

Reference: GW.OSC-3997.JNe
Master OER Programme-specific appendix EST 2016-2017

**Programme-specific appendix to the Education and Examination Regulations
2016-2017**

Master of Science Programme

Educational Science and Technology (EST)

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1. Structure and content of the programme

1a. Composition of the programme

Table 1 (below) shows the courses which make up the EST programme in EC (1 EC = 28 hours of study load) per unit.

The generic structure (of the September – fulltime - enrolment) of the programme is as follows:

Quartile 1A	Quartile 1B	Quartile 2A	Quartile 2B
Trending topics in educational science and technology 201200034 (10 EC)			
Team learning at work 201500010 (5 EC)	HRD design & consultancy in live context 201300002 (5 EC)	Regulation and facilitation of workplace learning 201200031 (5 EC)	Leadership and organisational change 201200032 (5 EC)
Designing learning & performance support 191970340 (5 EC)	Assessing, monitoring and improving student and school performance 201300001 (5 EC)	Innovative technology-based learning environments 201400002 (5 EC)	Teacher learning and development 201200027 (5 EC)
Learning and Instruction 192914040 (5EC)		Learning and Instruction 192914040 (5EC)	
Research Proposal	Research Proposal	Research Proposal EST 201200035 (5 EC)	
		Final Project EST 201200036 (25 EC)	
Global talent management 201500086 (5 EC)		HRM and innovation 201500087 (5 EC)	
Educational measurement 201500149 (5 EC)		HRM and technology design 201500088 (5 EC)	

	Core Course – obligatory
	Elective Courses HRD
	Elective courses EDE
	Research Proposal
	Final Project
	Extra courses from preferred partners

Table 1: Curriculum EST 2016-2017.

1b. Study load of the programme

Basically, a student's study trajectory in the one-year (60 EC's) EST programme consists of 30 EC's course work and 30 EC's Final Project (i.e. 5 EC's research proposal plus 25 EC's project work).

In detail, all students take the obligatory (10 EC's) core course 'Trending Topics in Educational Science and Technology'. Note: this core course will be offered twice per year, since the EST programme has two (2) terms of enrolment: September and February.

Next to this obligatory course, students have to take a number of electives courses (in total 20 EC's).

Full information on the options in this respect can be found in section 4d (Elective programme).of these Education and Examination Regulations

1c. Honours programme

For excellent students the University of Twente offers four (4) different extra-curricular master's honours programmes of 15 EC each. These programmes have a distinctive profile which allows students to develop themselves in one of the three roles: as an organiser, designer or researcher.

These programmes are:

- MSc Change leaders
- MSc Design honours
- MSc Research honours
- High Tech Systems and Materials honours

More information on these programmes and the corresponding selection procedures can be found at the UT honours programmes website (<http://www.utwente.nl/excellentie/en/>)

2. Goals and objectives of the programme

The main aim of the Master's degree programme Educational Science and Technology (EST) is to deliver competent researchers who are scientifically schooled, independent and critical educational designers, decision makers and advisers who can contribute to the subject area of education in general and to their chosen area of concentration in particular. To reach this goal the programme has established the following standards:

- **Domain orientation:**
Graduates have a firm and broad overview of education and of the specialty areas within, and specific expertise in one of the specialty areas that can be used productively and creatively in various related professional contexts.
- **Design competency:**
Graduates are able to systematically frame up, fill in, augment, evaluate, and implement designs to support learning environments in various education and training contexts.
- **Research competency:**
Graduates are able to systematically collect, analyse, and interpret research data, to draw conclusions there from, and on the basis of that advise or decide regarding possible alternatives and activities to be conducted, particularly in a design context.
- **Advice competency:**
Graduates are able to advise (educational) organizations, in part based on the three competencies mentioned above, with regard to the implementation of better and more efficient learning environments and organizational as well as policy related arrangements for learning and teaching.
- **Academic reflection:**
Graduates are able to critically reflect on processes, resulting products, and achieved results from systematic and well-chosen scientific, social-cultural, and ethical perspectives in such a way as to contribute to the professional development of the educational specialist and to a broadening and/or deepening of the scientific subject area.

The main focus of the master's degree programme Educational Science & Technology (EST) is on the design and evaluation of learning arrangements in schools and organisations. This might be the instruction of young children at primary school, of young adults during their vocational education, or adult employees in a company, such as sales managers or teachers receiving in-service training or training on the job. In the EST programme students acquire knowledge about theories of learning and assessment, curriculum design and implementation, learning technologies, effective training approaches and learning interventions. Students also will learn how to design and evaluate different learning arrangements and to translate these into advice and solutions for practical problems.

The EST programme features two focal areas: Educational Design and Effectiveness (EDE) and Human Resource Development (HRD). EDE focuses on curriculum design and –implementation, and school effectiveness. The HRD focus is on the design of learning trajectories in organisations.

Graduates from the EST programme will become scientific educational professionals, experts who connect scientific research, scientific design and (their own or future) practice. The outcome of their expertise is based on educational questions and problems from practical contexts (both schools and organisations), which they translate into research questions and which they try to answer by applying a systematic approach, thus finding appropriate solutions for the specific problem. The result of this approach is a design (or a set of designs), which is tested in the context of the problem to see if that solution helps realising an improvement or innovation. This evaluation does not only lead to an improvement or innovation, but it also leads to more knowledge and the forming of new theories. The systematic, technological, and design- and evaluation based orientation characterises the EST programme and distinguishes our programme at the University of Twente from other education-related degree programmes in the Netherlands.

Graduates work in a wide range of organisations, from government, ministries, publishers and educational support services to universities, higher education institutes and multinational companies. A number of graduates have started their own education and training consultancy bureaus.

Educational Design and Effectiveness (EDE)

The main focus of Educational Design and Effectiveness (EDE) is on the interaction between teacher and school development, instructional design and development, school effectiveness, and ICT in a variety of educational contexts.

Educational design and implementation involves the planning, development, and implementation of innovative learning trajectories. Effective implementation of these trajectories at both school and classroom level requires teachers and schools which are ready for the implementation. Teacher development is therefore one of the crucial elements when designing, developing and implementing an educational renewal.

There is an emphasis on the role of ICT (e.g., simulations, serious games, interactive apps) when designing learning environments. Measuring the effectiveness of the implemented educational innovations is essential, as is measurement and improvement of students, teachers, and schools. Schools should be able to track and improve the quality and results of their teaching, not just through student assessment, but also at the teacher and school level.

Core questions in this field are:

- How can learning innovations be designed and implemented?
- How can technology be used and integrated into education?
- How can schools and teachers be supported in the design, development and implementation of innovations at both school and classroom level?
- How can teachers be empowered in their own professional development for implementing innovative (technology-based) learning innovations?
- Can school performance be improved by giving schools feedback on the level of their performance, e.g., by means of feedback from digital monitoring systems?
- To what degree do school leadership, school culture and the teamwork between teachers influence the effectiveness of schools?
- Do schools perform better as a result of school inspections or are the improvements only superficial?

The EDE domain has an applied character in which the integration of research, design, and reflection skills is central. An EDE graduate is able to:

- understand and analyse different theories and paradigms related to educational design and – implementation, teacher and school development, school effectiveness and ICT in a variety of educational contexts and indicate what they mean for practice,
- plan, design, and implement innovative educational trajectories to increase its quality, and able to assess the effect of these curricula,
- improve the performance of schools by taking school leadership, school culture and teamwork between teachers into account,
- reflect on the various core issues in the field of EDE and on his or her own position in this.

As a graduate of the EDE specialisation, a student has excellent career prospects. Current graduates work at schools and other educational institutions, centres for expertise, consultancy bureaus, educational publishers, the ministry of education, etc. Some graduates pursue a research career at universities in the Netherlands and abroad.

Human Resource Development (HRD)

The main focus of Human Resource Development (HRD) is on learning and development of people in a corporate context. Lifelong learning is important to stimulate the knowledge society and the

employability of people. Companies and institutions invest billions of Euros in education and training. Large companies often have their own corporate department for developing and offering training to their staff for improving their performance or to further their education. As HRD graduates students will be able to develop and implement such training or to assess its quality. Graduates might also be engaged in workplace instruction or in the rearrangement of the work and the workplace so that learning becomes an integral part of work.

Core questions in this HRD field are: How do people learn during their work? How do people become experts? How may one facilitate workplace learning and professional development? What are effective training programmes and how to evaluate these? How to manage learning and knowledge in a company? How do organisations change and do HRD professionals assist in this process? What is the role of new media in learning?

In the field of HRD knowledge and research, approaches from a mix of disciplines are used to answer these questions: Psychology, Educational Science, Business, Human Resource Management, and Sociology. Besides acquainting a firm and broad knowledge of HRD research, this HRD specialisation has also an applied character in which the integration of research, design, advice and reflection skills is central. An HRD professional graduated at the University of Twente is able to:

- understand and analyse different HRD theories and paradigms, and what they mean for practice,
- design innovative and well-thought interventions to increase learning and development in a company or institution,
- advice companies and institutions on questions related to learning and development of their employees,
- do research on HRD problems and know how to use research for designing good learning interventions and giving solid advices,
- reflect on the various core issues in the field of HRD and on his or her own position in this.

As a graduate of the HRD specialisation, a student has excellent career prospects. Current graduates work as HRD managers, HRD consultants, HRD researchers, learning specialists, course designers, training materials developers, HRD needs analysts and evaluators.

3. Examination and exams

3a Examination

The EST programme has one (1) examination, i.e. the master's examination after 1 year. The master's examination is deemed to have been successfully completed if all exams of the agreed units of study, including the Final Project (master's thesis), have been completed successfully.

3b. Exam formats

The exam formats of each unit of study in the EST programme is shown table 2
 Written exams are individual tests, unless specified otherwise. The weight attributed to each of the exam components is stipulated in the course's electronic learning environment, and made public before the start of the course.

Quartile	Course code	Name (+ study load)	Examiner(s)*	Exam formats
1A	201500010	Team learning at work (5EC)	Marcella Hooigeboom MSc	Written exam, Assignment
1A	191970340	Designing learning and performance support (5EC)	Dr. H. van der Meij	Assignment
1A & 2A	192914040	Learning and instruction (5EC)	Dr. H. van der Meij, Prof.dr. A.W. Lazonder	Written exam
1A	201500086	Global talent management (5EC)	Dr. J.G. Meijerink M. Korotka MSc	Assignments, Essay
1B	201300002	HRD design & consultancy in live context (5EC)	Dr. B. Kollöffel	Assignment
1B	201300001	Assessing, monitoring and improving student and school performance (5EC)	Prof.dr. A.J. Visscher, Prof.dr. F. Janssens, Dr. J.W. Luyten, Prof.dr.ir. B.P. Veldkamp	Written exam
1A & 1B 2A & 2B	201200034	Trending topics in educational science and technology (10EC)	Dr. B.J. Kollöffel	Assignments
2A	201200031	Regulation and facilitation of workplace learning (5EC)	Dr. M.D. Endedijk	Written exam (take-home exam), Assignment
2A	201400002	Innovative technology-based learning environments (5EC)	Dr. T.H.S. Eysink	Assignment
2A	201500087	HRM and innovation	Dr. A.C. Bos-Nehles M. Renkema, MSc	Three group assignments; One individual assignment
2A	201500088	HRM and technology design	Prof.dr. T. Bondarouk Drs. J. van Mierlo	Written exam, Assignment
1A	201500149	Educational measurement	Prof.dr.ir. B.P. Veldkamp	Assignments
2B	201200032	Leadership and organisational change (5EC)	TO BE DECIDED,	Written exam, Assignment
2B	201200027	Teacher learning and development (5EC)	Prof.dr. A.J. Visscher	Written exam, Assignments
1A & 1B 2A & 2B	201200035	Research proposal EST (5 EC)	Dr. B.J. Kollöffel	Research proposal
	201200036	Final project EST (25 EC)	First mentor (as indicated on the final	Project report and presentation

			project contract) Second mentor (as indicated on the final project contract)	
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Table 2: List of units of study, examiners, and exam forms (modes of assessment

Note:

In case more than one (1) examiner per unit of study is mentioned, the in bold mentioned examiner has been designated as the one who holds first responsibility

3c. Prerequisites and required sequence of exams

Upon meeting the entry requirements of the MSc degree programme EST, students are entitled to participate in all EST courses.

There is no required sequence of exams, but students are recommend to take and complete the course Trending topics in educational science and technology (201200034) first.

4. General information

4a. Admission to the programme

The Admissions Committee assesses all applicants to the MSc Educational Science & Technology (EST) programme on an individual basis. The assessment of the applicant's skills is based on formal as well as content-related admission criteria.

The *formal criteria* are as follows:

- A. Bachelor's degree or equivalent
- B. **Note:** for international (i.e. non-Dutch students) only:
IELTS minimum overall score of 6.5 on the IELTS (where each minimal sub score is 6.0) or equivalent,
Please check the university's website for details and exemptions:
<http://www.utwente.nl/master/how-to-apply/internationaldegree>

The *content-related admission criteria* require that a student possesses and demonstrates evidence on sufficient knowledge and skills concerning the following:

- C. The content of the domain of educational science and technology.
- D. Design methodology.
- E. Research methodology.
- F. Research techniques, including the use of statistics for data analysis.

Ad C. Content of the domain

The domain of Educational Science and Technology can be characterised by the following: a field that encompasses the analysis of learning and performance problems; the design, development, implementation, evaluation, and management of educational and training processes, resources, and arrangements intended to improve learning and performance in a variety of settings. A student meets the domain-specific admission criterion if he/she possesses a Bachelor's or Master's level degree in a domain that is similar or related to the domain of this definition, and/or if he/she has substantial relevant work experience from which he/she has mastered the aforementioned conceptual knowledge.

Ad D. Design methodology

This is a typical content characteristic of all behavioural Bachelor's and Master's programmes in our Faculty, aiming at educating scientific designers. This methodology for systematic problem solving aims to support and control science-based, systemic approaches and processes for the development, the implementation, and the evaluation of solutions for problems in education and training. To give evidence that a future student has mastered this methodology, he/she has to send us an overview of relevant courses taken and/or reports of systematic design projects he/she has intensively been involved in.

Ad E. Research methodology

This refers to the main concepts, procedures, and methods used in social science research, and which aim at systematic, conceptual (literature) analysis, modes of data collection, data analytical schemes, and procedures for interpretation of findings, in order to better understand social phenomena and processes, and/or to support all levels of making choices in and for social reality. This methodology supports the systematic design, execution and evaluation of research activities. A student's basic mastery of this methodology should be proven by courses which he/she has taken in this area, and/or reports of research projects or activities he/she has been involved in substantially.

Ad F. Research techniques, including the use of statistics for data analysis

This area is dedicated to the skills and understanding of techniques for collection and for analysis of both quantitative and qualitative data. If a student masters this area he/she is both able to apply descriptive statistics (distribution, correlation, regression, cross tabling), theory of probability

(calculation, expectation, variance, binomial distribution), and aspects from inductive statistics (average based conclusions with known population deviation) as well as applying scientific analytical methods in interviews, observation, and questionnaires, analysing texts, and coding text fragments. Experience with the use of SPSS or a comparable computer-based statistical package is part of this mastery. Evidence of this can be presented by content review of courses which he/she has taken, and/or use of these techniques in research, demonstrated by means of a report or an article.

Evaluation of the entrance criteria

The programme's Admission Committee will review the information and documents presented and will decide whether a student meets all stated criteria sufficiently. The Admission Committee comprises of the programme co-ordinator and the full professor who holds responsibility for the quality of the programme. The latter may delegate his membership to a member of the programme's scientific staff, i.e. to one of the programme's teachers.

Evaluation of these entrance criteria may result in one (1) out of two (2) alternative decisions by the Admission Committee:

1. If a student meets all formal and content-related criteria he/she will be admitted to the EST Master's programme.
2. If a student does not meet the entry requirements, to be decided by the Admission Committee, he/she will be offered the possibility of taking the EST pre-Master's programme. A student may ask for exemptions from one or more units of study of the pre-M trajectory, upon formal enrolment/registration, at the Examination Board.

4b. Language

The language of communication in the MSc programme Educational Science and Technology is English.

This premise requires additional explanation:

- Study materials are in English.
- Classes (lectures, seminars, workshops, practicals, and others) are taught in English.
- Exams and assignments are composed in English and students have to complete all exams and assignments in English.
- Presentations (including the Final Project presentation) have to be prepared in English
- Non-formal (written or oral) communication between a student and an instructor may revert to Dutch in case no non-Dutch students are involved.
- Students are supposed to be aware of the aforementioned rules with regard to the use of English and Dutch.

Note: students who started their EST master's degree programme before 1 February 2013 will be subject to a transitional rule that says that students who master Dutch are allowed to complete their tests and assignments in Dutch as long as no non-Dutch students are involved.

4c. International agreements

Not applicable

4d. Elective programme

The elective options in the programme can be found in Table 1 (Curriculum EST 2016-2017) and imply that there are 2 options:

A student selects four (4) elective courses (5 EC's each) out of the set of available 9 electives as presented (HRD elective green-coloured, EDE electives blue-coloured) in the 2016-2017 curriculum (Table 1).

In this regard it is recommended (but not obligatory) that these four electives dominantly stem from either the EDE or the HRD focus and thus align optimally with the student's Final Project.

Instead of selecting the full 20 EC's from these 9 electives, a student may (in addition to at least 2 - i.e. min. 10 EC's - of these 9 elective courses) choose max. 2 - i.e. max. 10EC's - from the following list of extra courses from preferred partners.

- Educational Measurement (201500149)
- Global talent management (201500086)
- HRM and innovation (201500087)
- HRM technology design (201500088)

These courses have been approved by the Examination Board and they are identified as courses which are closely related to the educational science domain.

4e. Programme Committee

The members of the EST programme committee are appointed by the Dean. The members are recruited from students and teaching staff of the Educational Science and Technology programme on an equal basis (50% students and 50% staff). The most up-to-date composition of the committee can be found on the webpage of the [programme committee](#).

The tasks of the programme committee are:

- Advising on the Education and the Examination Regulations (EER)
- Assessing, on a yearly basis, the way in which the EER are carried out
- Advising the programme management and the Dean on all matters related to the teaching in the EST programme.

4f. Examination Board

The Examination Board is the body that determines in an objective and expert way whether a student meets the conditions under the Education and the Examination Regulations (EER) concerning the knowledge, comprehension and skills required in order to obtain the Master of Science (MSc) degree. Members of the Examination Board are appointed by the Dean of the Faculty.

The Board's tasks are described in the generic (i.e. non programme-specific) part of the EER. More information, including the most up-to-date composition of the Board can be found on the [webpage of the Examination Board](#).

5. Transitional arrangements

Since there are no curricular changes in the 2016-2017 curriculum (compared to the 2015-2016 curriculum) no transitional arrangements need to be applied.

6. Study advice first year

Not applicable

7. Additional subjects

7a. Specific EST programme demands

Courses to be obtained and exemption from an exam

Students have to take and successfully complete at least for 30 ECs courses. If the Examination Board has granted an exemption from a specific exam (pertain solely to the level, content and quality of exams or tests previously taken by the student; or knowledge, insight and skills acquired by the student outside of the sphere of university education), than these exemptions do not count for the 30 ECs courses to be obtained. In that case the student has to follow a flexible programme as referred to in Article 7.3d of the Act. The Examination Board assesses whether a flexible programme is appropriate and consistent within the domain of the EST programme and whether the level is high enough in light of the final attainment targets of the programme.

Validity of (sub) grades of the Trending Topics course assignments

Unlike the generic rule (Article 4.8 – Validity of Exams) that, in case of a unit of study consists of elements that are graded separately, each sub grade is valid until the end of the next academic year, the grades of the different trending topics assessments stay valid until the end of the following semester in which the course is offered again (Note: the Trending Topics course is offered twice per year). If a student does not pass the course (complete all trending topics' assessments) the 2nd time, the student loses the grades previously earned for the topics which he/she have passed. Consequently the student has to re-take the entire course.

7b. Graduation with distinction

If upon sitting the Master's examination, the student has shown evidence of exceptional capability, 'cum laude' (with distinction") will be recorded on the degree certificate.

A student is considered to have exceptional capability if each of the following conditions is met:

- the average mark awarded for the units of study of the Master's examination is at least 8;
- no graded work was re-done;
- in the determination of this average, the units that were not evaluated with a numerical mark or for which an exemption was granted are not considered
- no unit of study was graded less than a 7;
- the mark for the final unit (Final Project) is at least a 9

In special cases and despite not fulfilling these conditions, a member of the Examination Board or the student's *Graduation Committee* is entitled to propose a "Cum Laude" award to the Examination Board.

Besides, the Examination Board will only award a "Cum Laude" designation in case the Final Project has been completed under the supervision of and has been assessed by a faculty's examiner.

The rules applied by the Examination Board can be found in the [Rules & Regulations](#) of the Examination Board.

7c. Pre-Master's programme Educational Science and Technology (EST)

The pre-Master's programme consists of (generic academic and domain-specific) units of study that prepare a student for applied, design or evaluation-oriented, scientific reasoning and research during his/her Master's trajectory Educational Science and Technology.

Therefore, all pre-Master's units of study (to be decided by the Master's programme Admission Committee) must be successfully completed before one can formally begin the Master's programme.

The full pre-master's programme comprises 30 EC.

The pre-Master's programme has two (2) terms of enrolment (September and February).

Therefore the following structure applies:

Full-time programme = ½ year = one semester

September enrolment		February enrolment	
Semester 1		Semester 2	
Quartile 1A	Quartile 1B	Quartile 2A	Quartile 2B
Research Methodology and Descriptive Statistics (5 EC)	Inferential Statistics (5 EC)	Research Methodology and Descriptive Statistics (5 EC)	Inferential Statistics (5 EC)
Designing for Learning in Schools and Organisations (5 EC)	Research Studio (10 EC)	Designing for Learning in Schools and Organisations (5 EC)	Research Studio (10 EC)
Academic Writing and Reading (5 EC)		Academic Writing and Reading (5 EC)	
15 EC	15 EC	15 EC	15 EC

Self-study package EST

Part-time programme = 1 year = two semesters

Semester 1		Semester 2	
Quartile 1A	Quartile 1B	Quartile 2A	Quartile 2B
Research Methodology and Descriptive Statistics (5 EC)	Inferential Statistics (5 EC)	Designing for Learning in Schools and Organisations (5 EC)	Research Studio (10 EC)
Academic Writing and Reading (5 EC)			
10 EC	5 EC	5 EC	10 EC

Self-study package EST

Registration

The maximum registration period for completing the pre-master's programme is one (1) year.

Note: this applies to part-time students as well.

During this period a student may maximally sit two (2) times for an exam or may maximally submit two (2) times an assignment. In addition, in case he/she fails to pass the 2nd time the exam or fails to complete an assignment within two (2) times, the student will be excluded from the pre-master's programme Educational Science and Technology.

Moreover, a student will not be admitted to the pre-master's programme Educational Science and Technology in case he/she, within the framework of another University of Twente pre-master's programme, already reached the maximum of two sittings for an exam of the following units of study: Research Methodology and Descriptive Statistics, and/or Inferential Statistics.

Language in the pre-master's programme

The language of communication in the pre-master's programme Educational Science and Technology is English.

This premise requires additional explanation:

- Study materials are in English.
- Classes (lectures, seminars, workshops, practicals, and others) are taught in English.
- Exams and assignments are composed in English and students have to complete all exams and assignments in English.
- Presentations (including the Final Project presentation) have to be prepared in English
- Non-formal (oral or written) communication between a student and an instructor may revert to Dutch in case no non-Dutch students are involved.
- Students are supposed to be aware of the aforementioned rules with regard to the use of English and Dutch.