PROGRAMME GUIDE

EDUCATIONAL SCIENCE AND TECHNOLOGY

MASTER OF SCIENCE

UNIVERSITY OF TWENTE.

Programme Guide 2025-2026

Master of Science (MSc) programme
Educational Science and Technology

(Including pre-Master's programme)

Information for staff and students (current and prospective)

See also: https://www.utwente.nl/en/est/

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Preface

Dear students,

Welcome to the Master's degree programme Educational Science and Technology (EST)! Our students are often curious about how people learn, and many join this programme to gain a deeper understanding of studying and supporting learning processes. Whatever your motivation, we are delighted that you will join and enrich our programme community.

The strengths of our programme stem directly from those of our lecturers. Their outstanding research and service work informs, inspires, and infuses their teaching. It also serves to build bridges between our programme and the employment sector. This is visible through courses that give attention to formal education in schools (EDU), professional learning in organisations (HRD), or overlapping areas (e.g. teacher professional development). Across all contexts, our lecturers invent and investigate the roles played by technology. This enables our programme and its graduates to contribute to development and use of cutting-edge educational technologies that address society's changing needs in ways that are scientifically valid, practical in use, and demonstrated to be effective.

The programmes offered by the Faculty of Behavioural, Management and Social Sciences meet national and international standards of quality and are developed in close collaboration with researchers worldwide. Similarly, EST offers courses that are intellectually challenging while also stimulating reflection. Our courses are intrinsically relevant to the field of study, reflect ideas and norms expressed in contemporary literature, and are aligned with programme-wide learning objectives. This guide outlines the set-up and substance of the EST courses and overall programme. It also contains information on related topics, such as student supervision, testing procedures, and quality assurance.

We constantly strive to offer our students a modern, relevant, and interesting curriculum with sufficient challenge and depth. We hope this programme sparks your curiosity and makes your time here both stimulating and rewarding.

On behalf of the MSc EST team, I wish you a pleasant time here!
Kind regards,

Hannie Gijlers
Programme director of the Master's degree programme
Educational Science and Technology

Part A: Educational science as a discipline

1. Educational science

1.1 What is educational science?

The main focus of educational science is on the learning and development of people. 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 firefighters or teachers receiving in-house training. Educational scientists investigate learning processes, preconditions for learning, learning environments, and educational resources with the aim of understanding, explaining and improving them. Broadly speaking, educational science is studied at different levels: the micro-level, the meso-level, and the macro-level.

Micro: Individual learner and class or group level
This concerns the research, development, introduction and/or evaluation of teaching and learning processes, educational or corporate curricula and learning environments at the level of the individual and the group/class. Think, for example, of the development of new learning materials, such as interactive videos, online simulations, game-based learning environments, or VR (Virtual Reality) experiences. Educational scientists aim to investigate questions such as: Which learning processes are supported by using these technologies?What is sound pedagogy for teaching with them? How can teachers or instructors be prepared for working with such tools? How do we introduce them and how can we find out if they function satisfactorily and effectively? And which techniques should be used for evaluating the results of instruction in these cases?

Meso: Organisational and leadership level
This concerns the research on and the development of the structure, climate and set-up of schools, institutes, and organisations to support learning. Educational scientists occupy themselves with such questions as: How can a school or company become a learning organisation and how do several structural components contribute to a safe learning climate and what is the role of leadership? Example questions are: What are the challenges of establishing and maintaining a secondary level ‘technasium’ (pre-university school with a strong emphasis on engineering)? What are the effects of class size on children’s learning in primary school? What policies and systems can stimulate, support and enrich the continuing education of professionals such as police officers, bank employees, railway engineers, or teachers? How do new forms of organizing (e.g., inter-organisational collaborations) support knowledge co-creation beyond the border of a single organisation?

Macro: Policy and system level
This concerns the relationship between education, lifelong learning and society (career, labour market, societal transformations), including high level institutions and policymaking (e.g. high stakes assessment, curriculum reform). Educational scientists pursue such questions as: What learning is of most worth (and should therefore be emphasised in the curriculum)? What effects do educational reforms have on students’ learning outcomes? What are the skills of the future and how can we arrive at European skills frameworks? How do Dutch children perform in mathematics compared with children from other European countries? Which knowledge and skills should be tested during the school-leaving examination and how can that be done

effectively and equitably? What policies support engagement in lifelong learning, especially among low-skilled workers?

As a discipline, educational science has a strong multidisciplinary character and multiple areas of application. Educational science programmes emanate from disciplines such as psychology, pedagogy, sociology, business administration, educational media and technology, and policy and organisation studies.

1.2 Importance of educational science

Many educational scientists supervise or advise school children/students, teachers, school teams and organisations or companies on their learning challenges. Societal developments call for a continuous need for people who can plan, set up, execute and evaluate education. Below are several examples of situations in which educational scientists can make an important contribution.

Please note that the word 'education' needs to be interpreted broadly: it might mean education in a traditional school context, but it could also mean instruction within companies or adult education or even in the informal learning setting. In all of these situations, there is a demand for specialists in professionalisation and staff training.

Schools are increasingly given greater freedom in how they present themselves. In order to realise a desired profile, an educational scientist might be called on to support both teaching staff and management. An educational scientist might help contribute to the quality of the education, for example by helping teachers to devise a new profile or by designing new teaching material for this.

Testing seems to play an ever-increasing role in society. These days even children at pre-school are tested on their language skills. Similarly, teachers, doctors, or engineers in many countries must pass certification exams. Of course, it is essential that these tests are of sufficient quality so that they truly identify individuals with the necessary knowledge and skills for carrying out their profession. Educational scientists develop and evaluate tests for many kinds of target groups or situations.

Owing to both the rapid developments and scientific progress, knowledge is soon out-of-date. Lifelong learning is important to stimulate the knowledge society and employment in the Netherlands and beyond. Dutch trade and industry annually invest billions of Euros in professional learning and training. Large companies often have their own department for developing and offering learning solutions to their staff to improve their performance or further their education. Educational scientists are able to develop, implement and evaluate such solutions. They may also engage in workplace learning or in the rearrangement of the work and the workplace so that learning becomes an integral part of work.

Educational science is the science that strives to describe, comprehend, and interpret learning processes and outcomes with the aim of contributing to its improvement. Educational scientists can be found in many places of learning.

1.3 What educational science is *not*

A degree in educational science does *not* provide the qualifications to be a schoolteacher. While a background in teaching could be useful, it is not required for a degree in educational sciences.

For the most part, educational scientists work behind the scenes, contributing to knowledge-building and helping ensure that learning opportunities are appealing, effective and accessible. This can be done with people of all ages and backgrounds. This might be by studying learning processes and situations (for example by researching the effects of certain materials on children's learning achievement) or by directing them and/or intervening on them (for example by developing material that helps realise certain learning objectives). Good educational scientists are able to combine both activities. In this way, they contribute to the educational process, whether that be for the school education system or for in-company learning and development.

2. Educational Science and Technology (EST) at the UT

2.1 EST characteristics

The main focus of the Master's degree programme Educational Science and Technology (EST) is on the design and evaluation of learning scenarios in schools and organisations, where the scope is wide: from educating primary school children and young people in secondary and vocational education to in-service or on-the-job training for adult employees, such as nurses, teachers, civil servants, managers and leaders. EST students learn about theories of learning and assessment, educational technologies (e.g., serious games), effective training approaches, and learning interventions. Students also discover how to design and evaluate different learning scenarios and offer recommendations or solutions for practical problems.

Students opt for the EST programme, for myriad reasons, such as the desire to:

- Apply tools of educational science as a researcher, designer, and consultant;
- Grow professionally and personally in a rapidly changing society;
- Enter a programme that ranks among the best in its field;
- Pursue individual passions with a programme offering a highly customisable content;
- Prepare for a colourful career in an intercultural community;
- Benefit from exposure and access to outstanding teachers and researchers;
- Study contemporary educational science in the context of technological change.

The EST programme prepares students to work in two main contexts:

- EDU: Formal education settings, such as schools, where the emphasis is on learning, instruction and system effectiveness;
- HRD: Human resource development, focusing on learning in organisations.

Systematic, design-oriented and impact-driven approach

The EST Master's programme centres on three specific sets of competencies you will not find in other similar programmes. Graduates can become researchers, educational designers, or consultants. Many merge all three into their own personal career path. These three roles combined with our strong focus on technology and a highly customisable curriculum preparing graduates for employment in two key fields of work (Education and Human Resource Development) makes this a one-of-a-kind programme.

EST graduates are scientific educational professionals: experts who connect scientific research and educational design with practice. Their expertise is based on finding effective solutions for learning problems taken from practical contexts (in both schools and organisations) by using the tools of empirical research, a systematic approach, and often incorporating technology. 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 the solution contributes to improvement or innovation.

This 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.

- *Domain orientation*
  EST students may specialise in either EDU or HRD settings, or develop expertise related to both. Graduates have a firm and broad knowledge of their chosen focal area(s), and related knowledge and skills that can be used productively and creatively in a range of contexts.
- *Applied character*
  In various courses during the programme our students address real-life educational issues. They gain experience applying scientific knowledge in practice, thus learning how to 'recognise' the newly acquired educational theories in practice and also how to apply these theories in real-life situations.
- *Academic rigor*
  Ample attention is paid to students' academic training. The programme challenges students to develop robust research skills, by conducting both qualitative and quantitative research. Students gain experience in writing scientific articles and put all these skills into practice during their final graduation project.
- *Diverse community*
  The EST programme attracts students from various backgrounds: international students, graduates from undergraduate degree programmes of Dutch research universities and universities of applied sciences (in Dutch: HBO), and professionals who wish to broaden and deepen their knowledge and skills.
- *Attention to the use of technology*
  In our teaching we also pay attention to the role of technology in learning processes. For example: To what degree does the kind and number of environmental characteristics influence the learning achievements of employees? And: What role can the computer play in the instructional process or with assessing educational effectiveness?
- *Design-oriented and problem-solving approach*
  The programme teaches how to analyse educational and training problems in a systematic way and how to design effective solutions for those problems. This includes careful analysis of the existing situation before developing processes for organising learning trajectories, designing media applications, or evaluating real-life innovations, programmes or policies. Graduates are able to systematically frame up, elaborate, augment, evaluate, and implement designs to support learning environments in various education and training contexts.

Career opportunities

EST graduates have excellent job prospects in a variety of settings, for example, educational or training consultancy firms, academic publishers, corporate HR departments, schools, local or national government, or higher education. Our students normally find jobs within a few months of graduation. EST graduates typically apply for jobs such as:

- Education and training quality coordinator
- Educational or programme advisor
- Course developer
- Learning and development consultant
- E-learning designer
- Developer of educational tools and materials
- Corporate trainer
- Educational policy maker

- School inspector
- Developer of educational software or serious games
- Employee at an educational broadcasting station

Alternatively, quite some graduates opt for careers in educational science research at a university or research institute.

Where do our graduates work?

A few of the job placements enjoyed by our graduates include:

- Founder and owner of SwipeGuide
- Owner and Learning Innovator at Next Learning Valley
- Educational Consultant at the University of Twente
- Professor of Applied Sciences at Saxion
- Educational Advisor at Educared, a workplace learning company
- Educational Designer at Radboud University
- Researcher and consultant at Kessels & Smit, The Learning Company
- Educational Consultant at Nehem
- Innovation Manager at Rabobank, the Netherlands
- Executive Business Consultant in Change Management, Communication and Training at Atos Consulting, the Netherlands
- Educational Advisor at Eindhoven University of Technology
- Learning & Development Project Manager at Oxfam GB, United Kingdom
- Policy Advisor at the sectoral organisation for primary education
- Consultant / Trainer / Coach at Risbo-Erasmus University and Interaction Group
- Senior Training Advisor with Dutch Railway
- Educational Specialist at the Dutch Police Academy
- Educational Quality Advisor at Amsterdam University of Applied Sciences
- E-learning Multimedia Consultant and Designer for Elka Remmers Consulting, The Netherlands
- ICT Educational Specialist at Institute for Physical Safety
- Instructional Designer at University of South Australia, Adelaide, Australia

Research

Students who are keen on doing more research, may find outstanding opportunities right here at the UT, in the various sections within the BMS faculty or at the university-wide Centre of Expertise in Learning and Teaching (CELT). Student assistantships, project vacancies, and PhD trajectories are all closely connected with the section's profiles of the participating lecturers. More information can be found on the websites of the four sections that are involved in EST:

- ELAN: Section of Teacher Development
- IST: Section of Instructional Technology
- PLT: Section of Professional Learning and Technology
- CODE: Section of Cognition, Data and Education

2.2 EST's goals

EST's mission is to graduate versatile professionals who leverage their academic and research competencies to fulfil the roles of researchers, designers, and consultants in education.

- Our graduates are comfortable engaging with technology in multiple ways:
    - as inputs (e.g., eye trackers, digital logs, video),
    - as processes (e.g., information processing, data analysis, machine learning)
    - as outcomes (e.g., creation of digital resources for teaching or learning)
- Our graduates acquired broad and deep skills, in this case:
    - with broadly developed abilities to fulfil the roles of advisor, consultant, and designer,
    - in the teaching and learning contexts of organisations or schools
    - which are supported by deep disciplinary, academic, and research competencies,
    - and are benefitted by internalisation of EST's
        - engineering approach
        - thirst for innovation
        - systems perspective
        - social norms
        - professionalisation (high standards for depth, completeness, and social aspects of performance)

To succeed on this mission, the programme has established the following Intended Learning Outcomes (ILOs):

- *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) organisations, in part based on the three competencies mentioned above, with regard to the implementation of better and more efficient learning environments and organisational 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.

2.3 EST's philosophy in action

EST's core values are to embrace challenge, foster life-long learning, and respect others.

- Embrace challenge means:
  - Commitment to solution-driving approaches to tackling complex issues
  - Maintaining a critical attitude
  - Openness to feedback and improvement
- Foster life-long learning means:
  - Ownership and accountability
  - Choice and opportunity
  - Taking responsibility
- Embody respect means:
  - Appreciating (inter-)disciplinary perspectives and (multi-)cultural traditions
  - Cooperative, collaborative, inclusive
  - Building community

With the goal of achieving the mission described above, these core values are manifested throughout the programme, in visible ways:

- There are no separate research courses, design courses, advice courses or reflection courses. In each course, students work on multiple skills at the same time and learn how to integrate them. For developing a good design, students need research skills and advice skills to implement the design successfully. Powerful research yields recommendations for practice, based on the state-of-the-art research findings.
- At the same time, there are courses with strong theoretical orientations and assignments designed by the lecturers, and there are courses in which students choose a case to work on, that matches with one's interest and the skills the student wishes to practice.
- (Partly) parallel to the coursework, students begin early with the conceptualisation of their Final Project. They choose the Final Project in consultation with the programme's Final Project co-ordinator(s), and they refine it in consultation with the UT supervisor and (in case an external partner is involved) with the educational organisation or company in which the project is situated. The Final Project always has a strong research part and depending on the project it might also have a significant design, evaluation or advice component.
- Problem-based, project-based and challenge-based learning are major characteristics in the programme. Assignments are based on real problems from practice, and students will visit schools or companies. Parts of the EST trajectory take place in "live contexts" inside educational organisations or companies in which students learn together with and from professionals. This will also help students to orient themselves on their Final Project and of course on their future career.
- Depending on background, future goals and time limits, students can design their own curriculum to a certain extent. For example, those wishing to travel abroad for their Final Project, might choose to complete all courses in the first semester. The programme may be undertaken full-time or part-time. Students can choose five electives from the offering of multiple EST elective courses, or they can even request to take a course from another master's degree programme if they can demonstrate the relevance and contribution of it to their EST programme. To make deliberate choices in designing their learning routes, students seek guidance from the study adviser who is knowledgeable about possibilities and restrictions.

2.4 EST's programme outline

The basic structure of the 60 EC EST programme is given below, for both September and February enrolment (see Part D of this Programme Guide for course descriptions):

- **20 EC: Obligatory courses:**
  - Learning and instruction
  - Lifelong learning in a changing society
  - Assessment of learning and performance
  - Your Agency, Balance, Career and Development

- **20 EC: Elective Courses** (choose 4 out of 8)**:**
  - Team learning at work
  - Designing learning and performance support
  - The art and science of change
  - 4CID for complex learning
  - HRM and innovation
  - Innovative technology-based learning environments
  - Crafting meaningful and motivating learning experiences
  - Teacher learning and development

- **20 EC: Final Project**

Every student takes the four obligatory courses during their first semester. The order and timing of when the elective courses are offered and taken depend on the student's starting moment (September or February) and study pace (full-time or part-time).
Full-time enrolment moments are shown below, part-time enrolment moments in paragraph 2.7.

	Obligatory courses	**20 EC**
	Elective courses	**20 EC** *(choose 4)*
	Final Project EST	**20 EC**

September 2025 enrolment / <u>full-time</u> students: 1 year

Quartile 1A	Quartile 1B	Quartile 2A	Quartile 2B
10 EC obligatory + 5 EC elective (choose 1 out of 2)	10 EC obligatory + 5 EC elective (choose 1 out of 2)	5 EC elective (choose 1 out of 2) + 10 EC final project	5 EC elective (choose 1 out of 2) + 10 EC final project
Lifelong learning in a changing society 202500252 (5 EC)	Your Agency, Balance, Career & Development 202500253 (5 EC)	"Your ABCD" meetings	
Learning and instruction * 202300197 (5EC)	Assessment of learning and performance 202500256 (5 EC)		
Team learning at work 201500010 (5 EC)	The art and science of change 202500257 (5 EC)	HRM and innovation ** 201500087 (5 EC)	Crafting meaningful and motivating learning experiences 202500255 (5 EC)
Designing learning & performance support 191970340 (5 EC)	4CID for complex learning 202200054 (5 EC)	Innovative technology-based learning environments 201400002 (5 EC)	Teacher learning and development 202400784 (5 EC)
	x select FP topic + supervisor		
		Final Project EST 202500254 (20 EC)	

* Retake of block 1A is in block 2A, not in1B!
** Lectures are on Mon/Tue but occasional scheduled group meeting with teacher may be on other day of the week!

February 2026 enrolment / <u>full-time</u> students: 1 year

Quartile 2A	Quartile 2B	Quartile 1A	Quartile 1B
10 EC obligatory + 5 EC elective (choose 1 out of 2)	10 EC obligatory + 5 EC elective (choose 1 out of 2)	5 EC elective (choose 1 out of 2) + 10 EC final project	5 EC elective (choose 1 out of 2) + 10 EC final project
Lifelong learning in a changing society 202500252 (5 EC)	Your Agency, Balance, Career & Development 202500253 (5 EC)	"Your ABCD" meetings	
Learning and instruction 202300197 (5EC)	Assessment of learning and performance 202500256 (5 EC)		
HRM and innovation ** 201500087 (5 EC)	Crafting meaningful and motivating learning experiences 202500255 (5 EC)	Team learning at work 201500010 (5 EC)	The art and science of change 202500257 (5 EC)
Innovative technology-based learning environments 201400002 (5 EC)	Teacher learning and development 202400784 (5 EC)	Designing learning & performance support 191970340 (5 EC)	4CID for complex learning 202200054 (5 EC)
	x select FP topic + supervisor		
		Final Project EST 202500254 (20 EC)	

** Lectures are on Mon/Tue but occasional scheduled group meeting with teacher may be on other day of the week!

Core courses

All students start their study programme by taking the core courses in which they learn the knowledge and skills that are relevant for this master's programme in educational sciences. The three courses: Learning and instruction, Lifelong learning in a changing society, and Assessment of learning and performance provide a solid foundation in these areas. By taking these courses every students has a similar basis that they can expand on during their Final Project and in elective courses. In the fourth course: Your Agency, Balance, Career & Development students work on obtaining knowledge, attitudes and skills that they should use during their studies in general, and the Final Project trajectory in particular, as well as during their further careers. Next to students setting and working on some personal development goals, in this course each research section that contributes to EST (IST, PLT, ELAN, CODE) provides an overview of the ongoing research in the section. Furthermore, students work on an assignment where they investigate the work field of educational sciences and technology.

Electives

With regard to the electives, the following applies:

- A student selects four elective courses (5 ECs each) out of the set of eight available EST electives as presented in the table above. Full-time students take one elective course each quartile of the year and therefore have a choice of one out of two each time. Part-time students begin taking electives from their second semester onwards and can choose to take one or two per quartile (depending on timing and content preferences).
- Because the elective courses are offered once a year, the order of the electives over the year is different for students who start the programme in September than for students who start in February.
- Instead of selecting the full 20 ECs from these EST electives, a student may (in addition to at least two - i.e. min. 10 ECs - of these EST elective courses) choose max. two - i.e. max. 10 ECs - from other master's programmes.

  In order to do so, students must submit a motivated request to follow one or two courses offered by another master's programme. In this request the student states how the elective(s) contribute(s) to the intended learning outcomes of the EST programme and to the student's personal learning goals. A formal (Osiris) course description must be added to the request. In case the other elective(s) is offered by the University of Twente the student must submit the request to the EST programme management via the EST study adviser.

  In case a student would like to follow a course from another Dutch university or foreign university as part of their EST study programme, the student needs to submit the request to the examination board Behavioural Sciences. In these cases an advice from the programme (director) will be reclaimed.

  Please note: In terms of scheduling, these external elective course options may conflict with the EST courses (since they stem from other master's degree programmes). Therefore, the student need to check the timetables AND the exam dates prior to the start of these courses.

Final Project trajectory
Students mainly work on their "Final Project" (20 EC) during their second semester (and part-time students during their second year). In the quartile before the actual start of the Final Project, the first information meeting will be held (so beginning of block 1B for September cohort and block 2B for February cohort). During this meeting possible Final Projects that are offered by teachers from the four research sections (IST, PLT, ELAN, CODE) are presented. After this presentation students can submit their preferences. The Final Project coordinators of each research section jointly distribute the students over the available topics, as much as possible based on the preferences submitted, and assign each student to a thesis supervisor. When this is arranged the student can make the first appointment with the supervisor and start their Final Project.
More information about the Final Project can be found in the Final Project Guide on the EST website.

Detailed information on all 2025-2026 EST courses can be found in Part D of this programme guide or via the university's course catalogue: https://utwente.osiris-student.nl/onderwijscatalogus/extern/cursus

2.5 Formal Education (EDU)

The Formal Education (EDU) domain focuses mainly on learning and instruction, teacher and school development, school effectiveness, and ICT in a variety of formal and informal educational contexts.

Educational design involves the planning, development, and implementation of innovative learning scenarios. Effective implementation of these change trajectories at both the school and classroom levels requires teachers and schools that are ready for the implementation. Teacher professional development is therefore one of the elements that is addressed when designing, developing, and implementing effective learning environments.

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 structural monitoring and assessment of education. Schools should be able to track the quality and results of their teaching, not just through student assessment, but also at the teacher and school levels.

Core questions in the EDU field are:

- How can learning innovations be designed, implemented and evaluated?
- How can technology be used and integrated into education and what are the effects on students' learning in terms of knowledge, skills, motivation, etc.?
- How can schools and teachers be supported in the design, development and implementation of innovations at both school and classroom levels?

- 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?
- 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 government inspections or are the improvements only superficial?

Several courses focus on the individual learner: Your Agency, Balance, Career & Development, Designing Learning and Performance Support, Learning and Instruction, and Innovative Technology-Based Learning Environments. Innovative technology is central in these courses, which offer theoretical insights as well as ample hands-on experiences. The course 4CID for Complex Learning focusses on developing a blueprint for the design of complex learning tasks. In the Teacher Learning and Development course the expertise of teachers and their roles in the learning process are discussed. The course Assessment of Learning and Performance is relevant for both EDU and HRD as it aims to develop hands-on skills in both construction and evaluation of assessments.

Acquired skills
The EDU domain has an applied character in which the integration of research, design, and reflection skills is central. Having taken these courses, students will be able to:

- Understand and analyse different theories and paradigms related to learning and instruction, teacher and school development, school effectiveness and ICT in a variety of educational contexts as well as indicate what they mean for practice;
- Plan, design, and implement innovations to increase the quality of education and assess the effects of these innovations;
- 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 education and as well as one's own position on these issues.

2.6 Human Resource Development (HRD)

Human Resource Development (HRD) focuses mainly on the learning and development of adults in the context of their professional work. Continuous lifelong learning is crucial for employees to keep up with and contribute to technological and social innovations. The energy transition, the digital transformation, and healthcare transformation requires not only reskilling and upskilling of the workers, but also new business models, new ways of working. Learning is, therefore, often not just an individual activity but also takes place at the team level, the organisational level (organisational change), and even beyond organisations in, for example, learning communities.

Companies and institutions invest billions in education and training. Large companies often have their corporate department for learning and development, and they offer training to their staff to improve their performance and professional development. At the same time, most

learning happens outside these formal settings: workplace learning is intertwined with their daily job. Human Resource Development (HRD) is fundamentally concerned with fostering learning and development within professional contexts to support organisational adaptability and innovation allowing organisations and their employees to adapt to changes on the work floor and in society. This will be addressed in the courses such as: Lifelong Learning in a Changing Society, Team Learning at Work, the Art and Science of Change, HRM and Innovation, and Crafting Meaningful and Motivating Learning Experiences.

Core questions in the HRD field are:

- How do people learn during their work and how do they become experts?
- How may one facilitate workplace learning and professional development?
- What are effective training programmes and how can they be evaluated?
- How can team and organisational learning be facilitated?
- How do organisations change and develop themselves beyond their organisational boundaries in the context of large societal transitions?

Acquired skills

In the field of HRD knowledge and research, approaches from a combination of disciplines are used to answer the core questions: psychology, educational science, business administration, communications science, and organisation studies. In addition to its focus on current HRD research, this field also has an applied character in which the integration of research, design, advice and reflection skills is central. Having taken these courses, students will be able to:

- Comprehend and analyse different professional learning theories, and to understand what they can mean in practice;
- Design innovative and effective interventions to enhance learning and development in a company or non-profit organisation;
- Advise organisations on questions related to their employees' learning and development;
- Conduct research on professional learning challenges;
- Use research insights to design effective learning interventions and to give solid advice;
- Reflect on the various core issues in the field of HRD and on one's own position on these issues.

2.7 EST in a part-time mode

The one-year Master's degree programme EST can be studied full-time or part-time. In the latter case the programme lasts 2 years.

In this regard (particularly for facilitating this part-time mode) the following applies:

- Minimum 2 days, but preferably 3 days per week are needed to complete the master within the part-time timeframe of two years.
- All EST master's courses are (dominantly) scheduled on two fixed days in the week, namely Mondays and Tuesdays (but exceptions may occur).
- Classes of a specific course take *as much as possible* place on the same day throughout the quartile.

Thus, 'part-timers' are facilitated in arranging (at least) these two dedicated study days, which can be crucial for those with existing family or employment responsibilities.

Note: The actual study load in the part-time mode depends on the number of courses a student takes in a specific quartile (5 or 10 EC). As such, it is possible that study load is not always evenly distributed throughout the two years. When enrolled as a part-time student, the maximum number of EC's that may be obtained withing one year is 40 EC. For more information about studying EST in part-time mode, see:
https://www.utwente.nl/en/est/masterest/eductional-science-and-technology-in-part-time-mode.pdf

The part-time programme overviews for both September and February enrolment are given below.

September 2025 enrolment / part-time students: 2 years

	Obligatory courses	**20 EC**
	Elective courses	**20 EC** *(choose 4)*
	Final Project EST	**20 EC**

Year 1 – 25 to max.40 EC			
Quartile 1A	**Quartile 1B**	**Quartile 2A**	**Quartile 2B**
10 EC obligatory	10 EC obligatory	5 or 10 EC elective (choose 1 or 2 out of 2)	5 or 10 EC elective (choose 1 or 2 out of 2)
Lifelong learning in a changing society 202500252 (5 EC)	Your Agency, Balance, Career & Development 202500253 (5 EC)		
Learning and instruction * 202300197 (5EC)	Assessment of learning and performance 202500256 (5 EC)		
		HRM and innovation ** 201500087 (5 EC)	Crafting meaningful and motivating learning experiences 202500255 (5 EC)
		Innovative technology-based learning environments 201400002 (5 EC)	Teacher learning and development 202400784 (5 EC)
			x select FP topic + supervisor

* Retake of block 1A is in block 2A, not in1B!
** Lectures are on Mon/Tue but occasional (scheduled) group meeting may be on other day of the week!

Year 2 – 25 to max.40 EC			
Quartile 1A	**Quartile 1B**	**Quartile 2A**	**Quartile 2B**
(choose remaining electives) + work on Final Project			
Your ABCD meetings			
Final Project EST 202500254 (20 EC)			
Team learning at work 201500010 (5 EC)	The art and science of change 202500257 (5 EC)	HRM and innovation ** 201500087 (5 EC)	Crafting meaningful and motivating learning experiences 202500255 (5 EC)
Designing learning & performance support 191970340 (5 EC)	4CID for complex learning 202200054 (5 EC)	Innovative technology-based learning environments 201400002 (5 EC)	Teacher learning and development 202400784 (5 EC)

February 2026 enrolment / part-time students: 2 years

	Obligatory courses	**20 EC**
	Elective courses	**20 EC** *(choose 4)*
	Final Project EST	**20 EC**

Year 1 – 25 to max.40 EC			
Quartile 2A	**Quartile 2B**	**Quartile 1A**	**Quartile 1B**
10 EC obligatory	10 EC obligatory	5 or 10 EC elective (choose 1 or 2 out of 2)	5 or 10 EC elective (choose 1 or 2 out of 2)
Lifelong learning in a changing society 202500252 (5 EC)	Your Agency, Balance, Career & Development 202500253 (5 EC)		
Learning and instruction 202300197 (5EC)	Assessment of learning and performance 202500256 (5 EC)		
		Team learning at work 201500010 (5 EC)	The art and science of change 202500257 (5 EC)
		Designing learning & performance support 191970340 (5 EC)	4CID for complex learning 202200054 (5 EC)
			x select FP topic + supervisor

Year 2 – 25 to max.40 EC			
Quartile 2A	**Quartile 2B**	**Quartile 1A**	**Quartile 1B**
(choose remaining electives) + work on Final Project			
Your ABCD meetings			
Final Project EST 202500254 (20 EC)			
HRM and innovation ** 201500087 (5 EC)	Crafting meaningful and motivating learning experiences 202500255 (5 EC)	Team learning at work 201500010 (5 EC)	The art and science of change 202500257 (5 EC)
Innovative technology-based learning environments 201400002 (5 EC)	Teacher learning and development 202400784 (5 EC)	Designing learning & performance support 191970340 (5 EC)	4CID for complex learning 202200054 (5 EC)

** Lectures are on Mon/Tue but occasional scheduled group meeting with teacher may be on other day of the week!

2.8 Doctorate programmes

After completing the Master's degree programme, students may opt for a career in scientific research. This involves spending four years studying a particular research area in depth. An integral part of this is writing the PhD thesis, and presenting and defending the research in public. After successfully completing a PhD, researchers are awarded the title of Doctor (Dr.). Unlike in many other countries, most PhD researchers in the Netherlands are paid employees, often working directly for the university. Some PhD researchers come to the Netherlands with an international scholarship.

In addition to the regular PhD positions offered on the UT vacancies website, Twente Graduate School offers several integrated master/PhD programmes. More information about the doctoral programmes at the University of Twente can be found on the website: https://www.utwente.nl/en/education/tgs/

2.9 University of Twente characteristics

Irrespective of which programme you will study at the University of Twente, all our Master's degree programmes strive to train entrepreneurial academics who are able to address and solve social issues by conscientiously pinpointing problems, investigating possible solutions or designing, developing and evaluating new products or applications. We emphasise that our students, next to knowing their way around in their own discipline, are capable of working together with professionals from other disciplines. After all, many social issues demand a multidisciplinary solution.

We aim at educating students to become excellent professionals who possess both scientific as well as professional competences.

Therefore, the following characteristics apply

- *Small-scale instruction*
  Next to the more or less traditional lectures, instruction is particularly organised in small groups, interactive workshops, seminars and practicals. In our opinion, small-scale and strongly supervised (contact-intensive) instruction is of paramount importance to the development of professional and academic skills. Students carry out (individual and small group) assignments where collaborative, evaluative and other social and communication skills play an important role.
- *Strong connection between education and research*
  The contribution of faculty members to the Educational Science and Technology programme is recognised and highly valued, both nationally and internationally. The Master's degree programme is strongly linked to topical research that is conducted in the departments concerned, and lecturers draw many examples from their own research during their lectures. It also occurs that students actively contribute to the lecturers' research, e.g. during their graduation phase. The subjects and assignments of the Master's degree programmes are often linked to current research projects within

the research lines of the departments. In this way you will be initiated in the professional and academic field of action.

- *Guest lectures by well-known researchers or experts from the work field*
  In recent years various (internationally) famous researchers have honoured the programme with a visit, in many cases delivering a lecture or a lunch seminar. Also, in several courses professionals share their knowledge and experiences or present real-life challenges for students to work on.
- *Open and informal atmosphere between lecturers and students*
  The programme's atmosphere (educational climate) can be characterised as pleasant and inclusive. Communication between lecturers and students is quite informal, but respectful.
- *Extensive student supervision*
  The EST programme has been designed in such a way that you yourself are to some extent responsible for your study trajectory and your study progress, and you are offered substantial freedom to make intrinsic choices yourself. This could imply independently devising subjects for assignments, choosing your elective courses, and the theme of your final project. It is important that your choices are made consciously and are well-considered. In this regard, you may count on a good study adviser to help you making the right choices and be there for you.
- *International possibilities for studying abroad*
  We think it is important that students broaden their academic horizon during their studies. In this respect, we support ambitions that include spending some time abroad (e.g. taking courses, participating in on-going research). Please feel invited to contact your study adviser for discussing your ambitions and possibilities.
- *Encouraging student activism*
  The University of Twente fervently encourages all kinds of student activism (ranging from membership of a committee or board, to assisting university staff or starting a small business). It is the university's firm belief that students will benefit from extra-curricular activities.

What does this mean to you?
Our students are enterprising, curious, dare to take risks, have self-knowledge and insight into the tasks, functions and roles that a job entail. Characteristics such as self-discipline, personal responsibility, using one's initiative and independence are important to us. Our students are open to the contributions made by people with other expertise, other backgrounds, and other methods.

Part B: Admission and enrolment to the Master's degree programme EST

3. Admission criteria and application procedures

3.1 Admission criteria

The programme's Admission Committee assesses all applicants to the MSc programme Educational Science & Technology (EST) on an individual basis. The assessment of the applicant's skills is based on formal as well as content-related admission criteria.
https://www.utwente.nl/en/education/master/programmes/educational-science-technology/admission/

The *formal criteria* are as follows:

A. Bachelor's degree or equivalent
B. **Note**: for international students (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
   https://www.utwente.nl/en/education/master/how-to-apply/
C. Applicants from countries where this diploma classification system applies, must have a bachelor's degree with at least a "First Class" classification (CGPA at least 90%), (or a relevant additional qualification in addition to a Second Class Honours - Upper division degree)

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

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

Ad D. 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 trajectories, intended to improve learning and performance in a variety of settings. A student meets the domain-specific admission criterion if the student 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 the student has substantial relevant work experience from which the student has mastered the aforementioned conceptual knowledge.

Ad E. Design Methodology
This is a typical content characteristic of all behavioural Bachelor's and Master's programmes in our Behavioural, Management and Social Sciences Faculty, aiming at educating scientific designers. This methodology for systematic problem solving aims to support 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, the student has to send us an overview of relevant courses taken and/or reports of systematic design projects the student has intensively been involved in.

Ad F. 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 have been has completed in this area, and/or reports of research projects or activities the student has been involved in substantially.

Ad G. 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 the student is 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). Experience with R, 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 have been successfully completed, and/or use of these techniques in research, demonstrated by means of a report or an article.

3.2 Evaluation of the admission criteria

On behalf of the programme director, the programme's Admission Committee will review the information and documents presented by each applicant, and they will decide whether a student meets all stated criteria sufficiently.

In order to be considered for admission, an applicant has to meet the aforementioned *formal* criteria evaluation of the *content-related* admission criteria may result in one out of two alternative decisions by the Admission Committee:

1. If a student meets all content-related criteria the student will be admitted to the EST Master's programme directly and unconditionally.
2. If a student does not (partly) meet the content-related admission criteria, the student will be offered the opportunity of taking (a part of) the EST pre-Master's programme.

In addition to the generic information, the following detailed options apply:

1) Students with a bachelor's or master's degree from a (Dutch) university of applied sciences (in Dutch HBO-instelling) enrol in the full (30 ECs) version of the pre-Master's trajectory.
2) Students with a bachelor's or master's degree in Arts or Science (in Dutch: Alfa- or Beta opleiding) from a (Dutch) research university enrol in the full (30 ECs) version of the pre-Master's trajectory.
    a. These students lack the required domain-specific (Educational Science) knowledge. They therefore have to complete the (15 ECs) domain-specific pre-Master's courses, plus
    b. Despite their assumed academic level in reasoning and doing research, these students miss the social science competences in this regard. They therefore also have to complete the research methodological (15 ECs) pre-Master's courses.
3) Students with a bachelor's or master's degree in Social Sciences (in Dutch: Gamma- of Sociale wetenschappen) from a (Dutch) research university will, *depending on their specific prior education*, usually only take specific components (15 ECs) of the pre-Master's trajectory.

    In general, it is assumed that these students possess sufficient generic academic and research methodological competences. They are therefore **exempted** from the pre-Master's courses *Research Methodology and Descriptive Statistics, Academic Writing, and Inferential Statistics*. They do need to take the remaining 15 ECs programme (i.e. the pre-Master's courses: *Designing for Learning in Schools and Organisations,* and *Research Studio*).
4) Students with **a bachelor's or master's degree from specific – domain related - (research university) programmes** (e.g. Educational Sciences, some sub-domains in Pedagogy or Psychology) may be exempted from the pre-Master's trajectory fully. This is assessed in detail based on the documents the applicant must upload in the UT application system.
5) UT-BMS students who have successfully completed the TOM-modules "Professional Learning in Organisations" (202001431) and/or "Psychology in Learning & Instruction" (202000344) may also meet the EST entry requirements for direct enrolment. These students have to contact the EST programme staff, Ms. Yvonne Luyten-de Thouars (e-mail: y.c.h.dethouars@utwente.nl) or Ms. Marlies Tijhuis (e-mail: m.e.tijhuis@utwente.nl) if they intend to pursue their studies in EST after their current bachelor's programme.

Note: full information on the pre-Master's trajectory can be obtained from Chapter 4 of this programme guide.

3.3 Application procedures

Depending on their prior education, applicants are subject to the following procedures:

a. *UT EST pre-Master's students*
Having completed the EST pre-Master's programme, students automatically qualify for a direct and unconditional access to the Master's degree programme EST. Formal registration for the Master's degree programme EST must be submitted via Studielink. After that, and upon having passed all the pre-Master's courses successfully, the EST programme staff will inform the UT's Central Student Administration (CSA) whether the student has satisfied all the requirements for registering to the EST Master's degree programme. Then the pre-Master's registration will be converted into the master's EST enrolment.

> Note:
> You have to renew your formal registration at the UT every year! CSA will remind you in this respect by sending you an e-mail message with a link to the digital re-enrolment form annually.

b. *Other UT Bachelor's students*
This mostly implies that students have to take the domain-specific courses of the pre-Master's programme OR one or two specific modules from the University of Twente Psychology bachelor's programme[1] that they could follow during their bachelor's, in order to be prepared optimally for the master's degree programme in Educational Science and Technology. Students will need to inform both the Educational Affairs Office (BOZ) of their own programme as well as the EST programme staff if they intend to pursue their studies in EST. Depending on the specific situation, students will be informed about the correct registration procedure.

c. *Other applicants*
On the basis of detailed information on their prior education, the Admission Committee of the EST master's degree programme will assess how the pre-Master's trajectory will look like. In any case students have to apply **online** via:
https://www.utwente.nl/en/education/master/how-to-apply/

Note:
Although most applicants first have to take the EST pre-Master's programme (or parts thereof), it has to be underlined that there is NO separate application procedure for the pre-Master's programme.
All students have to apply via the *master's application website*!

[1] **These modules are: Professional Learning in Organisations (202001431) and/or Psychology in Learning and Instruction (202000344)**

Diversity of application deadlines (depending on nationality, visa, housing)

In order to facilitate a smooth start of your studies at the University of Twente, any application has to be submitted before the stipulated deadlines: http://www.utwente.nl/en/education/master/admission-requirements/application-deadlines/

Please bear in mind that students may apply even if they have not yet formally obtained a prior (bachelor's) degree (in this regard, it is expected that students will obtain their bachelor's degree officially before 1 September or 1 February).

Any questions regarding the application procedures and the application form, please contact:

University of Twente, Student Services (Admission Office),
Building: Boerderij: Contact Centre
Tel: (+31) (0)53 489 2124
E-Mail: studentservices@utwente.nl

If students have any questions regarding the content of the EST master's or pre-Master's programme, please contact the EST programme staff:

Ms Marlies Tijhuis
Building Ravelijn, room 3278
Tel: (+31) (0)53 489 8604
E-Mail: m.e.tijhuis@utwente.nl

Ms Yvonne Luyten-de Thouars
Building Ravelijn, room 3280 (or 3240)
Tel. (+31) (0)53 489 1117
E-mail: y.c.h.luyten-dethouars@utwente.nl

4. Pre-Master's programme

Many students wishing to be admitted to the master's programme Educational Science and Technology (EST) will first have to complete (parts of) our pre-Master's programme. Whether students will have to take the full pre-Master's programme, a partial pre-Master's programme or no pre-Master's programme at all will depend on your previous qualifications (See: Chapter 3). All students will be evaluated by the programme's Admission Committee individually on a portfolio base.

Please note:

- The pre-Master's courses are taught in English.
- All assigned pre-Master's courses must be successfully completed in order to be admitted to the Master's programme Educational Science and Technology!
- During the pre-Master two strict rules apply:
  - Pre-Master's students have a maximum of two chances to pass a course (max. 2 attempts per exam)
  - All pre-Master's courses must be completed within one year (max. 1 year registration period)
- The aforementioned rules also imply that you cannot participate in the pre-Master's programme again in subsequent years.

4.1 Programme Outline

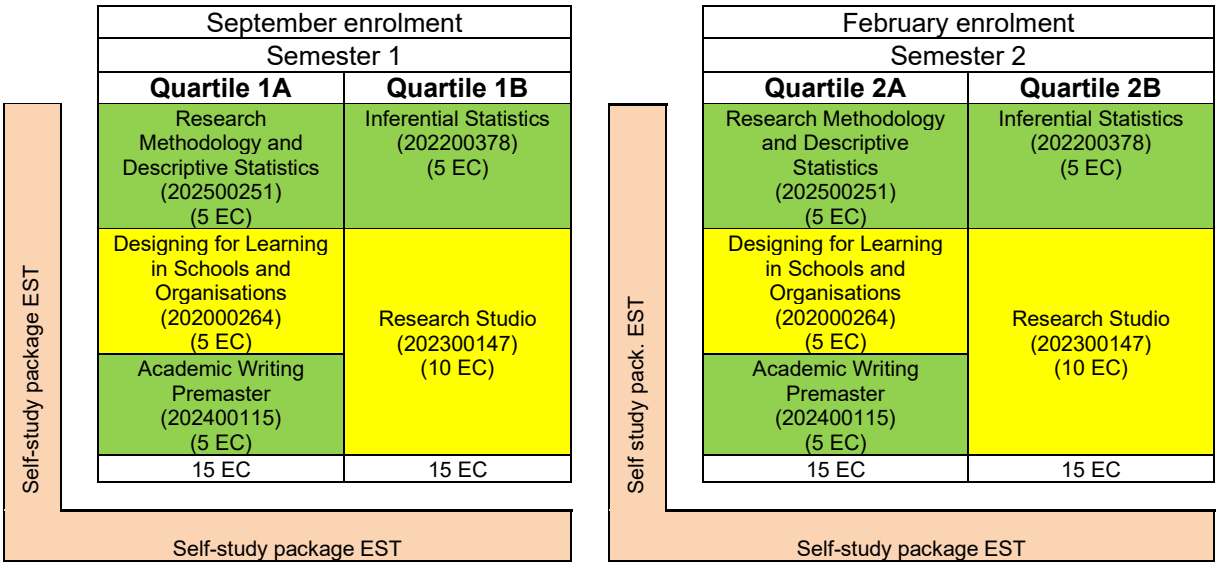
The full (30 European Credits/ECs) pre-Master's programme comprises of both domain-specific (Educational Science and Technology) courses and courses which address generic academic and research methodological competences.

The programme prepares a student for applied, design or evaluation-oriented, scientific reasoning and research during his/her Master's trajectory Educational Science and Technology.
Therefore, all assigned 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 pre-Master's programme has two terms of enrolment (September and February).

Therefore, the following structure applies:

Full-time programme = ½ year = one semester

	Generic academic course	(15 EC)
	Domain-specific (EST) courses	(15 EC)
	Self-study package EST	



Special regulations in the pre-Master's programme that deviate from bachelor's or master's degree programmes:

Registration and limitations in the pre-master's programme

1. Pre-master students have a maximum of two chances to pass a course. Within one semester two chances are offered. (In a few cases where a student uses the second attempt in the next semester (e.g. because of illness at the time of the offered opportunities), this implies a ½ year study delay, with a max. of one year enrollment!).

When a student does not pass a course within two attempts, the student will be excluded from the programme.

2. All pre-master courses must be completed within one year. This is the maximum registration period in the pre-master's programme.

When a student does not pass all courses within one year, the student will be excluded from the programme.

- A student can only enter the master's programme after completing all assigned pre-master courses successfully.
- The aforementioned rules also imply that students cannot participate in the pre-master's programme again in subsequent years.
  Note: The rules mentioned above apply to both full-time and part-time students
- Moreover, a student will not be admitted to the pre-master's programme Educational Science and Technology in case the student within the framework of another University

of Twente pre-master's programme, already reached the maximum of two sits for an exam of the following courses: Research Methodology and Descriptive Statistics, and/or Inferential Statistics, and/or Academic Writing.

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 however 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 have to be prepared in English
- 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.

Self-study package
In order to prepare and assist (potential) students prior to and during their pre-Master study trajectory, we offer an online self-study package: https://www.utwente.nl/en/est/selfstudy/

This package contains study materials which cover the fundamentals of the topics and themes which are dealt with in both our pre-Master's as well as in our master's degree programme and we think that this self-study package will prepare students best for participating in our on-campus course offer.

This self-study trajectory is not an official prerequisite to enter the pre-Master's programme, but relevant and necessary prerequisite knowledge will be offered in the self-study trajectory. In other words: courses in the pre-Master's programme build on the literature that is offered in the self-study.

We therefore highly recommend all applicants of the pre-Master's programme that they read the literature that is offered in the self-study trajectory, that they watch the accompanying videos in which the literature is explained, and that they (upon availability) work on the self-study assignments, to make sure that all prospective students are fully prepared when enrolling in our pre-Master's programme!

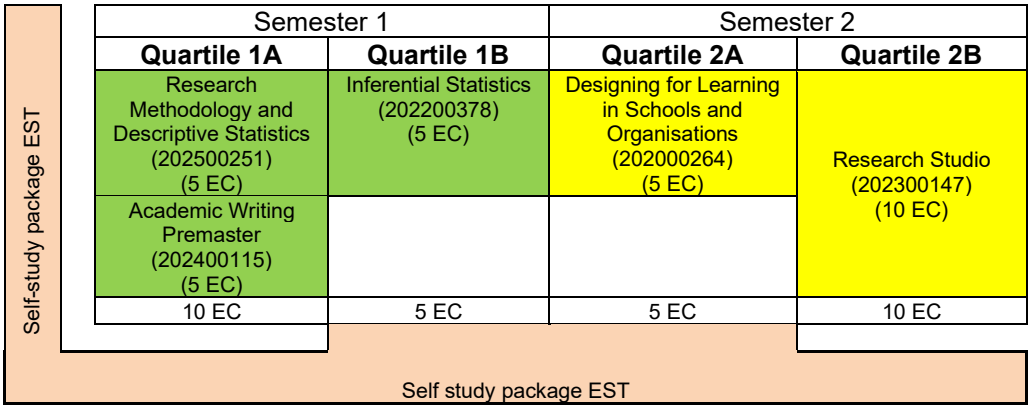
4.2 Pre-Master's programme in a part-time mode

Basically, the pre-Master's programme is a full-time programme with a study load of 30 EC that can be studied and completed in half a year. This implies the following: there is no formal part-time variant, but it is possible to spread the pre-Master's courses to be taken over a period of max. 1 full academic year. In this part-time mode the courses must be taken in a specific order

(see below). We recommend that students who opt for this part-time study plan first consult our study adviser (Ms Yvonne Luyten-de Thouars / e-mail: y.c.h.luyten-dethouars@utwente.nl) in order to discuss the study plan with regard to the student's particular situation.
During the EST Introduction Day students indicate on a personal study plan whether the pre-master programme will be studied in full-time or part-time mode.

Part-time programme = 1 year = two semesters

	Generic academic course	(15 EC)
	Domain-specific (EST) courses	(15 EC)
	Self-study package EST	



For more detailed information about studying EST in part-time mode, see: https://www.utwente.nl/en/est/masterest/eductional-science-and-technology-in-part-time-mode.pdf

5. Costs

5.1 Tuition fees

The University of Twente applies both statutory tuition fees as well as institutional tuition fees. The tuition which has to be paid basically depends on:

- the status of your enrolment (e.g., pre-Master's or Master's degree student, part-time vs. full-time)
- your nationality (Dutch and/or European Union (EU/EEA) vs. non-EU/EEA)

The exact amounts are indexed annually.
Full information can be obtained from:
https://www.utwente.nl/en/student-services/money-matters/tuitionfee/

Next to the tuition fees, you need to bear in mind the following annual costs:

- Study materials (approx. € 400 - € 500)

5.2 Cost of living

As a guide, a single student will need approximately € 15.000,- per year for (on-campus) accommodation, study materials, and general living expenses (excluding tuition fees). See for more details: https://www.utwente.nl/en/education/master/costs-of-studying/

5.3 Scholarships and grants

The University of Twente has several scholarships for students completing UT postgraduate programmes. These scholarships vary from government grants to funding by organisations or private people. In addition, faculties and the University of Twente Scholarship (UTS) fund offer a *limited* number of scholarships for excellent students who get *directly* accepted into the master's programme

Please note:

- students who have to do pre-Master's courses first cannot apply for UTS, also not after having completed the pre-Master.

All scholarships require that all UT application procedures are fully completed before applying. Applying for a scholarship is possible as soon as you have received a letter confirming admission to the master's programme. Please note that some scholarships are for students of specific nationalities or specific educational programmes. More information can be found at:
https://www.utwente.nl/en/education/scholarship-finder/search/

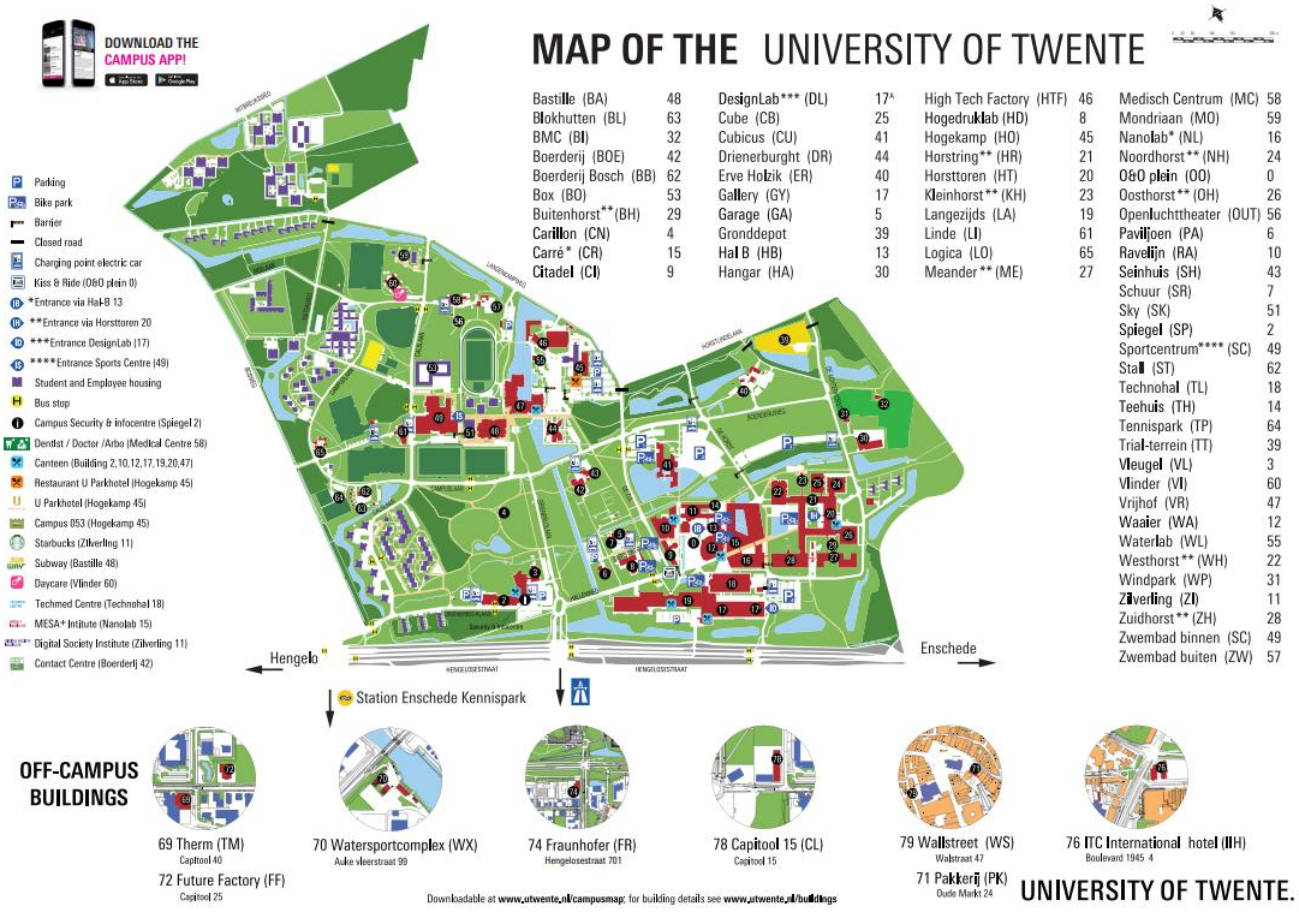
Part C: General information

NOTE:

The information provided in this section may be subject to changes. Therefore, please check the websites of university's Centre for Educational Support (Student Services) (https://www.utwente.nl/en/ces/) for the most up-to-date information.

6. Practical issues

6.1 Finding your way at the University of Twente



6.2 Faculty introduction

In order for you to prepare yourself adequately for your pre-Master's or Master's degree programme and to meet your fellow students, a one-day faculty introduction is organised shortly before the programme's start (i.e. during the last week in August or the first week of the second semester in January/February).
During the introduction day the focus will be on the presentation of the master's degree courses, the pre-Master trajectory, and composing the individual study plan.
Furthermore you will meet your lecturers, fellow-students, and the educational support staff, and you will be shown round the faculty buildings, and register for Komma (the EST study association).
After attending this introduction day, you will be all set to start your studies in EST.

6.3 Purchasing study materials

You will need books and/or other study materials for every course.

Buying books
On the website of study association Komma (https://www.komma.utwente.nl/est-books/), you can find a list of the text books that are compulsory or recommended before each first quartile. You can order these books with a discounted price through Komma.

If you wish to order your books via Komma, you need to register yourself as a member. This can be done online at https://www.komma.utwente.nl/membership-signup. The books will be delivered at your desired address (in The Netherlands) for free. Apart from discounted book prices, membership of Komma has numerous other benefits (see below).

Alternatively, you can order your books through a regular book store (or online via e.g., www.studystore.nl, www.bol.com or www.amazon.co.uk. These also offer second-hand books.

Please note that some books take longer to be delivered. If you want to have your books on time (before the start of the first lectures), you'll need to order your books on time (i.e. 2-3 weeks in advance). Many books that teachers have designated as "compulsory literature" can also be found in an especially reserved part of the university's library.

Other study material
Most other study material is made available via the Canvas site of each course.

Study & Alumni association Komma
Each study programme has its own study association and for Educational Science and Technology that is Komma. At the same time, Komma is also the alumni association of EST graduates. This combination is unique at the UT, as study and alumni associations are usually separate organisations. By uniting students, alumni and staff in one association, Komma makes it easy to find others with shared interests within the broad domain of EST.

Komma is the meeting place for students and alumni where professional skills are honed and where mutual relations and contact with the faculty are kept up.

Connect - Share - Discover
These are the focal points that Komma revolves around. *Connect* is about linking students with alumni. *Share* is about sharing knowledge, skills, experiences and inspiration. *Discover* refers to discovering new ideas, concepts and opportunities in the education, learning & development industry. These three key pillars are also closely interconnected. For example, sparring with one another can be thought of as both connect and share, and inspiration day can be grouped under share and discover.

For more information, see: https://www.komma.utwente.nl/home

6.5 Communication and information

One of the things you will notice when you decide to study at the University of Twente is the multitude of means of communication the university, the faculty and your programme uses to communicate with you, be it directly or indirectly. It starts as soon as you pre-enrol for the University of Twente. As an early registrant, you will be given your own UT e-mail address, username and password that allow you to surf the net via the university. The internet and e-mail are by far the most important means of communication for both the programme and the faculty.

Faculty's and programme's websites
The website of the Faculty of Behavioural, Management and Social Sciences (BMS) is: https://www.utwente.nl/en/bms/

Also, each programme has its own website. The website of the EST programme is: https://www.utwente.nl/en/est/

Canvas: the digital learning environment of the UT
Canvas is the digital learning environment of the University of Twente and can be found at https://www.utwente.nl/canvas.

On Canvas you also will find the EST programme site that serves as the ***EST info channel.*** This Canvas site publishes announcements, colloquia, vacancies, the overview EST final projects, and news from the student body in the EST programme committee:
https://canvas.utwente.nl/courses/3405

Osiris: the student information system
In Osiris students can consult a wealth of information: the list of addresses, grades, the teaching catalogue with information on e.g. courses and minors, and information regarding tutors or study advisers. You also use Osiris to register for courses and exams:
https://www.utwente.nl/en/educational-systems/

MS Teams: the online communication and co-operation platform
Teams is used for easy communication, chatting, video meetings, sharing documents, etcetera by both students and staff of the UT.

6.6 Timetables

The Faculty of Behavioural, Management and Social Sciences (BMS) operates with a term (semester) system, whereby each academic year is divided into two terms (semesters). Each term consists of two blocks (quartiles). A block is usually divided into eight weeks of lectures, and two exam weeks. For the timetables see: https://auth.timeedit.net/

The timetables for a block (quartile) will be online a couple of weeks prior to the start of each block (quartile). You can select your own study programme's timetable per quartile.

6.7 Lectures

A typical lecture day has 9 periods. The 5th period, from 12.45 - 13.30 hrs. is the lunch break (where no lectures are scheduled).

1st period:	08:45 - 09:30 hrs.
2nd period:	09:45 - 10:30 hrs.
3rd period:	10:45 - 11:30 hrs.
4th period:	11:45 - 12:30 hrs.
5th period = lunch break:	*12:45 - 13:30 hrs.*
6th period:	13:45 - 14:30 hrs.
7th period:	14:45 - 15:30 hrs.
8th period:	15:45 - 16:30 hrs.
9th period:	16:45 - 17:30 hrs.
10th period = dinner break:	*17:45 - 18:30 hrs.*
11th period:	18:45 - 19:30 hrs.
12th period:	19:45 - 20:30 hrs.
13th period:	20:45 - 21:30 hrs.
14th period:	21:45 - 22:30 hrs.

The timetable indicates how each course is taught. (Note: Officially speaking, we call a course a 'study unit'. This term is also used in the Dutch Higher Education and Research Act (the so-called WHW)).
In the timetable you can see for each course which type(s) of course activity are offered (e.g. lecture, tutorial, presentation and exam).

6.8 Enrolling in courses

Enrolment for the courses via Osiris
You must enrol for each course on: https://osiris.utwente.nl/student/StartPagina.do

Each course is listed into Osiris well in advance to allow you to register for it. You will need to register in time in order to get access to the course's Canvas site, where you can see the course's details and to read optional announcements from the involved teacher prior to the actual start of the course. So, register in time and don't wait until the very last moment!
See when registration periods are open: https://www.utwente.nl/en/education/student-services/education/courses-and-modules/

Should you not be able to register or de-register for a course yourself, inform your Educational Affairs Office (BOZ) as soon as possible, by e-mail (BOZ-EST@utwente.nl). This will allow them to take action if necessary.

u will need an account to access the courses. Prior to the start of your studies at the University of Twente, the university's Department for Information Technology (ICT) will provide you with a username and password. The password will be the same as the one you originally received for accessing the UT network. You were informed about this in a letter.

If you are still having difficulties, contact the ICT Helpdesk (phone: 053 4895577). Only in case where (de-)enrolling yourself in a course via Osiris is impossible, you may contact the Educational Affairs Office (for EST: Huub Engbers):

6.9 Exams (including – final – papers)

- Please note that if you are registered for a course via Osiris, you are automatically registered for the first attempt and the resit of the course's exam(s)!
- In case you pass the first attempt, you will be automatically deregistered for the resit.
- In case you decide NOT to use an exam attempt, you should de-register from the exam via Osiris! De-register timely, i.e. till one day before the exam date (read: till 24:00h. of the day prior to the exam date).

Enrolment Periods (2025-2026)	
1st quartile	01 August 2025 up to and including 27 August 2025
2nd quartile	13 October 2025 up to and including 5 November 2025
3rd quartile	05 January 2026 up to and including 28 January 2026
4th quartile	23 March 2026 up to and including 14 April 2026

Please also check: https://www.utwente.nl/en/education/student-services/education/courses-and-modules/

When you encounter problems with (de-)registering for a course yourself, please contact the Educational Affairs Office via BOZ-EST@utwente.nl. All regulations concerning registration, cancellation and *force majeure* (i.e. circumstances beyond one's control) go via the Educational Affairs Office (BOZ) and **not** via the lecturer responsible for that specific exam.

Rules during the actual examination

With respect to written tests, there is a set of detailed procedures and rules of order that have to be followed. Detailed information on this can be obtained from the rules and guidelines as stipulated by the Faculty's Examination Boards:

https://www.utwente.nl/en/bms/examboard/regulations/

Rules after the examination

Period for marking exams	Except in instances of force majeure, exam results are announced within fifteen (15) working days after the examination. If the results are not known within one week before you are to re-sit an examination, you may request the Examination Board to arrange the possibility to re-sit an exam at a later point in time.
Requesting to see your exam paper	Your exam paper remains in the possession of your lecturer.
Inspection of your exam	For a period of twenty (20) working days, starting on the day on which the results are announced, you may, upon request, inspect your own graded work. In case the teacher organises a scheduled, joint inspection session, you should attend that meeting to inspect your work.
Period of storage of exams	The examiner sees to it that written exams are kept for at least two years after the examination date.

Oral examinations

An examiner may decide to hold oral examinations at a time to be determined by the examiner or examiners in consultation with you. Normally this will be arranged within one month following completion of the course (holiday months not included). An oral examination will not exceed two hours. The examiner is allowed to examine more than one student simultaneously, provided none of the involved students raises objections. An oral examination is a public event unless the Examination Board or the examiner has decided otherwise, or the student raises objections against publicity.

Overview of grades

Via Osiris you can get an overview of e.g., all your exam marks or grades in a specific academic year. Once an exam has been marked and processed by the Examinations Office, the results are made known to you as soon as possible. If you passed a subject but you detect that the mark has not been processed in Osiris, please contact the Examinations Office as soon as possible.

Re-sit exams

The programme offers to sit for an exam **once** per academic year at the end of the block/quartile during which the course was offered, with one 2nd chance to re-sit it, usually scheduled during the exam period of the following block/quartile. For exams in the last (4th) block/quartile of the academic year, the programme offers you a resit opportunity before the end of July.

Note: Passing grades are final and therefore a student cannot re-sit an exam once a passing grade has been obtained.

If a study unit has been completed successfully (final grade 6 or more) then this grade is final. If a student feels that there are exceptional circumstances that justify an exemption from this rule (and thus justify an extra exam opportunity), the student has to send a motivated written request to the Examination Board. Such an exemption can only be granted once per student. If graded more than once for the same (part of an) exam, the highest grade applies.

6.10 Student Charter and EER

Just like all higher education institutes, the University of Twente has its own Student Charter. This has its statutory basis in Art. 7.59 of the Higher Education and Research Act (WHW). The charter is law-making, which means that you can invoke the Student Charter in case of problems or conflicts. The Charter is kept up to date and is available online via the UT's website: https://www.utwente.nl/en/ces/sacc/regulations/charter/

The programme-specific part of the Student Charter (OSS), which includes the Education and Examination Regulations (EER), comprises a general section applicable to all Behavioural Sciences Master's programmes and a section with appendices drafted for each individual programme. The Education and Examination Regulations and Programme Specific Appendix (PSA) can be found on https://www.utwente.nl/en/bms/education/regulations/

6.11 Computer facilities

For every student, a notebook is indispensable nowadays. The University of Twente uses the so-called ***"Bring your own device"*** concept. This means that you will use your own notebook/laptop to get access to the computer facilities of the university through a terminal server, by logging in using the wireless network Eduroam. It is strongly advised to use an Android laptop instead of a Macbook, because some programmes that you have to use (such as R) are more difficult to use on a Macbook!

How to download computer programmes on your notebook?
You can download various software programmes on your personal notebook via the Notebook Service Centre with your UT ICT-account (http://www.utwente.nl/lisa/nsc/).
Various manuals are available through the site LISA: University **L**ibrary, **I**CT **S**ervices & **A**rchive (http://www.utwente.nl/lisa/)

6.12 UT Library

The UT Library is housed in building Vrijhof. Students can find a place to study here as well as borrow books and study materials.

For more information (e.g. opening hours and online access to the university's library, see their website: https://www.utwente.nl/en/service-portal/university-library

7. Student support and counselling services

7.1 Study guidance

During your (pre-Master or Master) EST programme you can count on support and monitoring from the programme staff (study adviser and programme coordinator). The study adviser offers support with your individual plans for both your pre-Master's and/or Master's study trajectory. With the UT also offering additional student supervision and counselling, you can, if necessary, go to the Student Affairs Coaching and Counselling office (SACC) and get support from a student psychologist and/or student counsellor (see section 7.2 of this guide)

Study adviser

Yvonne Luyten–de Thouars

As study adviser, Yvonne Luyten–de Thouars offers advice on study-related issues and she can inform you of practical matters concerning your study, such as examination regulations and legal status. You may consult her also on your personal problems. You may e.g. discuss with her your experiences, complaints, study choice, planning, delay, graduation support, exemptions, etc. If necessary, she can refer you to other support bodies in the university.

Contact:
Ravelijn, Room 3280 or 3240
E-mail: y.c.h.luyten-dethouars@utwente.nl
Phone: (+31) (0)53 489 1117

Programme coordinator

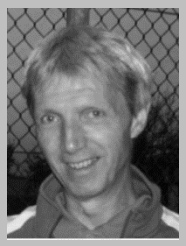
Marlies Tijhuis

As programme coordinator, Marlies Tijhuis is responsible for the organisational, procedural and intrinsic coordination and harmonisation of the pre-Master and Master-EST programmes. If you have a complaint or a question about the programme or certain subjects, the programme coordinator is the first person to see.

Contact:
Ravelijn, Room 3278
E-mail: m.e.tijhuis@utwente.nl
Phone: (+31) (0)53 489 8604

Educational Affairs staff member
Huub Engbers

Huub Engbers is the EST contact at the Educational Affairs Office. He is responsible for providing information to students and all administrative tasks related to the programme, such as questions about grades registration and course enrolment in Osiris, and questions concerning your graduation procedure.



Contact:
Huub Engbers (Mondays, Tuesdays, Thursdays, Fridays: 10:00-14:00h)
Citadel H428
E-mail: BOZ-EST@utwente
Phone: (+31) (0)53 489 4122

International student support officer
Annemieke van der Grijspaarde

For International Students the Faculty of BMS has its own Office for International Affairs.
You may best contact Ms Annemieke van der Grijspaarde via:
internationalstudentsupport-bms@utwente.nl
Phone: 053 489 4633
Ravelijn, Room 3121

7.2 Additional UT student support

Various services have been organised for students and they have been combined to form the Centre for Educational Support (CES). The most important services are the following:

Student Services Desk
The Student Services Desk provides all kind of services. You can go there for your student card, to register or to cancel UT enrolment, or to ask for a transcript of your records. You will find the Student Services Desk in the Vrijhof, room 239. See also:
https://www.utwente.nl/en/education/student-services/

Opening hours: Monday - Friday from 10:00 – 12.00 and 13.00 - 16:00 hours.
You can contact Student Services via (+31) (0)53 489 2124 or StudentServices@utwente.nl

University's Student Guidance & Well-being (SGW)
The Student Guidance & Well-being service is in charge of individual and collective care for and supervision of UT students at the co-ordinating level, supplementary to the programme's obligations of supporting their own students in this area. The Student Guidance, & Well-being

Desk provides such services as student counsellors, student psychologists, and various training courses (like 'self-management', graduating, job interviews). For further information, go to: SGW

Student counsellors
You may contact the student counsellors for questions on financial support (in case of study delay due to exceptional circumstances), changing your studies, admission exams, (general) complaints procedures, studying with a handicap, personal circumstances, etc.

Student psychologists
You can go to the student psychologist if you need to talk about a personal problem, such as an issue with your parents, friends or fellow students, or about anxieties or when you are feeling down or lost. You do not need a referral to see a student psychologist; you can make the appointment yourself. You can register for a first appointment with a student psychologist by filling out their online application form, after which you will be contacted through your student mail.

For appointments with student counsellor or psychologist:
Contact (+31) (0)53 489 2035 / E-mail: sgw@utwente.nl

Office hours secretary: SGW

Monday-Thursday: 8:30 – 12:30 and 13:00 – 16:45
Friday: 8:30 – 12:30 and 13:00 – **15:45**

The UT student counsellors and psychologists are located in building 'Vrijhof' 3rd floor**.**
Information desk Student Affairs, Coaching & Counselling, Vrijhof 3rd floor (room 311)

SGW training courses
Have a look on: SGW to see what courses are offered by SGW.

UT Language Centre
The UT Language Centre offers professional language support in English, Dutch or other languages to everyone at the University of Twente: students, PhDs, academic staff and support staff. Improving your English language skills will help you perform better in your work or study. Besides language courses the UT Language centre also offers courses or individual support on academic writing and study skills.
For the complete overview of their offering, see: https://www.utwente.nl/en/ces/language-centre/

8. Quality assurance

The Faculty of Behavioural, Management and Social Sciences (BMS) sets great store by the quality of its education. Students are generally appreciative of the study programmes offered by the faculty, yet critical of certain specific aspects. The programmes are very responsive to this and do their utmost to offer and improve quality.

Quality education requires the firm commitment of lecturers and students as well as proper communication. The core of the internal quality assurance system is formed by the course evaluations, and the annual systematic feedback from students. The quality cycle comprises the following internal quality assurance instruments.

8.1 Internal quality assurance

Evaluation of the courses
When students have completed a course, they are supposed to give their opinion on it by means of an anonymous survey or by means of a student panel feedback meeting. The lecturer will react on the results of this survey and integrate improvements in the next cycle of the course and curriculum. The contribution of the students is essential, which is why a lot of effort is put into gathering their feedback.

Both the section chair (to which the lecturer is accountable) and the programme director receive the results of the course evaluations and the lecturer's reaction and ideas for improvement, which can be discussed by the Programme Management Team and the Programme Committee and during the yearly SAQ-meeting with the Examination Board.
The results of the course evaluation and improvement actions for next year's cycle are published on the intranet website (therefore only accessible for UT students and staff): https://www.utwente.nl/en/bms/intranet/evaluation/master/m-est/. In addition, most lecturers publish their reaction and ideas for improvement on Canvas and address them at the start of the next cycle of the course.

Student Satisfaction Surveys
Upon graduation students receive an exit survey on the students' assessment of all kinds of education-related issues, such as the content of the curriculum, the quality of the lecturers, the quality of the teaching material, the communication between programme and student, the relationship with the labour market, the options available in the curriculum. In addition to this survey the EST programme participates in the evaluation cycle of the NSE (National Student Evaluation). These surveys are an important source of information to programme and faculty management. The results of these surveys are discussed in the Programme Committee and during the yearly SAQ-meeting with the Examination Board.

Guaranteeing the quality of the lecturers
The UT follows the rule that both novice and newly appointed lecturers must pass the *Basic Qualification in Education* within three years. For more experienced lecturers a *Senior Teaching Qualification* is offered, which challenges lecturers to develop even further. Furthermore, the

programme management always discusses the results of the course evaluations with the lecturer(s) concerned.

More information can be found on:
https://www.utwente.nl/en/organisation/structure/faculties/bms/education/quality-assurance-map/

8.2 Consultative committees

Examination Board
The Examination Board is responsible for all aspects of monitoring and assessing the instruction, e.g. the procedures during exams, the quality of the exams and the regulations with which both students and lecturers must comply. The Examination Board also assesses applications for personal adjustments of a study programme and assesses requests for exemption from or changes to exam components (exams, practicals etc.). The Examination Board consists of lecturers and an external member and is supported by a registrar. The members of the Examination Board are appointed by the Dean. Moreover, the study adviser and the programme coordinator advise the Examination Board. The Examination Board meets regularly (approx. 10 times per year).
If students have a request, they will need to submit this at least one week prior to the date of the meeting to Examinationboard-bms@utwente.nl
More information on the Examination Board and its procedures can be found at their website: https://www.utwente.nl/bms/examboard/

Programme Committee
EST has its own Programme Committee. The Programme Committee occupies itself with all issues directly related to the set-up and quality of the instruction, such as advising where necessary to make alterations either on course or on programme level. The programme director, the programme coordinator and the study adviser are involved as advisers. In accordance with the law, the Programme Committee consists of students and staff. On EST's Programme Committee there are four lecturers and four students. The members of the Programme Committee are appointed by the Dean. The Programme Committee advises the programme staff and the Dean, the latter particularly with regard to educational affairs that are addressed in the Faculty Council, such as the Education and Examination Regulations (EER).
More information on the programme committee and its procedures can be found at their website: https://www.utwente.nl/en/est/programme-committee/

Employment Sector Committee
The Employment Sector Committee advises the programme director on all educational matters, especially from the perspective of relevance for the job market, during an annual meeting with the EST programme's management staff.
For more information about the EST Employment Sector Committee see:
https://www.utwente.nl/en/est/masterest/contact-staff-comm/emplyment-sector-committee-est/

8.3 External quality instruments

Educational review

With its accreditation the NVAO (the Dutch-Flemish Accreditation Organisation) gives official approval to a programme that has stated that it has met all specified quality requirements. In connection with this, the NVAO reviews each programme in the Netherlands and Flanders once every six years. Both in the Netherlands and in Flanders, an accreditation is a condition for the government's funding/financing of a Bachelor's or Master's degree programme and for the entitlement to award recognised/validated diplomas. In the Netherlands it is also a prerequisite for issuing student grants and loans. The Master's degree programme EST has been re-accredited in spring 2023 and the conclusion was that the programme met all the criteria.

Part D: Course descriptions

D1: Master's degree courses (alphabetically ordered)
D2: pre-Master's courses (alphabetically ordered)

D1: Master's degree courses (alphabetically ordered)

4CID for Complex Learning	**202200054**
Teaching staff	Dr. M.J.M. van Geel
Course description	You want learners to acquire knowledge, skills and attitudes that enable them to perform complex tasks they will encounter in all kinds of various, real-life settings. • Which constituent skills are required? • How to coordinate performance of those skills? • What kind of knowledge is required? When? What for? • Which procedural parts of the task are recurrent and can be practiced separately? Since designing blueprints for complex learning is a complex task in itself, this course was designed based on the 4CID principles. Tasks and assignments you will work on, will gradually increase in complexity. Support and guidance are provided where necessary, and lessened over time, and procedural information and part-task practice will be scheduled when you need it. Since you will acquire the knowledge and skills needed for these tasks, it is expected that all tasks feel equally complex and demanding. Relationship with technology: You will learn how various technological possibilities can be used to design tasks with high psychological, functional and physical fidelity. You will learn to make informed decisions on the use of e.g. computer simulations, AR, VR or other technology.
Learning objectives	After this course you will be knowledgeable about and able to systematically apply the four-component instructional design model in developing a blueprint for complex learning, based on a thorough analysis of a complex task. Relationship with EST labour market (Intended Learning Outcomes [ILOs] as described in the EST programme specific appendix of the EER): • This course contributes (strongly) to: Domain expertise, Design competency. • To a limited extent, this course contributes to: Research competency, Advice competency, Academic reflection. This course assesses the following ILOs in some way (can include formal/informal, formative/summative, peer/expert): Domain expertise, Design competency, Advice competency, Academic reflection.
Assessment	individual open question exam (30%) and a group assignment (70%)

Assessment of Learning and Performance	**202500256**
Teaching staff	Dr. E.C. Roelofs
Course description	The course aims to develop hands-on skills in both construction and evaluation of assessments, that serve different user goals and on individual, group and system level. In order to create a firm theoretical

	basis for assessment construction and item-assessment analysis a collection of journal articles, book chapters and self-produced study texts are offered, related to the topics of workshops meetings. Throughout the course the perspective of Evidence-centred assessment design is used, which can be considered as state-of-the art both in assessment theory and practice. The key focus of this perspective is to arrive at valid inferences about (groups of) test-takers, that are informative for further actions is. Students will get to know the professional field of educational measurement including the contemporary major interest and innovations. During the course both known experts and practitioners in the field of Educational Measurement will provide (guest) workshops. For example from companies like the educational measurement institute Cito and Explain. For each of these topics, students are expected to study selected scientific papers. Students are expected to draw from the theoretical and practical insights gained through self-study and participation in the workshops when they carry out two intermediate assignments and a long-term item construction assignment. Students get support and feedback in small group meetings with the course teacher, scheduled by the student groups. Also, students are encouraged to give peer-feedback by serving as one another's pilot test-takers and colleague experts during the course and the final minisymposium on their item construction. **Relationship with technology:** • Item construction: Choice of author ware: TAO-testing – Open source software; Remindo or Qualtrics • Creating item objects (stimuli, response objects, texts): any drawing or animation software inside Adobe Suite and Microsoft Office Suite; • Psychometric Item-test analyses: R-based application Shiny Item analysis and R-studio; • Collection and analysis of item meta data: Microsoft Excel and Microsoft Access
Learning objectives	After taking this course students: • demonstrate ability in carrying carry out classical item-test analyses and in interpreting the meaning of difficulty parameters (value), discrimination (item-total correlation), • demonstrate ability in carrying out item-test analyses based on item-response theory, in interpreting the meaning of parameters, including item difficulty (beta), discrimination (a-parameter), item and test information parameters, using dedicated software, • demonstrate ability in carrying out analyses on test data aimed at detecting sources of bias or lack of accessibility in items (such as DIF-analysis), • demonstrate ability in carrying out analyses using Shiny Item analysis and R-studio, under conditions of strong teacher support, • demonstrate insight into the principles of systematic design of assessment of and for learning, which in turn aid valid decisions about the test-taker,

	• demonstrate ability to design items in a subject domain, using the principles taken from the ECD sub models, • demonstrate ability to judge the accessibility and construct coverage of items in a subject domain, using scientific principles form literature and take consequential measures in item improvement, • demonstrate insight in large-scale assessment methodology and analysis (such as PISA and PIRLS), • demonstrate insight in design of valid technology-enhanced assessments, including game-based assessment and simulations, • demonstrate insight in the most important methods of standard setting, both classical methods for multiple-choice tests and methods for complex performance-based assessments, as applied on existing test data, • demonstrate ability to reflect critically on the quality of own constructed educational assessments and educational assessment of others, using the ECD-model and test accessibility principles as frames of reference, • demonstrate both ability and readiness to use Artificial Intelligence in different stages of assessment design and use in a valid and responsible manner. Relationship with EST labour market (Intended Learning Outcomes [ILOs] as described in the EST programme specific appendix of the EER): • This course contributes (strongly) to: Domain expertise, Design competency, Academic reflection • To some extent, this course contributes to: Research competency • To a limited extent this course contributes to: Advice competency This courses assesses the following ILOs in some way (can include formal/informal, formative/summative, peer/expert): Domain expertise, Research competence.
Assessment	Students carry out two short intermediate assignments directed at the application of psychometric methods used to determine item and assessment quality. Each of these two assignments account for 15% of the final grade. In addition, students carry out a long term group assignment in which they construct a set of 20 original test items for the subject domain chosen in this course. As in practice they write a reflective report in which they provide an overview of the test content and a justification of construction decisions made in the perspective of evidence-centred design for the particular subject domain. This long term assignment accounts for 60% of the final grade. The presentation of the work done during the final meeting to peers accounts for 10% of the grade. Each of the assignments mentioned needs to be completed at a sufficient level (minimum grade 5,5). The final grade for this course is based on the weighted mean of the four assignment grades.

Crafting Meaningful and Motivating Learning Experiences	**202500255**
Teaching staff	Dr. F. Léoné, Dr. I. Friso-van den Bos
Course description	In many learning contexts, like Higher Education & Professional Learning, learners have freedom in deciding to what extent they engage in offered

	learning activities, making it crucial to motivate them. In addition, for some hard to discuss or disputed topics (e.g., difficult situations, group processes, but also socio-economic inequality), not only rational knowledge, but also emotions and experience are of crucial importance. Lastly, some topics are so systematic and complex (e.g. climate), that they are hard to understand by learning them bit by bit; rather a systems-based understanding is needed. Often however motivation, meaningful interactions, and system understanding do not come from single activities, but through a careful crafting of a learning experience, in which all the parts together give meaning to the learning activity and motivate the learner, helping them achieve the learning objective. Such "Learning Experience Design" is a profession in itself. It integrates scientific and practical insights from education, design, technology, and psychology. One major source of inspiration and a prominent method of achieving this integration is the design of games (physical, digital, hybrid), as they are particularly effective in motivating users and giving them meaning. The challenge is to combine such motivational with effective educational design, to come to truly meaningful & motivating learning experiences. In “Crafting Meaningful & Motivating Learning Experiences (CMMLE, pronounce “SEEMLY”), we will try to do exactly that. And we will do so by going hands-on into the iterative design process and crafting a physical prototype of a motivating and meaningful learning experience. The course consists of 1. one large individual assignment 2. eight integrated theory & design sessions 3. background reading/viewing material In the individual assignment, students design and iteratively prototype a learning experience. This design is intended to solve a specific challenge in a context where learning is volitional, typically higher education, professional organisations, or other outside-of-school settings (e.g., museums). Challenges are pre-selected by the teachers, students can also suggest their own. Students design the learning experience from scratch, build a prototype with pen & paper materials (inc. typical board- & card-game materials), test it, log the findings and improve the design based on the tests, and repeat the same cycle, following a typical Educational Design Research (EDR) process. The final product is a test session of the final prototype, with a report describing the 1) design process 2) underlying theories and associated scientific work 3) and the possibilities to extend and augment the design with technology, as well as a reflection of how proposed technology is embedded in legal, societal, and ethical contexts. In the sessions and associated reading/viewing, students learn the most important theories on motivation and design, how EDR works, and the Ludodidactics (Renger & Hoogendoorn, 2023) process of game design. Each session combines some theory with crafting and testing the prototype, with the amount of theory decreasing over the sessions.

Learning objectives	After finalizing this course students: Understand and can apply • the most important pedagogic, psychological, and design theories on motivation. • the most important theories and practices of learning experience and serious game design. • the relations between didactical and experience design principles. • the Educational Design Research cycle and prototype testing. Understand how technology can support and enrich learning experiences, including associated design considerations and ethical and practical risks. Can iteratively design, implement, and test a physical learning experience prototype.
Assessment	The course is individually assessed based on: - The final prototype and play test (50%) - The report (50%)

Designing Learning & Performance Support	**191970340**
Teaching staff	Dr. P.M. Papadopoulos
Course description	In this course, students engage in a design task, namely to create effective instructions that enable people to do things quickly. Examples of suitable design topics are instructions on using a software tool, operate a device, change a bicycle tire, etc. Students can select their own topic, medium (document, poster, video) and context for this task. Typically the design is multimodal (text, images, graphs, and/or video). Just as creating job-aids, students will develop instructions that afford people to self-regulate their actions. Students will be asked to adopt a systematic approach and report about the progress. A vital part of the systematicity comes from theories. The leading design theory will be Minimalism. Special attention will also be given to designing instructions that motivate people. During seminars, students will be introduced to the three main components of the course, namely: (a) theories & design guidelines, (b) exercises, and (c) student progress reports. Students will be working in groups of 3-4 people to produce three mandatory deliverables: - Designed Instructions. The set of instructions designed for a client in an appropriate format (e.g., document, video, etc.). - Design Report. A document that describes the main design phases of the work done, the approach on theory and data, and analysis on the final product based on evaluation data. - Poster. A poster giving an overview of the project. The posters will be presented in the final session of the course Relationship with technology: The course relies on the use of technology in two ways: (a) to support, manage, and monitor groupwork, and (b) to develop effective, efficient, and engaging instructional material. Regarding groupwork, the students will be assisted in using technology to perform effective project management. Specifically, each group will be working on a separate space on Canvas to set and record their own meetings, share files, organize deliverables, track

	feedback and product revisions, etc. Regarding the production of the instructional material, the students are free to use the medium of their choice. However, interactivity, engagement, and aesthetics are important. Based on the design needs of each group, the course can support students in creating graphs and visual, video/audio recording and editing, web design and usability analysis, and so on. Specifically for video products, interactivity is highly desired and the use of the H5P framework is strongly suggested (https://h5p.org/). H5P has a low technology barrier and can be easily mastered by novices. Nevertheless, some experience with the selected technology in general (e.g., video editing) is necessary as the course has a tight schedule and learning a completely new technology from scratch may be challenging. The design often involves a technical task. Most design solutions are interactive instructional videos and web pages.
Learning objectives	At the end of the course the student is able to: 1. design instructional material (tutorials, manuals, instructions, etc.) in a systematic fashion. 2. complete a design report that captures the main design phases, strategies and outcomes. Relationship with EST labour market (Intended Learning Outcomes [ILOs] as described in the EST programme specific appendix of the EER): • This course contributes (strongly) to: Domain expertise, Design competency, Advice competency. • To a limited extent, this course contributes to: Research competency, Academic reflection. • This course assesses the following ILOs in some way (can include formal/informal, formative/summative, peer/expert): Domain expertise, Design competency, Advice competency.
Assessment	The final course grade will be based on the weighted grades of the three course deliverables: • Designed Instructions: 40% • Design Report: 40% • Poster session: 20% (this refers also in students' performance in presenting the work and answering questions about it) A passing grade is needed in all three deliverables to pass the course (e.g., getting a perfect score in the designed instructions and the report, but failing the poster means a final failing grade). Students will receive individual course grades and in cases of unbalanced collaboration between group members, this means that the grade of group members may differ..

HRM & Innovation	201500087
Teaching staff	Dr. A. Bos-Nehles
Course description	In this course students will work on a real-life socio-technical innovation challenge. By critically reflecting on three theoretical approaches to explain the relationship between HRM and innovation, students will develop knowledge and skills on HRM and different forms of innovation. They will also conduct empirical research in a real-life organization to contribute to the socio-technical innovation and will develop implications and recommendations on how the organization can generate and implement

	socio-technical innovations.
Learning objectives	After completing this course master students are expected to be able to: 1. Critically discuss on the utility of social exchange theory, intellectual capital theory and climate theories to explain the relationship between human resource management and individual/organizational innovation; 2. Empirically examine ways in which organizations can generate and implement socio-technical innovations; 3. Discuss the practical and theoretical implications of your research results on a socio-technical innovation challenge to provide recommendations for future research and practice; 4. Reflect on important lessons learned at the societal, organizational and individual level which are relevant in addressing sociotechnical innovation challenges; 5. Assess the quality of your own work and the work of your peers by providing and receiving constructive feedback. Students are also expected to continue training their skills to identify problems and formulate rigorous and relevant research questions; interview business representatives; provide and receive constructive peer feedback; collaborate and effectively involve relevant stakeholders; work collaboratively and interdisciplinary
Assessment	CBL-assignment: 60% Individual essays: 40% Individual reflection: pass/fail

Innovative and Technology-based Learning Environments	201400002
Teaching staff	Dr. C. Dasgupta
Course description	Nowadays, technology plays a major role in educational practice. In this course, students will be introduced to how technology-based learning environments need to be designed in order to enhance learners' knowledge. Topics from the fields of psychology, educational sciences, and instructional technology will be discussed, including Mayer's cognitive theory of multimedia learning, cognitive load theory, inquiry learning with computer simulations and virtual or remote labs, video instruction, gamification, and computer-supported collaborative learning. This course applies a problem-based approach to learning, which means that it starts with students identifying a problem in a learning context (e. g., in a classroom) that can be solved using the given resources, and then use known theories and technologies as instruments to solve them. Students will use a design cycle to create their products. Relationship with technology: Lectures focus on theories and research relevant to the design of technology-based learning environments Students have to design a technology-based learning environment themselves
Learning objectives	At the end of the course, the student is able to… 1. …use main theories of learning that are relevant to innovative technology-based learning, such as Mayer's cognitive theory of multimedia learning and cognitive load theory.

	2. …apply theories and research into applications and elements of technology-based learning, such as computer simulations and virtual or remote labs, instructional videos, serious games and gamification, and computer-supported collaborative learning. 3. …justify design decisions for various technology-based instructional elements using scientific theories and empirical research. 4. …create a technology-based learning environment that aims at solving problem(s) identified during needs analysis.
Assessment	To finish this course, students work in small teams of 4 members. Each team will perform a needs assessment, design and build an online lesson to address identified problems for primary, secondary, or higher education, and conduct a pilot study in which the lesson is evaluated. The teams have to write a report in which they discuss the rationales behind their design decisions from the perspective of theory and empirical research findings. Each member of the team individually provides feedback on the Inquiry Learning Space and corresponding report of another team. During the last lecture, all teams present their products to colleagues of the department who are invited to give their feedback and opinion on the products.

Learning and Instruction	202300197
Teaching staff	Dr. A.M. van Dijk, L. Hogenkamp, MSc
Course description	This course discusses the theoretical foundations of instructional design and effectiveness of learning materials. Designs often depart from three main theoretical assumptions stating that learning is more effectively supported when: 1. people use a dual channel (text and picture) approach; 2. short term memory limitations are considered; 3. active processing is encouraged. These assumptions have led to a large set of instructional principles for the construction of learning materials. The course will discuss learning theories and design principles that are involved in different facets of learning. **Connection to the work field** In the course, students build a theoretical knowledgebase on learning and instruction. This is done by focusing on theories that explain how people learn and combine this information with practical design guidelines concerning the development of learning materials and instruction. This way, students are prepared for their future role in education; either as an educational designer or educational consultant. The skills and knowledge that are central in this course, will help students prepare for their future careers in the educational designer or educational consultant. The skills and knowledge that are central in this course, will help students prepare for their future careers in the educational context. **Relationship with technology:** The lectures of Learning and Instruction cover the main principles of learning. Students are challenged to think critically about the design of instructional materials; how specific design principles

	trigger information processing in general, how human beings process and make sense of (new) information, and whether and how learning materials (e.g., learning environments, instructional videos) evoke meaningful learning. In this context, the use of technology to design and offer learning materials (i.e., multimedia learning) is thoroughly discussed
Learning objectives	At the end of the course, students should be able to: - apply theoretical foundations of learning and instruction; - apply, analyse and evaluate principles for reducing extraneous processing in learning; - apply, analyse and evaluate principles for managing essential processing in learning; - apply, evaluate, and analyse principles based on generative activity in multimedia learning Relationship with EST labour market (Intended Learning Outcomes [ILOs] as described in the EST programme specific appendix of the EER): This course contributes (strongly) to: Domain expertise; Design competence; • To a limited extent, this course contributes to: Research competence; Advice competence; Academic reflection; • This courses assesses the following ILOs in some way (can include formal/informal, formative/summative, peer/expert): Domain expertise; Design competence; Advice competence.
Assessment	Course result is weighted average of unrounded results of Test 1-Exam and Test 2-Audit

Lifelong Learning in a Changing Society	**202500252**
Teaching staff	Prof.Dr. M.D. Endedijk
Course description	In this course, we explore how we can support employees' continuous learning in a fast-changing society, both from an individual perspective (what individual workers can do) and organizational perspective (how organizations can support this). The course is focused on what is called lifelong learning: all work-related learning taking place after initial education. Lifelong learning can take many forms, varying from formal courses requiring a large time investment to self-directed workplace learning, such as experimenting with new solutions or asking for feedback. To foster lifelong employability in this fast-changing society, continuous learning is paramount. Technological innovations, new world power relationships, complex challenges such as climate change and migration, but also increasing (social) diversity at work affect continuously how we define and carry out our work. For example, teachers must deal with AI developments, health professionals with more complex health problems in ageing patients, production workers with new robot technologies, and farmers with continuously changing regulations. This means that for public and private organizations, employees' continuous learning is crucial to keep up with and drive innovations and become (or remain) sustainable and resilient. The course will start with some introductory lectures for which a flipped-the-classroom concept is used. You will study foundational theories on

	adult learning, combined with recent papers on the importance of lifelong learning in a changing society. Specifically, we zoom important drivers and barriers for lifelong learning. In class, we work on assignments to analyse the theories and apply these to four personas with varying educational backgrounds, learning needs, and support from their organization. We explore how the various drivers and barriers, and their interplay affect employees' learning needs and engagement in various learning activities. In the second part of the course, you will select one of the drivers or barriers we discussed (e.g., job autonomy, feedback culture, self-directed learning orientation), and take a deep dive into how, when, and under what circumstances this factor affects the learning intentions and behaviours of employees. You will do this by searching for and studying additional literature, and by conducting an in-depth narrative interview with two employees with a minimum of 10 years of work experience. An in-depth narrative interview enables an understanding of how factors interplay and have differential effects at various stages of their career. By analyzing how learning needs and activities vary over time in relation to their (changing) work characteristics and context, and combining this with the insights from the scientific literature, you will gain a deeper understanding of the underlying mechanisms of employees' lifelong learning.
Learning objectives	**At the end of the course, students are able to:** • Understand the different forms of lifelong learning and why and how they are important for individuals and organizations in a changing society. • Describe the different drivers and barriers at the individual and organisational levels that enable or hinder lifelong learning. • Analyse the scientific literature and synthesize insights to get a nuanced view on the role of a certain factor in varying contexts. • Understand how to conduct and analyse an in-depth narrative interview. • Apply insights from research and empirical evidence to explain how, when, and why a certain factor or mechanism influences employees' work-related lifelong learning in various contexts and for various types of employees. • Write a case study report including recommendations for research and practice
Assessment	Assessment consists of two components: 1. a written report (weight 60%), in dyads, in which the students show how and why a self-chosen individual or organisation-level factor helps or hinders employees' work-related lifelong learning. The report consists of a synthesis of the scientific literature (minimum of five empirical papers), an in-depth processual analysis of the two cases, a cross-case analysis, and an academic reflection on the outcomes (embedding the results in the broader literature, suggestions for future research and advice for practice). During a feedback session, you will present your insights to an expert from research and an expert from practice. 2. an oral exam (weight 40%).

The Art and Science of Change	**202500257**
Teaching staff	Dr. M.D. Post-Hubers
Course description	How many of you stuck to your New Year's resolutions? In general, we find it quite difficult to change our behaviors. Yet, many of our educational

	programmes train students to become advisors, consultants, designers and/or implementation specialists that will require people to make changes. For example, doctors and nurses who need to implement new ways of working, process optimizations that require a different workflow in the organization, or school leaders and teachers who need to change their pedagogies. But how can we achieve lasting successful change? This course uses a mixture of lectures, work sessions and individual / peer coaching to help you experience the answers currently provided by Implementation Science, Change Management, Behavioural Change, and Educational Science. We'll dive into the backgrounds, the benefits, risks and approaches from those perspectives. Moreover, a new perspective on change (using constructive developmentalism for a transformative change) will be addressed in a similar manner. During this course, you will evaluate change strategies through the lenses offered to you, and you'll apply them to your own change goals as well as coach your peer in working on their change goals. In the end, you will have first-hand experience of the Art and the Science of Change.
Learning objectives	At the end of the course, students: • Understand the different types of change (adaptive, generative and transformative) and what strategies are required to bring about each type of change • Are able to apply this understanding on cases and critically analyze the (un)succesfulness of the change strategies • Are able to apply this understanding on their own and their peer's change trajectory and analyze the (un)succesfulness of the change strategies Relationship with EST labour market (Intended Learning Outcomes [ILOs] as described in the EST programme specific appendix of the EER): • This course contributes (strongly) to: Domain expertise, Advice competence, Academic reflection • To a limited extent, this course contributes to: Research competence • This course assesses the following ILOs in some way (can include formal/informal, formative/summative, peer/expert): Domain expertise, - Advice competence, Academic reflection
Assessment	Written assignment with weekly submissions.

Teacher Learning and Development	**202400784**
Teaching staff	Dr. M.J.M. van Geel
Course description	The quality of teachers and teaching is crucial for student learning but varies both between and within schools. But what actually is ‘good teaching’? In this course, we explore different kinds of knowledge and skills that are considered crucial for high quality teaching. We address different forms of professional development (PD), important conditions for teacher learning and change, and pay attention to the evaluation of the effectiveness of these interventions. At the end of this course, students know what to take into account when designing PD trajectories, what is known about the effectiveness of various approaches to PD, and what to consider when evaluating this effectiveness. Relationship with technology: • Examples will be provided of supportive technology in professionalisation for teachers • Examples of technology-supported evaluation will be shown and discussed

Learning objectives	At the end of the course, students will be able to 1. evaluate the quality of a professional development trajectory regarding guidelines for effective Professional Development (PD), and 2. create a plan to analyse the current needs and context of the stakeholders, based on a case description, and 3. design a teacher professional development trajectory to meet current stakeholder needs, adapted to the local context, and 4. create a plan to evaluate the effectiveness of the proposed teacher professional development trajectory, using insights from the lectures, design-based research approaches, and literature from the field. craf
Assessment	The assessment in this course consists of two parts, that both need to be scored sufficient (≥ 5.5) to pass the course: 1. An individual exam in which you evaluate a PD trajectory (25% of your grade) 2. A group assignment in which you will develop a rationale, outline and evaluation plan for a PD trajectory (75% of your grade)

Team Learning at Work	**201500010**
Teaching staff	Dr. A.M.G.M. Hoogeboom-Hendriksen
Course description	In the field of Professional Learning and Human Resource Development the study of team learning in the workplace is growing rapidly. In this course, you will acquire knowledge about which conditions facilitate team learning, how to enhance teamwork and collaboration, and how to maintain sustainable levels of performance in teams through continuous learning and improvement. A lot of attention has been devoted to learning at the individual and organizational level. HRD practitioners have recognized that teams form the heart of professional learning in organizations today. Teams know more than the sum of their individuals. Yet, many teams are not designed and structured to enhance collective learning. Consequently, HRD practitioners and organizational advisors try to enhance team potential using continuous improvement and team learning practices. Learning teams can flexibly adapt to changes, can be more client-oriented, and can produce innovative and creative products. But how do teams become learning teams? After completion of this course, you will be able to effectively design, analyze and evaluate team learning and continuous improvement processes, using the tools, insights and practices that are offered in this course. The course will include pre-recorded lectures and interactive sessions covering the most important theories and models of team learning. Here we discuss topics such as "team learning processes," "development of team learning," and "team learning interventions." In this course you will apply team learning theory to different professional contexts (i.e., healthcare, education, public sector, virtual, high-tech). Based on an area of your own interest, you will focus on how team learning works in a specific context. Relationship with technology: • We discuss how technology can be used as an intervention (e.g., Synthetic Learning Environments) to stimulate team learning and continuous improvement

	• Students can select a high-tech HRD context in which they apply models and theories to optimise team learning • The course also includes guest lectures that will be provided by content experts and professional HRD practitioners; one of the guest lecturers will discuss how they use technology to optimise team learning
Learning objectives	At the end of the course, students have knowledge on and insight into: • The most important theories and models about team learning and their interconnectedness. • How the theories and models are helpful to understand, evaluate and optimise team learning at work. • How team learning processes work across different professional contexts (e.g., healthcare, education, public sector, high-tech). At the end of the course, students are able to: • Describe and compare models and theories about team learning. • Describe antecedents that foster or hinder team learning. • Describe outcomes of team learning that are relevant for HRD practices. • Apply team learning theories to different professional contexts. • Analyse and evaluate the quality of team learning processes in different professional contexts. • Generate an advice on how to optimise team learning within a specific professional context. Relationship with EST labour market (Intended Learning Outcomes [ILOs] as described in the EST programme specific appendix of the EER): • This course contributes (strongly) to: Domain expertise, Advice competency • To a limited extent, this course contributes to: Design competency, Research competency, Academic reflection • This course assesses the following ILOs in some way (can include formal/informal, formative/summative, peer/expert): Domain expertise, Design competency, Research competency, Advice competency.
Assessment	The course assessment consists of two parts. • The first part is an individual exam. This exam will be graded and is passed when your grade is 5.5 or higher (one 2nd chance will be provided). • In addition, the second part of the assessment will consist of a group paper. The aim of this assessment is to study the value of the applicability of the learned theories and models in a working context. Hence, the group paper serves to deepen the knowledge of these theories. When graded as “insufficient” there is one additional chance to re-write the paper. Both the individual exam and the group paper need to be at least “sufficient” (≥ 5.5) to pass this course. The final grade of the course will be the average of both subgrades.

Your Agency, Balance, Career and Development	**202500253**
Teaching staff	Dr. F. Léoné, Dr. A.M. van Dijk

Course description	A MSc is for many people the last period where they for extended periods of time dedicate themselves to learning and development. However: 1. Most course work does not invite you to ask yourselves why you are doing what you are doing. This course will ask you the 'why-questions', including questions on your perspective on education, learning and your intended career. 2. Often this learning and development is focused on specialized knowledge and skills; cognitive development. In this course, we intend to augment this with crucial transferable skills for your career, and to work on personal and emotional development at the same time. 3. Learning should not stop after the MSc, as most jobs are now quickly changing due to either technological or societal changes. Hence, in this course, we will work on your lifelong learning skills. That is, the main purpose of this course is to provide students with the opportunity to work on their own personal and professional development and shape their learning path and their subsequent (future) steps in their career. The different activities in the course set out to help students develop their Agency, reflect on their work-life Balance, orient on their future Career, and take the lead in Developing ones professional identity and the skills necessary to reach all the above (ABCD). The course starts with three perspective meetings on 1. Why are you here? Giving different perspectives (from students, staff members and alumni, on the EST research field, the profession, studying EST and working after EST), to invite individual and group reflection. 2. Why & how do you develop? Zooming in on lifelong learning and learning attitudes, including student's approach to handling vulnerability. 3. Where are you going? With alumni, explore the potential job market in a) content, b) experiences during the job and c) how their studies and their ABCD factors influence their job experience. Along the way, students reflect on what they find most interesting and important and determine their own (tentative) ABCD profile, including the skills they have and still want to develop that are required for their growth as a professional and their future job prospectives. They select a set of skills they would like to work on and write a plan for their own development. Next, they work on the skills in three ways. • The students plan one or more large personal "expedition" assignments, either individually or in small groups (with others that work on similar goals). The students define what they will do, how it will be evaluated, and then plan and execute it. Suggestions will be provided by teachers and/or peers, and students will be guided in setting their own learning goal and making fitting plans. • Skill development and personal assignments. Based on the skills students want to learn, they receive and develop concrete assignments to work on to improve and reflect on their skills. These assignments can also directly follow from the coaching meetings (see below). • The course offers group workshops on specific skills, included potentially valuable technical skills. The topics are determined with students and staff and the workshops are taught by teachers and/or by students participating

	in the course. To guide the process and stimulate active learning and reflection, the students are supported in two ways: • Short digital check-in reflection questions for their personal skill development goals through the Tiim app. • Six coaching meetings (four in starting quarter of course, one more in each of the thesis quarters; 50 minutes, groups of six students), discussing what they did and learned from their weekly activities, based on their answers in the digital check-ins. At the end of the course, the students present their ABCD profile and what they learned with a poster on a closing market, with also alumni and Staff present.
Learning objectives	One of EST's core values is to foster life-long development. In this course, this is attended to in three ways – matching EST's vision on life-long learning development: 1) by appealing to students' feelings of ownership and accountability, 2) by promoting choice and opportunity, and 3) by having students take responsibility for their own development. Towards this end, students set their own objective, think about ways to reach these objectives, take action to reach the objectives (within and beyond the scope of the offered materials, workshops and coaching), and reflect on and monitor their own objectives and development. Relationship with EST labour market (Intended Learning Outcomes [ILOs] as described in the EST programme specific appendix of the EER): This course contributes strongly to the ILO: Academic reflection. This course contributes to a limited extent (based on students' personal objectives set within the course) to the ILOs: Research competence, Design competence, Advice competence. This course assesses the following ILOs: Academic reflection (formative and summative, formal and informal).
Assessment	The course consists of three types of assignments: • One or more personal "expedition" assignments (see below) • Skill development and coaching assignments • Final poster presentation The final result for the course is a pass/fail, meant to indicate whether the student actively worked on their personal and professional development.

D2: Pre-Master's courses (alphabetically ordered)

Academic Writing Premaster	**202100222**
Teaching staff	Dr. N. Dmoshinskaia, Dr. I. Friso-van den Bos
Course description	The course provides participants with the necessary skills for the preparation of academic articles/manuscripts in English. Participants will also be taught the techniques of effective information search, the ways to work with scientific articles and evaluate them, and the conventions used in literature citation and referencing. Participants will be expected to perform skill-building exercises during the different sessions. Writing tasks will also be given to provide participants the opportunity to practice and/or improve their writing skills. A total of 7 sessions are scheduled and each session will be a combination of workshops and short lectures. Attendance to all the sessions is obligatory. The primary basis for student assessment is a comprehensive literature review based on, at least, 10 scientific articles.
Learning objectives	For the duration of the course, participants are expected to do the following: • search for relevant scientific articles that would be used for the writing of academic articles/manuscripts; • evaluate scientific articles using a set of criteria; • prepare a literature matrix to effectively work with different information from various sources (e.g. articles published in peer-reviewed journals, books, government reports, professional journals); • effectively use information from scientific articles for the writing of academic articles/manuscripts; • apply the conventions of source citation and referencing into their own academic articles/manuscripts; and • prepare a literature review using various academic, scientific, and professional sources. Moreover, after a successful completion of the course, participants are expected to be proficient in writing academic papers (e.g. literature reviews, conceptual papers, research proposals, theses).
Assessment	Assignment. The assignment needs to be at least "sufficient" (≥ 5.5) to pass this course

Designing for Learning in Schools and Organisations	**202000264**
Teaching staff	Dr. J.W. Luyten (contact person)
Course description	The course consists of 2 components: Designing for learning in schools and designing for learning in organisations. Designing for learning in schools: Students in this unit will become familiar with core design concepts (e.g. design requirements, formative evaluation), design phases (preliminary study or analysis, design and evaluation) as well as key considerations for implementation during each phase. These goals are pursued through a number of sessions, which feature both theoretical and practical orientations during class and in the assignments. Specific topics to be addressed are teacher development and test design. This unit concludes with a written exam featuring both closed and open questions.

	Designing for learning in organisations: The sessions on the domain of learning in organisations will be organised according to three themes: 1. Analysis, 2. Design, and 3. Evaluation. During each session, HRD theories will be discussed and applied to each theme. In addition, a case will be analysed to practice with the application of HRD theories. This unit concludes with a written exam.
Learning objectives	There are 2 sets of goals and objectives: 1. Designing for learning in schools: Upon successful completion of this unit, students will be able to: • Identify and use techniques to design, develop, test and implement valid, practical and effective solutions to educational problems in the context of EDUcation. This involves working in a systematic and creative manner, using scientific knowledge and practical skills in a comprehensive approach. 2. Designing for learning in organisations: Upon successful completion of this unit, students will be able to: • Understand and apply different theoretical approaches in the domain of Human Resource Development (HRD). • Apply various strategies to increase learning and development in organisation. • Analyse and identify learning problems/challenges in organisations. • Find and apply relevant theories, models, and/or empirical research to drive the analysis and to inform the design of solutions. • Apply design approaches and methodologies for designing HRD interventions. • Apply basic consultancy skills, including effective, professional communication with the client.
Assessment	The assessments of both the course's components are done by written exams. The final grade of the course is composed of the grades of the two course components. Both course elements will count toward 50% of the final grade. Both course's components have to be graded a 5.0 or more, with an average grade of at least 5.5. In case of insufficient partial grades, students may re-sit the one or both exam(s) that was/were not sufficient, in the following quartile. The grades of the course's components grades stay valid until the end of the following semester. If a student does not pass the course (i.e. complete all partial assessments satisfactory) until then, the student loses the grades already earned.

Inferential Statistics	**202200378**
Teaching staff	Dr. H. van der Kolk
Course description	In this course the basic notions of data analysis that would allow them to make inferences about populations on the basis of a randomly sampled data set are introduced. The course uses the regression (or 'linear') model as the basic skeleton and in this context introduces confidence intervals and tests. In addition, it familiarizes students with the logic and implementation of some non-parametric statistical analyses (methods that do not use a concepts like 'the mean' and 'variance'). Usage of these

	methods is illustrated using research examples. The software used in both teaching and in the assessment is R for statistics.
Learning objectives	At the end of the module, students will be able to, in general terms: I. correctly select from a set of the most important univariate, bivariate and multivariate inferential statistical methods to describe and test characteristics of variables and relationships between variables; II. carry out the most important univariate, bivariate and multivariate inferential statistical analyses using R for statistics; III. correctly interpret and report about output of these univariate, bivariate and multivariate inferential statistical analyses. More specifically students will be able to: 1. explain the role and main assumptions of inferential statistics in the process of scientific research and its relationship with descriptive statistics, and know the main concepts used in the context of inferential statistics; 2. construct confidence intervals and perform tests for both proportions and means; 3. describe and statistically assess the relationship between one independent variable (dichotomous or nominal) and a dependent dichotomous or nominal variable; 4. describe a relationship between one independent variable (dichotomous, nominal and scale) and a dependent scale variable using the linear model; 5. construct confidence intervals and perform tests in the context of a bivariate relationship between one independent (dichotomous, nominal and scale) variable and a dependent scale variable using the linear model; 6. describe a relationship between several independent variables and a dependent scale variable using the linear model (both in the context of addition and in the context of interaction); 7. construct confidence intervals and perform tests in the context of several independent variables and a dependent scale variable using the linear model (both in the context of addition and in the context of interaction); 8. assess whether the output of a parametric test should lead to adjusting the model (and the test) used and more generally assess whether the data allow using a parametric test to construct confidence intervals and perform tests in the context of a simple and multivariate relationships; 9. construct a test for a mean, the difference between means and the association between scale variables when the assumptions for a parametric test are not fulfilled.
Assessment	The assessment of this course consists of two parts test 1 and test 2. The tests both count for 50% of the final mark. The mark for a test must be at least 5.0. The final grade of the course should be at least a 5.5. For both tests a retake will be offered. Results for the tests are only valid for the current semester, unless you have explicit permission from both the study advisor and the teacher of this course to carry the grades to the next semester.

Research Methodology and Descriptive Statistics	**202001402**
Teaching staff	Dr. L.T.M. Rekers-Mombarg
Course description	This course introduces the basic principles of empirical research in the social sciences. The role of research in the context of the empirical cycle (i.e. testing theories) and research in the context of problem solving and design will be discussed. Students will learn to formulate clear and answerable empirical research questions. They will also learn to select from various correlational and experimental research designs and different data collection methods to answer these research questions. During the course, students will develop a first understanding of the concepts of validity and reliability and will comprehend factors that may undermine (measurement/internal/ external) validity of research. Finally, they will get a basic understanding of descriptive and inferential data analysis. It is strongly recommended to make all assignments, use the discussion boards and attend the tutorials and Q&A-lectures. It is not possible to follow only one part of this course. We expect students who register for this course actively participate in the course. Therefore, we will check whether the students' uploaded assignments are serious attempts.
Learning objectives	After completion of this course students will be able to: 1. formulate a clear empirical research questions, with clear units of analysis, variables and with a well-defined descriptive and/or explanatory aim; 2. formulate of a well-phrased and testable causal hypothesis; 3. identify and comprehend the implications of a causal statement (correlation, time order and the absence of a third variable); 4. select an appropriate research design, and have knowledge of factors that may undermine validity associated with various designs; 5. develop measurement instruments and assess their reliability and validity; 6. sample data from a larger population, are aware of possible biases introduced in the selection process and understand the idea of statistical inference based on sampled data; 7. describe data, using an appropriate statistical program, in frequency tables, bar charts, histograms and box plots; 8. describe the relationship between variables, using bivariate tables and scatterplots; 9. draw conclusions and report about the results of a basic data analysis.
Assessment	For this course there are two partial exams (Test 1 and Test 2) and a R-test. The R-test is graded 'pass' or 'fail', and must be passed to complete the course. Both exams count for 50% of the final mark. The minimum mark for the partial exams must be at least 5.0 and the final mark must be at least 5.5 (so a 5.0 for one of the partial exams can be compensated via a 6.0 or higher for the other partial exam). There will be a retake offered for both partial tests and R-test. Results for a partial exam or R-test are only valid until the following semester. The lecturers can impose additional restrictions on the participations in the tests: only students showing sufficient participation in the course will be allowed to take part in the tests. This cannot be repaired after the course is finished.

Research Studio	**202300147**
Teaching staff	Dr. I. Friso-van den Bos, L. Hogenkamp MSc
Course description	Educational scientists in the fields of EDUcation and Human Resource Development (HRD) investigate people's learning and professional development in school and non-school contexts. Practitioners, in turn, can use the insights that can be gleaned from educational research to improve their professional practices. So, regardless of whether you pursue an academic career or want to work in a more applied setting, you need to develop a solid understanding of educational research in the broadest sense of the word. This course is designed to do just that. Following the phases in the empirical cycle you will acquaint yourself with survey research and intervention studies as well as the qualitative and quantitative data produced therein. Through hands-on experience with real empirical materials such as scientific articles, case descriptions and existing datasets, you will learn to understand, conduct, report, and hopefully appreciate educational research
Learning objectives	By the end of this course, students should be able to: 1. Coherently, concisely and critically discuss concurrent literature about a set of key constructs. 2. Formulate research questions and hypotheses that are well-grounded in literature. 3. Accurately identify and operationalize key concepts. 4. Propose a fitting research design to investigate a research question or test hypotheses in the fields of HRD and EDE. 5. Design and apply suitable rubrics to code and score qualitative and quantitative data. 6. Accurately propose and apply qualitative and quantitative methods to analyse the data. 7. Draw valid conclusions from the data. 8. Critically evaluate the contribution of a study to a body of existing knowledge, with clear argumentation. 9. Report the research in a coherent scientific paper.
Assessment	The assessments are conducted through written assignments. All assignments must be submitted to receive a final mark. The final mark of the course is composed of the marks of the written assignments that together represent a full scientific article. Each of the assignments is weighted to compose the final mark. The weighted average mark of all the assignments needs to be at least 5.5 in order to pass the course. In case of insufficient partial marks and/or final mark, students may re-take a maximum of two assignments(s) that was/were not sufficient, within or shortly after this quartile. The marks of the separate assignments grades stay valid until the end of the following semester. If a student does not pass the course (i.e., obtain a sufficient final mark composed of the weighted assignment marks) until then, the student loses the grades already earned.