Programme Guide 2021-2022

**Master of Science (MSc) programme
Philosophy of Science, Technology and Society**

www.utwente.nl/psts

Information for staff and current and prospective students

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Preface

A commonplace can raise quite a few questions. In public discussions about novel technologies, especially in the life sciences, you frequently hear that "we should not play god". It's one of the expressions signalling the uneasiness some technological developments tend to invoke. Interestingly, this argument does not only refer to standards inferred from religious sources, since it is also voiced by people who do not perceive themselves as religious. Nor can it simply be countered, as some think, by arguing that human beings have been 'playing god' for quite a while already. Even if that would be true, it does not imply that we should applaud any technological development. The bestselling historian Yuval Harari claims that humans are rapidly becoming gods in a quite literal way, acquiring the abilities to create and shape life (in the Dutch tv-programme *Tegenlicht*, October 29, 2017). According to him, the crucial question of our time is what kind of gods we want to be. Interpreted in a more metaphorical way, the playing god argument seems to indicate a concern about the human relationship with or attitude towards the world, one of complete control. Which raises the question whether all technologies invite such a stance, or whether some technologies offer a stronger incentive than others.

Answering such questions requires competence in philosophical analysis (what are the different meanings ascribed to 'playing god'?), but also in empirical and historical research (when, where and how do developments in science and technologies invite a god-like attitude to the world?) and in ethics (what can be the normative force of different variants of the argument in the context of specific technoscientific developments)? And these are exactly the multidisciplinary kind of reflections and research that the MSc programme Philosophy of Science, Technology and Society (PSTS) invites you to.

Our programme educates students to understand, evaluate and help shape the mutual interaction between science and technology on the one hand, and human beings, values and societies, on the other. The orientation of the programme is partly *analytical and interpretative* (understanding the way in which science and technologies shape, and are themselves shaped by, society and culture) and partly *normative* (evaluating scientific and technological developments, technologies and their social and cultural impacts). Both analysis and evaluation are always rooted in concrete scientific and technological practices, and the insights gained can help (re-)shape these practices, via design, guidelines for implementation, or via policy making, among others.
PSTS thus offers a rich mixture of different elements. As you will see in this programme guide, there is a range of possibilities to develop your personal trajectory within the programme. Each year we welcome students from a wide variety of backgrounds and nationalities, adding to the richness of the experience when you study with us. At the same time, students and staff share a sense of urgency and commitment: we all want to somehow build the reflective capacity needed to better understand and help shape our highly technological society in a responsible way.

This programme guide shows what you can expect from the programme as a student – and it makes clear what we expect from you when you embark on this multidisciplinary adventure. We look forward to meeting and working with you!

Dr. Michael Nagenborg
Programme director PSTS

Reading cues

Part A: Programme information
This part provides information about the profile and objectives of the programme, the structure of the curriculum and special curriculum variants, the study methods and examination formats used, and the programme's connection to the professional field, including a few personal stories from PSTS alumni.

Part B: Course descriptions
This part includes descriptions of all courses that are part of the PSTS curriculum, covering course objectives, teaching staff involved, entry requirements, course content, study material and assessment format, among others.

Part C: Organisation and quality assurance
This part describes the roles and entities involved in the organisation of the programme and explains how the quality assurance of the programme is organised, also covering the crucial role students play in this.

Part D: Joining the programme
This part describes the admission requirements and procedure, as well as the costs involved in studying PSTS.

Part E: Practical information
This part presents information needed to get started and find your way in the programme and the University of Twente more generally, including how to enrol in courses and register for examination, where to find information about timetables, computer facilities ad student guidance and counselling.

Part F: Appendices
The appendices include some more formal aspects of the PSTS curriculum design, as well as a list with names and contact details of all PSTS teaching staff.

Part A: Programme information

1. PSTS: A philosophical approach of science, technology and society

1.1 Why Philosophy of Science, Technology and Society?

Technology is transforming everyday life all over the globe, changing practices of work, love and friendship, education, health care, citizenship – in brief, shaping the way we live. New technologies like robotics, machine learning, bioplastics or gene editing promise great benefits, but achieving these requires active human steering. The two-year, international Master of Science programme *Philosophy of Science, Technology and Society* provides students with the mindset, conceptual tools, and skills to better understand, evaluate and improve the interaction between science, technology and society. We train students in philosophical concepts and approaches, as well as in insights and empirical methods from the field of science and technology studies. PSTS graduates are able to identify and analyse emerging developments and to critically assess the way these may impact societies and social practices around the world. Moreover, they can help actors in the field to creatively shape and design emerging developments in a way that fits ethical values and human and societal needs. These competences are in high demand in academia, as well as among policy makers, consultancies, companies and other organisations working at the interface of technology and society.

1.2 The PSTS domain

The PSTS programme combines two scientific domains: philosophy of science and technology, and the interdisciplinary field of Science, Technology and Innovation Studies (STIS). Teaching staff is provided by two UT sections in the University of Twente Faculty of Behavioural, Management and Social Sciences (BMS): the section of Philosophy and the section of Science, Technology and Policy Studies (STəPS).

> **"It feels like the most important study of this moment. You are at the core, the biggest thing in the world, the thing that is going to influence everyone (tech) and we analyse that, interrogate it, are working closely with it."**
>
> **(PSTS student)**

1.3 Philosophy of technology and technoscience

"Our programme enables students to build bridges between technology and society."
(PSTS lecturer)

Philosophy as it is practiced at the section of Philosophy at the University of Twente is philosophy of technology and technoscience. *Philosophy of technology* aims to understand and assess the pervasive role of technology in society. Every major activity in our lives, such as work, play, learning, communication, and travel, depends on technology. All major institutions of society, such as government, healthcare, defence, education, religion, and law, are increasingly fixated around technology, and changes in them are to a large extent driven by technology. Science today is actually technoscience: our view of what is reliable knowledge is highly mediated by the technologies used to access the world. The central role of technology in modern societies has brought along many benefits for humanity, enhancing welfare and individual freedom, but it has also brought harms, ranging from environmental problems to issues of rationalisation and alienation.

In view of the ambiguous role of technology in society, the philosophy of technology and technoscience has both an interpretive and a normative aim. Its interpretive aim is to understand the way in which technological artefacts and practices give shape to, and are themselves shaped by, core aspects of modern culture and society, including science. Its normative aim is to provide evaluations and assessments of technologies and their social and cultural impacts.

A core characteristic of philosophy of technology and technoscience at the University of Twente is its empirical orientation. Rather than studying the philosophical tradition ('what did Plato really mean with X?') or aiming to understand technology as such ("Technology with a capital T'), research usually starts from specific technologies and technological or techno-scientific practices and discourses. And rather than applying existing philosophical theories to analyse science and technology, the ambition is to understand how technologies encourage us to expand existing philosophical concepts and frameworks. On the one hand, this orientation utilises ideas and theories from the philosophical tradition, and on the other, it aims to contribute to mainstream discussions in philosophy. It does so by investigating how technology alters the concepts and realities traditionally studied by philosophy (how, for instance, medical technologies and human enhancement technologies change our notion of the subject and of the body, or how big data research challenges notions of reliable knowledge) and by studying how technology uncovers and provides new perspectives on old philosophical issues (how, for example, a study of virtual reality may help shed light on general issues in ontology).

Another characteristic feature of philosophy of technology at the University of Twente is its focus on the social impacts and cultural meanings of technology. Moreover, it seeks close collaboration with the engineering sciences and with design practices. Research frequently involves case analysis, using hermeneutic, ethnographic and/or discourse analytic methods, and develops and tests philosophical notions and theories in close interaction with these empirical cases.

Technological domains studied range from information- and communication technology, algorithms and artificial intelligence, neurotechnologies, persuasive and augmented reality devices, smart cities, robotics, military technologies to systems biology and biomedical technologies.

1.4 Science, Technology and Innovation Studies

The dynamics and governance of science, technology and innovation is central to the domain of Science, Technology and Innovation Studies. The section of Science, Technology and Policy Studies (STəPS, Faculty of Behavioural, Management and Social Sciences - BMS) at the University of Twente studies the interactions between science, technology and society as social processes. In this multidisciplinary domain phenomena such as the dynamics of techno-scientific developments, anticipation of the future, and social attempts to stimulate and shape innovation are investigated through various disciplines, including history, sociology and policy science.

Three dimensions of the field of Science, Technology and Innovation Studies play a particular role in the PSTS Master's programme: Technology dynamics and assessment; History of science, technology and society, and Governance of science, technology and innovation.

1. Technology dynamics and assessment

Understanding the dynamics of technological practices and socio-technical change is of great relevance to societal actors and audiences in modern societies, ranging from scientists and technologists to government agencies, business firms, non-profit organisations, and the general public. A nuanced understanding of these practices and processes is also crucial for the ways in which socio-technological change can be assessed, shaped and governed. Learning about the concepts, theories and methods that help understand and assess technological practices and socio-technical change is therefore an important element of the PSTS master programme.

2. History of science, technology and society

When reflecting on contemporary issues in the interaction between science, technology and society, it is important to keep in mind that these take place against the background of long-term developments. Studying the social, cultural, intellectual and institutional history of these interactions provides an important basis and context for understanding contemporary and future-oriented challenges.

3. Governance of science, technology and innovation

For anyone wondering whether and how technological and scientific processes can be shaped, understanding the (changing) governance of science, technology and innovation is key. The PSTS programme therefore teaches students how to study transformation processes of the research and innovation system, the role of governance and policy making in this transformation and the processes by which scientific knowledge contributes to policy making and innovation. Such understanding is relevant not only in relation to policy making, but also for actors in industry and innovation more generally.

"I know everything about new, emerging technologies. I love it. You can engage in discussions on a very high level, from a really broad view of the world."

(PSTS student)

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1.5 Characteristics and highlights of the PSTS programme

If you ask students, alumni and staff what characterises the PSTS programme, here's a few of the highlights they often mention:

Unique focus on the philosophy of technology
PSTS is worldwide the only two-year Master's programme in philosophy of science, technology and society. Among all programmes focusing on the role of technology and society, our programme stands out because it is clearly rooted in the philosophy of technology and technoscience. The approach of philosophy in PSTS has, moreover, a strong empirical orientation, often taking its cue from specific scientific and/or technological practices and developments. This means concepts, approaches and methods from the interdisciplinary field of Science and Technology Studies (STS) play an important role. It is precisely the combination of philosophy and STS that helps students to develop the reflective capacities the programme aims to foster.

Strong international orientation
PSTS has a strong international orientation. All courses are taught in English and a substantial part of the teaching staff is from abroad. The programme attracts students from all over the world. Students who want to expand their international outlook even further can spend part of the second year abroad (either via an internship and/or by taking courses, although the latter may cause some study delay).

High quality teaching staff
All staff members have proven capabilities in both teaching and research. Both students and alumni in the past indicated they highly appreciated the teaching qualities as well as the expertise of the teachers involved in the programme. Their intellectual passion when teaching is often considered infectious. Students also value the open, informal character of student-staff relations.

> **"I enjoy the deep and thoughtful exchanges with students."**
> **(PSTS lecturer)**

Close link between teaching and research
The PSTS programme is – especially in the second year – strongly related to the research activities and academic expertise of the teaching staff. Both sections involved in PSTS (the sections of Philosophy and the section of Science, Technology and Policy Studies, STəPS), are internationally acknowledged and active, hold a leading position in philosophy and Ethics of Technology, and in Science, Technology and Innovation Studies. The research conducted by these sections has received excellent evaluations from QANU (Quality Assurance Netherlands Universities). PSTS students therefore have the benefit of being initiated into the field by and to collaborate with researchers at the forefront of current academic work in the field. In addition, students join the research colloquia organised by the sections of Philosophy or the STePS section. These colloquia often host international guest speakers and help students to become familiar with the academic community and culture.

Academic and professional skills training

While dealing with a variety of topics and approaches, PSTS explicitly trains a large number of academic and professional skills. Students learn how to read and argue in a critical way, how to quickly get an overview of a new domain and arrive at a meaningful analysis of that domain. You are trained in doing research with different types of methods (literature research and qualitative empirical research), first in small groups, later on your own. You also learn how to present and write for different audiences. These skills are highly relevant for an academic, but also for any professional career. Students work on their Skills Portfolio from the beginning of the programme. At the start of year 1, each student is assigned a personal mentor and gets access to a personal Canvas page, enabling the student to take stock of and together with the mentor reflect on the development of the skills all PSTS graduates should acquire. During the two years of the programme, the student and the mentor schedule a number of mentor meetings for this purpose. During the meetings, the mentor and the student will reflect on the student's development, take stock of what has been achieved, and diagnose where and how the student needs to work on specific skills.

Section 2.3.3 gives an overview of the academic skills trained in the programme. For more information about the career perspectives, see section 2.4.

Fellow students

Odd as it may sound, students often mention their fellow students as one of the assets of PSTS. They appreciate the diversity of the student group in our programme. Since we welcome students with backgrounds in natural or engineering sciences, social sciences and humanities, a wealth of expertise and perspectives is available in class. The PSTS classroom is a living lab, enabling you to experience and practice the multidisciplinary communication and collaboration skills that belong to the core competences of a PSTS alumnus. In group assignments we actively use this variety in backgrounds, training you how to learn from each other.

High degree of academic freedom

The Master's programme has been designed in such a way that students can take responsibility for their own course of study and academic progress. Even though the curriculum of the first year is more or less the same for all students, you have quite some freedom to pursue your own interests, for example when choosing which technologies or domains to focus on for a course assignment. In the second year you decide which combination of courses to take, whether or not to do an internship and what topic to focus on in your final project. Moreover, the programme offers several opportunities for pursuing a specific profile, as presented below.

PSTS Link: pursuing a double degree in two years

Under the label 'PSTS Link' we offer a number of double degree programmes in collaboration with other (1 year) master programmes at the University of Twente. By combining courses from both programmes in a smart way, you can attain 2 MSc diplomas in two years. Currently it is possible to combine PSTS with the MSc programmes in Public Administration (PA), in Business Administration (BA), or in Communication Science (COM). Since you have to be admitted to both MSc programmes, you may - in case of not satisfying the admission criteria of the partner programme - be required to first take a pre-master in that programme. More information on PSTS Link is provided in section 2.2.1.

Special track and PhD programme in Ethics and Technology
If you are interested in ethics and aiming for an academic career you can, at the end of the first year, apply for the special track in Ethics and Technology, offered in collaboration with the 4TU Centre of Excellence for Ethics and Technology. This track is closely linked to the PhD programme in Ethics and Technology, which is offered by this 4TU Centre and embedded in the Twente Graduate School. If you are admitted to the Ethics & Technology track your second-year programme will consist of external, PhD level courses in ethics of technology, in addition to ethics-oriented PSTS courses. In your final project you can specialise in your preferred area of research and thus focus already on the subject of a future PhD dissertation. This way you can transfer faster into a PhD specialisation. For more information about this track and the PhD programme Ethics and Technology, see section 2.2.2).

Internship
PSTS offers the option to do an internship in the second year. This is very helpful to assess the level and relevance of your competences in a non-academic setting, to become familiar with an external organisation in a relevant field, and to explore what kind of career you would like to pursue. The programme has contacts with a variety of organisations outside academia that welcome interns, both in the Netherlands and abroad. More information on internships can be found in the PSTS programme's internship manual on the PSTS website: https://www.utwente.nl/en/psts/master

Excellent student guidance
If you have a hard time deciding which opportunities in PSTS to pursue, or encounter obstacles, excellent student guidance is available to help you make the right choices during your studies. The study adviser of the PSTS programme can always assist. Section 9 contains more details about student supervision and counselling.

Encouraging students to take an active role in university life
The PSTS programme, partly in collaboration with the PSTS study association Ideefiks, also offers extra-curricular activities, inviting you to become even more actively engaged in university life. You are encouraged to become an active member of Ideefiks and join their board. In past years, groups of students have organised study trips abroad, testing their competences and exploring job market opportunities in Stockholm (2017) and Dublin (2019).

Course name	Study Trip PSTS	Course code	201600235
Description	Students themselves may initiate and organise a study trip. During a study trip, PSTS students visit one or more organisations and/or companies where they can apply the knowledge acquired in the PSTS programme. These organisations may provide students with real life case studies/assignments concerned with the interaction of scientific and technological developments with society. If these assignments are approved by the PSTS teaching staff accompanying the study trip, the student work on such an assignment can be credited with 1 EC. The PSTS students participating in the study trip will, under the guidance of PSTS teaching staff, identify and analyse the problem presented by the organisation(s). This preparation in the weeks preceding the trip ensures that by the time the students arrive they have a clear understanding of the subject material and are able to provide the organisation(s) with a thorough understanding and evaluation of the case, as well as advice regarding how to		

	proceed. During their visit to the organisation students will orally present their analysis and advice and receive feedback from the organisation's staff. After the study trip all students reflect on the experience and what they learnt from it.
	The course workload encompasses 1 EC (28 hours). This includes a few preparatory class meetings, work on the assignments (largely in advance of the trip), the hours for presenting the work to the organisations during the trip and writing a reflection report after the event. The majority of the workload takes place in advance of the trip itself.
	One or two teachers from the staff members appointed by the Examination Board in the PSTS programme of the current academic year will be responsible for guiding and supervising the work for this course, both before, during and after the study trip.
Learning objectives	After the study trip students are able to 1. Identify the problem(s) in a real-life case study regarding the interaction of science & technology and society. 2. Analyse this problem using the philosophical and STS approaches and skills set taught in PSTS. 3. Work towards a deliverable that is presented to and defended towards the client who provided the case study. 4. Reflect on the experience and the lessons learnt 5. Identify opportunities for applying their philosophical and STS expertise and skills and to pursue a career in which this expertise and skills are required.

You may also apply for positions as a student assistant (helping out with teaching tasks in bachelor programmes or with organisational and research activities) or to become a student member of the PSTS programme committee (see section 5.3). There are even more opportunities at university level.

The PSTS community
Finally, students value the feeling of community they experience in the programme. Students do not just happen to have a common set of interests; they share a sense of urgency and commitment to think through the relations between technology and society and help improve these. Moreover, they recognise in each other a critical mindset. Needless to say, these dispositions are also shared by the PSTS teaching staff.

2. The PSTS programme

2.1 The PSTS-curriculum

2.1.1 General structure

An academic year at the University of Twente is divided into two semesters. Each semester consists of two 'blocks' (1A and 1B, and 2A and 2B) also referred to as quartiles 1-4. During each quartile, several courses are taken in parallel. Classes (lectures, seminars) usually take place in the first eight weeks of the quartile, after which there are two more weeks for examination. The full Master's degree programme PSTS consists of 120 EC, which amounts to 2 years/4 semesters/8 quartiles. 'EC' stands for European Credit and indicates the workload for a student. 1 EC corresponds to 28 hours of study, regardless of whether these are class hours or hours for group work or individual self-study.

The PSTS programme has a well-elaborated four-semester structure, in which each semester builds upon the knowledge and skills obtained in the previous one.

Semester 1: Introduction to the relevant sub-disciplines
In the first semester you are introduced to the relevant sub-disciplines: philosophical theories and methods, philosophy of technology and the multidisciplinary field of science, technology and innovation studies, as well as ethics, history of science and technology and philosophy of science. For those students who do not have a background in philosophy, philosophical skills and knowledge are developed to an advanced bachelor level. In all courses, basic academic skills such as reading, reasoning and argumentation, writing, and presenting are intensively trained. Courses are completed by written examinations and short papers in which you have to reproduce some basic knowledge.

Semester 2: Reflection on technology and technoscience
The main objective of the second semester is to deepen the skills and knowledge acquired in the first semester. Content wise, the focus is now directed towards the philosophical analysis of technology and technoscience in society. Argumentation, presentation, reading and writing skills are deepened by targeted exercises. You write more substantial papers in which the literature is critically examined in a comparative way and in which you formulate arguments to develop your own position. You also give presentations and practice your oral discussion skills in seminars. Moreover, this semester starts the training of professional and research skills. The course TechnoLab invites you to actively put your theoretical and practical skills to use in a project focusing on a technology in development. This course also helps you to understand how (social) scientists and engineers approach questions and problems related to technology and technoscience, and to use different backgrounds as a resource in multidisciplinary collaboration. The PhiloLab course introduces you to what it means to do research in the field of PSTS and thus prepares you for the more research-oriented courses in the second year. This course also gives you a preview of the research activities of staff members of the sections of Philosophy and STePS and thus serves as a first orientation on possibilities for the final project.

Semester 3: Specialisation
The third semester offers a variety of courses that familiarises you with the state of the art in different research domains in the field of PSTS. Courses focus on different kinds of topics and questions; by making your personal selection, you develop your own PSTS trajectory. You can for example opt for those courses dealing with interpretative rather than normative questions, or for those courses focusing on theoretical controversies rather than practical challenges, or find a midway by combining these. Regardless of the topic and approaches discussed, all courses are closely connected to the research activities and interests of teaching staff. You thus acquire knowledge of the latest developments in academic research. The courses also aim to develop research skills to a level preparing you to conduct your own independent research for the final thesis. The obligatory course MasterLab will guide you towards a thesis topic, a supervisor and a research question for your final project. This supervisor coaches you to develop a research proposal for the final project, while additional feedback and research skills training is offered by the graduation coordinators and fellow students in MasterLab.

Semester 4: Final thesis
In this semester you work on your final thesis project, under continued guidance of your supervisor. In the final thesis you provide a proof of your competence to plan and carry out a research project in the field of PSTS at a junior academic level. Optionally, in this semester you can also explore possibilities for a professional career outside academia by doing an internship with an external organisation. During the second semester meetings of MasterLab you discuss your progress with other students working on their final theses and the graduation coordinators, and give and receive feedback on each other's work.

Year 1 and year 2: Skills Portfolio
During both years of the programme, students engage in a dedicated *skills learning line*. At the start of year 1, each student is assigned a personal mentor and gets access to a Canvas page, enabling the student to take stock of and together with the mentor reflect on the development of the skills all PSTS graduates should acquire, and engage in the skills learning line in parallel to the PSTS coursework.

At the end of the PSTS programme the student can exercise all core PSTS skills (as described in final qualifications S1-S10 of the PSTS programme and translated into the skills line checklist C1-C9, see sections 2.3.1 and 2.3.3) at a sufficient level and is able to take responsibility for their own learning and personal development.

The mentor meetings have a monitoring function and provide students with the opportunity to reflect on and discuss on a one-on-one basis their individual skills development. The learning activities are student driven. The student is expected to take the lead in setting the agenda for the meetings and upload suitable material from coursework to serve as basis for discussing specific skills. The skills learning line checklist (see section 2.3.3) serves as a point of reference for both the student and the mentor.

Assessment of the PSTS Skills Portfolio is incremental and largely formative, based on the mentor meetings and following the skills learning line checklist (see section 2.3.3). The final assessment is made at the end of the PSTS programme. For passing the skills learning line, the only condition is that all items on the checklist have been addressed in discussion in the mentor meetings.

2.1.2 First year curriculum PSTS (2021-2022, full-time)

The curriculum of the first year is depicted below. Detailed course information can be found in section 3 of this programme guide and in the online course catalogue; see: *https://osiris.utwente.nl/student/OnderwijsCatalogus.do*

PSTS curriculum year 1, semester 1:

Semester 1	
Block 1A	**Block 1B**
Philosophy of Technology (201200063) 5 EC	Philosophy of Science in Practice (201400573) 5 EC
Science and Technology Studies (201200064) 5 EC	History of Science and Technology (201400574) 5 EC
Philosophical Theories and Methods (201200059) 5 EC	Ethics and Technology I (191612540) 5 EC
PSTS Skills Portfolio (202000102)	

PSTS curriculum year 1, semester 2:

Semester 2	
Block 2A	**Block 2B**
TechnoLab (202000252) 5 EC	PhiloLab (202000253) 5 EC
Philosophical Anthropology and Technology (191612550) 5 EC	Technology and Social Order (191622510) 5 EC
Society, Politics and Technology (191612560) 5 EC	Ethics and Technology II (191612580) 5 EC
PSTS Skills Portfolio (202000102)	

With regard to the year #1 courses the following course-specific pre-requisites apply:

Course	Prerequisite
202000252 TechnoLab (2A)	• 201200063 Philosophy of technology • 201200059 Philosophical theories and methods • 201200064 Science and technology studies
202000253 PhiloLab (2B)	• 201200063 Philosophy of technology • 201200059 Philosophical theories and methods • 201200064 Science and technology studies • 202000252 TechnoLab

191612580 Ethics and technology 2 (2B)	• 191612540 Ethics and technology 1
191622510 Technology and social order (2B)	• 201200064 Science and technology studies • 201400574 History of science and technology

Additional requirement: colloquia attendance (in year 1 and 2) – as part of Skills Portfolio

In universities colloquia are part of the academic culture. During such colloquia academics present recent and ongoing work and discuss it with colleagues. Attending such colloquia and participating in the debates going on there is thus a good way to become familiar with actual topics and trends in research and with academic culture in general. In the PSTS programme there are several types of colloquia:

a. Research colloquia: both the sections of Philosophy and STəPS organise a colloquium series, often featuring guest speakers honouring the UT with a visit.
b. Research groups: within the sections, there are theme-oriented research groups, focusing for example on Technology & Values, or on Human-Technology Relations. During these meetings, UT staff members present their work in progress and discuss it with colleagues and students.
c. Graduation colloquia: graduating PSTS students present their Master's thesis during a meeting that is open to all.

All colloquia are announced on the PSTS Canvas site. Students in PSTS are required to attend *at least 8 colloquia* during their two years of studies. Attendance is monitored and registered. You have to sign the attendance form at the colloquium. In case there is no attendance list present, students have to make their own list with all attendees (incl. date, name of the speaker and topic of the colloquium), and have this list signed by the coordinator of the colloquium (and hand it in at the Educational Affairs Office PSTS). The Educational Affairs Office PSTS keeps record of the colloquia that you attended and will check whether you satisfied this requirement when you submit the request for graduation.

2.1.3 Second year curriculum PSTS (2021-2022, full-time)

The second year of the PSTS programme offers you the opportunity to develop your own trajectory in a variety of directions. The courses during the first semester of the second year acquaint you with specialist knowledge and insights, often discussing the state of the art in research on a specific theme or in a specific subfield. In addition, your research skills are trained, and you develop a final project research proposal. In the second semester you conduct your own research under regular (individual and collective) supervision.

Detailed course information can be found in section 4 of this programme guide and in the online course catalogue at: *https://osiris.utwente.nl/student/OnderwijsCatalogus.do*

Please note that for students taking one of the PSTS Link (double degree) programmes or who are accepted for the 4TU Ethics & Technology track, the second-year programme has a different structure. See section 2.2.2 for these special variants.

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Note:
Before starting the Year #2 courses, you have to meet a number of general entry requirements:

- In general, you need to have completed at least 40 EC's from the year #1 courses
- Depending on the courses chosen, you are adviced to have completed specific first year courses (please check the relevant course descriptions in section 3)
- Before starting the MasterLab course, you need to have completed at least 50 EC's from the year #1 courses, and in any case the courses TechnoLab (202000252) and PhiloLab (202000253)
- Before starting the programme's Final Project/Master's Thesis (and/or Internship) students need to have completed at least 75 EC's of the PSTS courses, and in any case the courses TechnoLab (202000252), PhiloLab (202000253) and MasterLab – 1st semester component (202000254)

In addition, the following course-specific entry requirements apply to the Year #2 courses:

Course	Pre-requisite
201800145 Technologies in use (1A)	*no additional requirements*
201800146 Transformation of knowledge in a digital age (1A)	*No formal requirement, but advised:* • 201200064 Science and technology studies • 201400573 Philosophy of science in practice • 201400574 History of science and technology • 202000252 TechnoLab
202100093 Technologies and Discourse (1A)	*No formal requirement, but advised:* • 201200064 Science and technology studies • 191622510 Technology and social order
201800148 Good technology for users and society (1A)	*No formal requirement, but advised:* • 191612540 Ethics and technology 1 • 191612560 Society, politics and technology • 191612580 Ethics and technology 2
201800149 Anticipation and evaluation of emerging technologies (1B)	*No formal requirement, but advised:* • 191612540 Ethics and technology 1 • 202000252 TechnoLab • 191612580 Ethics and technology 2
201800150 Minds, bodies and technologies (1B)	*No formal requirement, but advised:* • 191612550 Philosophical anthropology and technology
201800151 Rethinking science-technology relations (1B)	*No formal requirement, but advised:* • 201200064 Science and technology studies • 201400573 Philosophy of science in practice • 201400574 History of science and technology • 202000252 TechnoLab

Semester 1

For the first semester, you make your own selection of 5 courses from the elective courses available. Optionally, you can substitute one or max. two PSTS elective(s) by one or two 'external' course(s) from another master's programme, provided this is approved by the PSTS Programme Director. All elective courses offered by the PSTS programme focus on topics and themes that are addressed in research activities of staff members. These courses make you familiar with ongoing research and academic discussion on these themes and in specific subfields, and train the skills needed to contribute to such research. Several courses also explicitly train professional skills, like report writing and collaboration with other disciplines.

During the first semester, in the course MasterLab, you are also guided towards the choice of a thesis topic and a thesis supervisor and supported in developing a research proposal for the final thesis project. This course is obligatory for all students. MasterLab is supervised by a team of two graduation coordinators, who monitor and facilitate students' progress throughout the graduation trajectory.

Finally, during the second year you continue attending research and graduation colloquia.

PSTS curriculum year 2, semester 1:

Semester 1	
Block 1A (typically 3 out of 4 electives)	**Block 1B** (typically 2 out of 3 electives)
Technologies in use (201800145) 5 EC, elective	Anticipation and evaluation of emerging technologies (201800149) 5 EC, elective
Transformation of knowledge in a digital age (201800146) 5 EC, elective	Minds, bodies and technologies (201800150) 5 EC, elective
Technologies and discourse (202100093) 5 EC, elective	Rethinking science-technology relations (201800151) 5 EC, elective
Good technology for users and society (201800148) 5 EC, elective	
PSTS Skills Portfolio (202000102)	
MasterLab (202000254) 5 EC, obligatory	

Semester 2

In the second semester you work on your final project with your thesis supervisor. You carry out the research planned in the research proposal. During the process, you also attend the meetings

of MasterLab, in which you give presentations about the status and progress of your final thesis project and give feedback on the work of your peers. The two graduation coordinators facilitate this peer-feedback process and support the learning experience.

You may opt for an internship of 10 EC with an external organisation, which can, but need not be related to the topic of the final project. The internship usually takes place in the third quarter of the second year, and if it is included, the final thesis project is less extensive (20 instead of 30 EC). For a description of the procedures regarding an internship, see PSTS internship manual on the PSTS website **https://www.utwente.nl/en/psts/master/**

The final examination at the end of the second year includes an oral exam on the thesis as well as a public presentation about and discussion of the thesis during a graduation colloquium. See the Final Project Guide on the PSTS website **https://www.utwente.nl/en/psts/master/** for detailed information about graduation.

PSTS curriculum year 2, semester 2:

Semester 2	
Block 2A	**Block 2B**
Master's Thesis 30 EC (201300088) **OR** Internship 10 EC (201300090) and Master's Thesis 20 EC (201300089)	
MasterLab (202000254) obligatory	

2.1.4 Part-time programme

The PSTS programme can be done part-time, usually taking 4 instead of 2 years. However, since all courses are offered only once a year and three parallel courses of the fulltime variant cannot be neatly divided into two equal parts, doing the programme part-time requires careful planning. The most optimal plan, taking pre-requisites within the programme into account, is presented in the 4-year part-time schedule below. In case you want to deviate from this because of your individual situation, you need to develop a feasible and personal plan, in consultation with the study adviser.

In the part-time structure, both years of the regular full-time programme are divided into two parts, each with a study load equivalent to 30 EC (European Credits; 1 EC corresponds with 28 hours of study). Part-time students take the same courses and participate in the same classes as full-time students but take 1 or 2 (instead of 3) courses per quartile. Moreover, they are allowed to complete some of these courses in the next quarter, often using the second opportunity for an exam or the second submission date for papers to complete a course.

If you are formally registered as a part-time student at the UT (and pay the correspondingly lower tuition fee), you may take and obtain a maximum of 40 EC per year. If more credits are obtained, you must register and pay as a full-time student. (Please note: as a part-time student you normally have a different legal position and are not entitled to every student facility.)

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Curriculum of the part-time programme (2021-2022)

Year	Quartile 1A	Quartile 1B	Quartile 2A	Quartile 2B
Y#1	**Philosophy of Technology** (201200063, 5EC) <u>Just classes</u>, so study load is 2,5 EC **Science and Technology Studies** (201200064, 5EC) <u>Classes + completing</u> *7,5 EC*	<u>Completing</u> **Philosophy of Technology** (201200063, 5EC) <u>individually</u>; study load is 2,5 EC **Philosophy of Science in Practice** (201400573, 5EC) <u>Classes + completing</u> *7,5 EC*	**Philosophical Anthropology and Technology** (191612550, 5EC) <u>Just classes</u>, so study load is 2,5 EC **Society, Politics and Technology** (191612560, 5EC) <u>Classes + completing</u> *7,5 EC*	<u>Completing</u> **Philosophical Anthropology and Technology** (191612550, 5EC) <u>individually</u>; study load is 2,5 EC **Technology and Social Order** (191622510, 5 EC) <u>Classes + completing</u> *7,5 EC*
	PSTS Skills Portfolio (202000102)			
Y#2	**Philosophical Theories and Methods** (201200059, 5EC) *5 EC*	**History of Science and Technology** (201400574, 5EC) **Ethics and Technology I** (191612540, 5EC) <u>Just classes</u>, so study load is 2,5 EC *7,5 EC*	<u>Completing</u> **Ethics and Technology I** (191612540, 5EC) <u>individually</u>; study load is 2,5 EC **TechnoLab** (202000252 5EC) *7,5 EC*	**Ethics and Technology II** (191612580, 5EC) **PhiloLab** (202000253, 5EC) *10 EC*
	PSTS Skills Portfolio (202000102)			
Y#3	Elective course 1 (5EC) <u>Classes + completing</u> Elective course 2 (5EC) Just <u>classes</u>, so study load is 2,5 EC (MasterLab / *to be decided*)	Elective course 3 (5EC) <u>Completing</u> Elective course 2 <u>individually</u>; study load is 2,5 EC (MasterLab / *to be decided*	(optionally - Elective course elsewhere) orientation Master's Thesis (individually) + start writing research proposal (MasterLab / *to be decided*)	(optionally - Elective course elsewhere) orientation Master's Thesis (individually) + start writing research proposal (MasterLab / *to be decided*)
	PSTS Skills Portfolio (202000102)			
Y#4	Elective course 4 (5EC) <u>Classes + completing</u> (MasterLab / *to be decided*) Master's Thesis	Elective course 5 (5EC) (MasterLab / *to be decided* Master's Thesis	(MasterLab / *to be decided* Master's Thesis	(MasterLab / *to be decided* Master's Thesis
	PSTS Skills Portfolio (202000102)			

Note 1: In case students take a 'stretched version' of a course, they should inform the involved teacher about this themselves.
Note 2: Apart from this offered part-time plan, part-time students need to follow courses the same way as full-time students, so all the same requirement, deadlines, etc. apply.
Note 3: In addition to completing these courses, part-time students are also supposed to attend at least eight colloquia, during year 1-4 as embedded in the PSTS Skills Portfolio.

2.2 Special opportunities in PSTS

2.2.1 PSTS Link Double Degree trajectories

The PSTS programme offers three so-called PSTS *Link trajectories* that lead to a double degree:

- PSTS Link with the UT master's degree programme Business Administration (PSTS-Link-BA, 2 years)
- PSTS Link with the UT master's degree programme Public Administration (PSTS-Link PA, 2 years)
- PSTS Link with the UT master's degree programme Communication Science (PSTS-Link COM, 2 years plus 1 quartile)

In these double degree programmes, you acquire *two master of science (MSc) diplomas in 2 years*, issued by the examination boards of each of the two participating programmes.

Admission
To enrol in the double degree programme, you have to be admitted to the MSc PSTS, as well as to the partner programme. This means that if you are interested in a double degree, you have to apply to each programme separately.

For students already enrolled in PSTS this implies that you *are not automatically eligible* for a specific double degree programme. A specific type of bachelor's diploma or a pre-master in the relevant domain is required. Conversely, students already enrolled in one of the partner programmes (BA, PA, COM) will have to provide evidence of (among others) their interest in reflection on issues of science, technology and society, and of sufficient critical thinking skills to be admitted to PSTS.

With regard to the PSTS-Link-BA and PSTS-Link-PA the following applies: You can decide to switch to PSTS Link, provided you are accepted as student by the partner programme as well. This choice ultimately has to be made at the <u>end of quartile 2 of year #1</u> in the regular PSTS programme. Switching at a later stage is possible, but in that case the combined curriculum will take more than 2 years.

For more information and discussion of the PSTS Link programmes, please contact the PSTS study adviser Yvonne Luyten (for contact details see paragraph 5.1).

Generic PSTS-Link structure and curriculum overview
The basic structure of these PSTS-Link double degrees is as follows:
- In **year 1** students dominantly take the (*almost*) full, regular PSTS year #1 programme, plus – depending on the specific LINK programme - another course from the partner programme. This gives you a robust basis in the PSTS domain, and enables you to take the 1st year, obligatory PSTS courses in the advised order.
- In **year 2**, students take a pre-defined package of obligatory (and optionally elective) courses in the partner programme, giving you a robust basis in the other domain, plus at least 2 PSTS 2nd year elective courses. In addition, you take a course preparing you for the final project (in either one of the two programmes involved) and you complete a joint final project (i.e. you write one master's thesis valid for both programmes).

2.2.1.1 PSTS Link Business Administration

In case of combining PSTS with Business Administration (BA), students use insights from the conceptual, empirical and/or normative analysis of the interaction between science, technology and society to reflect on the role and activities of business and management in innovation processes, as well as help improve the strategies used in those processes. Moreover, insights from Business Administration could enhance the practical orientation of philosophical and STS work focusing on innovation processes and their management. Overall, the PSTS-BA double degree graduate would be able to offer reflective, critical as well as practice-based contributions to the domain of management and change processes in high tech human touch (HTHT) contexts.

Curriculum double degree programme PSTS-Business Administration (2021-2022)

YEAR 1			
Semester 1		*Semester 2*	
Q1	**Q2**	**Q3**	**Q4**
Philosophical Theories & Methods (201200059, 5 EC)	Ethics & Technology 1 (191612540, 5 EC)	TechnoLab 202000252, 5 EC	PhiloLab (202000253, 5EC)
Science & Technology Studies (201200064, 5 EC)	History of Science &Technology (201400574, 5 EC)	Philosophical Anthropology & Technology (191612550, 5 EC) OR Society, Politics & Technology (191612560, 5 EC)	Technology & Social Order (191622510, 5 EC)
Philosophy of Technology (201200063, 5 EC)	Philosophy of Science in Practice (201400573, 5 EC)	Strategic Technology, Management & Innovation (2016000015, BA profile, 5 EC)	Ethics & Technology 2 (191612580, 5 EC)
PSTS Skills Portfolio (202000102)			

YEAR 2			
Semester 1		*Semester 2*	
Q1	**Q2**	**Q3**	**Q4**
Entrepreneurial Leadership and Responsible Design (201600002, BA core, 5 EC)	Anticipation and Evaluation of Emerging Technologies (201800149, PSTS, 5 EC)	Masterclass BA (201400018, 5 EC)	
International Entrepreneurship – a Strategic Technology Perspective (201600011, BA profile, 5 EC)		Combined Final Thesis Project* (201900178, 25 EC)	
Management and Governance of Innovation and Creativity (201600012, BA profile & PSTS elective, 5 EC)	Business Valuation and Corporate Governance (201800089, BA core, 5 EC)		
PSTS MasterLab (202000254) 5 EC			
PSTS Skills Portfolio (202000102)			

2.2.1.2 PSTS Link Public Administration

In the case of combining PSTS with Public Administration, students use insights from the conceptual, empirical and/or normative analysis of the interaction between science, technology and society to think through and design ways to manage and govern societal challenges related to science and technology. In addition, insights from the theories, models, empirical analyses and methods in the field of Public Administration could be used to translate philosophical and STS work into the practices of policy making, governance and management. Overall, the PSTS-PA graduate would be able to offer reflective, critical as well as practice-based contributions to the domain of policymaking, management and governance of the interactions between science, technology and societal challenges.

Curriculum double degree programme PSTS-Public Administration (2021-2022)

YEAR 1			
Semester 1		Semester 2	
Q1	**Q2**	**Q3**	**Q4**
Philosophical Theories & Methods (201200059, 5 EC)	Ethics & Technology 1 (191612540, 5 EC)	TechnoLab 202000252, 5 EC)	PhiloLab (202000253, 5EC)
Science & Technology Studies (201200064, 5 EC)	History of Science &Technology (201400574, 5 EC)	Society, Politics & Technology (191612560, 5 EC)	Technology & Social Order (191622510, 5 EC)
Philosophy of Technology (201200063, 5 EC)	Philosophy of Science in Practice (201400573, 5 EC)	Public Governance and Legitimacy (194101070, PA core, 5 EC)	Ethics & Technology 2 (191612580, 5 EC)
PSTS Skills Portfolio (202000102)			

YEAR 2			
Semester 1		Semester 2	
Q1	**Q2**	**Q3**	**Q4**
Social Problems (PA core, 194106090, 5 EC)	Anticipation and Evaluation of Emerging Technologies (201800149, PSTS, 5 EC)	Deliberative Governance of Knowledge & Innovation (201100076, PA S&T profile, 5 EC)	
Techmologies and Discoure (PSTS 202100093, 5 EC) OR Policy Analysis in Public & Technological Domains (201100077, PA S&T profile, 5 EC)	PA Academic Research (201500145, 5 EC) OR	Public Governance and Policy Networks (194111240, PA Core, 5 EC)	
Crisis management in technological domains (202100089 PA Core, 5 EC)		Combined Final Thesis Project * (201900179, 25 EC)	
PSTS MasterLab (202000254) (5 EC)			
PSTS Skills Portfolio (202000102)			

*Students who take the PSTS-PA programme are encouraged to take PSTS MasterLab as well during their thesis project in semester 2, but arrangements may depend on what is feasible and most useful for the student.

2.2.1.3 PSTS Link Communication Studies

The PSTS-COM double degree is meant to facilitate students who are interested in reflection on the societal challenges posed by science and technology in relation to communication. The interaction between communication and technology is twofold. First of all, technology influences the way we communicate and this has major impacts on roles, identities and social practices, among others. At the same time communication is crucial for the development, acceptance and use of new technologies. By providing students with theories, approaches and methods from the Philosophy, Science and Technology Studies, and from Communication Science, the PSTS-COM graduate will be able to offer reflective, critical as well as practice-based contributions to addressing these societal challenges.

Curriculum double degree programme PSTS-Communication Studies 2021-2022

YEAR 1			
Semester 1		Semester 2	
Q1	Q2	Q3	Q4
Philosophical Theories & Methods (201200059, 5 EC)	Ethics & Technology 1 (191612540, 5 EC)	TechnoLab (202000252, 5 EC)	PhiloLab (202000253, 5 EC)
Science & Technology Studies (201200064, 5 EC) *classes in Q1, delayed completion in Q2)*		Philosophical Anthropology & Technology (191612550, 5 EC)	Technology & Social Order (191622510, 5 EC)
Philosophy of Technology (201200063, 5 EC) *classes in Q1, delayed completion in Q2)*			
Essentials in Communication Science (COM core, 201800090, 5 EC)	Philosophy of Science in Practice (201400573, 5 EC)	Societal Challenges (COM core, 201800092, 5 EC)	Ethics & Technology 2 (191612580, 5 EC)
PSTS Skills Portfolio (202000102)			

YEAR 2			
Semester 1		Semester 2	
Q1	Q2	Q3	Q4
Game Studies in Social Sciences (COM specialisation, 201900083, 5 EC)	User-Centred Design of New Media (COM specialisation, 201000113, 5 EC)	Work and Technology (COM specialisation, 201800097, 5 EC)	
Technologies in use (PSTS elective, 201800145, 5 EC)	Research Topics (COM core, 201800091, 5 EC)	Combined Final Thesis Project (201900180, 25 EC)	
Good Technology for Users and Society (PSTS elective, 201800148, 5 EC)	Anticipation and Evaluation of Emerging technologies (PSTS elective, 201800149, 5 EC)		
PSTS Skills Portfolio (202000102)			
PSTS MasterLab*, (202000254)			

YEAR 3

Semester 1		Semester 2	
Q1	**Q2**	**Q3**	**Q4**
Combined Final Thesis Project (continued)			

*PSTS-COM double degree students are advised (but not obliged) to participate in the PSTS MasterLab course in quartile 1 of the 2nd year, to already start preparing for their combined graduation project before they start with Research Topics in quartile 2.

2.2.2 The 4TU Ethics and Technology track

The 4TU.Centre for Ethics and Technology (4TU.Ethics) was founded in 2007 by the board of the federation of the three technical universities in the Netherlands (Delft, Eindhoven, and Twente) and later joined by the Wageningen University, to study ethical issues in the development, use and regulation of technology. The Centre currently has seventy senior and junior researchers as members, which makes 4TU.Ethics worldwide *the* major research centre addressing societally relevant and philosophically challenging issues at the interface between ethics and technology. Most of the members of 4TU.Ethics are members of the philosophy departments at TU Delft, TU Eindhoven, University of Twente and Wageningen University. For more information on the Centre, see http://www.ethicsandtechnology.eu.

The Centre offers a PhD programme in Ethics and Technology [1], as well as a specialisation track in Ethics and Technology within the PSTS master programme. At the end of the first year of the PSTS programme you can opt for the Ethics and Technology track offered by 4TU.Ethics. Students taking the Ethics and Technology track graduate as regular PSTS students, but with the distinction of having taken the 4TU.Ethics-approved Ethics and Technology track. The track is also preparatory for the PhD programme in Ethics and Technology, and PSTS students who have completed the track have an increased chance of being accepted into the PhD programme. Several courses in the track will be taken together with PhD students in the 4TU.Ethics programme.

Some of the central research questions in both the Master track and the PhD programme are: How can we see to it that newly emerging and converging technologies and infrastructures express our considered moral judgments and widely endorsed public values? How can we assess our technology in the light of public moral values like sustainability, user autonomy, safety, privacy, accountability, democracy and quality of life? What role should public actors play in decision making about technological risks in design? And how are our norms and values affected by technological developments? Research themes include the requirements for responsible innovation, the possibility of value-sensitive design, ethical parallel research (ethical investigations in close collaboration with programmes of technological development), ethical technology assessment, the ethics of technological risks, the anthropology and ethics of human-technology relations, and many others. Technologies covered include information and communication

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[1] The four-year structured PhD programme in Ethics and Technology is organised at the Twente Graduate School (TGS) in collaboration with the Philosophy Departments at the TU Delft and TU Eindhoven and Wageningen University. PhD candidates will follow the same courses, while not formally becoming a member of the TGS. Students who have completed the Ethics and Technology track or who have completed other courses in ethics and technology at the graduate level can ask for an exemption by which some or all course requirements in the four-year programme are waived. For more information on the PhD programme, please refer to the 4TU.Ethics web site: http://ethicsandtechnology.eu/education/phd-program/

technology, biomedical technology, nanotechnology, industrial design, environmental technology, architecture and urban planning, neuro- and cognitive technology, military technology, and others.

Admission

You can choose for the Ethics and Technology track at the end of the first year of PSTS, when a choice is made for your studies in the second year. The Ethics and Technology track has the following admission requirements:

Entry Criteria
- At the start of the track, you should have completed at least 55 EC from the first year of PSTS, including the courses 'Ethics and Technology 1', 'Ethics and Technology 2', 'Society, Politics and Technology'.
- An average grade of ≥7.5 for the three courses 'Ethics and Technology 1', 'Ethics and Technology 2', and Society, Politics and Technology'. If the grade for 'Ethics and Technology 2' is not available in time for admission, admission can also be granted on the basis of an average grade of ≥7.5 for 'Ethics and Technology 1' and 'Society, Politics and Technology' plus an average grade of ≥7.5 for all completed PSTS courses, or an average grade of ≥8.0 for 'Ethics and Technology 1' and 'Society, Politics and Technology'.

You can apply for admission to the Ethics and Technology track at the end of the first year of the PSTS programme by sending an e-mail to the track co-ordinator, Prof. Dr. Philip Brey (with CC to the study adviser Yvonne Luyten-de Thouars), expressing your desire to be admitted to the track <u>preferably before July 1.</u> This e-mail should include an official Osiris Study Progress Report from PSTS that contains a listing of completed courses and grades received. Decisions about admission and exit are taken by the 4TU Ethics & Technology track coordinator.

Exit Criteria

Once being admitted to the 4TU Ethics and Technology track; you have to be aware that your academic achievement has to meet specific standards. In case you do not meet these standards, you will have to leave the track (and proceed in the regular PSTS programme). These standards are:
- Having completed the course 'Good Technologies for Users and Society (201800148) before the start of quartile 1B.
- Having completed the courses 'Anticipation and evaluation of emerging technologies' (201800149) AND 'Minds, bodies and technologies' (201800150) before the start of quartile 2A.
- When these 3 above mentioned courses have been completed, their average score should be at least a 7.5.

Curriculum 4TU Ethics & Technology track (2021-2022)

The course curriculum in the first semester of the track consists of graduate courses offered by University of Twente, TU Eindhoven, TU Delft, Wageningen University & Research (WUR) in collaboration with the Dutch Research School of Philosophy (OZSW). These external courses are usually compressed into one week, after which an individual assignment is made. Students are responsible for arranging their own transportation. In addition, students in this track are expected to attend the meetings and workshops organised by the 4TU.Ethics staff at the UT Philosophy section (the so-called "Technology & Values meetings")

The second semester is devoted to writing a master's thesis, which will be supervised by University of Twente ethicists from the 4TU Centre for Ethics and Technology (plus - optionally – an external adviser from TU Delft, TU Eindhoven or Wageningen University).

Note: in this regard, students should be able to write a PhD dissertation proposal (including the 1st chapter of a dissertation).

Finally, students of the 4TU track are obliged to take both MasterLab courses in semester 1 and 2 respectively. If they cannot attend classes because of their external obligations, alternative arrangements can be discussed with the MasterLab coordinators.

Curriculum of 4TU Ethics & Technology track (2021-2022)

4TU Ethics and Technology Track			
Semester 1		**Semester 2**	
Block 1A	**Block 1B**	**Block 2A**	**Block 2B**
Good Technology for Users and Society (UT) (201800148) 5 EC	Anticipation and Evaluation of Emerging Technologies (UT) (201800149) 5 EC	Master's Thesis in Ethics & Technology, (201300283) 30 EC Supervisors are members of 4TU.Ethics from UT, TU Delft, TU Eindhoven or WUR If you have been accepted into the 2+3 PhD programme in Ethics of Technology, you write a combined Master's thesis and PhD thesis proposal of 30 EC. The master's thesis is either a stand-alone study on which the PhD thesis builds or a chapter of the future dissertation.	
	Minds, Bodies and Technologies (UT) (201800150) 5 EC		
Elective Courses Choose two from:			
Philosophy of Risk (TU/e) 5 EC Ethical Theory and Moral Practice (TU/e) 5 EC	Philosophy of Responsible Innovation (TUD, WUR) 5 EC Continental Philosophy and Technoscience (WUR), 5 EC		
Upon approval by the director of the PhD graduate programme and the PSTS Programme Director, other relevant courses, e.g. offered by OZSW in the 1st semester			
PSTS MasterLab, (202000254), 5 EC			

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2.3 Objectives and coherence of the programme

2.3.1 Final qualifications PSTS

The objectives of the PSTS programme are summarised in a set of final qualifications, which is listed below. These indicate what knowledge and skills a PSTS student should have attained at the moment of graduation. A PSTS graduate has:

Knowledge

K1	Extensive knowledge of the philosophy of technology, including its philosophical and STS approaches, and the ability to relate these approaches to each other.
K2	Good knowledge of the various philosophical subfields, including ethics of technology, social and political philosophy of technology, philosophical anthropology of technology, epistemology and metaphysics of technology, and philosophy and history of (engineering) science and technology.
K3	Good knowledge of approaches and themes in STS.
K4	Good knowledge of empirical research methods in STS and philosophical research methods.
K5	A basic understanding of the relation between the philosophy of technology, including its various subfields, methods and history, to general philosophy, including its various subfields, methods and history.
K6	Specialist knowledge of a sub-domain or specialised topic within the philosophy of technology (broadly defined

Skills

S1	Writing and verbal communication skills.
S2	Skills in reasoning and arguing and in the analysis of arguments.
S3	Skills in locating, reading and analysing scientific texts from various disciplines in philosophy and STS, as well as professional and popular texts, that reflect on technology, engineering sciences, technological developments, and the relationship between technology and society.
S4	Skills in the identification and analysis of problems related to the role of technology and science in society, and the ability to formulate a position with regard to these problems from a philosophical and/or STS perspective.
S5	The ability to perform original scientific research in the field of philosophy of technology, using philosophical and/or STS methods. This includes the ability to arrive at a well-considered problem formulation, the selection and development of appropriate theories and (empirical) methodologies, and the proper execution of a research.
S6	Skills in the comparison of differing scientific approaches or paradigms in a sub-domain or specialised topic, the application of these approaches, and the ability to critically analyse them.
S7	The ability to generate philosophical and/or STS research results that are relevant for scientific, technological, and/or social practices.
S8	The capacity to collaborate with and communicate research results and solutions to scientists in- and outside one's own academic field, as well as professionals from societal domains, and the ability to generate learning processes from that interaction and collaboration.
S9	Reflective capacity pertaining to one's own work, selecting or altering course, and the ability to translate learning trajectories into the development of more general knowledge and methods.
S10	Capable to endeavour a career inside or outside of academia wherein philosophical and STS knowledge and skills are required.

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These final qualifications are well aligned with the Dublin descriptors (an international benchmark for what completion of master level should entail, see Appendix 1). This implies that PSTS graduates should be capable to function on a master's level.

2.3.2 Alignment between programme objectives and curriculum

The PSTS curriculum has been designed in such a way that all courses clearly contribute to the realisation of the final qualifications. Appendix 2 shows how the objectives of the different courses align with the programme objectives. Together, they cover the whole set of final qualifications.

2.3.3 Skills learning line, mentoring and portfolio

The PSTS curriculum includes a learning line that aims to develop a variety of skills in students, in line with PSTS Final Qualifications S 1-S10 (see 2.3.1). These cover *basic skills* like reading, argumentation, writing and presenting; *research skills* like locating literature, identifying research questions, designing and conducting research with appropriate methodologies; and *professional skills* like giving and receiving feedback, interdisciplinary collaboration, self-reflection and career development.

The skills learning line is largely embedded in the different courses, so skills training is integrated with learning about content. Whereas the courses in the first 3 quartiles of year 1 focus mainly on basic skills, from Q4 onwards attention shifts to research and professional skills. Additionally, the programme features a mentoring system and a personal Canvas page, with the aim to help students

(1) to become aware of and reflect on the level of skills they have achieved
(2) to develop a good sense of what needs and preferences they have for further skills development, and
(3) to actively pursue learning activities that help them achieve both the programme's and their personal skills objectives.

To this end, the student and the mentor (typically a PSTS teaching staff member) schedule a number of *mentor meetings* (typically three meetings in year 1 and two in year 2) to reflect on the development of their skills. Mentors are assigned at the beginning of the first year. In addition, each student gets access to a *personal Canvas page*, where material on specific skills, gathered from coursework and corresponding to the skills learning line checklist, can be uploaded and serve as basis for the discussion in the mentor meetings. During the meetings, the mentor and the student will reflect on the student's development, take stock of what has been achieved, and diagnose where and how the student needs to work on specific skills.

Participation in (and preparation for) the mentor meetings is obligatory for all students. At the end of year 2, the mentor will assess a student's performance in a formative way (pass/fail). For passing the skills learning line, the only condition is that all items on the checklist have been addressed in discussion in the mentor meetings.

PSTS skills learning line checklist

Item	Description	Possible portfolio material
C1	**Locating appropriate literature** Connected to skills: S3, S4, S6 The state of the art and emerging developments in a specific scientific/technological field is scanned	List of references in written work or presentation slides + Teacher feedback (if given)

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Item	Description	Possible portfolio material
	efficiently by an identification, review, and ordering of information from relevant and reliable sources (both scientific and non-academic). Primary and secondary sources are located and selected based on an appropriate understanding of the topic in question, including sources in philosophy, STS, and history.	
C2	**Understanding and summarizing** Connected to skills: S1, S2, S3, S4, S6 In presentations, discussions, and written work, positions and arguments referred to are depicted correctly and clearly, showing an adequate understanding of the source material. Different arguments, both simple and more complex ones, are identified and reconstructed correctly. Professional technoscientific texts are sufficiently understood and analyzed correctly. Summaries, both in oral and written form, are correct, precise, and fitting to topic at hand.	Written work (summaries, essays), presentation slides, or video recording of presentation, including discussion + Teacher feedback (if given)
C3	**Critically reflecting and discussing** Connected to skills: S1, S2, S4, S6, S7 In presentations, discussions, and written work, existing scientific approaches to a topic are compared, critically appraised, and applied adequately to the topic in question. Critical questions on a text or topic are relevant, well-formulated, and aim at a deeper and critical understanding and evaluation. Arguments are assessed correctly in terms of their relevance, plausibility, validity, and soundness. Criticism is formulated in a formally correct and convincing way. Needs, interests, and values of different stakeholders are understood and assessed adequately in reflection and discussion. Critical interpretations of academic texts, including philosophy, STS, and history, are correct and plausible. Conclusions from arguments are drawn in a formally correct and convincing way. Original positions are developed and formulated successfully based on appropriate arguments in their favor.	Written work (essays), presentation slides, or video recording of presentation, including discussion + Teacher feedback (if given)
C4	**Formulating plausible problem statements and appropriate research questions** Connected to skills: S1, S2, S4, S5, S6 Based on a critical review of relevant material, the formulation of problem statements and research questions is fitting and novel. Current and potential emerging problems on the interface of science/technology with society in a specific context	Problem statements and research questions in essays, covering examples from both Philosophy & STS (possibly combined in one work).

Item	Description	Possible portfolio material
	are identified (diagnosed), prioritized, and expressed adequately, and are translated into adequate and novel research questions.	
C5	**Conducting original research based on appropriate PSTS methodologies** Connected to skills: S1, S2, S4, S5, S6, S7, S8, S9 Based on a critical review of relevant material, the identified novel and fitting problem statement or research question is addressed with an appropriate theoretical framework and methodology and based on an adequate familiarity with different philosophical methods (e.g. analytical, phenomenological, hermeneutical, discourse analytical) as well as qualitative methods for data collection (e.g. interviewing, observation/participation, focus groups, Q methodology).	Essays, covering examples from both Philosophy & STS (possibly combined in one work).
C6	**Writing for and presenting to specific target audiences** Connected to skills: S1, S7, S8, S9 Written work is formulated and presentations are given in a clear and understandable way, using a suitable format and presentations being supported by appropriate and helpful media. Texts, presentations and subsequent discussions are adequately tailored to the target audience. Responses to critical questions are well-reflected, well-argued, and constructive. Arguments and conclusions are revised adequately if need be.	Written work (essays), presentation slides, or video recording of presentation, including discussion, targeting a specific audience group (academics, professionals, wider public and laypersons) + Teacher feedback (if given)
C7	**Giving and receiving peer feedback** Connected to skills: S1, S2, S6, S8, S9 In reaction to oral presentations or written work of others, appropriate questions are raised and plausible critical comments are made. Questions and critical comments are helpful, constructive, and reflect a mutually respectful atmosphere among colleagues In discussion or written exchange on own presentations or written work, questions and critical comments of others are appropriately acknowledged. Replies are formulated adequately and constructively, again reflecting a mutually respectful atmosphere among colleagues. If need be, the initial argument or position is revised plausibly based on the received feedback.	Revised work based on received feedback: revised summaries, essays, or presentation slides. Feedback given in written form (reviews, comments) or video recording of feedback and comments given to a presentation
C8	**Collaborating in an interdisciplinary setting** Connected to skills: S3, S5, S6, S7, S8, S9	Written results of interdisciplinary group work (meeting agenda, minutes,

Item	Description	Possible portfolio material
	Relevant stakeholders are identified correctly, and their differing needs, interests and values are understood and assessed adequately in scientific, technological, and social practices. The design of research questions and projects reflects these stakeholders adequately. Projects are formulated (or translated) in a way to make their relevance clear to each stakeholder. Interdisciplinary communication and collaboration are conducted effectively and efficiently with people from different backgrounds (actively mediating between different conceptual, interpretative and normative frameworks, achieving a sufficiently shared understanding and formulating joint goals, distributing roles and responsibilities within a project, while safeguarding a sufficiently shared understanding and joint goals), including different scientific, non-academic, professional, and cultural backgrounds. Where necessary, adequate and constructive steps are taken to improve interdisciplinary understanding and interaction.	presentation slides, jointly written essays)
C9	**Self-reflection and self-driven career development** Connected to skills: S8, S9, S10 The strengths and weaknesses of one's own functioning in different academic and professional contexts are identified adequately. Suitable steps are taken to monitor and assess them and to improve one's functioning. If necessary, plausible alternative ways of achieving personal learning goals are identified and effectively pursued or the goals are adjusted adequately. General personal strengths and capabilities but also limits of a PSTS graduate are explained adequately and efficiently in a way that is expected to be appealing to potential employers. Particular opportunities to put PSTS expertise to use after graduation are actively and adequately identified.	Discussion in mentor meetings

Connections between checklist items (C1-9) and skills final qualifications (S1-10)

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
C1			x	x		x				
C2	x	x	x	x		x				
C3	x	x		x		x	x			
C4	x	x		x	x	x				
C5	x	x		x	x	x	x	x	x	
C6	x						x	x	x	

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	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
C7	x	x				x		x	x	
C8			x		x	x	x	x	x	
C9								x	x	x

Note: The existence of both the skills learning objectives and the skills learning line checklist might cause some confusion. This is indeed an unfortunate yet only temporary situation, since both lists will likely be merged into one at some point

2.3.4 Teaching methods and examination formats

Teaching methods and examination formats in the PSTS master programme are aligned with the learning goals of the relevant semester and its courses. They build on the growing capacities and independence of students, who are gradually initiated in the academic profession. The constructive alignment of objectives (regarding knowledge as well as skills), teaching methods and examination formats is summarised in the table below.

Sem	Main knowledge and *skills* objectives	Teaching methods	Examination formats
1	Introduction to sub disciplines relevant to PSTS; *Training skills in academic reading, writing, argumentation*	Interactive lectures; teacher guided study of texts; supervised discussion; group discussion; participation in academic colloquia	Open question exams, writing assignments
2	Application of analytical perspectives to issues regarding science, technology and society; *Expanding reading, writing, and argumentation skills; oral communication skills; basic analytic and research skills; systematic and collaborative problem solving*	Interactive lectures; seminars; group discussions with teacher; peer feedback; student-driven group work; participation in academic seminars and colloquia	Assignments, presentations and essays, including limited amount of group work
3	Initiation into PSTS research domains; *Expanding analytical and; research skills*	Research seminars, partly driven by teachers' and students' research interests; group discussions, peer feedback; participation in academic colloquia	Assignments (written & oral, including limited amount of group work), class participation, essays
4	Individual specialisation; *Acquiring skills to conduct independent PSTS research (and, optionally, to function in a non-academic setting)*	Individual, expert supervision, and group coaching; participation in sectional research groups and in academic colloquia	Thesis, oral exam, colloquium

2.3.5 Examination in PSTS

Course assessment formats

Most course assessment formats in the PSTS programme are individual. A limited number of courses includes one or more group assignments as part of the assessment. If so, these incorporate a mechanism to do justice to differences between individual contributions to the group work. Principal assessment modes are written examinations, essays and research papers. An examiner may use several additional assessment tools to keep track of your progress in accordance with the course's objectives. These tools may have a different weight in different course assessments. They include oral presentations, active class participation, keeping a journal, reviewing other students' work, and other assignments. More information about the assessment format used in a course is provided in the course descriptions in section 3 and 4 and on the Canvas site of the course (the electronic learning environment used at the UT).

You receive feedback on the assessments you make in multiple ways. In class sessions, feedback about assignments is typically given collectively. Corrections of the written exams are available for inspection on request. You receive individual, written feedback on the papers you submit. Moreover, you can always ask the assessor for individual oral feedback on these papers. In the course of the second year, the process of receiving feedback develops into an apprenticeship model. You participate in seminars, discuss state-of-the art literature in the relevant field, and present and receive feedback on outlines or drafts of papers.

Assessment final project

The final project culminates in a written thesis. This thesis is evaluated according to academic standards like sound problem formulation, comprehension of relevant theories, command of research methods, quality of argumentation, discussion and presentation skills, but also on your development during the research process, looking for example at initiative, perseverance, self-management and reflective learning capacities. At least two staff members are involved in the assessment: the supervisor, who guides you throughout the final project, and an examiner, who checks the quality of your work before the start and at the end of the final project. Before thesis work can start, both need to approve the final project proposal. During the final thesis project, you receive regular feedback on your work from your supervisor. At the so-called 'green light meeting' both supervisor and examiner have to approve your draft thesis (giving the green light for graduation). At this point, you also learn how your draft can be further improved. The final examination consists of an oral exam (with supervisor and examiner) and a graduation colloquium for a general audience, during which you present and defend your thesis. At graduation, the committee not only scores your performance, but also completes a form with written feedback on the thesis and the graduation process. For more detailed information about the graduation process, consult the Final Thesis Project Guide PSTS that is available online:
https://www.utwente.nl/en/psts/master/

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2.4 PSTS and the employment sector

2.4.1 Connections with the professional context

The PSTS programme makes an explicit effort to prepare you for positions in both the academic and the non-academic domain. Connections between the programme and the employment sector are fostered in the following ways:
- The final qualifications of the programme have been approved by a committee of representatives from relevant non-academic organisations (and possible employers), the Employment Sector Committee. This committee also regularly advises the Programme director how to develop the curriculum to ensure it aligns with the needs and concerns of the professional field.
- You can do an internship to explore what it means to work in a non-academic organisation. The programme offers a list of potential organisations and contacts, both in the Netherlands and abroad, but you can also initiate new contacts.
- The programme interviewed a number of alumni about their experiences after PSTS. These interviews are made available on the programme's Canvas site.
- In collaboration with student association Ideefiks and alumni association Panoramix, we organise an annual 'PSTS career day'.
- Representatives of external organisations, including alumni, are regularly invited for guest lectures.

2.4.2 Career perspectives and alumni stories

The PSTS programme aims to prepare students for roughly two types of professional roles:

- Academic scholar (usually starting with a PhD position at a university, in the Netherlands or abroad)
- Professional 'knowledge broker' (including positions in consultancy, technology assessment, policy making and advice, design; in general, societal roles in which one acts as a go-between/mediator to bring together different types of expertise and stakeholders regarding the development of science and technology in society).

There is clearly a demand for both sets of professionals. The most recent alumni monitor showed that 75% of the PSTS alumni found a job within 6 months after graduation. PSTS graduates even earn somewhat more than the average scientist or engineer.

To give examples of what our alumni do and how they look back on the PSTS programme, we include a few testimonials below.

Verna Jans (BSc in Philosophy; MSc PSTS):

"I'm currently working as a PhD student at the department of Health, Ethics and Society at Maastricht University. My research focuses on the ethical issues associated with a new biomedical technology in development called "stem cell-derived gametes". This technology promises to help people with fertility problems by creating sperm and egg cells from skin cells. However, as you can imagine, it raises a lot of ethical controversies as well. During my studies in philosophy (bachelor) and PSTS (master) I was already interested in ethics of biotechnologies. I therefore decided to pick a thesis topic in that field. However, in February of my last semester the position for my current

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PhD position was circulated by the section. The timing was challenging, since I would still need one more semester to graduate. I applied nonetheless, and eventually the research for my PSTS thesis became a part of my PhD project. In my current position I profit from certain approaches and skills trained in the PSTS programme, such as how to ethically analyse concrete case studies, but also how to write more precisely. Finally, I learnt that if you show a lot of enthusiasm and interest in a position or a project, this may sometimes do more to further your career than working towards a certain job during your whole life. Don't think too quickly that there is just one road to a certain position or job!"

Wouter Versluijs (BSc and MSc in Industrial Engineering and Management; MSc PSTS):

"I work for a Dutch consultancy firm. We help the largest companies and organisations of the world to think about questions with the greatest uncertainty, such as: which market to start approaching, or how to profile yourself. The two most important skills PSTS taught me - which are incredibly useful for long-term thinking in companies and organisations - are to understand that there always is a bigger picture, and how to structure a problem, story or output. I have learned to approach issues from different perspectives and to use logical reasoning. In addition, PSTS skills like writing and debating in English have tremendous added value in my current job. PSTS has also helped me during the hiring process, as I noticed that the recruiters found the philosophical addition to my background very interesting! So, it had added value in that sense as well, as a relevant addition to my other master."

Jerom van Geffen (BSc in Mechanical Engineering; MSc PSTS):

"At the moment I am doing a two-year traineeship programme to become a policy official in the Dutch government. I am located at the Ministry of Defense, where for two years I will work on four different projects in various departments. At the moment, I am mainly concerned with the non-material aspects of defense, such as integrity, inclusiveness, and social and physical security. I joined this trainee programme because when serving on the board of the National Student Union after my PSTS graduation, I worked a lot with policy officials and civil servants, and I was involved in politics in general. At the time, I had a lot of contact with people who were really enthusiastic about the work they were doing, and that enthusiasm was infectious.
The skills PSTS taught me from which I benefit in my current job? A certain reflexivity and an open attitude, especially towards people who think differently than I do. Within the domain of defense there are a lot of ethical dilemmas, and I enjoy dealing with them. Being able to reflect is also important in my daily life: this is a skill that is not only relevant for a professional career!
Last but not least, I really think the government is a good and, especially, an interesting employer. Working for the public interest is something many PSTS students might enjoy!"

Part B: Course descriptions

As the information and data in this programme guide had to be published at an early stage, it is based on information then available and takes into account what is expected for the coming academic year. Therefore, actual minor changes on course level may not be included in this section.

3. First year courses

2021-2022 - Semester 1

Semester 1	
Block 1A	**Block 1B**
Philosophy of Technology (201200063) 5 EC	Philosophy of Science in Practice (201400573) 5 EC
Science and Technology Studies (201200064) 5 EC	History of Science and Technology (201400574) 5 EC
Philosophical Theories and Methods (201200059) 5 EC	Ethics and Technology I (191612540) 5 EC
PSTS Skills Portfolio (202000102)	

2021-2022 - Semester 2

Semester 2	
Block 2A	**Block 2B**
TechnoLab (202000252) 7 EC	PhiloLab (202000253) 3 EC
Philosophical Anthropology and Technology (191612550) 5 EC	Technology and Social Order (191622510) 5 EC
Society, Politics and Technology (191612560) 5 EC	Ethics and Technology II (191612580) 5 EC
PSTS Skills Portfolio (202000102)	

Course name	Philosophy of Technology		Course code	201200063
Participating programmes	PSTS, HMI, COM		**Phase/Study period**	M1,1A
Credits	5.0	**Language**	English	**Obligatory/elective**	Obligatory
Study material	Mandatory: Philosophy of Technology: The Technological Condition: An Anthology, 2nd Edition Robert C. Scharff (Editor), Val Dusek (Editor). ISBN: 978-1-118-54725-0 / Jan 2014, Wiley-Blackwell Recommended: Verbeek, P.P.C.C., What Things Do. ISBN: 978-0-271-02540-7. Penn State Press Gertz, N., Nihilism and Technology. ISBN: 978-1-78660-703-4. Rowman and Littlefield International Further study materials include scientific articles and PPT slides.			
Subjects, theories and models	In this course, students get an introduction into the philosophy of technology, both historically and thematically. Attention will be paid to the emergence of the philosophy of technology as an independent field of philosophical inquiry and the (social) problems that are central in this field. The main philosophers, developments and currents in the philosophy of technology will be dealt with. Apart from such a historical introduction, important themes in the philosophy of technology, like technological determinism, the nature of technological knowledge, the normative dimensions of technology, internalism versus externalism will be discussed. A number of these themes will be further elaborated in courses in the second semester of the first year, like social and political philosophy, epistemology, ethics and technology and philosophical anthropology. The core theories are phenomenology and post phenomenology, mediation theory and analytic philosophy. Attendance is obligatory			
Teaching methods	During 8 lectures of 4 hours the theories are discussed, and attention will be paid to academic skills.			
Examination and assessment	The assessment is based on a written exam and a paper assignment (both 50% of the mark). The written exam has open questions. Note: both the written exam as well as the assignment have to be graded sufficient or more (i.e. 5.5 or more) in order to pass this course.			
Learning objectives	This course connects to the final qualifications K1, K2, K4, K5 S1, S2, and S3 of the programme, according to the following learning objectives. At the end of the course the student has knowledge of or insight in • classical philosophy of technology; • contemporary continental approaches within the philosophy of technology; • analytic approaches within the philosophy of technology; • the intentional-structural distinction in analytic philosophy. At the end of the course the student is able to • characterise the various approaches in the philosophy of technology, as well as its major divisions (ethics, social philosophy, philosophy of culture, epistemological approaches); • describe major topics, theories, developments and approaches in philosophy of technology; • analyse a technological development in terms of the basic frameworks in philosophy of technology;			

- discuss the merits and shortcomings of philosophical theories and ideas introduced in the course and to compare and contrast different positions with each other;
- read and interpret original philosophical texts and to summarise or otherwise communicate the ideas expressed in these texts.

At the end of the course the student
- has basic competence in writing a philosophical paper.

Course name	Science and Technology Studies		Course code	201200064
Participating programme	PSTS, M-IDE		Phase/Study period	M1, 1A
Credits	5.0	**Language** English	**Obligatory/elective**	Obligatory
Study material	All reading materials will be made available via Canvas			
Subjects, theories and models	This course aims to introduce students to the interdisciplinary field of Science and Technology Studies. Students will be introduced to the main theoretical approaches in the field, including Social Construction of Technology, Actor Network Theory, Strong Program, feminist and evolutionary approaches. In addition, students gain practical experience using STS theories and concepts when performing empirical analyses of the latest developments in science, technology and society. Attendance is obligatory.			
Teaching methods	During a series of lecturials the theories are discussed and applied to concrete case studies. Students are actively involved in each class (through student presentations and group exercises) and are stimulated to discuss relevant theories critically			
Examination and assessment	The assessment is based on several individual assignments on theories (25%) and group assignments around a design object freely chosen by each working group, resulting a final group assignment (50%), composed of a mix of PSTS and IDE students (together 75% of the mark), and contribution presentations (25% of the mark). Note: For each component of the final grade the minimum sufficient grade is 5.5. If assignment evaluation results in insufficient, a revision needs to be submitted. Assignments graded with complete/incomplete need all to be complete to pass the course.			
Learning objectives	This course connects to the final qualifications K2, K3, K4, K5, K6, S1, S2, S4, S6 and S9 of the programme, according to the following eight learning objectives: At the end of the course the student has knowledge of or insight in: • the main theoretical approaches and concepts developed in the Social Studies of Technology and Society. At the end of the course the student is able to: • identify specific developments and problems in science and technology from the different theoretical perspectives presented in the course, in order to compare and contrast these different approaches and to discuss their advantages and disadvantages for (theoretical, practical) analysis; • interpret and use theoretical approaches and concepts to understand the dynamics of scientific and technological developments; • review theoretical and empirical texts;			

	• present theoretical and empirical articles as well as and own research work to an informed public (of fellow students and teachers); • conduct a critical discussion. At the end of the course the student has experience in: • close reading of advanced social scientific literature; • setting up, conducting and reporting the outcomes of a limited social science STS research analysis.

Course name	Philosophical Theories and Methods			Course code	201200059
Participating programme	PSTS			Phase/Study period	M1, 1A
Credits	5.0	Language	English	Obligatory/elective	Obligatory
Study material	Mandatory Nadler, Steven M., and Ben Nadler. 2017. Heretics! The Wondrous (and Dangerous) Beginnings of Modern Philosophy. Princeton: New Jersey: Princeton University Press (available through the library as an e-book) Fosl, Peter S., and Julian Baggini. 2020. The Philosopher's Toolkit: A compendium of philosophical concepts and methods. 3rd edition. Hoboken : Wiley-Blackwell Other study materials will be made available on Canvas				
Subjects, theories and models	In this interactive course, students are introduced to, and trained in, methods for actively engaging, interpreting, analyzing and evaluating philosophical texts. Students will learn principles of textual interpretation and visual argument-diagramming techniques proven to enhance students' critical engagement with text and argumentation skill (using *MindMup* application). To evaluate diagrammed arguments, students will learn to use the tools of basic logic (deductive and inductive reasoning and argument schemes) and identify common fallacies and cognitive biases. In addition to methodology training, the course has a thematic focus on classical theories of knowledge (from Plato to pragmatism) at the roots of contemporary epistemological debates on technology. For instance, does the information we get from the internet count as knowledge or as pseudo-knowledge? Surprisingly, any debate on this issue is explicitly or implicitly informed by Plato's *Meno*, a lively and puzzling dialogue in which Socrates debates with his fellow Athenians the following question: is there any difference between knowing something and having a true belief about something without being able to explain why one's belief is true? Attendance is obligatory				
Teaching methods	We will alternate interactive reading and evaluation of philosophical texts, group diagramming work and substantive discussion, lectures, and hands-on methodology training				
Examination and assessment	The assessment is based on: 30%: Group essay (diagramming an argument and critically interpreting a short text) 70%: Individual essay (diagramming, analyzing and evaluating an argument and interpreting a brief text by an author studied in class) Short reflection piece (written, visual, tactile, or audio formats) (pass/fail)				

	Each component has to be graded sufficient or more (i.e. 5.5 or more or pass/fail).
Learning objectives	This course connects to the final qualifications K2, K5, S1 and S3 of the programme, according to the following two learning objectives: At the end of the course the student is able to: • use interpretative methods to understand and engage with philosophical theories and texts • use philosophical methods to identify, analyze, and evaluate arguments in philosophical texts • diagram arguments using a dedicated application • reflect upon different ways of doing philosophy (methods, theories, means of expression) At the end of the course the student has knowledge of: • the basics of deductive and inductive reasoning and principles of textual interpretation some classical theories of the nature, foundations and value of knowledge at the roots of contemporary epistemological debates on technology

Course name	Philosophy of Science in Practice	Course code	201400573
Participating programme	PSTS	**Phase/Study period**	M1, 1B
Credits	5.0	**Language**	English	**Obligatory/elective**	Obligatory
Study material	Mandatory: • Ladyman, J. (2002). Understanding philosophy of science. London: Routledge • Curd, M. and Cover J.A. (1998 or any newer edition). Philosophy of Science: The Central Issues. Norton & Amp • Lecture slides (available in Canvas) • Study questions (available in Canvas) • Philosophical articles • Handouts (available in Canvas • Students are also expected to search for literature relevant to their final essay			
Subjects, theories and models	The 1st part of this course dominantly deals with scientific theories which are generally regarded to be the backbone of scientific and technological practices. They consist of mathematical formulas, laws of nature and scientific models, among other things. But where do these formulas, laws, and models come from, what do they represent, how are they justified, and how do we know where to apply them? In aiming at an understanding of the sciences from a philosophy of science perspective (rather than from the social or ethical perspective), this course takes traditional themes in the philosophy of science as its starting point. The central themes that will be discussed include: "What is science?" "What is a scientific explanation?" "What is a scientific methodology" "What are laws of nature?" "What is a scientific model?", "What are values in science?". In this manner, traditional topics such as the logic of scientific reasoning, the induction problem, the demarcation problem and falsificationism, scientific explanation, truth, scientific revolutions will be addressed.			

	The second part of this course builds on elementary knowledge of the traditional philosophy of science. The approach is a *Capita Selecta* in the so-called *Philosophy of Science in Practice* (PSP). The philosophy of science in practice is a relatively new branch on the tree of the philosophy of science. Some salient aspects of its general approach are:
	1. PSP is concerned with not only the acquisition and validation of knowledge, but also with its use. Its concern is not only about how pre-existing knowledge gets applied to practical ends, but also about how knowledge itself is fundamentally shaped by its intended use. PSP aims to build meaningful bridges between the philosophy of science and the newer fields of philosophy of technology and philosophy of medicine; and provide fresh perspectives for the latter fields.
	2. It emphasises how human artefacts, such as conceptual models and laboratory instruments, mediate between theories and the world. It seeks to elucidate the role that these artefacts play in the shaping of scientific practice.
	3. Its view of scientific practice must not be distorted by lopsided attention to certain areas of science. The traditional focus on fundamental physics is supplemented by attention to other fields such as economics and other social/human sciences, the engineering sciences, and the medical sciences.
	4. In its methodology, it is crucial to have a productive interaction between philosophical reasoning and a study of actual scientific practices, past and present. This provides a strong rationale for history-and-philosophy of science as an integrated discipline, and also for inviting the participation of practicing scientists, engineers and policymakers.
	The attractiveness of this new and prolific field is its openness to new philosophical ideas and approaches. Moreover, philosophy of science in practice aims at results that are not only relevant for the philosophical discipline itself, but also for a better understanding these practices from the perspectives of scientists, engineers, policymakers and many others. The focus of this course will be a better understanding of scientific research in the context of technological applications, with an emphasis on epistemological issues.
Teaching methods	Lectures, workshops. Attendance is obligatory
Examination and assessment	The assessment is based on: Essay 70%; Group Reflection Reports and Group Presentations 30% Each component needs to be sufficient (i.e. 5.5. or more)
Learning objectives	This course connects to the final qualifications K1-K3, K5, S1-4 of the programme, according to the following learning objectives: Content:
	• Introductory topics in the traditional philosophy of science: (1) epistemological issues: scientific methodology and modes of argumentation in science, scientific explanations, the demarcation problem (Popper); (2) methodological issues: paradigms in science (Kuhn), scientific explanation, realism versus anti-realism.
	• A broad overview in the new field called *Philosophy of Science in Practice*, both regarding its philosophical topics and methodologies, including models and values in science.
	• Philosophical and practical understanding of the epistemological relationship(s) between scientific research and technological development
	Skills:

Students will be able to develop the following skills:

Reading skills
- Analytic & critical reading
- Understanding technoscientific publications & formulating questions

Argumentation skills
- Reconstructing and assessing argumentation

Oral communication skills
- Presenting for an academic audience
- Formulating critical questions (incl.: answering questions posed by the teacher and other students about presented texts)
- Use of supportive media (particularly: use of PowerPoint)

Research skills
- How to identify and critically reflect on technoscientific sources (particularly in case students prefer to write on case-studies)

Course name	History of Science and Technology		Course code	201400574
Participating programme	PSTS		Phase/Study period	M1, 1B
Credits	5.0	**Language** English	**Obligatory/elective**	Obligatory
Study material	Will be made available on Canvas.			
Subjects, theories and models	Despite the official title, this course is not so much a course in history as it is a course that examines the various ways in which the history of science and technology have been and can be structured and portrayed. The goal for students is two-fold: [1] to develop a sensitivity to how all interpretations - historical, sociological and philosophical - of "science, technology and society" are coloured by the contexts in which they are constructed and [2] to develop a sensitivity to the historical - as opposed to absolute - nature of normative judgments. In order to achieve these goals, students are asked to read a weekly set of assigned texts (see instructions on the Assignments page on Canvas) and come to class prepared to relate the texts to the corresponding week's theme. **Please note that attendance and active participation are mandatory**. Students are also asked to write two short essays that call on them to relate course readings to a larger theme that draws on course discussions. (see Assignments page on Canvas for details). Assessment criteria for participation are: • First, that all reading is done in a timely and critical manner. • Second, that students come to class (attendance is, of course, mandatory) with their texts, notes, questions and comments, prepared to discuss them and the week's topic. • Third, that this participation moves in-class discussion forward toward a critical understanding in relation to the weekly and course themes.			
Teaching methods	Lectures, workshops. Attendance is obligatory			
Examination and assessment	Grading will be assessed as follows: • Essay #1 40% • Essay #2 50%			

	• In-class participation 10%			

| Learning objectives | The course connects to the final qualifications K1, K2, K3, K5, S1-S2 of the PSTS programme.
At the end of the course, students will be able to critically engage with key texts in the field history of science and technology.
Critical engagement entails at least three different elements:
• First of all, students will learn to identify lines of argument and evaluate the validity of claims in scientific papers.
• Second, students will learn how to formulate relevant questions in relation to the assigned texts.
• Third, students will get acquainted with different strategies to develop a position and line of argument not only in the context of in-class discussions but also in the context of the two written assignments. This includes extra writing training with a special focus on the composition of paragraphs and sections in essays. |

Course name	Ethics and Technology I		Course code	191612540
Participating programme	PSTS		Phase/Study period	M1, 1B
Credits	5.0	**Language** English	**Obligatory/elective**	Obligatory
Study material	Will be made available on Canvas.			
Subjects, theories and models	Science and technology are ethically relevant because they co-shape the way we think of and pursue a good life. More specifically, science and technology can benefit and harm, support and undermine human values and norms, enhance and diminish agency. This course introduces students to the concepts, principles, and theories in ethics, necessary for understanding the ethical significance of science and technology. First, we will reflect on the phenomenon of morality and how 'ethical issues' tend to be identified. Students will then be introduced to different traditions of ethical thought (deontology, consequentialism, virtue/care ethics) and consider the use of these theories in the context of a particular ethical issue. The following skills will be addressed: • Reading skills (analytic & interpretative reading) • Argumentation skills (reconstructing and assessing (ethical) argumentation) • Writing skills (summarizing texts; developing a position and a line of argument, writing a brief essay)			
Teaching methods	Lectures and workshops. Attendance is obligatory			
Examination and assessment	Assessment will be based on a mid-term take-home exam (40%) and a final research paper (60%) All components (each assignment and the exam) need to be sufficient (5.5 or higher).			
Learning objectives	This course connects to the final qualifications K1, K5, S1, S2, S3, S4 of the programme, according to the following six learning objectives: By the end of the course students will be able to: • Identify and analyse ethical problems in different areas of life. • Engage in critical reasoning and argumentation about ethical issues. • Understand and explain core ethical concepts, principles, arguments, and theories.			

	• Recognize different types of argumentation in ethical discourse.
	• Systematically develop and defend (in writing) a theoretically informed position regarding an ethical issue.
	• Reflect on the relationship between ethical theorising and living a good life.
	• Analyse and critique ethical concepts, principles, arguments, and theories.
	• Understand and explain the relevance of ethics for science & technology and vice versa

Course name	TechnoLab		Course code	202000252
Participating programme	PSTS		Phase/Study period	M1, 2A
Credits	5.0	**Language**	English	**Obligatory/elective**	Obligatory
Requirements for entrance	• Philosophical Theories and Methods (201200059) • Philosophy of Technology (201200063) • Science and Technology Studies (201200064)			
Study material	A hand-out that specifies the details of this course. Materials are available on Canvas.			
Subjects, theories and models	In the TechnoLab project course students get acquainted with technological developments for which research is performed in (UT) Engineering Sciences disciplines and research institutions. Students get to understand scientific research practices (i.e. engineering sciences) that work towards these technological developments, as well as their social and political contexts and settings. Different approaches will be taken in developing this understanding, such as studying brochures, websites and scientific articles, but also interviews with researchers in order to learn about the content and approaches of their scientific work. Based on the understanding of a technological development that has been gained in the first quartile of this course, PSTS topics are explored in the second quartile. In this way students are encouraged to apply PSTS topics of PSTS courses to concrete cases in Technolab. Three PSTS courses run in parallel: Philosophy of Technology, Science and Technology Studies, and Ethics and Technology I, while classes on the History and Philosophy of Science and Technology I will be integrated in Technolab. In the Technolab course, student groups (consisting of 3-5 students) will write magazines/reports that must cover: • a specific technology developed to address a specific societal issue • engineering/applied science(s) research underlying the development of this technology • how PSTS themes apply to the use/development of the specific technology under consideration The length of the magazine/report should be = number of students in the group x (2000-2500) words. .			
Teaching methods	There will be weekly meetings in which the progress of the magazine will be discussed with the teacher. There will be also occasional guest lectures on skill training. Written and oral feedback on intermediate versions of the magazine will be provided by the teacher and by students of other groups. **Attendance is obligatory for the class-sessions indicated in the handout of the course.**			

Examination and assessment	The final course grade in the Technolab course will consist of the following components: a group project grade (50 %) (i.e. all students in the same group will get the same project grade) on the submitted magazine/report; and an individual project grade (50%) on the parts (i.e., papers, sections, or chapters) written for the magazine/report. Each of the above grade-components must be ≥ 5.5 for a passing (or sufficient) final course grade.
	The group project grade will be based on the following aspects, which will count evenly: • Discussion of the technology-related societal issue. • Discussion of the technology and the engineering/applied science(s) research relevant to the technology-related societal issue under consideration. • Discussions of PSTS related topic(s) relevant to the technology-related societal issue • General quality of the magazine/report, including structure, flow of text, argumentation, clarity and attractiveness to readers.
Learning objectives	This course connects to the final qualifications K1, K3, K4, S1, S2, S3, S4, S8
	The TechnoLab project is a first introduction to the kind of integrated projects of a graduated PSTS person in a professional role. The skills and insights that are acquired in the TechnoLab project can be compared to learning how to work as a journalist who wants to inform a high-educated audience about a new technological development. The journalist aims to give several perspectives (technological, engineering sciences, social sciences and PSTS), thus setting-out a typical 'High tech – Human touch' approach, which will be a typical skill of a graduated PSTS person. A journalist has to collect information, formulate relevant questions, understand and interpret what she sees and hears, reflect on those findings, and communicates them to the public in intelligible language and as a coherent whole. In so doing, she needs to have relevant frameworks and perspectives that will enable her to do so. Attaining these frameworks and perspectives is part of TechnoLab and PSTS as a whole.
	Learning objectives: • Students will learn to investigate and write about a technology-related societal issue • Students will develop a realistic view of scientific research pertaining to technological application contexts. • Students will learn how to get to know and understand an unfamiliar technological domain through PSTS relevant methods, including close reading, case studies, and expert interviews. • Students will learn to apply the acquired philosophical accounts and perspectives acquired in previous PSTS courses to the themes investigated in the TechnoLab course. • Students will learn to work and do research in project groups and thereby get acquainted with various aspects of project-management and group-dynamics.
	Students will be able to develop the following skills:
	Research skills • Identifying sources on technoscientific developments

- Interview skills

Writing skills
- Reviewing a set of texts, composing outline reconstructing and assessing lines of argumentation, methodology
- Writing for lay audience (magazine, glossary)
- Peer reviewing

Communication skills
- Use of supportive media

Professional & reflective skills
- Collaboration skills & time management
- Translating academic research findings
- Identifying opportunities for using own expertise

Course name	Philosophical Anthropology and Technology		Course code	191612550
Participating programme	PSTS		Phase/Study period	M1, 2A
Credits	5.0	**Language** English	Obligatory/elective	Obligatory
Study material	Scientific articles available on Canvas and PPT slides			
Subjects, theories and models	Philosophical anthropology is the discipline that critically reflects upon questions concerning human nature and the human condition. It addresses questions such as: What is a human being? What is (personal) identity? Which cultural and/or natural features constitute human nature? How is the human being different from (other) animals? These questions have been investigated within different frameworks, such as classical Ontology and Epistemology, Idealism and Phenomenology. In the twentieth century authors like Heidegger, Anders and Ellul have warned us for the negative and destructive influence of technology on our life. Authors like Plessner and Gehlen have, implicitly or explicitly, argued that technology plays an important role in the constitution of human nature and identity. According to them humans have always shaped and extended themselves by virtue of technical tools and artefacts. In our modern era technology has become not only an inherent part of scientific investigation and diagnosis but also a constitutive dimension of our culture. This has far reaching bearings on our human condition. Today most scholars in philosophy of technology have embraced the so-called "empirical turn" and focus not on "technology" but on different (emerging) technologies and their impact on society. We will, therefore, not only focus on classical approaches to technology but also on specific technologies and technological developments in an anthropological context.

In this course we will investigate how technology has influenced and constituted human nature and human existence. We will discuss 1) foundational perspectives in the history of philosophical anthropology; 2) classical views of philosophical anthropology and technology; 3) contemporary perspectives on philosophical anthropology and technology. In the last part of the course the focus will be especially on views that consider the human not as something that is found and pre-established but rather as something that is made and shaped. From that perspective human nature and its faculties (rationality, self-consciousness, agency, autonomy) are not considered as an a-historical given but as the result of a concrete history in which technology plays an important role. |
| Teaching methods | The sessions will consist of both lectures and discussions. |

	Attendance is obligatory		
Examination and assessment	The assessment is based on a take-home exam and an essay, each 50%. Note: Each element has to be graded sufficient (i.e. 5.5 or more in order to complete this course successfully		
Learning objectives	This course connects to the final qualifications K1, K2, K5, S1-4 of the programme, according to the following learning objectives: At the end of the course the student has knowledge of and insight in: • the history of philosophical anthropology • classical views of philosophical anthropology and technology • important approaches (both classical and contemporary) to technology • theories that explain the influence of technology on human nature • the discussion between bio conservatives and transhumanists • different types of technical mediation and extension Students will also have acquired and improved the following skills: • Reading skills: Understanding different academic 'genres' • Writing skills: Summarising texts; developing outline, position and line of argument; providing peer reviews; writing academic papers • Oral communication skills: Presenting an outline; formulating questions about a presentation • Research skills: Position one's work in the context of the existing literature; formulating research question At the end of the course the student is able to: • analyse and reproduce major topics, theories, developments and approaches in philosophical anthropology and their relevance for technology. • discuss the merits and shortcomings of theories and ideas related to philosophical anthropology and technology and to compare and contrast different positions with each other. • discuss his views with fellow students, write interpretative essays and present his views orally in class. • show satisfactory competence in writing a philosophical paper.		

Course name	**Society, Politics and Technology**	**Course code**	191612560
Participating programme	PSTS	**Phase/Study period**	M1, 2A
Credits	5.0 **Language** English	**Obligatory/elective**	Obligatory
Requirements for entrance	Recommended: Ethics and Technology 1 (191612540)		
Study material	Readings in Social and Political Philosophy / ed. by Robert M. Stewart. Oxford University Press. ISBN-13: 978-0195095180. Further study materials include scientific articles and PPT slides.		
Subjects, theories and models	Technology is a major force in social and political reality. This course introduces the students to seven main discussions within social and political philosophy: on the state, liberty, democracy, social justice, globalisation, equality and community. Students will learn to relate these discussions to the political philosophy of technology, both in its classical and contemporary forms.		
Teaching methods	During 8 meeting of 4 hours the theories are discussed. Students practice in presentation and argumentation concerning the implications		

	of technology for the state, liberty, democracy, social justice, globalisation, equality and community. Attendance is obligatory Attendance is obligatory.
Examination and assessment	The assessment is based on an oral presentation (20% of mark) and 2 written exams (the first – in week 6 – 30% of the final mark; the second – during the regular exam period – 50% of the final mark). For passing the course, the presentation needs to be sufficient (i.e. 5.5 or more) and the average the average of the 2 exams need to be sufficient (i.e. 5.5 or more).
Learning objectives	This course connects especially to final qualification K1, K2, K5, S1-4, since by offering this course on philosophy of technology and politics it deepens the knowledge of philosophy of technology and its relation to social sciences (K1) and provides essential knowledge about the subfield social and political philosophy of technology (K2).By making a direct link to political philosophy, the course also contributes to K5, since the students get the opportunity to get a good understanding of how philosophy of technology relates to political philosophy. At the end of the course the student has knowledge of or insight in: • political philosophy in general. • the political philosophy of technology in particular. At the end of the course the student is able to: • apply concepts and theories of political philosophy (both in its general and in its applied-to-technology form) to problems related to the role of technology in society and culture. • participate in a collective deliberation • identify and analyse particular problems in this domain • analyse the literature in this domain • analyse arguments in particular debates in this domain • formulate and argue one's his/her own position with regard to a particular issue.

Course name	Technology and Social Order		Course code	191622510
Participating programme	PSTS		Phase/Study period	M1, 2B
Credits	5.0	**Language**	English **Obligatory/elective**	Obligatory
Requirements for entrance	Science and Technology Studies (201200064) History of Science and Technology (2014000574)			
Study material	Study materials include academic articles and PPT slides.			
Subjects, theories and models	The relationship between technology and technological development, on one hand, and (changes in) society, on the other, has been variously theorised and examined by a number of significant philosophers, sociologists and historians. In the first half of this course students are introduced to the range of interpretive visions regarding their relation, which includes variations on the themes of 'technological determinism', 'social construction', 'co-production', and 'hybridity'. Both the philosophical presuppositions and commitments behind these various interpretive frameworks are examined and the consequences of adopting them both for interpreting the past and advising for the future are considered. During the second half of the course, students apply their critical understanding to the analysis of 'real world' cases.			
Teaching methods	During 8 interactive lectures of 4 hours the theory is discussed. Attendance is obligatory			
Examination and assessment	The assessment is based on a mid-term essay assignment (counts for 40% of the final mark) and the composition of a mock research proposal (counts for 60% of the final mark).			

	Note: each component of the assessment needs to be graded sufficient (i.e. 5.5 or more) in order to complete this course successfully.
Learning objectives	This course connects to the final qualifications K1, K3, K4, S1, S2, S3, S4 of the programme, according to the following five learning objectives At the end of the course the student has knowledge of the relations between technology and society, drawn from an interdisciplinary approach that brings history, philosophy and sociology in conversation with each other, and practiced the writing of a research proposal. At the end of the course the student is able to: • analyse approaches about technology-society relations and understand the conceptual and methodological perspectives from which they are developed; • understand how adopting a particular conceptual approach shapes the design of research in the field of technology and social order; • discuss his/her views with fellow students, write a short interpretative essay, a research proposal, and present his/her views orally in class; • design research which could function as basis for a more substantial research proposal and/or a research project

Course name	**Ethics and Technology II**		Course code	191612580
Participating programme	PSTS		**Phase/Study period**	M1, 2B
Credits	5.0	**Language** English	**Obligatory/elective**	Obligatory
Requirements for entrance	Ethics and technology 1 (191612540)			
Study material	Articles and book chapters will be posted on Canvas.			
Subjects, theories and models	Following Ethics and Technology I, which introduces ethical theories and methods and relates them to technology, this course provides a further, state-of-the-art introduction to the ethics of technology. It focuses on major approaches and methods for the ethical analysis and guidance of technology, and discusses the various subfields of the ethics of technology that concern different technologies (ethics of information technology, ethics of artificial intelligence, bioethics, ethics of biomedical technology, environmental ethics and sustainable technology, and others) and different research area in ethics of technology (ethics of design, technology and responsibility, ethics of technological risks, ethics of emerging technologies, and others). The central question that guide the course are: How can humans develop and use technology responsibly, so that it benefits humans and society, avoids harms to persons, society and the environment, upholds and does not violate individual and civil rights and standards of justice and fairness, and promotes other values that we hold dear? Attendance is strongly recommended			
Teaching methods	Lectures and discussions, in-class assignments			
Examination and assessment	The assessment is based on a short academic paper (30%), short paper for a general audience based on the academic paper (30%) and a written final exam (40% of the mark). Note: each component should be graded sufficient (i.e. 5.5 or more) in order to complete this course successfully)			

Learning objectives	This course connects to the final qualifications K1, K2, K5, S1-S6 of the programme, according to the following four learning objectives:
	At the end of the course the student has knowledge of or insight in: • central discussions and topics in technology ethics; capita selecta At the end of the course the student is able to: • apply ethical concepts and theories (both in its general and in its applied-to-technology form) to problems related to the technology and its role in society and culture. • discuss and critique contemporary research in ethics &technology At the end of the course the student: • acquired skills in writing and verbal communication. • has acquired skills in reasoning and arguing, analysis for reasoning and arguments, critical analysis and evaluation of texts. • has acquired skills in writing essay outlines and essay texts for academic audiences and using these to create texts for lay audiences.

Course name	PhiloLab		Course code	202000253
Participating programme	PSTS		Phase/ Study period	M1, 2B
Credits	5.0	**Language** English	Obligatory/ elective	Obligatory
Requirements for entrance	TechnoLab (202000252), Philosophical Theories and Methods (201200059), Philosophy of Technology (201200063), Science and Technology Studies (201200064)			
Study material	The literature will vary every year. Students will have to read up to 3 scientific papers of staff members. For a peer review assignment, students need to read one draft essay of a fellow student work group in addition. For their own paper students have to read more new specialised literature as provided by the teachers.			
Subjects, theories and models	The objectives of the course are to introduce students to the research specialisations of the participating research groups in the PSTS programme, and to develop their collaborative research, writing and presenting skills appropriate for professional-level philosophical and science and technology studies work. Each year several staff members from the research groups and institutes that participate in the master's programme mentor small groups of students. Each mentor brings in a recent paper written by him or her that is representative for the type of research done in his or her institute/ research group. Students study the papers and then divide in groups. Each group studies one of the papers in more detail and develops a research proposal in relation with that paper under the mentorship of the author. Each group is tasked with writing an article-style essay contributing to the research programme of their mentor. Mentorship can be done in part by electronic means.			
Teaching methods	The course is structured around two workshops. During the first workshop, staff members present their papers and respond to students' questions. During the second workshop, students present the result of their research, followed by a Q&A with their fellow-students and staff members. Students use this feedback to complete their essay.			

50	In addition, the course offers a series of sessions on empirical research methodology in preparation to the thesis in the second year. For some students, the content of methodology sessions will be new, for some familiar. Students have the opportunity to actively request additional or more advanced topics. Attendance is obligatory.
Examination and assessment	The assessment is based on an individual presentation (30%) and a group paper (70%). Note: papers and other work need to be graded sufficient (i.e. 5.5 or more) in order to complete this course successfully.

Learning objectives	This course contributes to the final knowledge qualifications K2, K5, K6 and skills qualifications S1, S6, S9.
	These qualifications are linked to the following three learning objectives:
	• At the end of the course the student has knowledge of or insight in the research specialisations of the participating research groups.
	• At the end of the course the student is able to formulate a perspective from which scientific work is discussed by using gained knowledge from prior PSTS courses.
	• At the end of the course the student will have developed his writing and communicating skills.
	
	In detail, the following skills will be dealt with:
	• Writing skills
	   o Composing an outline for and writing an academic paper
	   o Peer reviewing, co-authoring
	• Oral communication skills
	   o Academic conference presentation
	   o Use of supportive media
	   o Formulating and responding to questions/criticism by academic peers
	• Research skills
	   o Information skills
	   o Identifying a research gap
	   o General research design skills
	   o Qualitative empirical (data collection & analysis) and philosophical research skills

4. Second year courses

Semester 1		Semester 2	
Block 1A	**Block 1B**	**Block 2A**	**Block 2B**
Technologies in use (elective) (201800145) 5 EC	Anticipation and evaluation of emerging technologies (elective) (201800149) 5 EC	Master's Thesis 30 EC (201300088) OR Internship 10 EC (201300090) Master's Thesis 20 EC (201300089)	
Transformations of knowledge in a digital age (elective) (201800146) 5 EC	Minds, bodies and technologies (elective) (201800150) 5 EC		
Technologies and discourse (elective) (202100093) 5 EC	Rethinking science-technology relations (elective) (201800151) 5 EC		
Good technology for users and society (elective) (201800148) 5 EC			
MasterLab (obligatory) (202000254) 5 EC			
PSTS Skills Portfolio (202000102)			

4.1 Elective courses in the second year

Course name	Technologies in Use			Course code	201800145
Participating programme	PSTS			Phase/ Study period	M2, 1A
Credits	5.0	Language	English	Obligatory/ elective	Elective
Requirements for Entrance	Obligatory: 40 EC from the PSTS year #1 courses completed Advised:: 1191612540 Ethics and Technology, 191612580 Ethics and Technology 2, 191612560 Society, Politics and technology				
Study material	Study materials include scientific articles and PPT, to be published on Canvas				
Subjects, theories and models	Both theoretically and practically, much more attention has been paid to the design and production of technologies than to their use. The purpose of this course is to extend our analytical consideration and understanding of technologies by exploring what it means to speak of 'technologies in use'. We will begin by critically surveying the range of literature, drawn from diverse disciplines, that analytically focuses on 'use' and 'users'. With specific focus on a current issue on user-technology relationship as focal analytic object, we will then turn to four primary issues of contention that arise from bringing this range of literature together. - The 'problem' of innovation: In and of itself, innovation is certainly not a problem. Far from it, but we need to consider how the (disproportionate) emphasis on innovation in the multi-disciplinary study of use & users has configured the field, as well as our more general understanding and practices. What aspects and possibilities of use get left out when we privilege the goal and ideal of innovation in our inquiries? And what roles and definitions of users does this ideal bring? - The 'problem' of democratisation: The analytical focus on use and users of technology is sometimes linked with discussions of democratisation of e.g. society and design: giving users a voice is then seen as a form of democratisation. Invariably, such discussions are shaped by an author's prior definition of democratisation, which itself embodies specific norms and values. Taking this point as 'the problem of democratisation', we will explore its various dimensions, connecting approaches to 'users', 'technology', and 'democratisation'. - The 'problem' of dichotomisation: What is at stake in / what are the consequences of distinguishing between production/producers and either use/users or consumption/consumers? What other oppositional pairs draw our attention in the context of 'technologies in use'? How do they configure our understanding and practices? And how do approaches like 'interaction design' and 'user-centred design' relate to these dichotomies? - The 'problem' of the 'end user': One consequence of distinguishing between production/producers and use/users has been the introduction of concepts such as end use/'the end user'. Such terms are part of the standard vocabulary in many sectors of technology studies and design practices. Especially in an age of scarcity and concerns with recycling, however, what does it mean to speak of 'end users'? How does it configure our understanding and practices in relation to technologies, their material components and, more generally, the sociomaterial world?				

	The final portion of the course will be dedicated to individualised or group research projects that put the discussions and insights of the course to work.
Teaching methods	Seminars. Attendance is obligatory
Assessment	Individual or group research project (50%), active participation (10%), individual or group assignment (40%) Each component of the final grade has to be graded sufficient or more (i.e. 5.5 or more.
Learning objectives	This course connects to the final qualification K3, K6, S1, S4 S6, S9 of the PSTS programme, according to the following learning objectives: At the end of the course the student has knowledge of or insight in: - Philosophical and STS-perspectives on processes of co-shaping of design and use of technological artefacts. - Applying selected qualitative methods of empirical research. At the end of the course the student is able to: - Combine theoretical perspectives with empirical data (from a first experience of conducting empirical research). - Write a coherent academic paper based on theoretically informed empirical research.

Course name	**Transformation of Knowledge in a Digital Age**		**Course code**	201800146
Participating programme	PSTS		**Phase/ Study period**	M2, 1A
Credits	5.0	**Language**	English	**Obligatory/ elective**	Elective
Requirements for Entrance	40 EC from the PSTS year #1 courses completed, Advised:: 1191612540 Ethics and Technology, 191612580 Ethics and Technology 2, 191612560 Society, Politics and technology			
Study material	Papers and book chapters will be uploaded to Canvas; 2 papers for each session Indication of literature: - For the Philosophy part: epistemology of automated or machine-based reasoning; - For the LTD part: long-term development of automata/learning machines in society			
Subjects, theories and models	The rise of computation in society has a tremendous impact on how we think about science, culture, and society. In the course *Transformations of Knowledge in a Digital Age* we discuss and critically analyse the intricate relationship between computation and scientific and other forms of knowledge production. By approaching computing (e.g. machine learning) from a long-term and philosophical epistemological perspective, this course considers society not just a context in which computing and related scientific and technological activities takes place, but as a both as constituting element of their dynamics and evolving consequence thereof. Taken together this course aims at preparing students for pursuing their own research in an exciting field of interdisciplinary inquiry. The course also includes a research skills component, where students have to identify a problem and formulate a problem statement/research question. In order to do so, they have to a] review the available research literature (partly based on suggestions by the lecturers) and b] present their findings in the form of presentations, a problem statement, and an argumentative essay. Ideally, students come to this course with			

- a sound background in basic theories and concepts of philosophy of science, long-term development of science and technology and STS.
- They should be able to gather and critically reflect upon 'data' (whether insights from literature or more empirical data) and appropriate them for own problem statements

Skills:
At the end of the course, the student is able to:

- Examine and evaluate different views on the evolution/rise of computing in society in the long 20th century and thereby
- Examine and evaluate different views on the limitations, benefits, and potential risks of the use of automated (computerized/algorithmic) systems in various societal domains. (Knowledge/insight oriented)
- Examine and evaluate different views on the kinds of potential societal problems arising from the prevalent use of computing technologies and provide recommendations as to how these problems should be addressed. (Skill oriented)
- Critique, construct and formulate different views on the implications of the rise of computing in society from a long-term, societal, and epistemological perspective. (Skill   oriented)
- Develop formal research skills in the domains of philosophy and long-term development of science and technology. This means that students learn to construct and author an argumentative essay:
- Select relevant literature and gradually zoom in
- Identify gaps in arguments/unanswered questions
- Formulate a problem statement/ research question
- Choose and account for relevant theoretical approaches
- Select and account for fitting methods of analysis (broadly conceived)
- Gather 'data' (whether insights from literature or more empirical data)
- Interpret findings
- Reflexively answer the research question

Teaching methods	- In-depth discussion of papers - Mini lectures (introducing theme of next week) - Joint discussions of readings on topic of the week Attendance is obligatory
Assessment	The final course grade will be based on the following grading components: 30% weekly assignments & occasional presentation, 70% essay Each component of the final grade has to be graded sufficient or more (i.e. 5.5 or more).
Learning objectives	This course connects to the final qualification K6, S1, S5, S6, S7, S10 of the PSTS programme, according to the following learning objectives: At the end of this course, the student is able to:

- Understand the evolution/rise of computing in society in the long 20th century and thereby
- Understand the limitations, benefits, and potential risks of the use of automated (computerised/algorithmic) systems in different societal domains. **(Knowledge/insight oriented)**
- Reflect upon the implications of the rise of computing in society from a long-term, societal, and epistemological perspective. **(Skill oriented)**
- Recognise the kinds of potential societal problems arising from the prevalent use of computing technologies and provide recommendations as to how these problems should be addressed. **(Skill oriented)**
- Develop formal research skills in the domains of philosophy and long-term development of science and technology,
  - Select relevant literature and gradually zoom in.
  - Identify gaps in arguments/unanswered questions.
  - Formulate a problem statement/ research question
  - Choose and account for relevant theoretical approaches
  - Select and account for fitting methods of analysis (broadly conceived)
  - Gather 'data' (whether insights from literature or more empirical data)
  - Interpret findings
  - Reflexively answer the research question.

Course name	Technologies and Discourse		Course code	202100093
Participating programme	PSTS		**Phase/ Study period**	M2, 1A
Credits	5.0	**Language**	English	**Obligatory/ elective**	Elective
Requirements for Entrance	40 EC from the PSTS year #1 courses completed,			
Study material	Required scientific literature will be published on Canvas			
Subjects, theories and models	Technologies and societal discourses are closely intertwined. Emerging technologies, innovations and socio-technical transitions are interwoven with societal discourses that feed into the construction, negotiation and communication of problem definitions, expectations, hopes and fears. In societal discourses and discursive interactions, the societal meaning and evaluation of a technology is taking shape, urgency is created, thereby impacting innovation activities, societal embedding and the governance of innovation. Discourses in different spheres as mass media, social media, policy, or science are connected, but tend to show distinct patterns, due to different discursive rationalities, but also due to different media structuring communication in distinct ways. The course introduces conceptual perspectives and provides practical exercises in the empirical analysis of discourses and discursive phenomena. The empirical methods taught (content analytical approaches, coding procedures) are widely applicable in qualitative research, such as the analysis of interviews, newspaper articles, blogposts or other types of media. The course combines the study and discussion of literature with an empirical research project. We encourage to do the project collaboratively, for instance in the form of a comparison of discourses, or discourses in different media. Still, parts of the analysis will be done individually. Individual projects are possible, though rather considered the exemption than the rule. .			

Teaching methods	During 8 classes, literature is discussed, methods explained and progress of the research work of the students discussed. Discussions are prepared by the students via reading, assignments and partly presentations, and / or by lectures of the teachers. Attendance is obligatory
Assessment	Students will be assessed on the basis of their individually written chapters to the final report (80%) as well as on the basis of the jointly prepared chapters of the report (20%). Individual projects will be assessed 100% on the basis of the individual report. Assessment criteria: quality of analysis and argumentation, quality of conceptual approach, quality of application of methods, coherence of report, academic standards
Learning objectives	This course connects to the final qualification K1, K3, K6, K4, S1, S2, S3, S4, S5, S6 of the PSTS programme, according to the following learning objectives: The student is able to: explain and critically discuss discourse-analytical approaches explain and critically discuss the role of discourse in science, technology and society relations empirically analyze documents and / or other media from a discourse-analytical perspective design a small empirical research project and coordinate research work in a small group present research results in a clearly written report

Course name	Good Technology for Users and Society			Course code	201800148
Participating programme	PSTS			Phase/ Study period	M2, 1A
Credits	5.0	Language	English	Obligatory/ elective	Elective
Requirements for Entrance	40 EC from the PSTS year #1 courses completed, Advised:: 1191612540 Ethics and Technology, 191612580 Ethics and Technology 2, 191612560 Society, Politics and technology				
Study material	Study material will be academic articles to be provided on Canvas				
Subjects, theories and models	This course will ask what good technology is, and will consider various ways of assessing, guiding and improving the moral and nonmoral goodness of technology. We will have a particular emphasis on theories of wellbeing and the good society that define individual and social notions of goodness. Different theories of wellbeing (e.g. objectivist, desire satisfaction, mental state) will be discussed and compared, as well as different theories of what constitutes a good society. We will then consider what these theories mean for technological design and technology development. We will also investigate the positive and negative roles of so-called socially disruptive technologies that transform society, culture, and the environment. This will be done in connection to the seven-university, ten-year research programme Ethics of Socially Disruptive Technologies (https://www.esdit.nl/). We will pay special attention to the transformative role of such technologies with respect to the basic concepts that we use to understand and evaluate reality. Next, we will consider non-Western perspectives on the goodness of technology, by considering non-Western and intercultural ethics and philosophy. We will also examine the call for, and challenges of,				

	global ethics in three broad areas. First, we will examine arguments concerning relativism and the extent to which ethical values may appropriately be differently expressed. Second, we will explore to what extent our global ethics should be responsive to demands of pluralistic ethics and normatively significant belief systems, especially when considering the design of technologies and institutions that operate at a global level. Finally, we will look at questions of when an individual is morally responsible for the actions of autonomous systems. Teaching will be centered on a series of lectures delivered to students, together with discussion and in-class assignments, but the bulk of the learning will occur in the students' own time as they research the different areas using recommended readings and following their own research interests. This will be supplemented by assessed presentations given by the students regarding a final paper to be delivered at the end of the course. Help will be offered for both of these assignments through one-on-one meetings with the course professors The research skills component in this course encompasses the following: Skills needed: • Critical writing skills • Critical analysis of texts Therefore, students will: • acquire specialist knowledge of ethics of technology, • develop original scientific research in the field of ethics of technology, • compare different paradigms in sub-domain of ethics of technology, including critical analysis, • generate philosophical research results that are relevant for scientific, technological and/or social practices, • communicate research results and solutions to colleagues. Students will develop these skills: • through reading, lectures, and discussion with professors regarding current research in the field • through producing written essay at end of course with ongoing support through course to this end • through production of written essay and presentation to be given during course **This course is part of the 4TU Ethics & Technology track**
Teaching methods	Seminars. Attendance is obligatory
Assessment	• Essay (5,000 – 6000 words):

Learning objectives	This course connects to the final qualification K2, K5, S1, S5, S6, S9 of the PSTS programme, according to the following learning objectives:
	At the end of this course:
	• The student has insight into leading ethical and political philosophical issues and debates regarding well-being, the good society and technology and will be able to compare and apply these effectively.
	• The student has deepened insight into general theories and methods for technology ethics, including values in design, ethics approaches for emerging technologies, and global and intercultural ethics.
	• The student will have knowledge of theories of individual responsibility and gain insight into how they can be applied or need to be revised in light of the development of autonomous information systems.
	• The student will gain knowledge of theories of ideal and non-ideal ethical theorising and gain insight into how to apply them in cases of radical climate injustice.

Course name	Anticipation and Evaluation of Emerging Technologies			Course code	201800149
Participating programme	PSTS			Phase/ Study period	M2, 1B
Credits	5.0	Language	English	Obligatory/ elective	Elective
Requirements for Entrance	40 EC from the PSTS year #1 courses completed, Advised:: 1191612540 Ethics and Technology, 191612580 Ethics and Technology 2, 191612560 Society, Politics and technology				
Study material	Study materials will be academic articles to be provided on Canvas				
Subjects, theories and models	Promises and expectations concerning new and emerging science and technologies (NEST) abound in contemporary societies. How should we anticipate and evaluate these new and emerging sciences and technologies and the impacts they may have on society? In this course we start by identifying the specific challenges *emerging* technologies pose to their ethical and societal evaluation. Since NEST are not fully developed yet, the object of evaluation is rather elusive and replete with uncertainties. Taking a pragmatist approach to the ethical and societal evaluation of NEST, the course subsequently first investigates the informal, ('de facto') processes of anticipation and evaluation of NEST taking place in society, analysing their character, strengths and weaknesses. We then ask how more systematic ('dedicated') methods to anticipate and/or evaluate NEST (developed in technology assessment, ethics and STS more generally) could contribute to the quality of societal anticipation and evaluation of NEST. To what extent can such methods help to make innovation processes more reflective of societal and moral value and responsible (as recent calls for 'Responsible Research & Innovation' seem to suggest)? What do these methods assume about what 'good anticipation and evaluation' of NEST entails, and how valid are these assumptions? What is the role and added value of ethical and Technology Assessment - expertise? The course ends with two sessions dedicated to topical subjects (capita selecta) in the philosophical, ethical and social science literature on anticipation and evaluation of NEST, which may vary from year to year. The course centres around a group project that asks students to develop a proposal for how to anticipate and evaluate a specific				

	emerging technology. To this end, they have to select a relevant example of NEST; identify, analyse and assess the plausibility of the promises and expectations surrounding it; map, analyse and evaluate the quality of existing ethical and societal debates, and ultimately argue which dedicated methods could improve the societal and ethical anticipation and evaluation of this specific technology. In this way students practice research, analytic, evaluative, collaborative and communicative skills that are key to any researcher, working in academic or other settings, and learn to organise and conduct a comparatively large project, thereby preparing them for writing a master thesis. **This course is part of the 4TU Ethics & Technology track**
Teaching methods	Seminars. Attendance is obligatory
Assessment	*Group project – 50% of course grade:* The group project results in a **group presentation** in week 8 and a group **report** in week 10. The presentations will be assessed in a formative manner only, with criteria also used for the report. The group report will be assessed with one group grade, with giving students the option to redistribute the grade on the basis of a peer assessment of individual contributions. *Two individual written assignments* – 50 % of course grade During the course, students will have to hand in two assignments (of 1500-2000 words each) in which they reflect on part of the readings. The **first assignment** will focus on reviewing the pros and cons of different methods to anticipate and evaluate NEST; the **second** one will focus on a critical analysis of the assumptions guiding such methods. Each component of the final grade has to be graded sufficient or more (i.e. 5.5 or more). **4TU Ethics & Technology variant:** Students taking the 4TU E&T track will be offered a subvariant of this course, meaning that 2.5 EC focuses more specifically on ethics of emerging technologies. This implies that 4TU students on this track will: • participate in the classes, but will not participate in the group project (and can skip the (parts of) the classes dedicated to the group project); • have to submit the two individual assignments like everybody else; in addition, instead of submitting a group report, they will submit an individual final paper; • study part (about 60%) of the standard reading material (indicated by the teaching staff); • study reading material listed for the 4TU variant and receive tutoring on demand by Dr. Yashar Saghai.
Learning objectives	This course connects to the final qualification K2, K3, K4, K6, S1, S3-S10 of the PSTS programme, according to the following learning objectives At the end of the course the student is able to: • plan, coordinate and conduct a cooperative research project (*contributing to S1, S3, S5 of the PSTS final qualifications*);

- analyse the social dynamics of expectations and actual patterns of moral argumentation concerning new and emerging science and technologies in society *(contributing to S4 and S7 of the PSTS final qualifications);*
- apply, critically compare and evaluate different methods to improve the quality of anticipation and ethical and societal evaluation of new and emerging science and technologies *(contributing to S6, S7 and S9 of the PSTS final qualifications);*
- articulate and defend one's own position with regard to methods for anticipation and ethical and societal evaluation of new and emerging science and technologies *(contributing to S4 and S6 of the PSTS final qualifications);*
- communicate research and proposals to colleagues, as well as professionals in relevant domains *(contributing to S8 and S10 of the PSTS final qualifications);*
- reflect on the conceptual, sociocultural and normative assumptions guiding current practices and proposals to anticipate and evaluate new and emerging science and technologies from an ethical and social perspective *(contributing to S6 of the PSTS final qualifications).*

Course name	Minds, Bodies and Technologies		Course code	201800150
Participating programme	PSTS		Phase/ Study period	M2, 1B
Credits	5.0	**Language** English	Obligatory/ elective	Elective
Requirements for Entrance	advised: • 191612550 Philosophical anthropology and technology			
Study material				
Subjects, theories and models	This course acquaints students with current theories and approaches to the relations between mind, body, and technology. Our entry point is the central role of the human mind in the European and Anglo-American tradition of Philosophy. Simply put, human beings are considered to have a specific kind of mind, that makes them human. The centrality of the mind raises the question, how to do justice to the body and how to take into account the interplay between mind, body and technology. In our course, we will discuss and explore the current understanding of mind and body in view of various technologies like brain imaging, brain-machine interfaces, artificial intelligence, surveillance technologies, and medical technologies. Furthermore, we will consider alternative perspectives on the mind (e.g., extended mind theory) and the body (e.g., phenomenology of the body and feminist theory) and will ask, how such approaches allow us to deepen our understanding of human-technology relations and to answer the question, what does it mean to be human for human beings in contemporary times. Additionally, in preparing the presentation and writing the paper, students will, in terms of research skills, be trained to • Formulate a research question • Reflexively answer the research question • Select relevant literature and gradually zoom in			

	By preparing the presentation, students will practice summarising and situate an academic paper / chapter. They will also be trained to explicitly formulate pro- and con arguments in response to the paper. Finally, students will be trained to summarise the main line of arguments of an academic discussion. Depending on the topic choice for the paper, students will also learn to • Choose and account for relevant theoretical approaches (e.g., if students have to choose a fitting framework to analysis a specific technology). • Interpret findings (e.g., by evaluating scientific literature on the mind/body) **This course is part of the 4TU Ethics & Technology track**
Teaching methods	The course has a seminar setting. There will be 8 sessions of 4 hours. The first meeting will offer a general introduction into the course topic. Three sessions will be dedicated Philosophy of the Mind and Philosophy of the Body each. The two parts of course will follow a common structure: The first meeting is dedicated to the question, what is a mind / body? The second meeting will address the interplay between technology and the mind / body. The third meeting will be focus on a current specific discussion in the Philosophy of the mind / body. While the general set-up of the course suggests a 'body / mind'-split, the discussions in class will give emphasis on making connections between the two domains. Attendance is obligatory.
Assessment	Students are asked to deliver a short presentation of 10 minutes on an assigned reading. The students will receive formative feedback. Furthermore, they have to prepare a report on the presentation and the discussion of the text in class. By default, the student will prepare a report on the topic of the presentation. If there are more participants than topics for presentations, the student can decide about the topic of the report. (30% of the final grade) Students will write a paper on a technology within the scope of the course. They are free to choose their own subject. (70% of the final grade). To prepare for the paper, student will present an outline of the paper in the last meeting. The students will receive formative feedback on the presentation and the outline. Each component of the final grade has to be graded sufficient or more (i.e. 5.5 or more). Participation in class is a condition for passing the course. Note: Students in the 4TU.Ethics track and PhD candidates from the 4TU.Ethics graduate programme will write a paper which focuses on the ethical aspects and implications. There will be one additional (individual) meeting on how to make a connection between Philosophy of the Mind / Body and Ethics of Technology. In addition, PhD candidates from the 4TU.Ethics programme can opt to limit their participation in the course to the first introduction and the meetings, which emphasis Philosophy of Mind *or* Philosophy of the Body.
Learning objectives	This course connects to the final qualification K2, K5, K6, S1, S6, S9 of the PSTS programme, according to the following learning objectives

At the end of the course the student has knowledge of:
- philosophy of mind,
- philosophy of the body,
- contemporary analyses of the relations between mind, body, and technology,

and is able to:
- write an academic paper, in which (s)he evaluates a technology by building on insights from philosophy of mind and/or philosophy of the body,
- formulate a research question,
- identify relevant literature within the scope of the course,
- situate contemporary approaches in broader discussion on the interplay between Mind, Body, and Technology.

Students in the 4TU.Ethics track and PhD candidates in the „Ethics of Technology" programme can opt to specialise on either Philosophy of Mind and the Body.
In this case, the learning goals are as follows:

At the end of the course the student has:
- knowledge of philosophy of mind *or* philosophy of the body,
- Insights into contemporary analyses of the relation between mind, body, and technology

and is able to:
- write an academic paper, in which (s)he evaluates a technology from an ethical perspective while including insights from Philosophy of Mind *or* Philosophy of the Body,
- formulate a research question,
- identifying relevant literature within the scope of the assignment,
- situate contemporary approaches in broader discussion on the interplay between Mind, Body, and Technology

Additional info	This course is offered to students in the 4TU E&T track. Students in this track will get additional support in form of a reading list / reader.

Course name	**Rethinking Science-technology Relations**			**Course code**	201800151
Participating programme	PSTS			**Phase/ Study period**	M2, 1B
Credits	5.0	**Language**	English	**Obligatory/ elective**	Elective
Requirements for Entrance	40 EC from the PSTS year #1 courses completed, Advised:: 1191612540 Ethics and Technology, 191612580 Ethics and Technology 2, 191612560 Society, Politics and technology				
Study material	Study materials will be academic articles to be provided on Canvas				
Subjects, theories and models	To understand the dynamics of science, technology and society, we need to know what scientific practices are like and what the role of technologies and technical or engineering thinking are within modern scientific activity. Science is increasingly technological and large-scale (i.e., technoscience), with more and more scientific work being performed by computers and sophisticated instruments, which has enabled large teams to be assembled across international boundaries to handle increasingly sophisticated problems. The idea that science is the work of individuals thinking up theories relying on their own				

	ingenuity rather than building and manipulating materials and machines, was probably never accurate in the first place. Science has always been dependent on the material and social environments of laboratories and institutes. However, with the advent of: 1. new experimental technologies in physics, biology and other fields which can obtain information about phenomena with much higher precision, power and frequency than was possible traditionally, 2. the use of machine-learning technologies and other big data approaches to sift through data and obtain patterns automatically, and, 3. the increasingly prominent role that engineers and technologists are playing in scientific discovery through the development of new scientific and practical technologies; the nature of science is undoubtedly transforming. But how and in what ways this is happening is still taking shape, raising many questions as a result. How will modern technological transformations of science require changes in the way philosophers conceive of how knowledge is produced in practice, the long-debated relations between science and technology, and what kind of new knowledge might be possible through technological intervention? In this course we aim at challenging traditional images of science in the modern technological age through a better understanding of the internal dynamics of scientific research in the context of technological applications and technology-driven investigation. We will explore the relevance and accuracy of traditional presuppositions about the differences between pure science, applied science and technology, or between science and engineering. We look at the central role experiment has always played in scientific discovery and scientific knowledge production, in the place of traditional theory, and how these roles take on new significance. We consider what roles values play in engineering science. Finally we will consider what new technologies bring to science, how they might expand the range of technical and cognitive possibilities, but also note the grounds upon which we might be critical of many of the claims that are made about what current technology is capable in scientific investigation.
Teaching methods	Seminars. Attendance is obligatory
Assessment	The final course grade will be based on the following grading components: • 25% for weekly reflection papers on assigned readings: individual 300-500 words per week. • 25% for classroom presentations on assigned readings: group work, twice per student. • 50% for an argumentative essay due at the end of the quartile: individual papers on a subject related to the themes of the course. Each component of the final grade has to be graded sufficient or more (i.e. 5.5 or more).
Learning objectives	This course connects to the final qualification K2, K5, K6, S1-S7, S9 of the PSTS programme, according to the following learning objectives: At the end of the course the student is able to: • Identify transitions in the structure and nature of scientific practice through the impact of technology. (knowledge & skills)

	- Assess using philosophical argument, particularly epistemological argument, the implications of those transitions for human knowledge and society at large. Develop a critical viewpoint on those transitions. (skills) - Develop formal philosophical abilities, including, (knowledge and skills) - Read texts of both traditional and contemporary authors in the philosophy of science. - Analyse the structure and arguments of a philosophical text. - Reconstruct the presuppositions made in a philosophical text. - Formulate problems of scientific practices, and to translate them in a philosophical research project. - Develop formal research skills in the domains of philosophy of science and technology, including (in writing the essay)]: - Select relevant literature and gradually zoom in - Identify gaps in arguments/unanswered questions - Formulate a problem statement/ research question - Choose and account for relevant theoretical approaches - Select and account for fitting methods of analysis (broadly conceived) - Gather 'data' (whether insights from literature or more empirical data) - Interpret findings - Reflexively answer the research question

4.2 Obligatory in the second year

Course name	MasterLab			Course code	202000254
Participating programme	PSTS			**Phase/ Study period**	M2, full year
Credits	5.0	**Language**	English	**Obligatory/ elective**	Obligatory
Requirements for Entrance	At least 50 EC from the PSTS year #1 courses completed, and in any case the courses: TechnoLab (202000252) and PhiloLab (202000253)				
Study material	Academic articles and cases (provided on Canvas), student presentations and participating in research group activities.				
Subjects, theories and models	The main goal of the course is to guide and coach students in their research activities, first by assisting them in writing a research proposal (particularly in the 1st semester). During the 2nd semester students will be offered an infrastructure for (peer) coaching and training in connection to their graduation projects The course starts with seminars / workshops dedicated at particular topics related to research skills and supporting the search for a topic, and continues in semester 2 with seminars where draft proposals are presented and discussed				
Teaching methods	Seminar setting: The emphasis in the first semester is on the second quarter. In the first quarter, general themes regarding doing research will be discussed; the second quarter systematically works toward writing a thesis proposal. Attendance is obligatory.				
Examination and assessment	The grade for this course is either a pass or a fail, and is based on: 1. class participation and periodic assignments 2. working on and completion of the thesis proposal (evaluated by the thesis supervisor in consultation with the course instructors) The following dimensions will be considered: Participation: • completion of all preparatory assignments and readings • active participation during class sessions. Thesis proposal: • development of research question (and sub-questions) • refinement of method and/or approach • statement of thesis' relevance and/or significance • embedding in literature (indicated by background reading and bibliography) Each of these 2 dimensions need to be sufficient in order to pass the course. Note: Students who cannot attend the regular sessions in the 2nd semester (e.g. because of doing an internship abroad) have to: • apply at the MasterLab-teachers for being exempted from being present at the 2nd semester sessions; • do an alternative assignment; • i.e., have to submit twice a written progress report on their internship and/or final project research (at the end of quartile 2A, and at the end of quartile 2B**)**				

Learning objectives	This course connects to the final qualifications K4, K5, K6, S4-S9 of the programme, according to the following learning objectives:
	• At the end of the course the student is able to conduct his/her own project within a profile of PSTS, which has to result in a thesis proposal. • At the end of the course the student has knowledge of or insight in the relation between topics within his/her profile.

Course name	Brief Internship PSTS		Course code	201300090
Participating programme	PSTS		Phase/ Study period	M2, 2A & 2B
Credits	10.0	**Language** English	**Obligatory/ elective**	Elective
Requirements for entrance	At least 75 EC's completed from the PSTS courses, and in any case the courses, "TechnoLab" (202000252) and "PhiloLab" (202000253)			
Prior knowledge for	Final Thesis Project (20 EC)			
Teaching staff	PSTS staff (monitoring and (co-)assessment)			
Study material	Depending on type of internship			
Subjects, theories and models	Students who opt for a professional career, may choose for a brief internship. The internship is meant to get acquainted with a future employment sector. Students can also opt for a brief internship to get familiar with a specific domain of relevance for their thesis project (e.g., to get a better understanding of technological developments or institutional settings, or to get access to the field.) The internship lasts about two months within, for example, a knowledge institute or a company in a relevant field. The PSTS programme has contact with several organisations. The student may also contact other organisations him/herself. During the internship the student works on an assignment at the level of a starting academic. This assignment is preferably (but not obligatory) related to the intended subject of the Master's thesis. The internship is supervised by an internal (UT) supervisor and an external supervisor of the hosting organisation. The external supervisor will inform the internal UT supervisor on the performance of the intern in the organisation, and thus contributing to the assessment of the internship, the internal (UT) supervisor assesses and grades the students' achievement.. The internal (UT) supervisor will be involved at least at three moments of the internship: 1. when formulating the assignment as part of the learning agreement; 2. after the first half of the internship, to see if adaptations should be made to the original plan; 3. after the internship, to discuss and grade the internship report.			
Examination and assessment	Internship report. The assessment aspects and criteria are stipulated in the PSTS internship guide.			
Learning objectives	This course offers connections to all final qualifications of the programme K1-6 and S1-10. The student will together with the UT supervisor determine the relationship to the final qualifications in the learning agreement. After or in conjunction with the internship, the student does a so-called short Final Thesis Project of 20 EC.			

Course name	Master's thesis PSTS (short)	Course code	201300089

Participating programme	PSTS		**Phase/ Study period**	M2, 2A & 2B
Credits	20.0	**Language**	English	**Obligatory/ elective**	Obligatory

Requirements for entrance	At least 75 EC's completed from the PSTS courses, and in any case the courses TechnoLab (202000252). PhiloLab (202000253), and the 1st semester component of MasterLab (202000254).
Teaching staff	PSTS staff (supervision and assessment)
Study material	Study materials depend on the topic of the project.
Subjects, theories and models	Students write a Master's thesis of 12,000-20,000 words, supervised by a staff-member. This daily supervision chairs the graduation committee. The graduation committee meets at least two times with the student. The exam will include an oral defence of the thesis and a public colloquium
Teaching methods	Students work on their individual project and receive individual supervision. In addition, they are obliged to participate in MasterLab-2nd semester meetings in which they exchange experiences with and present results to fellow students.
Examination and assessment	The assessment is based on the thesis, oral exam and a public colloquium. Full details can be obtained from the PSTS Graduation Guide.
Learning objectives	This course connects to all final qualifications of the programme K1-K6, S1-S10, according to the following five learning objectives: At the end of the course the student has knowledge of or insight in • specialist knowledge in one sector of technological specialisation within the domain of 'philosophy of technology' At the end of the course the student is able to • conduct scientific research in the domain of 'philosophy of technology' wherein philosophical methods are used and whereby the further development of knowledge and skills in a technical field or one of the physical sciences is demonstrated. • formulate and argue one's own position in the domain of philosophy of technology • communicate research and solutions to colleagues as well as professionals from other subject areas. At the end of the course the student has • reflective capacity pertaining to one's own work, selecting or altering course, and the ability to translate learning trajectories into the development of more general knowledge and methods.

Course name	**Master's thesis PSTS (regular)**		**Course code**	201300088
Participating programme	PSTS (STS)		**Phase/ Study period**	M2, 2A & 2B
Credits	30.0	**Language**	English	**Obligatory/ elective**	Obligatory

Requirements for entrance	At least 75 EC's completed from the PSTS courses, and in any case the courses TechnoLab (202000252) and PhiloLab (202000253) and the 1st semester component of MasterLab (202000254).
Teaching staff	PSTS staff (supervision and assessment)
Study material	Study materials depend on the topic of the project.
Subjects, theories and models	Students write a Master's thesis of 16,000-24,000 words, supervised by one of the staff-members. This daily supervision chairs the graduation committee. The graduation committee meets at least two

	times with the student. The exam will include an oral defence of the thesis and a public colloquium
Teaching methods	Students work on their individual project and receive individual supervision. In addition, they are obliged to participate in MasterLab-2nd semester meetings in which they exchange experiences with and present results to fellow students.
Examination and assessment	The assessment is based on the thesis, oral exam and a public colloquium. Full details can be obtained from the PSTS Graduation Guide.
Learning objectives	This course connects to all final qualifications of the programme K1-K6, S1-S10, according to the following learning objectives: At the end of the course the student has knowledge of or insight in • specialist knowledge in one sector of technological specialisation within the domain of 'philosophy of technology' At the end of the course the student is able to • conduct scientific research in the domain of 'philosophy of technology' wherein philosophical methods are used and whereby the further development of knowledge and skills in a technical field or one of the physical sciences is demonstrated. • formulate and argue one's own position in the domain of philosophy of technology • communicate research and solutions to colleagues as well as professionals from other subject areas. At the end of the course the student has • reflective capacity pertaining to one's own work, selecting or altering course, and the ability to translate learning trajectories into the development of more general knowledge and methods.

4.3 External (non-PSTS) courses

Students planning to take other, that is, non-PSTS, courses at the University of Twente in their PSTS programme (for example as part of the double degree programmes with Business Administration, Public Administration or Communication Studies, or as an external elective) can find the relevant course descriptions in Osiris, the online course catalogue of the UT: https://osiris.utwente.nl/student/StartPagina.do.

Information on the external courses in the 4TU Ethics & Technology track can be found on the website of 4TU.Ethics: https://ethicsandtechnology.eu/

In case you opt for taking courses at other Dutch universities or courses abroad, you have to realise that the actual schedule of these courses may not be aligned (or even may conflict) with the timing of the regular PSTS courses. In this case you have to be prepared to accept some study delay.

Please note that including a non-PSTS elective in your studies (if you do not take a double degree programme nor the 4TU Ethics & Technology track) is possible only *after* approval by the Programme Board, which has been mandated by the Examination Board to decide on elective courses.

[Currently, 3 courses already have received general approval from the Programme Board, implying that any PSTS student is allowed **to substitute one PSTS elective by one of these 3 courses**, provided all other electives are PSTS courses:

- Policy Analysis in Public and Technological Domains (201100077 - MSc Public Administration; dr. P. Stegmaier, prof.dr. B. van der Meulen) – Q1
- Management and Governance of Innovation and Creativity (201600012 - MSc Business Administration; dr.ir. E. Hofman, prof.dr. S. Kuhlmann, prof.dr. H. Schiele, dr.ir. K. Visscher) – Q1
- Deliberative Governance of Knowledge & Innovation (201100076 – MSc Public Administration, dr. P. Stegmaier) – Q3]

If you want to include other, or more than one external course(s), you still need to ask approval of the Programme Board. For more information on how to submit a request, please consult the PSTS study adviser or programme director.

Part C: Organisation and Quality Assurance

5. Organisation of the PSTS programme

5.1 Programme management and support

Programme director
Michael Nagenborg

The programme director bears final responsibility for the scientific quality, organisation, development, and promotion of the master programme PSTS. Together with the support staff he manages the practical organisation of the programme. In collaboration with the teaching staff, the Programme Committee and the Examination Board he takes care of the continuous improvement of the programme's quality.

Ravelijn Room 4212
E-mail: m.h.nagenborg@utwente.nl
Phone: 053 489 3428

Programme coordinator
Marlies Tijhuis

As programme coordinator, Marlies Tijhuis supports the programme director of PSTS in policy matters and sharea responsibility for the organisational, procedural and intrinsic coordination and harmonisation of the PSTS programme. If students have questions related to the programme or certain subjects of the programme, the programme co-ordinator ia the first person to see.

Cubicus, Room C104
E-mail: m.e.tijhuis@utwente.nl
Phone: 053 4898604 (Marlies Tijhuis)
Office hours: Monday, Tuesday, Wednesday, Friday

Study adviser
Yvonne Luyten – de Thouars

As study adviser, Yvonne Luyten – de Thouars offers advice on study-related issues and practical matters. Students can consult her about individual problems related to the programme, studying in general, complaints, study choice, planning, delay, graduation support, legal status, exemption, and course and examination regulations. If necessary, she can refer students to other support bodies in- or outside the university.

Cubicus, Room C110
E-mail: y.c.h.dethouars@utwente.nl,
Phone: 053 489 1117
Office hours: Tuesday, Thursday, Friday

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Student Services staff member
Huub Engbers

Huub Engbers is the Educational Affairs Officer of the PSTS programme. He is responsible for information provision 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.

Paviljoen 009
E-mail: BOZ-PSTS@utwente.nl
Phone: 053 489 4122
Office hours: Monday, Tuesday, Thursday, Friday, between 10.00 – 14.00

International office
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 3276
Office hours: Monday, Tuesday morning, Wednesday morning, Thursday

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5.2 PSTS teaching staff

Teaching staff in PSTS is provided by two sections: Philosophy and Science, Technology and Policy Studies (STePS). An overview of names and contact details can be found in Appendix 3.

More information about their expertise, research activities and interests can be found via the websites of the two sections:
https://www.utwente.nl/en/bms/wijsb/staff/
https://www.utwente.nl/en/bms/steps/staff/

5.3 Advisory committees and Examination Board

Institutional embedding of the PSTS programme
The PSTS programme is embedded in the Faculty of Behavioural, Management and Social Sciences (BMS), University of Twente.

Admission Committee PSTS
The programme's Admission Committee assesses whether a student applying for admission to the programme satisfies the admission criteria. This Committee consists of two staff members from the sections of Philosophy (PHIL) and Science, Technology and Policy Studies (STePS),

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who are examiners in the programme. They are assisted by a clerk from the Faculty's Educational Service Centre. Members of the committee are academic staff and are appointed by the programme director.

PSTS Programme Committee
The PSTS Programme Committee advises the programme director on all matters regarding the curriculum, organisation and quality of the PSTS programme. It has the legal right of consent to the method of evaluating the education in the programme, and the right to advise the Programme director on enhancing and safeguarding of the quality of the programme. The committee consists of 3 PSTS teaching staff and 3 PSTS students. Vacancies for student positions are announced to all students, indicating how they can apply for a position. If there are more candidates than positions, elections may be organised. The members of the committee are formally appointed by the dean of the Faculty.

Examination Board for Interdisciplinary Sciences
The Examination Board for Interdisciplinary Sciences is responsible for safeguarding the quality of examination and assessment, and for the validity of the MSc degree PSTS. Members of the Examination Board are appointed by the dean of the Faculty. One of the competences of the Examination Board is to make exceptions to the rules for students, such as exemptions, individual curriculum adjustments and extra exam or test opportunities. Students can submit a request to the examination board via its website. Before you do so, it is often helpful to consult the study adviser how best to formulate a request.
For more information: https://www.utwente.nl/en/bms/examboard/

Employment sector committee
The employment sector committee advises the PSTS programme director about the connections between the curriculum and the professional context of students. Members of the committee are representatives of external organisations in the domain of PSTS, including alumni and (potential) employers of PSTS alumni. These members are appointed by the dean.

5.4 *Other organisations and institutes relevant to PSTS*

Study association Ideefiks
The PSTS programme has an active study association, called Ideefiks. Ideefiks organises (among others) social activities, additional evaluations of the programme, book sales. In the recent past it also organised a career day and a study trip (to Stockholm and Dublin). All PSTS students can become member; all members annually elect a board from their midst.
For more information: http://www.ideefiks.utwente.nl/

Alumni association Nestorix
The alumni association (Nestorix) is a network for alumni to keep in touch with each other and with the PSTS programme and current PSTS students. All PSTS students will automatically be included in the alumni mailing list after they graduate (using their alumnus.utwente.nl e-mail account or any alternative address provided by the student. The association has a LinkedIn-group to exchange information, ideas and opportunities. For more information: https://www.utwente.nl/nl/bms/vwi/

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Research institutes

All research at the University of Twente is embedded in research institutes, like the TechMed Centre, the MESA+ Institute for Nanotechnology and the Digital Society Institute. For more information: https://www.utwente.nl/en/research/organization/institutes/

4TU Centre for Ethics and Technology

The 4TU.Centre for Ethics and Technology (4TU.Ethics) brings together the expertise of the philosophy departments of the four technical universities in the Netherlands (Delft, Eindhoven, Twente and Wageningen) in the field of ethics of science, technology and engineering. 4TU.Ethics builds upon the excellent international reputation of the three participating universities in this field. The joint venture allows for close collaboration in research as well as teaching, outreach and contract research in both the private and public sector.

More specifically the mission of 4TU.Ethics is:

- To stimulate and undertake interdisciplinary and applied research in the field of ethics and technology
- To stimulate and undertake fundamental research in ethics relevant for the field of ethics and technology;
- To stimulate and undertake activities in the field of teaching in ethics and technology;
- To act as an intermediary between the philosophy departments involved in 4TU.Ethics on the one hand and public debates and the media on the other.

For more information: https://ethicsandtechnology.eu/

5.5 Communication staff and student promotion team

The Marketing and Communication Department (M&C) of the UT has a section within the Faculty of Behavioural, Management and Social Sciences (BMS) that is responsible for facilitating recruitment and public relations. The M&C staff organises open days, experience days with current students, fairs and information sessions at schools. The M&C staff also takes care of all the public relations materials (brochures, leaflets). In addition, the communication staff takes care of the internal organisational communication and science communication (informing about the research that is being conducted at the BMS Faculty.

We need you to help us recruit new PSTS students!

After all, who could possibly be better at explaining how much fun it is to study PSTS than you? There are loads of activities where you can really help out. For example: assisting with information days for the programme or accompanying prospective students who come to look around for a day. Many prospective students want to visit the campus and sit in on a lecture to get a better idea of what the programme is all about and see the campus first-hand. You can also get involved in PR activities for the programme by visiting bachelor's students or by representing the programme at education fairs. In short: you can use this opportunity to develop yourself even further, and you will receive a substantial reimbursement for your trouble. Interested? Call, mail or drop by!

Communication Department
Ms. Katrin Semlianoi
Ravelijn Building, room: 3101
e-mail: k.semlianoi@utwente.nl

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6. 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 extremely responsive to this and do their utmost to 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

6.1 Internal quality assurance

Student Feedback Meetings (StuFM)
PSTS students have a tradition of organising feedback meetings themselves, both halfway and at the end of each quartile. Student members of the Programme Committee, and/or the educational commissioner of Ideefiks take the lead here. Both the separate courses and the quartile as a whole are discussed. On the basis of the feedback of the students a report is written that is communicated to the teaching staff involved and submitted to the PSTS Programme Committee. The PSTS management and Programme Committee take these reports into consideration when discussing ways to improve the quality of the programme and identifying possible problems.

> *"The feedback sessions with students I have as an education commissioner give me a chance to understand how a diverse group perceives the same content and instructional method from different perspectives. Through debate we, as a group, overcome these differences and provide the teacher with a set of thought-out recommendations that hopefully polish the course, to increase its brilliance. At the same time being a programme committee member gives me an opportunity to discuss and understand why certain things or policies are designed or adjusted in a certain way, bringing in a complete picture of PSTS. As a committee member you are involved in the programme's future and get a glimpse of the academic world. In the end I am developing myself as a philosopher of technology, who recognises the fact that PSTS concerns society."*
>
> **Stefan Weijers, former student PSTS**

Course evaluation
When you have completed a course, you are supposed to give our opinion on it by means of an anonymous survey. The lecturer will integrate the results of this survey in preparing for the next cycle of the course and curriculum. Your contribution as a student is essential, which is why participation in evaluations is compulsory.

Both the lecturer and the PSTS programme director receive the results of the course evaluations, which, if necessary, also can be discussed by the Programme Committee or Examination Board. Twice per year the results of the course evaluation are presented to and discussed with the students.

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. More experienced lecturers are subject to the

process of a Task-oriented Qualification in Education, which on the basis of their experience and expertise will enable lecturers to develop further. Furthermore, the programme management always discusses the results of the course evaluations with the lecturer(s) concerned so that they are aware of which parts of the instruction according to students can be improved.

Internal and external evaluation
Once per five years, as with all university programmes, the programme is evaluated by an external committee (see: section 6.2). Hence this is called the educational review. Prior to this, the programme writes a self-evaluation. Items to be evaluated are e.g. the objectives of the programme, the curriculum, the deployment of staff, the facilities, the internal quality assurance, the testing policy, and academic achievements of the students.

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

6.2 External quality assurance

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 five 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 PSTS was re-accredited by the NVAO in July 2018.

Part D: Joining the programme

7. Admission requirements and application

7.1 Formal admission requirements

You can be admitted to the PSTS master's programme if you satisfy the following requirements:

Admission requirements	As evidenced by
Bachelor's degree or equivalent in: • (Applied) Natural Science, • Engineering Science, • Social Science, • Philosophy, • or any other discipline, with an emphasis on (social) science or technology and a focus on the application of technology in a particular professional area or on technical interventions in social systems.	Bachelor's or equivalent diploma
Sufficient affinity with (reflection on) science and technology	Motivational letter & CV
Sufficient mastery of the English language. (Dutch applicants* as well as applicants from the UK, Ireland, USA, Australia, New Zealand and the English-speaking part of Canada are exempted from this requirement.)	An IELTS minimum score of 6.5 on the IELTS or an internet based TOEFL (iBT) minimum score of 90.
Sufficient entry-level academic skills, including skills in reading, writing, textual analysis and critical reflection	Entry assignment, showing • Sufficient competence in academic writing • Sufficient understanding of the theoretical frameworks presented in the papers provided • Sufficient competence to formulate properly a line of thought • Sufficient understanding of a technological development of one's own choice • Basic competence to reflect on an author's argument(s) • Basic competence to come to a conclusion with respect to the points above

* Please note that for Dutch applicants, *'VWO-English'* with a 6 or *'HAVO-English'* with at least a 7 is strongly <u>recommended</u>.

The programme's Admission Committee assesses whether a student applying for admission to the programme satisfies the admission criteria. This Committee consists of two staff members who are examiners in the programme. They are assisted by a clerk from the Faculty's Educational Service Centre.

7.2 Application procedure

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

a. All documents in the process of application are submitted electronically using the **online** application tool: https://www.utwente.nl/en/education/master/how-to-apply

b. On the basis of detailed information on your prior education, the Admission Committee of the PSTS master's degree programme will assess your application on a port-folio basis.

> *Diversity of application deadlines* (depending on nationality, visa, housing)
>
> In order to facilitate a smooth start of your studies at the University of Twente, your application has to be submitted before the stipulated deadlines:
> https://www.utwente.nl/en/education/master/admission-requirements/application-deadlines/#general-application-deadlines
>
> Note: you can apply even if you did not yet formally obtain your prior (bachelor's) degree (although we do expect that you will obtain your bachelor's degree before September 1).

If you have any questions regarding the application procedures and the application form, please contact:

University of Twente, Student Services / Admission Office (AO),
Building: Vrijhof, room 236
Tel: 053 - 489 4317,
E-Mail: studentservices@utwente.nl

If you have any questions regarding the content of the PSTS master's programme, please contact the PSTS programme staff:

Ms. Marlies Tijhuis
Building   Cubicus, room C104
Tel: 053 489 8604
E-Mail: m.e.tijhuis@utwente.nl

Ms. Yvonne Luyten-de Thouars
Building   Cubicus, room C110
Tel: 053 489 1117
E-mail: y.c.h.luyten-dethouars@utwente.nl

7.3 Costs

7.3.1 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/education/master/financial/tuition-fees/

Next to the tuition fees, you need to bear in mind the following annual costs:
- Teaching materials (approx. € 400 - € 500)

7.3.2 Cost of living

As a guide, a single student will need approximately € 700 to € 900 per month for (on-campus) accommodation, study materials, and general living expenses.

7.3.3 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 <u>excellent students</u>. 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. 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 E: Practical information

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

8. Practical issues

8.1 Finding your way at the University of Twente
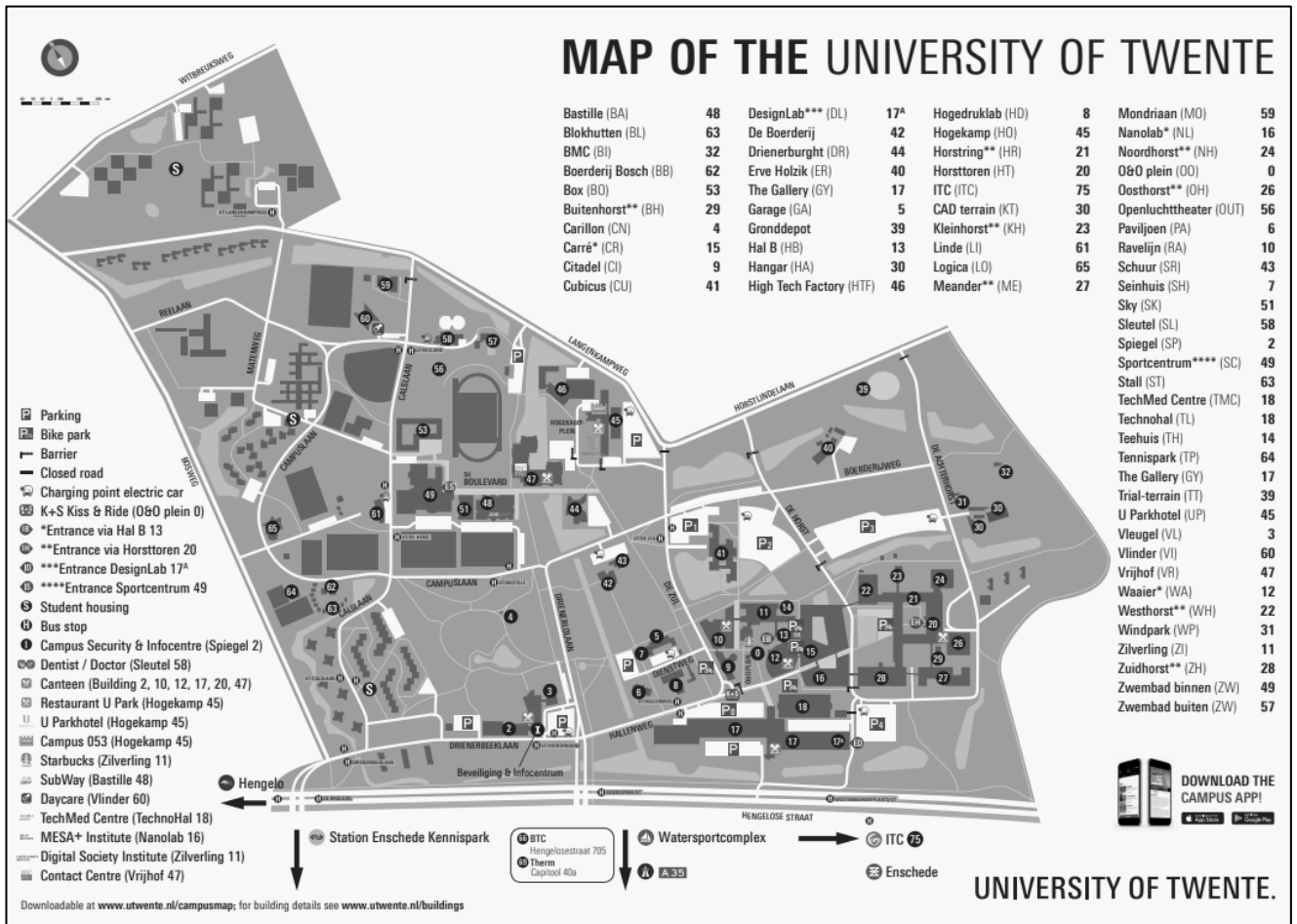
8.2 Faculty introduction

In order to prepare yourself adequately for your Master's degree programme, a one-day faculty introduction is organised in the week preceding the programme's start (i.e. during the last week in August).

During this introduction, timetables (rosters) will be handed out and explained, books can be purchased, you will meet your lecturers, your fellow students, and the educational support staff, you can register for Ideefiks (the PSTS study association) and you will be shown round the faculty buildings.

During the introduction information will also be provided about the programme structure, courses, and you will hear about possibilities for final projects and alumni experiences.

8.3 Purchasing study materials

You will need books and/or lecture notes/readers/syllabuses for a number of courses.

Buying books
You can order your textbooks via any bookstore or online. You may also consider to place your order with study association Ideefiks http://www.ideefiks.utwente.nl/ (in that case a discount price applies),

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Study association Ideefiks

Ideefiks is the study association of PSTS. It brings together technical students interested in philosophy and philosophy students interested in technology. Ideefiks members have a broad interest ranging from current (technological) affairs to the history of philosophy and science. Ideefiks is a pleasantly organised, friendly place where everyone is welcome to engage in discussions over a cup of coffee or tea.

Ideefiks does a number of things for its members. It organises field trips, lectures and colloquia, sells textbooks at a discount and arranges social activities like drinks, parties. Every year Ideefiks organises a weekend on a camping farm. It also organises an introduction day in August to welcome new PSTS students.

For more information, please feel free to drop by the Ideefiks office. You can find the Ideefiks Room in the Cubicus building (Behavioural and Management Sciences / BMS) in the *Rubix*. Usually, one of the board members is present. However, you can send us an email beforehand to make sure not to find a locked door.
Email: board@ideefiks.utwente.nl Website: **www.ideefiks.utwente.nl**
Telephone: + 31 (0)53 489 3284

The books that teachers have designated as "mandatory literature" can be found in an especially reserved part of the university's library.

Buying lecture notes, readers and syllabuses
Most other study material is made available electronically, via the Canvas site of each course (Canvas is the digital learning environment used by the UT). In the (rare) case lecture notes, readers and syllabuses need to be bought, these are sold from the beginning of each term in the Union Shop.
In the Union Shop (https://su.utwente.nl/en/unionshop/) you can also buy UT gifts and clothing, entrance tickets for the cinema and ice skating, and there is a copy service. Besides copying, the self-service section also has provisions for binding reports, cutting flyers, etc. The Union Shop is located on the ground floor of the Bastille and is open Monday-Friday from 10.00 - 17.00 hrs (during summer limited opening hours).

8.4 Student Card

The student card of the University of Twente is a proof identity for the University of Twente and a proof of enrolment. You have to show the student card on request when using university facilities, like attending lectures, taking exams, visiting the libraries, etc.

When will you get a student card?
As soon as your enrolment is finalised by the Central Student Administration (CSA), and you have uploaded your digital passport photo in *Osiris Student*, you can pick up your student card at the UT. For details: https://www.utwente.nl/en/education/student-services/educational-services-procedures/admission-enrolment/studentcard/#student-card

Uploading digital passport photo in *Osiris Student*

In *Osiris Student* you can upload your digital passport photo as follows.
- Go to Osiris Student, and log in with your login name and password
- Choose the option 'uploaden passport photo'
- Choose the option 'Browse' in order to select a file
- Your digital passport photo is uploaded

The student card can be used as
- Proof of enrolment as a UT student (the declaration of enrolment can be used to prove that you are enrolled (for example at an Insurance company). This certificate states for which programme and for which period you are enrolled.
- Library card.
- So-called Union Card (if you indicated that you want to use the sports and/or culture facilities of Enschede, the card will also function as Union Card. See the website for more information about the Union Card.

For details on how to use the card, what to do in case of loss or theft, transfer to another degree programme, or termination of your studies, please visit the Student Services website.
https://www.utwente.nl/en/student-services/

You also may visit their office, after having scheduled an appointment:

Location	Vrijhof, room 239 B
Opening hours	Monday – Friday from 10:00 – 16:00 hour
Telephone	053 - 489 2124
Mail	studentservices@utwente.nl

8.5 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 use 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, user name 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.

E-mail

E-mail is used for rapid communication between the programme or an individual lecturer and an individual student or small group of students. Only if absolutely necessary e-mail is used to communicate with large groups of students, for instance if a lecture is suddenly cancelled or in case an examination is postponed. In that case, the Educational Service Centre (in Dutch abbreviated as: OSC = Onderwijs Service Centrum) will not be able to reach all students in time via the usual means of communication, i.e. the educational announcement. *All e-mail sent by the OSC should be read immediately.*

UT students generally have <studentname>@student.utwente.nl as their e-mail address, e.g. h.j.pieters@student.utwente.nl (exceptions can be made for students with the same initials and last name).

You can find a list of e-mail addresses of UT <u>staff</u> via the home page of the UT: https://people.utwente.nl/

Service portal
This portal provides students log-in to all systems and information of the University of Twente: https://www.utwente.nl/en/products-services/product/p866465/student-portal

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 PSTS programme site that serves as the **PSTS info channel.** This Canvas site publishes programme-related news items, colloquia, vacancies, the overview PSTS staff research expertise, and a number of alumni testimonials: https://canvas.utwente.nl/courses/3280

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.

Last but not least: via Osiris you have to register for courses and exams: https://osiris.utwente.nl/student/StartPagina.do.

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//
The intranet for staff and students is: http://www.utwente.nl/bms/intranet/

Also, each programme has its own website. The website of the PSTS programme is: http://www.utwente.nl/psts/

8.6 Rosters

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). For the rosters/timetables: **https://rooster.utwente.nl/schedule.** The rosters for a block (quartile) will be online a couple of weeks prior to the start of each block (quartile).

8.7 Lectures

A typical lecture day has 9 periods. The 5th period, from 12.45 - 13.30 hrs. is the lunch break (when 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.

The roster 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)).

Types of lectures
In the roster you can see per course what type of lecture will be offered. There are four different kinds:
1. lectures (abbreviated HC = in Dutch: hoorcollege), whereby dominantly the lecturer presents a topic in oral form and the students listen and take notes;
2. seminars or workshops (abbreviated WC = in Dutch: werkcollege), characterised as interactive tutorials in which the students play an active role);
3. a combination of the two (abbreviated HW or COL – in Dutch hoor-/werkcolleges / colstructie); and
4. practicals (PR).

During a lecture, a lecturer will clarify/illustrate and/or supplement the subject matter. Usually such lectures last for 90 minutes (2 * 45 minutes), with a short break.
Seminars/Workshops are usually just as long but are more interactive by nature (students work in groups on assignments that help to digest the subject matter).
Practicals usually last an entire morning or afternoon (4 periods), during which students work either in groups or individually on a project or with a specific computer programme. Attending practicals is compulsory.
Attending lectures or seminars is not compulsory, unless stipulated as such by the lecturer. If attendance is obligated, this will be announced on the concerned Canvas environment.

8.8 Enrolling in courses

Enrolment for the courses via Osiris
You must enrol for each study unit (i.e. 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!
Should you not be able to register or de-register for a course yourself, inform your Educational Affairs Office (BOZ) as soon as possible, either by e-mail (BOZ-EST@utwente.nl). This will allow them to take action if necessary.

You 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 in a course via Osiris is impossible, you may contact the Educational Affairs Office (for EST: Huub Engbers):
      BOZ-EST@utwente.nl;
      telephone: (+31) (0)53 489 4122;
      room: Paviljoen 009.

8.9 Examinations (including final – papers)

Compulsory registration for exams (Osiris)
If you want to sit an exam (or part of an exam), you need to register via Osiris. You can consult Osiris from 4 days prior to the date of the exam for the exact location of the exam.

- **P**lease note that if you are registered for a course via Osiris, you are automatically registered for the first (1st) attempt of the course's exam!

- In case you decide NOT to use this 1st attempt, you should de-register from the exam via Osiris! De-register timely, i.e. till 1 day before the exam date (read: till 24:00h. of the day prior to the exam date).

- In case you do not pass the 1st attempt of an exam (or in case you did not use the 1st opportunity (de-registered!), you must register separately for the re-take, in case it is a jointly schedule written exam session (that takes place in the next block).
  This can be done 30 till 10 days prior to the date of the scheduled re-take. After that date it is no longer possible to register. Being registered means entitlement to participation (on the condition that demands are met regarding your prior knowledge).

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Students who have registered may be confident that there are sufficient desks and chairs in the exam hall and sufficient copies of the exam.

Enrolment Periods (2021-2022)	
1st quartile	01 August 2021 up to and including 5 September 2021
2nd quartile	18 October 2021 up to and including 14 November 2021
3rd quartile	10 January 2022 up to and including 6 February 2022
4th quartile	28 March 2022 up to and including 24 April 2022

Thus:
- Registering is obligatory for all (also interim) exams, and will happen automatically (via Osiris course registration) for the 1st attempt of the exam during the block in which you registered for the course
- The registration period for jointly written re-exams must be done separately and is open from 30 till 10 days before the actual date of a specific exam.
  [Note: the exam schedule may be subject to changes. Therefore, please check the educational announcements, Canvas or the examination schedule in Osiris regularly].
- Once the registration period (30 till 10 days) for a re-take is closed the Educational Affairs Office can NOT help you anymore
- De-registering for an exam till 1 day prior to the exam

A check will take place on the basis of the Osiris list of participants whether students who have registered are actually eligible/authorised to sit for a specific exam. If a student is on the list that is not entitled to participate, the examiner(s) will be notified of this. 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, examination 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 examination at a later point in time. If you have been graded more than once for the same part of an examination, the highest grade applies.
Requesting to see your exam paper	In principle 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. If the examiner decides that the nature of the work allows

	it, you will be entitled to make copies (costs of copy at your own expense).
Period of storage of exams	The examiner sees to it that written examinations 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.

Resit 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 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 that a re-take in general forfeits Cum Laude graduation

Period of validity of examination results

The validity of the examination results is five (5) years.
In case the final assessment of a course (unit of study) is composed of more than 1 element, than the grades of these partial exam elements are valid until the end of the subsequent academic year, counting from the moment the exam element started.
Note: in case divergent conditions of validity apply in a course, then the involved teacher will publish these special conditions prior to the start of the course on the concerned Canvas environment.
The periods of validity also apply to assignments or papers.
In case the validity of your grades has expires, you may submit a motivated request at the Examination Board to extend the validity.

8.10 Student Charter

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's is kept up to date and is available online via the UT's website:
https://www.utwente.nl/en/ces/sacc/regulations/charter.pdf
There it is also mentioned how to get a printed version of the 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 can be found on http://www.utwente.nl/organisatie/structuur/faculteiten/bms/onderwijs/onderwijs-en-examenreglementen/

8.11 Computer facilities

For every student at the University of Twente, a notebook is nowadays almost indispensable. You will need your notebook for communication with others, collecting information, making calculations and drawings, performing simulations and even taking exams.

For students of the University of Twente, it's been a concept for years. Students of all UT courses use their own notebook for their education and rely on the services of the Notebook Service Centre. UT students, therefore, are expected to have a notebook suitable for our learning environments. For more information please visit the website: https://www.utwente.nl/en/nsc/notebookproject/#notebook-service-centre

For access to the university's library (housed in building Vrijhof), see their website: http://www.utwente.nl/ub/en/

9. Study guidance and counselling

9.1 Study guidance

Dedicated student guidance is one of the hallmarks of the PSTS programme. At the Faculty of Behavioural, Management and Social Sciences (BMS), student guidance is the responsibility of the student services staff member (BOZ-PSTS), the study adviser, and the programme co-ordinators. With the UT also offering additional student supervision and counselling, you can, if necessary, go to the Student Psychologists Office (BSP) and its student deans.
The PSTS programme has its own programme coordinators, study adviser and a student services staff member. More information and contact details are provided in section 5.1.

9.2 TCP Language Centre

The TCP Language Centre offers professional language support in English, Dutch and Spanish 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. All PSTS students who are non-native English speakers are advised to use the support of the TCP language centre for improving their English proficiency: https://www.utwente.nl/en/ces/tcp-language-centre/

9.3 Additional UT student support

Various services have been organised for students and they have been combined to form the Centre for Educational Support (CES). Accommodated at the Student Services Desk, the most important services are the following:

Student Services Desk
The Student Services Desk provides all kind of services. You can go there to have your digital passport photograph taken for your student card, to enrol, to register or to cancel enrolment, or to ask for a transcript of your records. You will find the Student Services Desk in the Vrijhof, room 239 (only via appointments). See also: https://www.utwente.nl/en/student-services/

Opening hours: Monday - Friday from 10:00 – 16:00h. (only via appointment)
You can contact the Student Information Desk as well via 053 489 2124.

University's Student Affairs, Coaching & Counselling (SACC)
The Student Affairs, Coaching & Counselling 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. Student Affairs, Coaching & Counselling Desk provides such services as the student counsellors, student psychologists, and various training courses (like: 'self-management', graduating, job interviews). You may contact them 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.
For further information, go to: http://www.utwente.nl/ces/sacc/en/

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 (053 489) 2035 / E-mail: sacc@utwente.nl

Office hours secretary SACC:
        Monday-Thursday: 8:30 – 12:30 and 13:00 – 17:00
        Friday: 8.30 – 12:30 and 13:00 – 16:00
The UT student counsellors and psychologists are located in building **'Vrijhof' 3rd floor.**
Information desk Student Affairs, Coaching & Counselling, Vrijhof 3rd floor (room 311)

SACC training courses
Have a look on: https://www.utwente.nl/ces/sacc/en/personal-development/ to see what courses are offered by SACC.

Part F: Appendices

1. *Relationship between the Dublin descriptors and the PSTS final qualifications*

Aspect	Dublin-descriptor	PSTS Final qualifications
Knowledge and understanding	Have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with bachelor's level, and that provides a basis or opportunity for originality in developing and/or applying ideas, often within a research context	K1-6, S3-6
Applying knowledge and understanding	Can apply their knowledge and understanding and problem-solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study; have the ability to integrate knowledge and handle complexity.	S4-6
Making judgements	Can formulate judgements with incomplete or limited information, that rather include reflection on social and ethical responsibilities linked to the application of their knowledge and judgements.	S4, S6, S9
Communication	Can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously.	S1, S2, S7, S8
Learning skills	Have the learning skills to allow them to continue to study in manner that may be largely self-directed or autonomous.	S9, S10

2. Contribution of courses to the PSTS final qualifications

The MSc programme PSTS is designed in such a way that the different courses help students gradually develop the knowledge, insights and skills to achieve the programme's final qualifications. The tables below show how, respectively, each quartile and each course, contribute to realisation of the final qualifications.

The full set of descriptions of the final qualifications can be found in section 2.3.1 of this programme guide.

Knowledge and skills emphasised in each quartile of the PSTS programme

	K1	K2	K3	K4	K5	K6	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Semester 1, Quartile 1A	x	x	x	x	x	x	x	x	x	x	x	x			x	
Semester 1, Quartile 1B	x	x	x		x		x	x	x	x						
Semester 2, Quartile 2A	x	x	x	x	x		x	x	x	x				x		
Semester 2, Quartile 2B	x	x	x	x		x	x	x	x	x	x	x	x			
Semester 3 Quartile 1A&1B	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Semester 4 Quartile 2A&2B	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Knowledge and skills emphasised in courses in relation to PSTS final qualifications

	K1	K2	K3	K4	K5	K6	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Semester 1, Q 1A	x	x	x	x	x		x	x	x	x	x	x				
Philosophy of Technology	x	x			x		x	x	x							
Science and Technology Studies		x	x	x		x	x	x	x			x			x	
Philosophical Theories and Methods		x			x		x	x	x							
Semester 1, Q 1B	x	x	x		x		x	x	x	x						
Philosophy of Science in Practice		x	x		x		x	x	x	x						
History of Science and Technology	x	x	x		x		x	x								
Ethics and Technology I	x				x		x	x	x							
Semester 2, Q 2A	x	x	x	x	x		x	x	x	x				x		
TechnoLab	x		x	x			x	x	x	x				x		
Philosophical Anthropology and Technology	x	x			x		x	x	x	x						
Society, Politics and Technology	x	x			x		x	x	x	x						
Semester 2, Q 2B	x	x	x		x		x	x	x	x	x	x	x			
Technology and Social Order	x	x	x				x	x	x	x	x	x				

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ethics and Technology II	x	x			x		x	x	x	x	x	x	x			
PhiloLab		x			x	x	x				x				x	
Semester 3 Q 1A & 1B	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Technologies in Use		x			x	x	x		x		x			x		
Transformations of knowl in a digital age					x	x					x	x	x			x
Perspectives on govern of socio-tec change	x		x		x	x	x	x	x	x	x					
Good techn for users and soc		x			x		x				x	x		x		
Anticipation and evaluation of emerging technol		x	x	x		x	x		x	x	x	x	x	x	x	x
Minds, bodies & technolog		x			x	x	x				x			x		
Rethinking science-techn relations		x			x	x	x	x	x	x						
MasterLab		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Semester 4 Q 2A & 2B	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
MasterLab		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Final Thesis Project	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Internship	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x