

1. Broad and profound knowledge of engineering sciences (electrical engineering, mechanical engineering, applied physics, mathematics) and the capability to apply this knowledge at an advanced level in the systems-and-control-engineering discipline.
2. Broad and profound scientific and technical knowledge of the systems- and control engineering discipline and the skills to use this knowledge effectively. The discipline is mastered at different levels of abstraction, including a reflective understanding of its structure and relations to other fields, and reaching in part the forefront of scientific or industrial research and development. The knowledge is the basis for innovative contributions to the discipline in the form of new designs or development of new knowledge.
3. Thorough knowledge of paradigms, methods and tools as well as the skills to actively apply this knowledge for analysing, modelling, simulating, designing and performing research with respect to innovative technological dynamical systems, with an appreciation of different application areas.
4. Capability to independently solve technological problems in a systematic way involving problem analysis, formulating sub-problems and providing innovative technical solutions, also in new and unfamiliar situations. This includes a professional attitude towards identifying and acquiring lacking expertise, monitoring and critically evaluating existing knowledge, planning and executing research, adapting to changing circumstances, and integrating new knowledge with an appreciation of its ambiguity, incompleteness and limitations.
5. Capability to work both independently and in multidisciplinary teams, interacting effectively with specialists and taking initiatives where necessary.
6. Capability to effectively communicate (including presenting and reporting) about one’s work such as solutions to problems, conclusions, knowledge and considerations, to both professionals and non-specialised public in the English language.
7. Capability to evaluate and assess the technological, ethical and societal impact of one’s work, and to take responsibility with regard to sustainability, economy and social welfare.
8. Attitude to independently maintain professional competence through life-long learning.

### Article 4 – Admission to the programme

1. Students in possession of a diploma which shows that they have passed the final examination for one the Bachelor’s programmes, mentioned below, obtained at a Dutch Technical University (Delft, Eindhoven, Twente) or at one of the IDEA League Universities (ETH Zürich, Imperial College London, RWTH Aachen, ParisTech) will be eligible for admission to the programme.

BSc	University D: Delft E: Eindhoven T: Twente	Free admittance	After additional program (max. 30 EC)
Advanced Technology	T		X
Biomedical Technology	E,T		X
Civil Engineering	D, T		X
Electrical Engineering	D,E,T	X	
Aerospace Engineering	D	X	
Marine Technology	D		X
Molecular Science and Technology	D	X	
Chemical Engineering	E, T	X	

Telematics	T		X
Applied Earth Sciences	D		X
Technical Informatics	D, E, T		X
Applied Physics	D, E, T	X	
Technical Mathematics	D, E, T	X	
Mechanical Engineering	D,E,T	X	

- Students who are not in possession of one of the diploma's mentioned in paragraph 1 will require a certificate of admission issued by the Dean.
- Notwithstanding the provisions of paragraph 1, the Dean may under special circumstances admit a student to one or more examinations and/or practicals of the programme before the student has passed the Bachelor's examination. A limited period of validity may be set for such permission.
- Students in possession of a diploma which shows that they have passed the final examination for the Bachelor's programme at a Dutch institute of higher vocational education (HBO), can be admitted. A pre-master's programme, as detailed in Art. 2.2 of the Appendix, needs to be completed before the candidate is formally admitted.

#### **Article 5 – Language**

Education shall be provided in English. Students shall sit examinations and undergo the degree audit in English. The Dean has the authority to adapt language criteria under certain circumstances.

### **Section 2 – Examinations**

#### **Article 6 - Number, times and frequency of examinations**

- There are at least two opportunities in each academic year for sitting examinations.
- A timetable of all opportunities for sitting written examinations is drawn up on an semi-annual basis and details are published before the start of each semester.
- Notwithstanding the provisions of paragraph 1, there will be at least one opportunity in a year to sit examinations relating to subjects not taught in that academic year.
- If a subject is removed from the study programme, two opportunities to sit an examination in this subject will be granted after the last classes in this subject have been taught: an examination following the last of the classes, and one resit in the same academic year. In the following academic year there will be two subsequent resits.
- In exceptional cases, the Board of Examiners may permit a deviation from the standard number of times and the way in which certain examinations may be administered.

#### **Article 7 – Validity of examinations**

- The result of an examination is valid for an unlimited period.
- However, in cases where the examination result dates from over six years ago, the Board of Examiners may impose an additional or substitute examination.

#### **Article 8 – Oral examinations**

Oral examinations will be held in public, unless determined otherwise by the Board of Examiners in a special case or unless the student has formally objected to the public nature of the examination.

### **Article 9 – Determining and announcing the results**

1. The examiner is required to determine the result of an oral examination as soon as it is finished and to supply the student with a written statement of the result.
2. In the case of written examinations, the examiner is required to determine the result as soon as possible after the examination but within 15 working days at most. Taking due account of the student's right to privacy, the student administration then ensures that the results are registered and published within 20 working days of the examination date. If the examiner is unable to meet these criteria due to extenuating circumstances, the examiner must inform the Board of Examiners, stating reasons for the delay. The Board of Examiners will then pass this information on to the student or students without delay, and a new date for announcing exam results will simultaneously be made known.
3. Regarding any examinations that are not taken orally or in writing, the Board of Examiners will determine beforehand precisely how and within what period of time the student will be notified of the results.
4. When receiving the result of an examination, the student will be made aware of his or her right to inspect the results as referred to in Article 10, the opportunity for a subsequent discussion as referred to in Article 11 and the opportunity to lodge an appeal with the Examination Appeals Board.

### **Article 10 – The right to inspect the results**

1. For a period of at least 20 working days after notification of the results of any written examination, the student has the right to inspect his or her marked work, on request. If a student intends to lodge an appeal regarding the marking of his or her written work, he or she will be supplied with a copy of the marked work at cost price.
2. During the period referred to in paragraph 1, all interested individuals may acquaint themselves with the questions and assignments set in the examination in question, as well as with the criteria used for marking.
3. The Board of Examiners may determine that the right to inspection as referred to in paragraphs 1 and 2 will be exercised at a location specified beforehand and at no less than two specific times, also to be decided in advance.  
If the student can prove that he/she is or was unable to be present at the location at the set time due to circumstances beyond his or her control, then another opportunity will be provided, if possible within the period stated in paragraph 1.  
The location and times mentioned in the first sentence will be announced within five working days after the results are published.

### **Article 11 – Subsequent discussion of the examination results**

1. As soon as possible after the results of an oral examination have been announced, an opportunity will be arranged for the examiner to discuss the results with the student, if so requested by the student or at the instigation of the examiner. At this meeting, the reasons behind the marks awarded will be explained.
2. For a period of 20 working days after the results have been announced, students who have taken a written examination may submit a request to discuss the results with the relevant examiner. The discussion will take place within a reasonable time span and at a place and time determined by the examiner.
3. In cases where a collective discussion is organised by or on the instructions of the Board of Examiners, a student may only submit a request, as referred to in the preceding paragraph, if the student was present at the collective discussion and if the student provides a good reason

for the request or if, due to circumstances beyond the student's control, the student was unable to attend the collective discussion.

4. The provisions of paragraph 3 are similarly applicable if either the Board of Examiners or the examiner first gives the student the opportunity to compare his/her answers with model answers.
5. The Board of Examiners may permit deviations from the provisions of paragraphs 2 and 3.

### **Section 3 – Studying with a disability**

#### **Article 12 – Adaptations to assist students with a disability**

1. Students who have a physical or sensory disability are entitled to adaptations in teaching, examinations and practicals. If possible, the student must submit a written request to the Dean at least three months before the student is due to participate in coursework, examinations and/or practicals. These adaptations will be geared as much as possible to a student's individual needs, but they must not affect the quality or the degree of difficulty of a subject or an examination programme. The facilities provided to this end may involve adapting the form or duration of examinations and/or practicals to the student's individual situation or making practical aids available. (At Tu/e, this request should be submitted to the STU/International Relations Office.
2. The request referred to in paragraph 1 should be accompanied by a recent medical certificate from a doctor or a psychologist. If there is evidence of dyslexia, for example, the request should be accompanied by a document issued by a recognised dyslexia-testing bureau (i.e. registered with BIG, NIB, or NVO). If possible, this certificate should also give an estimation of the extent of the disability and of appropriate steps that could be taken by the programme organisation.
3. The Dean will decide on requests for adaptations to the educational environment. The Board of Examiners will decide on requests for adapting examinations. The decision must be announced within four weeks after the request as mentioned in paragraph 1 has been submitted.

### **Section 4 – Approval by the Board of Examiners**

#### **Article 13 Exemption from examinations or practicals**

1. After having been advised by the relevant examiner, the Board of Examiners may decide to exempt students from an examination or practical. Conditions for exemption are to be specified in:
  - The Exam Regulations of the Board of Examiners (Eindhoven),
  - The Rules and Regulations of the Board of Examiners (Delft, Twente).
2. The Board of Examiners may exempt a student from a specific examination only on the grounds of the content, level and quality of examinations successfully completed earlier or on the grounds of the student's prior knowledge, insights and skills developed outside of higher education.

#### **Article 14 Elective subjects**

Criteria for approval of elective subjects to be followed by the student, as referred to in the appendix under j, are contained in:

- The Exam Regulations of the Board of Examiners (Eindhoven),
- The Rules and Regulations of the Board of Examiners (Delft, Twente).

## **Article 15 Free programme choice**

The Board of Examiners shall decide on reasoned requests from students for free programme choice as referred to in Article 7.3c of the Act. Conditions related to this matter are described in Art.10 of the Appendix. Criteria for approval for a free programme are contained in:

- The Exam Regulations of the Board of Examiners (Eindhoven),
- The Rules and Regulations of the Board of Examiners (Delft, Twente).

## **Section 5 – Degree audit**

### **Article 16 – The times and frequency of the degree audit**

There shall be an opportunity to undergo the Master's degree audit at least twice a year. The dates set by the Board of Examiners are to be published before the start of the academic year.

### **Article 17 – Student support and guidance**

Responsibility for student support and guidance lies with the Dean. This includes informing students about study options within the programme or elsewhere. One or more study advisers may be appointed for this purpose.

### **Article 18 – Monitoring academic progress**

1. The Dean is responsible for the registration and timely publication of the exam results of individual students in the institution's virtual learning system.
2. The Dean is responsible for facilitating discussion of the results between the student and the study adviser, when appropriate.

## **Section 6 – Appeals and objections**

### **Article 19**

1. Decisions by the Board of Examiners based on these regulations may be appealed within four weeks after the announcement of the decision to the student in question. Appeals should be lodged with the Examination Appeals Board.
2. Decisions by the Dean based on these regulations may be appealed within six weeks after the announcement of the decision to the student in question. Objections are to be lodged with the Dean.

## **Section 7 – Contravention, changes and implementation**

### **Article 20 – Contravening the Regulations**

If the study guide and/or any other regulations relating to the study programme and/or the examination programme prove to contravene these Regulations and the accompanying appendix, precedence will be given to the provisions of these Regulations with which the appendix forms an integral whole.



## **Article 21 – Amendments to the regulations**

1. Any amendments to these regulations will be made by special resolution of the Dean.
2. No amendments will affect the current academic year unless it is reasonable to suppose that the interests of students will not be adversely affected.
3. Amendments to these regulations may not retroactively affect a decision by the Board of Examiners to the detriment of the student.

## **Article 22 – Transitional regulations**

1. If the composition of the study programme undergoes intrinsic changes or if these regulations are amended, the Dean will draw up transitional regulations that will be incorporated into appendix of these Regulations.
2. If and when appropriate, such transitional regulations are required to include:
  - a. a provision concerning the exemptions that can be given on the basis of the examinations already passed;
  - b. a provision specifying the validity of the transitional regulations.
3.
  - a. Notwithstanding the provisions of art. 4.1, a student who has been registered for the first time in one of the bachelor programmes in Delft or Twente, mentioned in art. 4.1, before September 1, 2006 and who has not yet completed the entire bachelor programme can be admitted to the master courses if he or she has completed the propedeutic exam and at least 100 EC (Delft) or 105 EC (Twente) of the second and third year of the bachelor programme.
  - b. Notwithstanding the provisions of art. 4.1, a student who has been registered for the first time in one of the bachelor programmes in Eindhoven, mentioned in art. 4.1, before September 1, 2009 and who has not yet completed the entire bachelor programme can be admitted to the master courses if he or she has completed the propedeutic exam and at least 100 EC (Delft) or 105 EC (Twente) of the second and third year of the bachelor programme.
4. Notwithstanding the provisions of art. 4.1, a student who has been registered for the first time in one of the bachelor programmes in Eindhoven, mentioned in art. 4.1, on or after September 1, 2006 and who has not yet completed his or her entire bachelor programme, can be admitted to the master courses until 31 August 2012 if he or she has completed the propedeutic exam and at least 100 EC of the second and third year of the bachelor programme.
5. Students belonging the categories 22.3a, 22.3b and 22.4 are allowed to start the masters thesis only if they have passed their bachelor examination.

## **Article 23 – Publication of the regulations**

The Teaching and Examination Regulations and the appendix, which forms an integral whole with the Regulations, shall be published on the institution's website.

## **Article 24 – Entry into force**

These regulations will come into effect on September 1, 2010