TEACHING AND EXAMINATION REGULATIONS (TER)

(see Article 7.13 of the Higher Education and Research Act)

Including the Implementation Regulation (IR)

2017-2018

MASTER'S DEGREE PROGRAMMES

Engineering and Policy Analysis (EPA)
Management of Technology (MOT)
Complex Systems Engineering and Management (CoSEM)

DELFT UNIVERSITY OF TECHNOLOGY
Faculty of Technology, Policy and Management

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Section 1 - General

Article 1 – Areas to which the regulations apply

1. These regulations apply to the teaching and the examinations related to the Master's degree programme in Engineering and Policy Analysis (EPA), Management of Technology (MOT) and Systems Engineering, Policy Analysis and Management (CoSEM) hereafter to be referred to as the programmes.

2. The teaching and organisation of the programme is the responsibility of the Faculty of Technology, Policy and Management (TPM) at Delft University of Technology, hereafter to be referred to as the faculty.

3. The programme is governed by Implementation Regulations which constitute part of these Teaching and Examination Regulations.

Article 2 – 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: 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 programme: the Master's degree programme as denoted in Article 7.3a paragraph 1, subparagraph b of the Act;

c. student: anyone enrolled at Delft University of Technology as a student or extraneous 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;

d. cohort: the group of students who have registered for a degree programme for the first time in a given academic year;

e. teaching period: half a semester;

f. subject: a teaching unit within the programme as intended in Article 7.3, paragraphs 2 and 3 of the Act; a subject can consist of a number of components;

g. practical: a practical exercise as intended in Article 7.13, paragraph 2, subparagraph d of the Act, taking one of the following forms:
   1. writing a thesis,
   2. conducting a project,
   3. writing a paper or a report,
   4. completing a design or research assignment,
   5. conducting a literature review;
   6. doing an internship,
   7. participating in fieldwork or an excursion,
   8. conducting tests and experiments,
   9. participating in other educational activities aimed at enabling participants to attain certain skills;

h. examination: an assessment of the knowledge, insight and skills of a student 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;

i. component examination: an assessment of the knowledge, insight and skills of a student in relation to a component within a subject, as well as the marking of that assessment by at least one examiner, appointed for that purpose by the Board of Examiners;

j. 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 programme have been successfully completed;

k. Board of Examiners: the programme's Board of Examiners, which has been installed in accordance with Article 7.12 of the Act;

l. examiner: the individual who, in line with Article 7.12, paragraph 3 of the Act, has been appointed by the Board of Examiners Article 5 of the Rules and Guidelines of the Board of Examiners) to set the examinations;

m. Implementation Regulations: the Implementation Regulations which form part of these Teaching and Examination Regulations;

n. credit (): a European Credit awarded in line with the European Credit Transfer System (ECTS); one credit (EC) denotes a norm study load of 28 hours;

o. working day: Monday to Friday with the exception of recognized national public holidays;

p. study guide: a digital guide to the programme containing specific information pertaining to the various subjects;

q. institute: Delft University of Technology;

r. virtual learning environment: the electronic system designed for the exchange of teaching information (Brightspace, formerly Blackboard)

s. Osiris the education register system;

t. disability: all conditions which are (at least for the specified period) 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;

u. dean: The dean of the faculty Technology Policy and Management;

v. lecturer: lecturers who are teaching in the programmes;

w. Programmme director: director of one the programmes;

x. Examination Appeals Board: the board a student can lodge an administrative appeal with;

y. Academic year: the period from 1 September until 31 August of the subsequent calender year;

z. bridging programme: a deficiency programme aimed at moving up to a Master's degree programme, while enrolled in a Bachelor's degree programme, but without obtaining a Bachelor's degree;

aa. programme duration: the duration starting from enrolment of the student until the last examination.

bb. track: technical specialisation (CoSEM programme)

Article 3a – Objective of the Master programme in EPA

The Master's programme in Engineering and Policy Analysis (EPA) educates talented students with a background in science, technology, engineering and mathematics as policy advisors for a wide range of technology and policy sectors, with the ultimate objective to improve the quality of long-term strategic policy-making. The study has an international character and an international orientation, which comes to expression in the choice of cases and projects.

Thematically the focus of the program is on understanding the character and intricacies of super-wicked problems: the Global Challenges; climate change, water security, cyber security, energy provision, international cooperation and development, world health, safety and security, etc.
EPA alumni should contribute to better informed (political) decision-making both in the public and the private sector. EPA graduates are competent in doing research and designing adaptive policies; in executing (big) data analytics, actor- and systems modelling and state of the art modeling and simulation of complex dynamic and adaptive systems.

EPA graduates are aware of the contemporary societal context in which they are operating and can operate effectively and responsibly in the political and policy-making context in which their work is embedded. EPA students therefore contribute to scientific work in the area of analytics, modelling and simulation and have the opportunity to apply their knowledge and skills in complex real-world settings, both in course work and thesis research projects with external commissioners.

Article 3b – Objective of the Master programme in MOT

The Master programme in Management of Technology (MOT) educates students with a bachelor degree in engineering as technology managers, innovation managers, and analysts of technological markets. MOT graduates either work as scientists or consultants but also as entrepreneurs in technology-based, internationally-oriented competitive business environments.

The ultimate objective of the programme is to improve the quality of technology and innovation management in the different engineering mono-disciplines in practice through the development of responsible decision makers, professionals and leaders. Students contribute to scientific work in the area of MOT and have the opportunity to apply their knowledge and skills in complex real-world settings, such as advanced technology organizations, laboratories, and high-tech business ventures.

The programme deliberately aims at an international and diverse group of students. Students of MOT are all rooted in at least one of the engineering mono-disciplines as offered at universities of technology or schools of engineering. MOT students work together in order to combine scientific insights from the different engineering disciplines and to apply the diverse aspects of technology and innovation management. The programme focuses on the following core themes: (1) technology, innovation and organization, (2) technology, innovation and commercialization, (3) technology, innovation and engineering economics, (4) research and reflection. In a separate course students learn how to integrate the different themes of the programme.

Article 3c – Objective of the Master programme in CoSEM

The Master's programme in Complex Systems Engineering and Management intends to educate students as designers in socio-technical systems mastering complex problems in a highly interconnected world. The programme has been designed to enable students to acquire multidisciplinary knowledge and practical skills needed for solving many contemporary, large-scale problems requiring intelligent combinations of technological, economic, legal and social interventions.
The students specialize in a specific technological track, i.e. Built Environment & Spatial Development (B&S), Energy (Energy), Information & Communication (I&C) and Transport & Logistics (T&L). At the same time they are challenged to look beyond technical designs and address the social processes and the (emerging) institutional context that are crucial to understanding, creating and realizing designs.

After finishing this master, a CoSEM-engineer:
- is an expert in a specific technical domain, with regard to the engineering and management of large-scale systems and the related policy frameworks,
- is able to deeply understand the multi-actor complexity and anticipate the dynamics of socio-technical systems,
- is able to manage and to process big data, heterogeneous data and contested data,
- knows how to intervene in real-world decision-making processes to establish a coherent combination of institutional arrangements and technical system design
- is able to identify the arising ethical dilemmas and to reflect on these dilemmas

• is able to conduct research on the engineering and governance of socio-technical systems.

Article 4a – Final attainment levels of the Master programme in EPA

A Master's graduate in EPA

1. **Is competent in one or more scientific disciplines**
   • An EPA graduate has a thorough mastery of policy and politics, is skilled and experienced in intercultural management, and has a basic understanding of economic theories.
   • An EPA graduate is skilled in (both quantitative and qualitative) modelling and simulation methods aimed at addressing global societal challenges following engineering principles and a multi-actor perspective.
   • An EPA graduate apprehends the relationship of science and technology with governance and societal values.

2. **Is competent in doing research**
   • An EPA graduate is able to formulate research questions on complex issues at the interface between natural and engineered systems, institutionalised values and social behaviour.
   • An EPA graduate is proficient in the application of modelling and simulation methodologies in scientific research.
   • An EPA graduate can design multi-methodological approaches to research that is fit for purpose.
   • An EPA graduate can evaluate research within their discipline and identify threats to the validity of scientific research, suggest how these threats may confound the application of the research, and suggest possible remedies to address these threats.
   • An EPA graduate can contribute to the body of scientific knowledge through independent work that has the potential for scientific publication.

3. **Is competent in design**
   • An EPA graduate is able to develop engaging, innovative, integrative and adaptive, problem solving strategies and policies on the interface between natural and engineered systems, institutionalised values and social behaviour.
   • An EPA graduate is able to structure and redefine complex societal issues from a multi-actor systems perspective.
   • An EPA graduate is able to design and develop models and simulations for a wide range of engineering and societal challenges.
   • An EPA graduate is able to design and develop strategic policy advices on the basis of analytical and modelling information

4. **Has a scientific approach**
   • An EPA graduate has a systematic, multi-method approach characterised by the development and use of theories, models and domain knowledge.
   • An EPA graduate knows the possibilities and limitations of a range of analysis and modelling techniques, and is able to select the appropriate methods for the problem.
   • An EPA graduate has insight into the nature of science and technology, and their interrelations with governance and societal values.
   • An EPA graduate is a reflective practitioner able to review and evaluate both theory and practice and able to learn and improve upon his or her own practice.

5. **Possesses basic intellectual skills**
   • An EPA graduate is able to ask adequate questions and take a critical-constructive attitude when presented with complex real-life problems in the socio-technical realm.
   • An EPA graduate can deconstruct policy arguments, thereby revealing the frames and assumptions that shape public debate.
   • An EPA graduate is familiar with argumentation structuring techniques and can apply these for building convincing argumentations

6. **Is competent in co-operating and communicating**
   • An EPA graduate is a catalyst of change and is able to work with and for others. He or she creates commitment for action, has a sense of responsibility, and demonstrates leadership.
   • An EPA graduate is able to participate effectively in the scientific and public debate.
   • An EPA graduate is able to work in an international, intercultural and interdisciplinary environment.
   • An EPA graduate is capable in translating disciplinary and technical knowledge into actionable findings, practical policy advises and social understanding.

7. **Takes account of the temporal and the social context**
   • An EPA graduate is familiar with the grand challenges that shape the future of our natural and built environments.

- An EPA graduate is familiar with the cultural and institutional factors that structure engineering and policy outcomes, and understands how these factors differ across the world.
- An EPA graduate is able to analyse the ethical and societal consequences of scientific and technological developments, and integrates this knowledge into their own work.

Article 4b – Final attainment levels of the Master programme in MOT

A Master's graduate in MOT

1. **Is competent in one or more scientific disciplines, in particular the management sciences, and is able to adapt and apply the concepts of these sciences in a high-tech engineering environment.**
    - Has a thorough mastery of parts of the relevant fields (as named in article 3) extending to the forefront of knowledge (latest theories, methods, techniques and topical questions).
    - Looks actively for structure and connections in the relevant fields, and the connections between subfields.
    - Has knowledge and skills in the way in which....
        - truth-finding and the development of theories and models
        - interpretations (texts, data, problems, results)
        - experiments, gathering of data and simulations
        - decision-making
          ... take place in the relevant fields.
    - Is able to reflect on standard methods and their presuppositions; is able to question these; to propose adjustments and to estimate their implications.
    - Is able to spot gaps in his/her own knowledge, and to revise and extend it through study.

2. **Is competent in doing research**
    - Is able to reformulate ill-structured research problems. Takes account of the system boundaries in this. Is able to defend the new interpretation against involved parties.
    - Is observant, and has the creativity and capacity to discover in apparently trivial matters certain connections and viewpoints and put these into practice for new applications.
    - Is able to produce and execute a research plan.
    - Is able to work at different levels of abstraction. Given the process stage of the research problem, chooses the appropriate level of abstraction.
    - Is able, and has the willingness to draw upon other disciplines in his or her own research.
    - Is flexible in dealing with changes in the research process.
    - Is able to assess research within the discipline on its scientific value.
    - Is able to contribute to the development of scientific knowledge.

3. **Has a scientific approach**
    - Is able to identify and take in relevant scientific developments.
    - Is able to critically examine existing theories, models or interpretations in the area of his or her graduation subject.
    - Has skills in, and affinity with the use, development and validation of models; is able consciously to choose between modelling techniques.
    - Has insight into the nature of and differences between management and technical sciences and is able to distinguish and combine scientific fields.
    - Is able to document adequately the results of research and thereby contribute to the development of the knowledge in the field, and is able to publish these results.

4. **Possesses basic intellectual skills to reflect and decide**
    - Is able to critically reflect on his or her own thinking, decision making, and acting and to adjust these on the basis of this reflection
    - Is able to reason logically within the field and beyond; both 'why' and 'what-if'-reasoning.
    - Is able to recognize modes of reasoning (induction, deduction, analogy etc.) within the field. And is able to apply these modes.
    - Is able to ask adequate questions, and has a critical yet constructive attitude towards analyzing and solving real life problems in the field.
    - Is able to form a well-reasoned decision (and adopt effective strategies) in the case of incomplete or irrelevant data.
    - Is able to take a standpoint with regard to a scientific argument in the field, and is able to assess this critically as to its value.
    - Possesses numerical skills, and has an understanding of orders of magnitude.

5. **Is competent in co-operating and communicating in an intercultural and multi-disciplinary environment**
   - Is able to communicate in writing in English about research and solutions to problems with colleagues, non-colleagues and other involved parties.
   - Is able to communicate verbally in English about research and solutions to problems with colleagues, non-colleagues and other involved parties.
   - Is able to debate about both the field and the place of the field in society.
   - Is characterized by professional behavior. This includes: drive, reliability, commitment, accuracy, perseverance and independence.
   - Is able to perform project-based work: is pragmatic.
   - and has a sense of responsibility; is able to deal with risks; is able to compromise.
   - Is able to work within an interdisciplinary and intercultural team.
   - Is able to assume the role of team leader.

6. **Takes account of the temporal, market and the social context**
   - Understands relevant developments in the history of the fields. This includes the interaction between the internal developments (of ideas) and the external (social) developments, and integrates this in scientific work.
   - Is able to analyse and to discuss the social consequences (economical, social, cultural) of new developments in relevant fields and integrates these consequences in scientific work.
   - Is able to analyse the consequences of scientific thinking and acting on the environment and sustainable development and integrates these consequences in work.
   - Is able to analyse and to discuss the ethical and the normative aspects of the consequences and assumptions of scientific thinking and acting and integrates these ethical and normative aspects in work.

Article 4c – Final attainment levels of the Master programme in CoSEM

A master's graduate in CoSEM

1. **Is competent in one or more scientific disciplines / fields:**
   - Is a multi-disciplinary scholar, mastering theories and methods from the fields of systems engineering, institutional economics, law and management, with the ability to combine and/or switch between them to deal with complex problems;
   - Can apply this body of knowledge when creating insight in the multi-actor complexity and can anticipate the dynamics of socio-technical systems;
   - Is an expert in a specific technical domain (built environment and spatial development; energy; information and communications technology; transport and logistics), with regard to the engineering, management and governance of socio-technical systems and the related policy designs;
   - Is able to reflect on the choice of methods and assumptions in scientific disciplines / fields, can identify knowledge gaps and decide how these need to be addressed by means of self-study or teamwork;

2. **Is competent in doing research:**
   - Is able to formulate research questions and write a research proposal on complex issues in a highly interconnected world;
   - Is able to choose appropriate quantitative and/or qualitative methods for conducting research on socio-technical systems;
   - Can evaluate research and identify threats to the validity of scientific research, understand how these threats may affect the application of the research, and suggest possible remedies;
   - Can contribute to the body of scientific knowledge through independent work;

3. **Is competent in design:**
   - Is proficient in design methodologies for technical artefacts and institutional arrangements as well as able to develop innovative, integrative and effective interventions in real-world decision-making processes to establish a coherent combination of institutional arrangements and technical systems designs;
   - Is able to identify dilemmas arising during the design process and can reflect on these in a systematic way and make justifiable design choices;
   - Is able to structure and redefine complex problems from a multi-actor and socio-technical systems perspective;

4. **has a scientific approach:**
   - Is able to cope with the uncertainty involved in multi-actor system behaviour, system context and futures, and can justify methods choices, while taking into account these uncertainties;
   - Is able to critically reflect on existing theories and methods, and has skills to develop and validate these;
   - Is able to report on the results of research and design processes in a scientifically sound way;

5. Possesses intellectual skills:
- Is competent in reasoning, reflecting and forming a judgment, and is able to recognize fallacies;
- is able to ask adequate questions and take a critical-constructive attitude when presented with complex real-life problems in the socio-technical realm;

6. Is competent in co-operating and communicating:
- Is able to work with and for others and has a sense of responsibility;
- Is able to work and take a leading role in international and interdisciplinary teams, in an academic, public or business environment;
- Is able to effectively communicate in writing or verbally and to use social media efficiently for research and communication;

7. Takes account of the temporal and the social contexts:
- Is familiar with the state-of-the-art knowledge, and with engineering, management and governance challenges in a specific technical domain;
- Is familiar with institutional factors that structure engineering and policy outcomes;
- Is able to analyse the societal and ethical consequences of scientific and technological developments, and to integrate this knowledge into their own (scientific) work;
- Takes into account the temporal context of the past and the future.

References:

Meijers, A.W.M., van Overveld, C.W.A.M. and Perrenet, J.C., 2005, *Criteria for Academic Bachelor en Master Curricula*, TU Delft, TU/e & Universiteit Twente; available at alexandria.tue.nl/repository/books/570523E.pdf
TPM, 2015, *CoSEM redesigned,* internal report, 18 November 2015.

Article 5 – Admission to the programme

1. All students possessing a certificate proving that they have successfully completed their Bachelor of Science studies in a relevant science or engineering programme and owning a 'Verklaring van toelating tot de Masteropleiding EPA, MOT or CoSEM' (confirmation of admission) provided by the dean of the faculty are eligible for admission. To obtain a confirmation of admission, a student must satisfy the criteria specified in article 16 (for EPA and MOT) and article 17 (for CoSEM) of the Implementation Regulations, see Appendix 2 for these regulations.

2. Students who do not possess the degree mentioned in paragraph 1 are required to obtain proof of admission to the programme from the dean, who will seek the advice of the Board of Examiners on this matter.

3. In order to obtain proof of admission, the student must meet or, as the case may be, possess:
the general relevant criteria set by the executive board in the "Policy on fees and enrolment" laid down in Appendix 1 of the Student Charter (central part) and clarified in Part 1.2 " Entrance and admission" of the mentioned Student Charter, a certificate, together with the accompanying list of marks, proving that he/she possesses knowledge of a sufficiently high level and broad scope to successfully complete the programme within the allotted period.

4. Students who are in possession of the – in the first paragraph mentioned – Bachelor's degree and owning a 'Verklaring van toelating tot de Masteropleiding EPA, MOT or CoSEM' (confirmation of admission) or the – in the second paragraph mentioned- "proof of admission" can under certain conditions apply for admission to the Honours Track and/or Research Specialisation with the degree programme director. The conditions are mentioned on the TPM-website -> student portal -> Honours Programme.

Article 5a – Admission to the bridging programme

1. To be admitted to the bridging programme students must meet the requirements as laid down in the 'Retributie- en inschrijvingsbeleid', appendix 1 of the Student Charter (Studentenstatuut) (central part) and explained in Chapter 2 'Entrance and Admission' of this Student Charter.
2. The requirements mentioned in the first paragraph are drawn up by the dean in the Teaching- and Examination Regulations.

Article 6 – Completion of bridging programme prior to the degree programme

1. A student who is enrolled on a Bachelor's degree programme in order to follow a bridging programme must complete this bridging programme within two academic years.

2. In case a student fails to complete the bridging programme within the programme duration his enrolment is terminated. The student may request a twelve-month extension maximally based on a well-founded argumentation.

3. The Executive Board will set the fee to be charged, as denoted in Article 7.57i of the Act, for the enrolment as student in a bridging programme and for the extension thereof, as denoted in subsection 2 of this article

Article 7 – empty

Not applicable.

Article 8 – Taking the programme on a full-time or part-time basis

This programme is taught only on a full-time basis.

Article 9 – Language

1. Classes and examinations take place in English.

2. Should a student request permission to complete one or more parts of the examination or the degree audit in a language other than English, this will be subject to the stipulations of the Board of Examiners in this regard, as laid down in the Rules and Guidelines of the Board of Examiners.

Section 2 - Composition of the study programme and the degree audit

Article 10 – Composition of the study programme and the degree audit

1. The composition of the study programme and the relevant transitional regulations are laid down in the Implementation Regulations. Teaching and examination are implemented as described in the study guide.

2. The Master's degree audit forms part of the programme. The programme has a total study load of 120 EC the composition of which is laid down in the Implementation Regulations article 5 (EPA), article 9 (MOT) and article 12 (CoSEM).

   When a student follows two Master's degree programmes at TU Delft at the same time, he must obtain at least 60 extra unique EC besides a complete Master's degree programme of 120 EC, with two separate thesis reports.

3. It is not permitted for any subject in the study programme to have been part of the Bachelor's degree programme on the basis of which the student was admitted to the programme. If a compulsory subject in the study programme was already completed in the aforementioned Bachelor's degree programme, the Board of Examiners will designate an alternative subject in its place. If an elective subject in the study programme was already completed in the aforementioned Bachelor's degree programme the student will choose an alternative elective subject.

Article 10a – Evaluation of the study programme

The way in which the teaching in the study programme is evaluated is laid down in the quality guide of the faculty. The faculty presents this quality guide to the Faculty Student Council and the Board of Studies.

Section 3 – Honours Programme

Article 11– Honours Programme Master

1. Students who meet the criteria referred to on the TPM website -> student portal -> Honours Programme will be invited to register for the TU Delft Honours Programme Master for outstanding Master's students.

2. Based on the criteria referred to in paragraph 1, students will be selected and admitted to the Honours Programme Master by the director of studies or an Honours coordinator or Honours committee established by the director of studies.

3. The Honours Programme Master will comprise at least 20 EC:
   a. At least 5 EC must be completed in the TU Delft-wide component of the Honours Programme Master, which consists of the following parts:
      - the subject "Critical Reflection on Technology"
      - playing an active role within the Honours Programme Master community.
   b. At least15 EC must be completed in the faculty component of the Honours Programme Master, the composition of which (including its content and options) will be described on the TPM   website -> student portal -> Honours Programme.

4. Any student selected for participation in the Honours Programme Master must submit his or her options for the faculty component to the director of studies, the Honours coordinator or Honours committee for approval.

5. The Board of Examiners will be responsible for assessing whether all the requirements of the Honours Programme Master have been met.[1]

6. Any student who has successfully completed the Honours Programme Master will be awarded a certificate signed by the chair of the Board of Examiners and the Rector Magnificus.

Section 4 – Registering and withdrawing

Article 12 - Registering for written examinations

1. Registration to take part in a written examination is done by entering the required data into Osiris no later than 14 calendar days (that is, <u>not</u> *working days*) before the examination.

2. Students may submit a request to register for an examination after the deadline mentioned in subsection 1 has passed but no later than 3 calendar days before the examination in question, at Osiris. The request will be honoured providing that places are available in the room or rooms where the examination is scheduled to take place. The student will be informed one working day before the examination takes place.

3. In the case of circumstances beyond a student's control, whereby the student is unable to register for the examination, the Board of Examiners can still permit the student to participate in the examination.

4. The following applies upon entering the examination room:
   - only students with valid proof of identity will be admitted to the examination. The following will be accepted as proof of identity: campus card, passport, identity card or driving license.
   and
   - students will only be admitted to the examination with a valid examination ticket and/or if they are included in the list of participants.
5. A student who has not registered for the examination and is therefore not included on the list of participants, may report to the invigilator on the day of the examination from 15 minutes before until the start of the examination. In so far that there are seats available, they will be admitted to the examination room half an hour after the start of the examination in the order they reported to the invigilator. The lack of half an hour examination time cannot be compensated. Students who have thus gained access to the exam

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1. [1] The HPM programme is not part of the Master programme, as it consists of extra-curricular modules only. Therefore the Board of Examiners doesn't have to be involved. The director of studies or the Honours coordinator of Honours committee should approve of the programme in advance.

will be added to the list of participants. The student takes the exam subject to the reservation that it will be investigated whether he/she is entitled to participate in the examination.

6. In case the investigation by the Exam desk leads to the conclusion that the student was not entitled to participate in the examination, the examination work is invalid, will not be evaluated and does not lead to a result.

7. The student can submit a substantiated request to the Board of Examiners to have examination work that is considered to be invalid to be declared valid and to have it evaluated.

8. The Board of Examiners will only agree to the request in exceptional circumstances.

Article 13 - Registering for practicals

1. Registration for practicals will take place in the manner and by the deadline indicated in the study guide or on Blackboard or in the corresponding Implementation Rules for the practical in question.

2. In special cases the Board of Examiners may deviate from the period of registration referred to in subsection 1, however only in favor of the student.

3. Students who do not register for a practical on time may not participate in that practical. In exceptional circumstances the Board of Examiners may allow the student to participate in the practical.

4. If a student participates in a practical for which the student was not properly registered, the Board of Examiners will declare the results of the practical to be invalid.

Article 14 - Withdrawal from written examinations

1. It will be possible to withdraw from an examination via Osiris up to 3 calendar days before the examination takes place.

2. Any student who has withdrawn from an examination has to re-register on a subsequent occasion, in accordance with the provisions of Article 12.

Section 5 – Examinations

Article 15 – Number and times of examinations

1. There are two opportunities per module per academic year for written examinations:
   - The first opportunity is at the end of the teaching period for the subject to which the exam in question relates,
   - The second opportunity is at the end of the teaching period directly following the one in which the course was taught. When the course is being taught in teaching period 4, the second exam will take place during the resit period in the months July and August.

2. There is one opportunity per academic year for sitting proficiency tests of practicals and projects.

3. A timetable of all the opportunities for sitting written examinations is drawn up every semester and distributed before the start of the semester via the TUDelft website -> Student portal -> Information -> Education -> Timetables.

4. If there is no indication as to the number of times a particular examination can be taken in any one academic year because it relates to a subject not taught by the programme itself, the relevant stipulations in the Teaching and Examination Regulations of the other programme will apply. The Board of Examiners reserves the right to make decisions that deviate from the norm regarding this matter.

5. Notwithstanding the provisions of paragraph 1, there will be at least one chance in a year to sit examinations relating to subjects mentioned in the study guide but not taught in a given academic year.

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6. In exceptional cases the Board of Examiners may permit more than two opportunities in an academic year for certain examinations

7. Students may sit maximally two examinations per subject/module per academic year.

Article 16 – Sequence of examinations

The sequence in which students are required to sit examinations and participate in practicals is laid down in the Implementation Regulations.

Article 17 – Validity of examinations

1. The result of an examination is valid for an unlimited period.

2. The Board of Examiners may only limit the validity of a successful examination result if the examined knowledge is demonstrably outdated, or if the examined skills are demonstrable outdated.

3. In an individual case the Board of Examiners may deviate from that laid down in subsection 2 and decide that the validity of the examination result may be extended.

4. The provisions of subsection 1 likewise apply to component examinations, unless the validity of the component examination is linked to a time period in the study guide.

Article 18 – The form of examination and method of assessment

1. Examinations are set as described in the study guide.

2. The Board of Examiners may deviate from the provisions of paragraphs 1, in favour of the student.

Article 19 – Oral examinations

1. Only one student at a time will sit an oral examination, unless the examiner(s) in question specifies (specify) otherwise.

2. 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.

3. Prior to an oral examination, the examiner must ask the student to provide proof of identity.

Article 20 – 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. The determination of the date of the exam is the date of the oral examination itself.

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. The examiner ensures that the results are registered and communicated in Osiris within this time, taking due account of the student's right to privacy. Contrary to the foregoing the results of written examinations that are sat in the resit period in August, must be registered and communicated in Osiris by the last working day of the week following the exam week at the latest.

   If the examiner is not able to meet these requirements due to exceptional circumstances, he or she must inform the Board of Examiners, stating the reasons for the delay. The examiner will also ensure that the students are informed of the delay as soon as possible. The determination of the date of the written exam is the date of the exam itself.

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. The

determination of dates of exams like papers, reports, reviews etc., is the date of the delivery of the definitive version.

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 21, as well as the opportunity to lodge an appeal with the Examination Appeals Board.

Article 21 – 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 work, he or she will be supplied with a copy of the marked answers.

2. During the period referred to in paragraph 1, all students who sat the examination may acquaint themselves with the questions and assignments set in the examination, as well as with the criteria used for marking.

3. The Board of Examiners may determine that the right to inspection or perusal referred to in paragraphs 1 and 2 will take place at a location specified beforehand and at no less than two specific times, also decided on beforehand. 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 well in advance.

Article 22 – Discussing the examination results

1. As soon as possible after the results of an oral examination have been announced, an opportunity can be arranged for the examiner to discuss the results with the student, either at the student's request 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 the examiner, a student may only submit a request, as described in the preceding paragraph, if he/she was present at the collective discussion or if, due to circumstances beyond his/her control, he/she was unable to attend the collective discussion and if he/she provides a good reason for the request.

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 departures from the provisions of paragraphs 2 and 3.

6. Students have the right to appeal to the Examination Appeals Board within 6 weeks after publication of the results of the examination. The appeal must be sent to the Examination Appeals Board

Section 6 - Studying with a disability

Article 23 – Adaptations to help students with a disability

1. Students who have a physical or sensory disability are entitled to adaptations in teaching, examinations and practicals, on written request. These changes 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. Examples of adaptions can be found in Appendix 1 to these regulations.

2. The request referred to in paragraph 1 should be accompanied by a recent medical certificate from a doctor or a psychologist. If possible, this certificate should also estimate the extent to which the disability forms an obstacle to study progress. If there is evidence of dyslexia, the request should be accompanied by a document issued by a recognised dyslexia-testing bureau (i.e. registered with BIG, NIP, or NVO).

3. Requests for the adaptation of teaching facilities will be decided upon by the dean or by the director of education acting on the dean's behalf. The Board of Examiners will decide on requests for adaptations to examinations.

Section 7 - Exemptions

Article 24 – 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 on the grounds of:
   - an examination, degree audit or practical completed within the Dutch higher education system or elsewhere which, as regards content and study load, corresponds with the subject for which exemption is sought,
     or
   - knowledge and/or skills acquired outside the higher education system.

2. The extent of the exemptions may not exceed 15 EC.

Section 8 - Degree audit

Article 25 – The times and frequency of the degree audit

All students can apply to take the degree audit as soon as they have fulfilled all the conditions of their degree programme, and have provided the student administration office with proof of all the course components they have passed.

Section 9 - Study progress checks

Article 26 – empty
Not applicable.

Article 27 – empty
Not applicable.

Article 28 – Study progress checks

1. The dean is responsible for supervising the progress of all students enrolled on the degree programme.

2. The faculty has an evaluation system (Evasys) for the purpose of monitoring and if necessary adjusting study load.

3. The faculty board offers support and guidance to students covering programme supervision, counselling and other advice.

4. The student administration is responsible for ensuring that each student is able to see and check his/her own results via the student information system Osiris.

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Section 10 - Contravention, changes and implementation

Article 29 – 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 Teaching and Examination Regulations and the accompanying Implementation Regulations, precedence will be given to the provisions of these Teaching and Examination Regulations in combination with the Implementation Regulations.

Article 30 – Changes to the regulations

1. Any changes made to these regulations will be made by special resolution of the dean.

2. No changes made will affect the current academic year unless it is reasonable to suppose that the interests of students will not be adversely affected.

Changes made in the regulations cannot lead to a modification of a decision already taken, that is detrimental to the student.

Article 31 – 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 the Implementation Regulations.

2. Such transitional regulations are required to include:
    *   A provision concerning the exemptions that can be given on the basis of the examinations already passed;
    *   The number of times that it is still possible to sit for examinations under the conditions of the old programme;
    *   A provision specifying the period of validity of the transitional regulations.

3. If a compulsory subject is removed from the study programme, the subject will be taught for one more time after announcing that the subject will be removed, unless there are alternative classes available. Four opportunities to sit an examination in this subject will be granted after the last classes have been taught: an examination following on from the classes, a resit in the same academic year, and two resits in the subsequent academic year.

Article 32 – Publication of the regulations

1. The dean is responsible for finding a suitable way of publishing these regulations and the relevant Implementation Regulations, as well as any changes to the regulations.

2. The Teaching and Examination Regulations, together with the accompanying Implementation Regulations, will always be published on the TPM website -> student portal -> Rules and Guidelines.

Article 33 – Entry into force

These regulations will come into effect on 1 September 2017.

Drawn up by the dean of the faculty on 18 July, 2017

Appendix 1 to complete Article 23

Adjustments to the assessment procedure, including examinations and other forms of assessment, may concern the following matters, among others:
- the course material (making available course material that is more easily accessible, for example);
- the form of assessment (e.g. replacing a written examination by an oral one, or vice versa, testing knowledge of the studied material by way of interim examinations, or granting an exemption from attendance);
- time-related matters (such as granting more time during examinations, spreading out examinations over the examination period, granting exemptions from admission requirements, or extending the period within which a component must be completed);
- the resources that candidates are allowed to use during examinations (such as an English-Dutch dictionary for candidates with dyslexia);
- the location (taking examinations in a separate distraction-free room).

Adjustments to the educational facilities may concern the following matters, among others:
- making modified furniture available in the classrooms and examination rooms;
- making special equipment available (such as magnifying or Braille equipment for blind or partially sighted students, or audio induction loops and solo equipment for students who are deaf or hard of hearing);
- making more easily accessible course material available;
- making special computer facilities available (such as voice recognition or speech synthesis software);
- making a separate distraction-free room available for a student to take an examination;
- making a quiet room available.

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MASTER'S DEGREE PROGRAMMES
in

Engineering and Policy Analysis (EPA)
Management of Technology (MOT)
Complex Systems Engineering and Management (CoSEM)

General

Article 1 - Introduction

The implementation regulations of the Teaching and Examination Regulations, hereinafter referred to as the implementation regulations, form an integral part of the Teaching and Examination Regulations.

Article 2 - Master Thesis Project

1. A student can start the Master Thesis Project when all other study units of the curriculum have been completed.

2. If the requirement in subsection 1 has not been met, the student can be admitted to the graduation work only with the permission of the Board of Examiners. The student can only apply for this permission when the Master Thesis Preparation module has been completed and less than 10 EC of the curriculum remain. The Board of Examiners requires a positive advice from the academic counsellor.

3. The formation of the student's assessment committee is described in the Rules and Guidelines of the Board of Examiners, Article 27 (TPM website ->Student portal -> Rules and Guidelines TPM).

4. Thesis duration arrangement
    Thesis duration arrangement starting from academic year 2018-2019 for all students of all cohorts: when a student does not pass the first green-light meeting after 21 working weeks, the graduation committee may motivate to extend the graduation process of the student with a maximum time period of 3 months (13 weeks). The motivation for extension of the master thesis project has to be indicated on the green-light form, which has to be signed by the full professor, former or current director of studies, or an associate professor if he/she has ius promovendi. When a student does not pass the second green-light meeting, he/she has to start with a new graduation topic and new graduation committee.

    Only for cohorts 2016-2017 and earlier:
    - When the student worked on his/her master thesis project before 1 September, 2018, then:
      - these weeks are not taken into account when monitoring the thesis duration arrangement.
      - the monitoring and thesis duration arrangement will start from the 1 September, 2018 on.
    - When the student starts his/her thesis in academic year 2018-2019 or later the thesis duration arrangement will be applicable.

Article 3 - Confidentiality of thesis and internship

Regarding possible confidentiality of a student's thesis and all external projects, the following rules apply:

1. Graduation presentations are public.

2. Theses and external project reports are public, unless companies/institutions, in writing and with motivation, request confidentiality because of sensitive information. A thesis/report can be put under embargo for a maximum of one year. If a company requests a longer period, company and student should agree on a separate public version of the thesis/report.

3. Lecturers, as reviewers of the thesis/report, always have access to all information necessary for an adequate evaluation of the thesis/report.

4. In case of sensitive information, lecturers should sign a declaration of confidentiality, for which a time limit can be set, in accordance with the terms of subsection 2.

5. Thesis reports (including confidential parts) should be accessible to members of the exam (graduation) committee and an accreditation committee, possibly after signing a declaration of confidentiality.

Article 4 - Annotations

1. **Entrepreneurship**
   Students who are interested in entrepreneurship can opt for the Master Annotation Entrepreneurship programme, which trains students to become entrepreneurial. The examination programme for students who have opted for this annotation must at least include the following:

   - WM4001TU Entrepreneurship Annotation Week (2 EC)
   - a coherent set of courses in the field of entrepreneurship. The set should be composed in consultation with the Delft Centre for Entrepreneurship (DCE). It amounts up to 13 EC.
   - extra attention to entrepreneurship, on top of regular graduation project activities, for example by writing a business plan or doing market research. For this extra effort DCE has formulated objectives and final attainment levels on which the extra part will be assessed.

   An extra member will be added to the graduation committee who will supervise the student with regard to entrepreneurship. He/she should have expertise in the field of entrepreneurship and preferably be related to the TPM faculty. The additional member together with the DCE decides whether the annotation is granted.

2. **Technology in Sustainable Development**
   Students who are interested in sustainable development might receive an annotation in Technology in Sustainable Development (TiSD) besides their MSc Degree. The examination programme for students who have opted for this annotation must at least include the following:

   - WM0939TU Engineering for Sustainable Development (5 EC).
   - Subjects within or outside the realm of the programme adding up to a total of at least 10 EC to be selected from the two clusters:
     - design, analysis and tools
     - organisation and society.
     At least 3 EC should derive from each cluster.
   - The graduation work must focus on the topic of sustainable development. The referent will test the hypothesis of the graduation project and the way in which it has been tackled against the extent to which sustainable development issues have been integrated into the project.

3. **Infrastructure & Environmental Governance** (not for MOT students).
   Students who are interested in potential employment in public or private organisations which deal with issues related to infrastructures and the environment can opt for the Infrastructure and Environment (I&E) annotation. The annotation is offered in cooperation with the Dutch Ministry of Infrastructure and the Environment. The examination programme for students who have opted for this annotation must at least include the following:

   - SPM9160 Infrastructure and Environmental Governance (3 EC).
   - a minimum of 12 EC technical courses which are complementary to the core curriculum of the student. The student chooses a relevant theme and selects technical courses that fit within this theme given their (track) background in consultation with the annotation coordinator.
   - a project (7 EC) related to the selected theme . This project concerns a current realistic issue from the sector and is supervised by the TU Delft as well as by a supervisor from the Ministry of I&E.
   - an I&E related graduation project (30 EC). The graduation project is carried out externally in an I&E related organisation (or internally on a relevant subject but with an external committee member). There is a list of organisations a student may choose from available at the annotation coordinator.

Implementation Regulations Master programme EPA

Article 5 - Master Programme EPA composition

1. The master's programme EPA, 120 EC, consists of the following components:
   a. compulsory courses and projects, 95 EC as laid down in Article 6, Sections 2 and 3.

   b. a specialisation, 15 EC as laid down in Article 6, Section 4a.
      Students choose a specialisation ('model specialisation') from:
      - Innovation Management and Entrepreneurship (+ annotation, see Article 4)
      - Infrastructure and Environmental Governance (+ annotation, see Article 4)
      - Economics and Finance
      - Advanced Modelling, Gaming and Design
      - Supply Chain Management
      - Cyber Security
      - ICT Design and Management –**not offered in 2017-2018**

   These specialisations will take place with sufficient participation only.

   c. Free electives (10 EC) as laid down in Article 6, section 4b
   For students who started in 2015 or earlier: 9 EC

2. The student may opt for the following annotation programmes of 15 EC as laid down in Article 4:
   - Technology in Sustainable Development
   - Infrastructure and Environment
   - Entrepreneurship

3. The student may be eligible for a special individual programme of 20 EC on top of the master's degree programme:
   - Honours Programme Master, as laid down in Teaching and Examination Regulations, Article 8a.

4. **Prerequisites**
   Some of the courses and projects have prerequisites. The prerequisites are mentioned in the digital study guide. See article 2 of these Implementation Rules for the prerequisites of EPA2942.

5. **Skills**
   Several courses and projects include skills. Skills will be graded by either pass or fail. No credits are linked to the skills, however, all skills must be passed in order to be able to graduate.

6. The master programme cannot contain electives from a bachelor programme.

7. Optional subjects may not overlap significantly in terms of content with any other unit already included in the study programme of the student concerned. In the event of doubt, the Board of Examiners decides.

8. **External Project**
   Students who are interested in doing an external project can only do so outside the regular study programme, and not by replacing the mandatory course modules. For an external project the elective space of 10 EC can be used, course code spm5931 (internship – 10 EC).
   Students who started in 2015 or earlier: students who are interested in doing an external project can do so by using the elective space of 9 EC. For an external project the course code spm5931 is used (internship – 10 EC), of a total of 10 EC elective space.

   Students doing an external project will have to meet the following requirements (see also the study guide for the requirements of course SPM5931):
   - Students are required to apply for approval to the Board of Examiners in advance
   - One of the TPM instructors is involved in the project from start to finish
   - An external supervisor will be appointed
   - The external project will be finalized with a written report
   - The external project will be assessed by the TPM examiner by filling out the required assessment form
   - Students are required to remain registered as Master student at TU Delft during the entire project.

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9. A yearly list of rules and regulations concerning (specialisation) electives "Course and Examination Regulations Service Teaching" is published on the TPM- website-> Student portal -> MSc TPM ->MSc EPA -> Rules and guidelines -> Course and examination regulations.

10. Any changes made to the examination programme should be presented to the Board of Examiners

Article 6 - Master's programme EPA specifications

1. The first year master's programme EPA consists of compulsory courses and projects. The second year master's programme EPA consists of compulsory courses,, specialisation courses and free elective courses.

2. **First year compulsory programme**:

EPA1315	Data Analytics & Visualization (5 EC)
EPA1101	Understanding International Grand Challenges (5 EC)
EPA1124	Policy Analysis of Multi-actor Systems* (5 EC) (obliged for non TB-Bachelors)
EPA1333	Computer Engineering for Scientific Computing (5 EC) (obliged for TB-Bachelors)
EPA1144	Actor and Strategy Models (5 EC)
EPA1433	Intercultural Relations and Project management**(5 EC)
EPA1323	Introduction to TPM Modelling (5 EC) (obliged for non TB-Bachelors)
XXXX	Technology (5 EC) elective for TB-Bachelors to be choosen from:

- SEN1211 Agent Based Modelling of Complex Adaptive Systems
- SEN1221 Statistical Analysis of Choice Behaviour
- SEN1621 I&C Service Design
- AE3W02TU Introduction to Wind Energy
- GEO1005 Spatial Decision Support for Planning and Crisis Management
- SEN1421 - Design of Urban Restructuring Strategies
- SEN1521 - Electricity and Gas: Market Design and Policy Issues
- SEN1721 - Travel Behaviour Research

EPA1341	Advanced System Dynamics (5 EC)
EPA1424	Political Decision-Making***(5 EC)
EPA1351	Advanced Discrete Simulation (5 EC)
EPA1361	Model-based Decision-making (5 EC)
EPA1133	Ethics and Impacts of Global Interventions (5 EC)
EPA1223	Macro Economics for Policy Analysis(5 EC)

Three courses include one skills each

* EPA7010	Oral Presentation (skill)
**EPA7021	Academic Writing (skill)
***EPA7030	Interview techniques (skill)

3. **Second year compulsory programme**:

EPA2934	Preparation for the Master Thesis EPA (5 EC) for students who started in 2015 and earlier + 1 EC extra assignment)
EPA2942	Master Thesis EPA (30 EC)

4. **Second year specialisation programme and free electives**

    a. Students choose a specialisation as listed in Article 5, Section 1 under c. These specialisations will take place with sufficient participation only.
    Students who intend to study abroad and students who start the programme in the second semester will have to compose a free specialisation, to be approved by the Board of Examiners.

    b. EPA2112 Societal Challenge (10 EC) project for customer organisation offered to students studying in Delft/The Hague. Student can also change EPA2112 into individual elective courses (10 EC). (For students who started in 2015 or earlier: 9 EC.)
    Elective courses. may not be Bachelor courses or language courses and may not overlap significantly in terms of content with any other unit already included in the study programme of the student concerned. These electives courses have to be approved of by the Board of Examiners.

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Article 7 - Composing a double degree programme

1. All courses in the first year of the EPA programme have been defined as the theoretical and methodological core of the degree. In order to obtain a Master's degree in Engineering and Policy Analysis, students must have passed all of these (non-replaceable) courses.

2. Students who participate in double degree programmes and recognized student exchange programmes (with the Engineering Management Programme of Queensland University of Technology and other possible future partners) are allowed to replace the specialisation from their third semester by recognized third semester courses from the other affiliated institution. Provided the official selection of courses is followed, study delays for students can be completely avoided.

3. Students must address a request to participate in a double degree programme to the Board of Examiners, which will judge the request on the basis of two criteria:
   a. Are the courses chosen part of the programme offered by an institution with which EPA has developed an official double degree or exchange programme. If this is the case, these courses can fully replace the specialisation offered in the third semester.
   b. Is the selection of courses not part of an official collaboration programme, both the quality and relevance of the institution and the quality and relevance of the courses will be examined. In such cases, some level of study delay cannot be avoided.

Article 8 - Transitional regulations EPA

EPA7020 Academic writing (skill)
2017-2018 replaced by EPA7021 Academic writing (skill). Same course, other course code

Implementation Regulations Master Programme MOT

Article 9 - Master Programme MOT composition

1. The master's programme MOT, 120 EC, consists of the following components:
   a. compulsory courses and projects, 96 EC as laid down in Article 10, Sections 2 and 3.

   b. a specialisation, 15 EC as laid down in Article 10, Section 4a.
   Students choose a specialisation ('model specialisation') from:
   - Innovation Management and Entrepreneurship (+ annotation, see Article 4)
   - Infrastructure and Environmental Governance
   - Economics and Finance
   - Advanced Modelling, Gaming and Design
   - Supply Chain Management
   - Cyber Security
   - ICT Design and Management –**not offered in 2017-2018**

   These specialisations will take place with sufficient participation only.

   c. Free electives (9 EC) as laid down in Article 10, section 4b.

2. The student may opt for the following annotation programmes of 15 EC as laid down in Article 5:
   - Technology in Sustainable Development
   - Entrepreneurship

3. The student may be eligible for a special individual programme of 20 EC on top of the master's degree programme:
   - Honours Programme Master, as laid down in Teaching and Examination Regulations, Article 8a.

4. **Prerequisites**
   Some of the courses and projects have prerequisites. The prerequisites are mentioned in the digital study guide. See article 2 of these Implementation Rules for the prerequisites of MOT2910.

5. The master programme cannot contain electives from a bachelor programme.

6. Optional subjects should not overlap significantly in terms of content with any other unit already included in the study programme of the student concerned. In the event of doubt, the Board of Examiners decides.

7. **External Project**
   Students who are interested in doing an external project can only do so outside the regular study programme, and not by replacing the mandatory course modules. Students who are interested in doing an external project can do so by using the elective space of 9 EC. For an external project the course code spm5931 is used (internship – 10 EC), of a total of 10 EC elective space.

   Students doing an external project will have to meet the following requirements (see also the study guide for the requirements of course SPM5931):
   - Students are required to apply for approval to the Board of Examiners in advance
   - One of the TBM instructors is involved in the project from start to finish
   - An external supervisor will be appointed
   - The external project will be finalized with a written report
   - The external project will be assessed by the TBM examiner by filling out the required assessment form
   - Students are required to remain registered as Master student at TU Delft during the entire project.

8. A yearly list of rules and regulations concerning (specialisation) electives "Course and Examination Regulations Service Teaching" is published on the TPM- website-> Student portal -> TPM MSc -> MSc MOT -> Rules and guidelines -> Course and examination regulations.

9. Any changes made to the examination programme should be presented to the Board of Examiners

Article 10 - Master programme MOT specification

1. The first year master's programme MOT consists of compulsory courses and projects. The second year master's programme MOT consists of compulsory courses, projects, specialisation courses and free electives.

2. **First year compulsory programme:**
    The first year consists of the following compulsory courses:

MOT1524	Leadership & Technology Management (5 EC)
MOT1412	Technology Dynamics (5 EC)
MOT1461	Financial Management (5 EC)
MOT1421	Economic Foundations (5 EC)
MOT1533	High Tech Marketing (5 EC)
MOT1442	Social and Scientific Values (5 EC)
MOT1531	Business Process Management & Technology (5 EC)
MOT1435	Technology Strategy and Entrepreneurship (5 EC)
MOT2312	Research Methods (5 EC)
MOT2421	Emerging and Breakthrough Technologies (5 EC)
MOT1451	Inter- and intra-organisational decision making (5 EC)
MOT1003	Integration Moment (5 EC)

3. **Second year compulsory programme:**
    The second year consists of the following compulsory courses and projects

MOT2004	Preparation for Master Thesis (5 EC)
MOT2910	Master Thesis project (30 EC)

4. **Second year specialisation programme**
    a. Students choose a specialisation as listed in Article 9, Section 1 under b. These specialisations will take place with sufficient participation only.

    Students who intend to study abroad and students who start the programme in the second semester will have to compose a free specialisation, to be approved by the Board of Examiners.

    b. Students choose 9 EC worth of elective courses. These should not be Bachelor courses or language courses and should not overlap significantly in terms of content with any other unit already included in the study programme of the student concerned. In case of doubt, the Board of Examiners decides.

Article 11 - Transitional regulations MOT
See next page

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Module manager "old" MOT programme	Course code	Course name	EC	TER 2017-2018: formal transitional rule		After 2018-2019
				2017-2018	2018-2019	
Prof. dr. M.S. van Geenhuizen = Replaced by Dr. L. Rook	MOT1532	High Tech Marketing	5	When the assignment (Marketing Plan or Modern Methods) is done: two written examinations will be offered. **Otherwise**: replaced by MOT1533 High Tech Marketing (5 EC)	When the assignment (Marketing Plan or Modern Methods) is done: two written examinations will be offered. **Otherwise**: replaced by MOT1533 High Tech Marketing.	MOT1532 is replaced by MOT1533 High Tech Marketing.
Dr. L. Rook	MOT2003	Preparation for Master Thesis	6	MOT 2003 will be taught for the last time. Before the 1 September 2017 it will be announced to the students that the course MOT2003 will be taught for the last time this study year.	When the assignments of MOT2003 are fulfilled: 1x possibility final version of research proposal. **Otherwise**: replaced by MOT2004 Preparation Master Thesis (5 EC) + 1x possibility for an extra assignment of 1EC. Module manager: to be announced. **Or:** The online course Preparation for Master Thesis (module manager Dr. ir. B. Broekhans) + 1x possibility for an extra assignment of 1 EC. (for Course-code MOT2004 + 1EC assignment)	MOT2003 is replaced by MOT2004 Preparation Master Thesis (5 EC). Contact one of the Academic Counsellors (to formulate a solution for the missing 1 EC. And to propose this solution to the Board of Examiners).

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Implementation Regulations Master Programme CoSEM

Article 12 - Master programme CoSEM composition

1. The master's programme CoSEM, 120 EC, consists of the following components:
   a. compulsory courses and projects, 90 EC as laid down in Article 13, Sections 2 and 4.
   b. track related courses, 30 EC as laid down in Article 13, Sections 3 and 5.
      Students choose at least one out of four tracks:
      - Information & Communication
      - Transport & Logistics
      - Energy & Industry
      - Built Environment & Spatial Development
   c. Master Electives Package of 15 EC as laid down in Article 13, Section 7
      Students choose a Master Electives Package ('model specialisation') from:
      - Innovation Management and Entrepreneurship (+ annotation, see Article 4)
      - Infrastructure and Environmental Governance (+ annotation, see Article 4)
      - Economics and Finance
      - Advanced Modelling, Gaming and Design
      - Supply Chain Management (not for CoSEM T&L-students)
      - Cyber Security for I&C students
      - ICT Design and Management (not for CoSEM I&C students) –**not offered in 2017-2018**

   These Master Electives Packages will take place with sufficient participation only.

2. The student may opt for the following annotation programmes of 15 EC as laid down in
   Article 5:
   - Technology in Sustainable Development
   - Entrepreneurship
   - Infrastructure and Environmental Governance.

3. The student may be eligible for a special individual programme of 20 EC on top of the master's degree
   programme:
   - Honours Programme Master, as laid down in Teaching and Examination Regulations, Article 8a.

4. **Prerequisites**
   Some of the courses and projects have prerequisites. The prerequisites are mentioned in the digital study
   guide. See article 2 of these Implementation Rules for the prerequisites of SEN2331.

5. **Skills**
   Several courses and project include skills. Skills will be graded by either pass or fail. No credits are linked to
   the skills, however, all skills must be passed in order to be able to graduate.

6. The master programme cannot contain electives from a bachelor programme.

7. Optional subjects may not overlap significantly in terms of content with any other unit already included in the
   study programme of the student concerned. In the event of doubt, the Board of Examiners decides.

8. **External projects**
   Students who are interested in doing an external project can only do so outside the regular study
   programme, and not by replacing the mandatory course modules. Students who are interested in doing an
   external project can do so by using the elective space of 10 EC. For an external project the course code
   spm5931 is used (internship – 10 EC).
   Students who started in 2015 or earlier: students who are interested in doing an external project can do so
   by using the elective space of 9 EC. For an external project the course code spm5931 is used (internship –
   10 EC), of a total of 10 EC elective space.

   Students doing an external project will have to meet the following requirements (see also the study guide for
   the requirements of course spm5931):
   - Students are required to apply for approval to the Board of Examiners in advance
   - One of the TBM instructors is involved in the project from start to finish
   - An external supervisor will be appointed

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- The external project will be finalized with a written report
- The external project will be assessed by the TBM examiner by filling out the required assessment form
- Students are required to remain registered as Master student at TU Delft during the entire project.

9. A yearly list of rules and regulations concerning (electives package) electives "Course and Examination Regulations Service Teaching" is published on the TPM- website-> Student portal -> TBM MSc -> MSc CoSEM -> Rules and guidelines -> Course and examination regulations.

10. Any changes made to the examination programme should be presented to the Board of Examiners.

Article 13 - Master programme CoSEM specifications

1. Students from the BSc-TB programme choose the corresponding track (as mentioned in Article 12, Section 1 under b) they completed during their BSc-TB programme.
Students from another BSc programme must choose one out of four tracks as mentioned in Article 12, Section 1 under b. They do so in consultation with the study counsellor.
In both cases the track choice stays in principle fixed for the duration of the CoSEM programme.

2. The first year master's programme CoSEM consists of compulsory courses and projects and track related courses. The second year master's programme COSEM consists of compulsory courses and projects, track related courses and specialisation courses.

3. **First year compulsory programme**
   SEN1111   Introduction to Designing in Complex Systems (2 EC)
   SEN1121   Complex Systems Engineering (5 EC)
   SEN1131   Institutional Economics for Designing in Socio-technical Systems (3 EC)
   SEN1141   Managing Multi-actor Decision Making (5 EC)

   SEN1211   Agent-based Modelling (5 EC) (not for T&L students)
   OR:
   SEN1221   Statistics Analysis of Choice Behaviour (5 EC)

   SEN1151   Law and Institutions (5 EC)

   SEN1231   Mixed Research Methods for Multi-actor Systems (5 EC)
   OR:
   SEN1161   Design Project (5 EC)
   SEN1311   CoSEM Research Challenges (5 EC)

4. **First year track programme**
   Students choose at least one out of fours tracks as mentioned in Article 12, Section 1 under b. The tracks consist of the following courses:

   Built Environment & Spatial Development
   SEN1411   Design of Housing Programs (5 EC)
   SEN1421   Design of Urban Restructuring Strategies (5 EC)
   SEN1431   Design of Regional Development Strategies (5 EC)
   SEN1441   Value Capturing Strategies and Urban Development (5 EC)

   Energy
   SEN1511   Engineering Optimization and Integrating Renewables in Electricity Markets (5 EC)
   SEN1521/SEN1522 Electricity and Gas: Market Design and Policy Issues (5 EC)
   SEN1531   Design of Integrated Energy Systems (5 EC)
   SEN1541   Sociotechnology of Future Energy Systems (5 EC)

   Information & Communication
   SEN1611   I&C Architecture Design (5 EC)
   SEN1622   I&C Services Design (5 EC)
   SEN1631   Data analytics for secure critical infrastructures (5 EC)
   SEN1641   Integrated Design of I&C Architectures (5 EC)

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Transport & Logistics
SEN1711   Advanced Evaluation Methods for Transport Policy Decision-making (5 EC)
SEN1721   Travel Behaviour Research (5 EC)
SEN1731   Analysis and design of freight and logistic systems (5 EC)
SEN1741   Innovations in Transport and Logistics (5 EC)

5. **Second year compulsory programme**
   The second year consists of the following compulsory courses and projects:

   SEN2321   CoSEM Master Thesis Preparation (5 EC)
   SEN2331   CoSEM Master Thesis (30 EC)

6. **Second year track-elective programme**
   Recommended track electives:

   B&S
   Recommended electives B&S tracks in Q1 + Q2
   AR0097   Climate proof sustainable housing renovation (5 EC)
   SPM9730   Sustainable Innovation and Transitions (3 EC)
   CIE4510   Climate Change: Science & Ethics (4 EC)
   CIE5500   Water Laws and Organisation (3 EC)
   Recommended electives B&S tracks in Q3 + Q4
   WM0636SET Sustainable Energy Economics (3 EC, 0/0/x/0)
   CIE5510   Water Management in Urban areas (4 EC, 0/0/x/x)

   ENERGY
   Recommended electives Energy track in Q1 + Q2
   AE4T40   Airborne Wind Energy (3 EC, x/x/0,0)
   CH3792   Introduction to Nuclear Science and Engineering (6 EC, 0/x/0,0)
   ET4107   Power Systems Analysis II (4 EC, 0/x/0/0)
   ET4376   Photovoltaic Basics (4 EC, x/0/0/0)
   ET4377   Photovoltaic Technologies (4 EC, 0/x/0/0)
   ME45000   Advanced Heat Transfer (3 EC , x/0/0/0)
   ME45180   Energy Storage: Processes, Materials & Equipment (4 EC, 0/x/0/0)
   OE44005   Introduction to Offshore Engineering (3 EC, x/0/0/0)
   OE44075   Introduction to Ocean Energy Technologies (4 EC, 0/x/0/0)
   AR0097   Climate proof sustainable housing renovation (5 EC, x/0/0/0)
   Recommended electives Energy track in Q3 and Q4
   AESM1306SET   Geothermal Energy and Applications (4 EC, 0/0/0/x)
   AP3341 D   Nuclear Reactor Physics (6 EC, 0/0/x/x)
   CIE5304   Waterpower Engineering (3 EC, 0/0/0/x)
   EE4545   Electrical Power Systems of the Future (4 EC, 0/0/0/x)
   ET4378   Photovoltaic Systems (4 EC, 0/0/x/0)
   SET3031   Sustainable Hydrogen and Electrical Energy Storage (4 EC, 0/0/x/x)
   SET3041   Energy from Biomass (4 EC, 0/0/x/0)

   I&C
   Recommended electives I&C track in Q1 + Q2
   IN4400   Programming and data science for the 99%, (5 EC, 0/x/0/0)
   IN4010   Artificial Intelligence Techniques , (6 EC, x/x/0/0)
   SEN9311   Digital Business, (5 EC, x/0/0/0)
   CS4015   Behaviour Change Support Systems, (5 EC, 0/x/0/0)
   IN4252   Web Science & Engineering, 5 EC, Q1+Q2
   Recommended electives I&C track in Q3 and Q4
   MOT1531   Business Process Management and Technology (5 EC, 0/0/x/0)
   IN4315   Software Architecture (5 EC, 0/0/x/0)
   IN4325   Information Retrieval (5 EC, 0/0/x/0)
   IN4185   Globally Distributed Software Engineering (5 EC, 0/0/0/x)

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T&L

Recommended electives T&L track in Q1 + Q2

CIE4811-09 Design and Control of Public Transport Systems (6 EC, x/0/0/0)
CIE5811   Transport Safety (4 EC, x/0/0/0)
CIE5802-09 Advanced Transportation Modelling (4 EC, 0/x/0/0)
CIE5803-09 Railway Traffic Management (4 EC, 0/x/0/0)
CIE5810-09 Traffic Safety (4 EC, 0/x/0/0)
CIE4330   Ports and Waterways 1 (4 EC, x/x/0/0)
AE4423   Airline Planning Optimization (4 EC, 0/x/0/0)
ME44000   Intro Transport Engineering & Logistics (3 EC, x/0/0/0)
ME44205   Quantitative Methods for Logistics (5 EC, x/x/0/0)

Recommended electives T&L track in Q3 and Q4

CIE5750   Transport and Spatial Planning for Urbanized Regions (4 EC, 0/0/0/x)
AR0093   Infrastructure and Environment Method Module (3 EC, x,0,x,0)
AR0551   People, Movement and Public Space (3 EC, 0/0/0/x)
AE4446   Airport Operations (4 EC, 0/0/x/0)
CIE5804-09 Innovations in Dynamic Traffic Management (4 EC, 0/0/0/x)
ME41000   Automated Driving, AutoMOTive Human Factors & Safety (3 EC, 0/0/0/x)

For students who started in September 2015 (cohort 2015) the domain related courses are:

CoSEM: Domain courses	
2016-2017	**2017-2018**
Information & Communication	**Information & Communication**
SPM5442 Cyber Risk Management	No change
SEN1621 I&C Services Design	No change
Transport & Logistics	**Transport & Logistics**
SPM5610 Planning and design of multi-modal infrastructure networks (5 EC)	Replaced by **SEN1711** Advanced Evaluation Methods for Transport Policy Decision Making
SPM5620 Design and management of multi-modal logistics chains (4 EC)	Replaced by **SEN9710** Multi-model Freight Transport Policy
Energy & Industry	**Energy & Industry**
SPM9539 Economy, Ecology and Technology of Industrial Networks (3 EC)	To be replaced by one of the recommended Energy track electives for cohort 2016 (see Graduation Portal)
SPM5520 Engineering Optimization in Energy and Industry (3 EC)	Replaced by **SEN1511** Engineering Optimization and Integrating Renewables in Electricity
SPM5530 Systems Innovation in Energy and Industry (3 EC)	To be replaced by one of the recommended Energy track electives for cohort 2016 (see Graduation Portal)
Built Environment & Spatial Development	**Built Environment & Spatial Development**
SPM9750 Environmental Sustainability in the Built Environment (4 EC)	To be replaced by one of the recommended B&S track electives for cohort 2016 (see Graduation Portal)
SPM5710 Integrated Regional Development (5 EC)	Replaced by **SEN1431** Design of Regional Development Strategies

7. **Second year Master Electives Package 15 EC**
    Students choose a Master electives package as listed in Article 12, Section 1 under c.

    Students following the track Transport & Logistics cannot choose the Master Electives Package *Supply Chain Management*.
    Students following the track Information & Communication cannot choose the Master Electives package *ICT Management and Design – the ICT Management and Design Electives package will not be offered in 2017-2018 (contact the Electives package coordinator)*.

    Students who intend to study abroad and students that start the programme in the second semester will have to compose a free Master Electives Package, to be approved by the Board of Examiners.

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Article 15 - Transitional regulations CoSEM

First year track programme

Information & Communication
SEN1621 I&C Service Design (5 EC)
2017-2018 replaced by SEN1622 I&C Service Design (5 EC), same course, other course code

Energy
Additional change November 2017

SEN1521 Electricity and Gas: Market Design and Policy Issues (5EC)
Course code changed into SEN1522.
Students who have not completed **SEN1521** yet and passed **one of the 2 exams** (the individual written exam OR the individual (modelling) exercises) can still fulfil the course SEN1521.

General rules:
- The 2nd year CoSEM courses 'old style' will nog longer be offered in 2017-2018.
- If some parts of the old courses are already fulfilled, 2 retakes for written-exams are offered in 2017-2018 for these 2nd year courses.
- If the replacement course contains a different amount of credit points than the original old course, a compensation can be made by choosing a "transitional course" of 1 EC, 2 EC, 3 EC or 4EC (SENTR01; SENTR02; SENTR03; SENTR04) and/or an extra elective course of 5EC, so that the whole CoSEM programme remains 120 EC.
- Skills are a part of respective replacement course.

Students should check the roster for the courses and the exam schedule; it may occur that courses/exams are in a different period compared to the old programme.

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Mod Man "old" COSEM programm	Course code	Course name	EC	Formal transitional rule OER/UR 2017-2018 (2nd year courses)	Formal transitional rule OER/UR after 2017-2018
Jolien Ubacht	SPM5905	CoSEM master thesis preparation	6	**2017-2018** If the 7 assignments of spm5905 are fulfilled (besides the article and project plan): - 1x possibility Scientific Article - 1x possibility Project Plan (=research proposal) **otherwise:** SPM5905 is replaced by SEN2321 *Preparation Master Thesis* (5 EC) + 1x possibility for an extra literature review assignment for 1EC	**After 2017-2018** SPM5905 is replaced by SEN2321 *Preparation Master Thesis* (5 EC)
B&S domain					
Laure Itard	SPM9750	Environmental Sustainability in the Built Environment	4	**2017-2018** If the student has fulfilled the participation in the design game and the Assignment Design Game is done - 2x written exam **otherwise:** SPM9750 is replaced by an elective course B&S track 2nd Year	**After 2017-2018** SPM9750 is replaced by an elective course B&S track 2nd Year
Marjolein Spaans	SPM5710	Integrative regional development	5	**2017-2018** If the student has fulfilled the the attendance, presentation, portfolio and essay: - 2x written exam **otherwise:** SPM5710 is replaced by SEN1431 *Design of Regional Development Strategies* (5 EC)	**After 2017-2018** SPM5710 is replaced by SEN1431 *Design of Regional Development Strategies* (5 EC)
E&I domain					
Gijsbert Korevaar	SPM9539	Economy, Ecology and Technology of Networked Ind Complexes	3	**2017-2018** SPM9539 is replaced by a 2nd year Energy track course	**After 2017-2018** SPM9539 can be replaced by a 2nd year Energy track course
Zofia Lukszo	SPM5520	Engineering Optimization in Energy and Industry	3	**2017-2018** - 2x written exam	**After 2017-2018** SPM5520 (3 EC) is replaced by SEN1511 *Engineering Optimalization and Integrating Renewables in Electricity Markets* (5 EC)
Jaco Quist	SPM5530	System Innovation in Energy & Industry	3	**2017-2018** SPM5530 is replaced by a 2nd year Energy track course	**After 2017-2018** SPM5530 is replaced by a 2nd year Energy track course

I&C domain					
Wolter Pieters	SPM5440	Cyber Security Essentials	4	**2017-2018** If assignment specific to spm5440 done, then - 2x possibility midterm exam of spm5442 **otherwise:** SPM5440 is replaced by a 2nd year I&C track elective	**After 2017-2018** SPM5440 is replaced by a 2nd year I&C track elective
Mark de Reuver	SPM5430	Service systems engineering	5	**2017-2018** If the student has fulfilled the attendance, design assignments and presentation: -2x possibility written exam **otherwise:** SPM5430 (5 EC) is replaced by SEN1621 I&C Service Design (5 EC)	**After 2017-2018** SPM5430 (5 EC) is replaced by SEN1621 I&C Service Design (5 EC)
T&L domain					
Ron van Duin	SPM5620	Design and management of multi modal logistics chains	4	**2017-2018** SPM5620 is replaced by SEN9710 Multi-modal Freight Transport Policy (5EC)	**After 2017-2018** SPM5620 is replaced by SEN9710 Multi-modal Freight Transport Policy (5EC)

Admission requirements

Article 16 - Admission requirements Master programmes

A programme selection committee will evaluate each individual application to decide whether the applicant can be admitted. Students always need permission from the selection committee and can never be admitted directly to the Master's programme based on the requirements.

Foreign students	
EPA	• Technical bachelors or a bachelor in natural sciences can be admitted immediately to the EPA MSc master programme.* • Academic Bachelors with a degree in Architecture and other similar Bachelor courses, may only be admitted under certain conditions.* • Academic students holding a Bachelor degree in System Engineering, Policy Analysis and Management can be admitted directly; students holding similar bachelor degrees are admitted under certain conditions*.
MOT	• A good university Bachelor's degree in a main subject closely related to the MSc programme to which you are applying, with good grades on the key courses. or • A proof that you have nearly completed a Bachelor's programme in a main subject which is closely related to the MSc programme to which you are applying, with good grades on the key courses.
CoSEM	• (1) A good university Bachelor's degree in a main subject closely related to the MSc programme to which you are applying, with good grades on the key courses. or • (2) A good university Bachelor's monodisciplinary engineering degree or a degree in a natural science, with good grades on the key courses and a demonstrable affinity with multi-disciplinary education may enter the programme. The applicants from this group are required to accomplish the on-line CoSEM Linkage Program offered by the faculty of Technology, Policy and Management. Please note that the linkage programme will take approximately 70 hours to complete and has to be finished before the deadline of application (June 1st of the calendar year for international students). or • (3) A proof that you have nearly completed a Bachelor's programme in a main subject described above in (1) and (2), with good grades on the key courses. Applicants from the (2) group are required to accomplish the on-line CoSEM Linkage Programme.
All	

1. A Grade Point Average (GPA) for the Bachelor study of at least 75% of the scale maximum, unless specific requirements are defined for the country in which the student obtained his/her Bachelor's degree certificate (see website TU Delft).

2. Proof of English language proficiency**:

   • A TOEFL *** (Test of English as a Foreign Language) score of at least 90 (internet based TOEFL). Please note that we only accept the TOEFL internet based test, **or**
   • IELTS *** (academic version) overall Band score of at least 6.5, **or**
   • have passed the University of Cambridge 'Certificate of Proficiency in English' or the University of Cambridge 'Certificate in Advanced English'.

3. A clear and relevant essay in English (1,000 – 1,500 words) addressing the motivation for taking the MSc study of your choice; interest in TUDelft, specialization, hypothetical thesis project and a summary of bachelor thesis project.
   CoSEM applicants are required to motivate the track (technical specialization) choice.
4. Two reference letters
5. Extensive curriculum vitae
6. Proof of identity

The programme website has all the additional information.

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Nationals of the People's Republic of China please note: You need a 'NESO-certificate' to apply for TU Delft's MSc programmes.

Please note that if you are in the process of obtaining your Bachelor's degree, you may apply for admission to an MSc programme at TU Delft. TU Delft may conditionally admit you, based on your transcripts and detailed information about the curriculum, relevant research and the expected date of graduation. The conditional admission letter will include the deadline date for obtaining your degree.
** Please note that exclusively nationals from the USA, U.K., Ireland, Australia, New Zealand and Canada are exempted from the English test requirement.
*** As the whole process of collecting information, registering for the tests and receiving the test results may take several months, we advise you to register for the IELTS or TOEFL tests between September and December.

Dutch Academic students	
EPA	• Technical bachelors or a bachelor in natural sciences can be admitted immediately to the EPA MSc master programme.* • Dutch Academic Bachelors with a degree in Architecture and other similar Bachelor courses, may only be admitted under certain conditions.* • Dutch Academic students holding a Bachelor degree in System Engineering, Policy Analysis and Management can be admitted directly; students holding similar bachelor degrees are admitted under certain conditions*.
MOT	• Dutch Academic students holding a mono-disciplinary technical bachelor or a bachelor in natural sciences can be admitted immediately to the MOT MSc master programme. • Dutch Academic Bachelors with a degree in Industrial Engineering or Architecture and other similar Bachelor courses, may only be admitted under certain conditions.* • Dutch Academic students holding a Bachelor degree in System Engineering, Policy Analysis and Management or similar bachelor course can be admitted under certain conditions*.

CoSEM	• Students with a multidisciplinary engineering degree may enter the programme directly, i.e.
	  o a BSc degree in systems engineering ('Technische Bestuurskunde') from Delft University of Technology;
	  o a BSc degree in Industrial Engineering & Management (BSc Technische Bedrijfskunde);
	  o a Bsc degree Natural science and Innovation Management (BScNatuurwetenschappen en innovatiemanagement);
	• Students with a monodisciplinary engineering degree or a degree in a natural science with a demonstrable affinity with multi-disciplinary education may enter the programme after completing the Linkage programme or a bridging programme of 30 EC. Please note that the linkage programme will take approximately 70 hours to complete and has to be finished before the deadline of application (July 1st of the calendar year for Dutch students).

All	

Please note that if you are in the process of obtaining your Bachelor's degree, you may apply for admission to an MSc programme at TU Delft. TU Delft may conditionally admit you, based on your transcripts and detailed information about the curriculum, relevant research and the expected date of graduation. The conditional admission letter will include the deadline date for obtaining your degree

1. A clear and relevant essay written by the applicant (±1.000 – 1.500 words in English) covering the following aspects:
   • Describe your motivation and interest in the MSc program of your choice; CoSEM applicants are required to motive the track (technical specialization) choice.
   • Rank three examples of MSc thesis topics that would interest you and explain your particular interests.
   • Give a short summary (maximum 250 words) of the thesis work or the final assignment of your BSc study and full workload.
2. An extensive résumé (curriculum vitae) written in English by the applicant.
3. A certified copy of your BSc diploma.
4. A certified copy of the full list of grades. In case you haven't received all grades or your BSc diploma yet, please send a certified copy of all grades you received up till now.
5. ONLY FOR FIRST REGISTRATION AT TU DELFT: A photocopy of the page(s) of your passport with photo, your name, date and place of birth and expiry date of the passport.
6. ONLY FOR FIRST REGISTRATION AT TU DELFT: An extract from the population register (uittreksel gemeentelijke basisadministratie persoonsgegevens (GBA)) of recent date (max. 1 year).

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Dutch University of Engineering (HBO) students	
EPA	HBO students graduates with a degree in a technical field or in natural sciences from a Dutch University of Applied Sciences may be eligible for admission to the MSc EPA. Depending on your grades you will be required to follow a bridging programme. This bridging programme can be taken as a minor embedded in your HBO programme

Background	Conditions for admission
Grade point average ≥ 7,5 within 4 years and final assignment or thesis work ≥ 8.	The selection committee may decide for immediate admission
Grade point average ≥ 7 and < 7,5 within 4 years and final assignment or thesis work >7.	The selection committee may decide for admission to the bridging programme
Grade point Average < 7	Will not be admitted
Finished bridging programme during HBO Bachelor	Will be admitted to the Master's programme.

MOT	HBO students graduates with a Bachelor's degree in a technical field or in natural sciences from a Dutch University of Applied Sciences may be eligible for admission to the MSc MOT. Depending on your grades you will be required to follow a bridging programme. This bridging programme can be taken as a minor embedded in your HBO Bachelor's programme or after you receive your bachelor's degree.

Background	Conditions for admission
Grade point average ≥ 7,5 within 4 years and final assignment or thesis work ≥ 8.	The selection committee may decide for immediate admission
Grade point average ≥ 7 and < 7,5 within 4 years and final assignment or thesis work >7.	The selection committee may decide for admission to the bridging programme
Grade point Average < 7	Will not be admitted
Finished bridging programme during HBO Bachelor	Will be admitted to the Master's programme.

CoSEM	Students holding a multi-disciplinary engineering HBO degree from a university of applied sciences (HBO) are eligible for admission. If admitted, you have to follow the linkage programme as well as a bridging programme of 30 EC (in Dutch). Please note that the linkage programme will take approximately 70 hours to complete and has to be finished before the deadline of application (July 1st of the calendar year for Dutch students). For the bridging programme, there are two options: courses are distributed over one year with a workload of 20 hours a week, or scheduled as a half-year full-time programme. In some cases, this bridging programme can be taken as a minor embedded in your Bachelor's programme.

Background	Conditions for admission
Grade point average > 7 within 4 years and final assignment or thesis work > 7	Admission to the bridging programme (after the permission from selection committee)
Grade point Average < 7	Will not be admitted
Finished bridging programme during HBO Bachelor	The selection committee may decide for immediate admission

If admitted, you have to follow a bridging programme of 30 EC. There are two options: courses are distributed over one year with a workload of 20 hours a week, or scheduled as a half-year full-time programme. In some cases, this bridging programme can be taken as a minor embedded in your Bachelor's programme. All applicants are required to the on-line CoSEM Linkage programme.

All:

* Please note that if you are in the process of obtaining your Bachelor degree, you may apply for admission to an MSc programme at TU Delft. TU Delft may conditionally admit you, based on your transcripts and detailed information about the curriculum, relevant research and the expected date of graduation. The conditional admission letter will include the deadline date for obtaining your degree.

1. A clear and relevant essay written by the applicant (±1.000 – 1.500 words in English) covering the following aspects:
   - Describe your motivation and interest in the MSc program of your choice; CoSEM applicants are required to motive the track (technical specialization) choice.
   - Rank three examples of MSc thesis topics that would interest you and explain your particular interests.
   - Give a short summary (maximum 250 words) of the thesis work or the final assignment of your BSc study and full workload.
2. An extensive résumé (curriculum vitae) written in English by the applicant.

3. A certified copy of your BSc diploma.
4. A certified copy of the full list of grades. In case you haven't received all grades or your BSc diploma yet, please send a certified copy of all grades you received up till now.
5. ONLY FOR FIRST REGISTRATION AT TU DELFT: A photocopy of the page(s) of your passport with photo, your name, date and place of birth and expiry date of the passport.
6. ONLY FOR FIRST REGISTRATION AT TU DELFT: An extract from the population register (uittreksel gemeentelijke basisadministratie persoonsgegevens (GBA)) of recent date (max. 1 year).