

1.	TUT code	HATM09
2.	Faculty / College	Faculty of Social Sciences
3.	The Field of Study *	Social Sciences, Business and the Law
4.	Discipline *	Business and Administration
5.	The name of Curriculum (in English language)	Technology Governance
6.	Stage of higher education (bachelor, applied, master, doctoral studies)	Master studies
7.	The extent of studies (ECTS credit points)	120
8.	Nominal period of studies (semesters)	4
9.	Language of instruction	English
10.	Admission criteria for studies (in English)	BA degree, higher education obtained on the basis of applied higher education with the duration of 3 year and at least 180 ECTS credit points. Admission according to admission requirements established by TUT.
11.	Degree / qualification obtained **	Master of Arts in Social Sciences (Technology Governance)

\* In accordance with Standard of Higher Education

\*\* In accordance with the edict of Estonian Government “Õppeasutuste antavate akadeemiliste kraadide nimetuste loetelu”

## Curriculum description

1. The version of curriculum: Tehnoloogia valitsemine / Technology Governance HATM09/09  
(valid for admission from spring 2009)

2. The objectives of curriculum

The overall purpose of Technology Governance MA programme is to educate public servants and policy analysts with interdisciplinary skills to govern, analyze and develop a knowledge-based state and society. The objective of the curriculum is to give comprehensive theoretical and practical knowledge about economy, statehood and public administration, and technology/innovation, including the interweaving of these three areas; to create understanding about the role of different stakeholders in developing social cohesion, knowledge base and competitiveness at the same time, and about policies contributing to the achievement of that goal; to explain the essence of technology and innovation from the perspective of different scientific disciplines, including economics, administrative sciences, political sciences, and history. In addition, the curriculum has to develop students' capability to carry out research independently and prepare them for doctoral studies.

3. Learning outcomes

After completing the curriculum student:

- demonstrates comprehensive knowledge in the areas of economy, public administration and technology by presenting the interconnection between these spheres, critical factors for sustainable development of all areas, and the role of mentioned domains in ensuring and promoting the welfare of a society and country's competitiveness;
- presents extensive knowledge in one narrower branch of study of Technology Governance speciality;
- states and reasons, both orally and written, theoretical positions and principles of speciality-related scientific disciplines and their critique within different schools of thought;
- demonstrates the capabilities to initiate, organize and plan, to work in teams, and be creative in order to be ready for working in the areas of research, development or creative work;
- identifies and formulates independently speciality-related problems and/or research questions and is able to solve these by using adequate methods within the limited scope of conditions;
- gives reasoned judgements to developments occurring in a society and is able to compare the development of different areas of Technology Governance field both on domestic and international dimension;
- is able to recognize the need for continuing education for his/her-self and others, and possesses effective methods for carrying out studies independently;
- identifies the relation of the main theoretical positions within the range of scientific disciplines to practices, which shows student's skills in contrasting theories to practices and approaching critically to opposing standpoints.

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4. The structure of curriculum:

Part of curriculum / module

1. General Studies module(s)	Y	General Studies - 7 ECTS
2. Basic Studies module(s)	A	Basic Studies – 8 ECTS
Total		15 ECTS

3. Special Studies module(s)		
	E1	Development and Economics – 14 ECTS
	E2	Science and Technology - 12 ECTS
	E3	Governance and Administration – 14 ECTS
	E4	Internship – 30 ECTS
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	Total	70 ECTS
4. Electives module(s)		
	V	Electives – 5 ECTS
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	<b>Face-to-face work in total</b>	<b>60 ECTS</b>
	including	15 ECTS optional courses
5. Master`s thesis		
	M	Master`s thesis - 30 ECTS
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	<b>TOTAL</b>	<b>120 ECTS</b>

1. Major -  
Technology Governance
  2. Minor -  
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7. The conditions for passing the main courses of General Study`s module(s):  
The period for passing the main courses of General Study`s module(s) is one semester.

8. Requirements for graduation  
The fulfillment of curriculum according to the required extent and successful defending of a thesis according to the order established by TUT Council. Weighted average grade must be at least 2,0. Diploma cum laude is given only, if all exams are passed with the grades '3', '4' or '5', the thesis is evaluated as excellent ('5'), and the weighted average grade during the studies is '4,60' or higher, whereby the grades of exams, pass or fail graded, internship and thesis are considered.

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### 9. Curriculum Modules:

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#### 9.1. YTG09 (code), 7 ECTS (extent)/ General Studies (name)

*The objectives of the General Studies module are:*

*The general objective of the module is to introduce basic mechanisms of strategic management and policy formulation in public administration, and to present the peculiarities of social sciences.*

*The learning outcomes of the General Studies module*

*Student:*

- identifies, explains and contrasts the main development patterns in public administration on the global scale over the last decades;
- describes the essential elements of strategic management and policy formulation in public administration;
- demonstrates the ability to analyze by solving the posed problem within limited resources;
- is able to evaluate critically the impact of policies, and scientific papers;
- uses appropriate scientific methods to solve a problem/an assignment:

- demonstrates the ability to plan in order to initiate activities necessary for policy formulation and/or writing a scientific paper.

The list of courses of the module

Course, subject	ECTS	Hours per week	Le-Pr-Sem	Exam / Pass-Fail	Semester
Policy Skills: Strategic Management, Policy Analysis, and Lesson-Drawing	3,0	2,0	1,5 0 0,5	P-F graded	Spring
Master's Seminar	4,0	3,0	0 0 3	P-F	Spring

Compulsory courses 7 ECTS

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9.2. ATG09 (code), 8 ECTS (extent), Basic Studies (name)

*The objectives of the Basic Studies module are:*

*The general objective of the module is to familiarize students with the general tendencies of different policies, mainly development policies, on international level, and institutional developments of international organizations.*

*The learning outcomes of the Basic Studies module*

*Student:*

- explains in detail the policy formulation process in European Union institutions, which shows his/her ability to identify key processes and participants;
- distinguishes between the main approaches/schools of thought in explaining the functioning of European Union in historic perspective, and interprets the main positions of different development stages of EU;
- explains the essence of multi-level governance in the context of European Union and its implications for the interaction between national states;
- demonstrates the relationship between international organizations and a state, and the impact of the activities and policies formulated on international level on a single state. Student sketches out possible development scenarios on national and supranational level;
- presents development policies that have succeeded by the cases of national states and contrasts these with the principles propagated by international organizations;
- identifies the main developments in the functioning of international economy over the last decades;
- understands and distinguishes between customs and cultures of different countries and international organizations;
- demonstrates an ability to comprehend context-specific factors that influence the achievement of one or another decision or the goal of a policy.

The list of courses of the module

Course, subjects	ECTS	Hours per week	Lo-Pr-Sem	Exam / Pass-Fail	Semester
European Union and Multilevel Governance	3,0	2,0	1,5 0 0,5	P-F	Spring
International Organizations	2,0	1,0	1 0 0	P-F	Fall
Development Policies and Globalization	3,0	2,0	1,5 0 0,5	E	Spring

Compulsory Courses 8 ECTS

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9.3. EITG09 (code), 14 ECTS (extent), Development and Economics (name)

*The objectives of the Development and Economics module are:*

*The general objective of the module is to give an overview of development economics as a realistic alternative to mainstream (neo-classical) economics, explain the factors behind uneven development of national states, and to demonstrate the core elements – finances, productive capital (technology), legal framework (institutions) - for the functioning of an economy, their relationship with each other and the impact on advancing innovations.*

*The learning outcomes of the Development and Economics e module*

*Student:*

- *is able to distinguish critical factors causing economic growth and development by the examples of developed countries;*
- *defines the most general economic terms, notions, and explains the internal logic of the main economic (development) theories;*
- *demonstrates sufficient analytical and synthesizing skills by proposing context-specific, and reasoned solutions to highly complex economical problems;*
- *contrasts financial capital to productive capital by explaining their interconnection and their impact on innovations within the context of the concept of systems of innovation;*
- *brings forth alternative forms and sources of development financing;*
- *analyzes and distinguishes between economic (financial) crises of contemporary history and brings out critical factors inducing these ones;*
- *is able to bring forth the most important preconditions for the emergence of capitalist system of production.*

The list of courses of the module

Course, subject	ECTS	Hours per week	Lo-Pr-Sem	Exam / Pass-Fail	Semester
History of Economic Policy and the Theory of Uneven Development	4,0	2,5	2 0 0,5	E	Fall

Financial Policies, Innovation and Economic Development	4,0	2,5	2 0 0,5	E	Fall
Introduction to Types of Capitalism	2,0	1,5	0,5 0 1	P-F	Fall
Case Studies in Business, Government, and the International Economy	3,0	2,5	1 0 1,5	E	Spring
Law & Economics	6,0	4,0	2,5 0 1,5	H	Fall
Historical-empirical Economics	2,0	1,0	1 0 0	A	Fall

Compulsory subjects 10 ECTS  
Optional subjects 4 ECTS

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#### 9.4. E2TG09 (code), 12 ECTS (extent), Science and Technology (name)

*The objectives of the Science and Technology module are:*

*The general objective of the module is to introduce the role and impact of technology and innovations on social and economic development, to explain the concepts of techno-economic paradigms and innovation systems, to study the essence of clustering and policies implemented by both technologically advanced and primitive countries. Technology as such and its possible negative effects on society are deliberated and critically evaluated.*

*The learning outcomes of the Science and Technology module*

*Student:*

- is able to survey the inter-relationship of science, technology and economic development from a historical perspective;*
- relates technology to media, information, civil society and economy;*
- defines the concept of techno-economic paradigm;*
- outlines the elements of the concept of innovation system and explains the phenomenon of clustering;*
- evaluates critically competing understandings about the innovation process and technological development;*
- demonstrates the threats stemming from technologies, especially ICT by contrasting different e-solutions in public administration and broader governance framework;*
- interprets the knowledge acquired from case studies and the lectures of practitioners through the “prisms” of socio-economic theories.*

The list of course, subjects of the module

Course, subject	ECTS	Hours per week	Lo-Pr-Sem	Exam / Pass-Fail	Semester
Technical Change and Techno-Economic Paradigms	4,0	2,5	2 0 0,5	E	Fall
Critique of Technology	3,0	2,0	1,5 0 0,5	P-F	Spring
Case Studies in Industries and Technologies	2,0	1,5	0 0 1,5	P-F	Spring
Innovation Systems	6,0	4,0	3 0 1	E	Spring
E-Governance	4,0	2,5	2 0 0,5	P-F graded	Spring

Compulsory courses 7 ECTS

Optional courses 5 ECTS

9.5. E3TG09 (code), 14 ECTS (extent), Governance and Administration (name)

*The objectives of the Governance and Administration module are:*

*The general objective of the module is to introduce the theoretical and historical phenomenon of the state and statehood, to explain the concepts of governance and “good governance”, to analyze the role of a state in the formulation and implementation of Technology Governance and economic growth and development in general. The peculiarities of private and public sector, the foundations and tasks of public administration, and developments in public administration are reflected. Main attention is drawn to the peculiarities of small states in public administration dimension.*

*The learning outcomes of the Governance and Administration module*

*Student:*

- *understands the functioning of state, economy and society, and their interrelationship;*
- *comprehends the role of the state and mechanisms of bureaucratic apparatus in economic growth and development;*
- *can name and relate different levels of state to each other on both nation state and international level;*
- *compares different state traditions in Anglo-American and Continental European countries with each other;*
- *distinguishes between Weberian, New Public Management and Neo-Weberian concepts in determining administrative apparatus and state structure;*
- *explains the main risks associated with the implementation of policies.*

The list of courses of the module

Course, subject	ECTS	Hours per week	Lo-Pr-Sem	Exam / Pass-Fail	Semester
State and Governance	3,0	2,0	1,5 0 0,5	E	Fall
Small States	3,0	2,0	1,5 0 0,5	E	Spring

Public Management and Administration	2,0	1,5	0,5 0 1	P-F	Fall
Public Administration and Innovation	6,0	4,0	3 0 1	E	Fall
Research Methods in Social Sciences	6,0	4,0	2,5 0 1,5	P-F graded	Fall

Compulsory courses 8 ECTS  
Optional courses 6 ECTS

9.6. E4TG09 (code), 30 ECTS (extent), Internship (name)

*The objectives of the Internship module and subject are:  
General objectives of the subject are to get students acquainted with the implementation of public policies and overall work organization in public sector organizations, specialized in Technology Governance field, to supplement students` knowledge through practical experience by working in public, private, non-governmental or international organizations, and to utilize students` theoretical knowledge and skills acquired in university to solve real-life problems.*

*The learning outcomes of the Internship module  
Student:  
- practices acquired knowledge for the evaluation and enhancement of efficiency and effectiveness of working processes;  
- constructs initial principles of programs, action plans to advance one speciality-specific field the organization is responsible for;  
- identifies conformity of knowledge acquired from practical experience to theoretical positions and in case of divergence gives explanation for that;  
- evaluates critically the current situation of an organization in terms of structure, societal role, implemented policies and coherence with stakeholders (interest groups) by bringing out strengths, weaknesses, opportunities and threats;  
- is able to carry out an analysis of main tasks and policies of organization;  
- ascertains main problems in the subject field deriving from the particularity of workplace and locates these into the context of Technology Governance;*

The list of courses of the module

Course, subject	ECTS	Hours per week	Lo-Pr-Sem	Exam / Pass-Fail	Semester
Internship	30,0	40,0	0 40 0	P-F	Spring / Fall

Compulsory courses 30 ECTS

9.7. VTG09 (code), 5 ECTS (extent), Electives (name)

*The objectives of the Electives module are:*



*Module provides students with a possibility to choose subjects according to their needs and preferences.*

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*9.8. MTG09 (code) 30 ECTS (extent), Master`s Thesis (name)*

*The objectives of the Master`s Thesis module are:*

*The module gives students the experience of conducting an individual research project and a deeper understanding of Technology Governance topic. Research problem is selected according to the specialization.*

*The learning outcomes of the Master`s Thesis module  
Student:*

- has the experience and skills of compiling an academic analysis that draws on international scientific publications;*
- identifies and finds international scientific literature needed for solving specific practical problems;*
- has deeper knowledge of the functioning and problems of one specific Technology Governance area;*
- demonstrates within a thesis critical use of data, appropriate and sound analysis, thoughtful interpretation of results in relation to existing knowledge, critical assessment of findings, and scholarly presentation of the work.*

*The list of courses of the module*

<i>Course, subject</i>	<i>ECTS</i>	<i>Hours per week</i>	<i>Exam / Pass-Fail</i>	<i>Semester</i>
<i>Master`s Thesis</i>	<i>30,0</i>	<i>40,0</i>	<i>E</i>	<i>Spring / Fall</i>

**First Semester (30 credits)**

Technical Change and Techno-Economic Paradigms, Carlota Perez

History of Economic Policy and the Theory of Uneven Development, Erik S. Reinert

Financial Policies, Innovation and Economic Development, Jan Kregel

The State and Governance, Wolfgang Drechsler, Rainer Kattel

Public Management and Administration, Wolfgang Drechsler & Tiina Randma-Liiv

International Organizations, Jan Kregel

Introduction to Types of Capitalism, Erik S. Reinert

Law and Economics, Wolfgang Drechsler & Ringa Raudla

Empirical-historical Economics, Wolfgang Drechsler

Public Administration and Innovation, Rainer Kattel

Research Methods in Social Sciences, Ringa Raudla

**Second Semester (25 credits)**

Development Policies and Globalization, Erik S. Reinert & Rainer Kattel

The European Union and Multilevel Governance, Rainer Kattel & Merit Tatar

Small States, Tiina Randma-Liiv & Külli Sarapuu & Tarmo Kalvet

Critique of Technology, Wolfgang Drechsler

Masters' Seminar, Rainer Kattel

Policy Skills: Strategic Management, Policy Analysis, and Lesson-Drawing, Rainer

Kattel & Veiko Lember

Case Studies in Business, Government and the International Economy, Wolfgang Drechsler &

Rainer Kattel & Jan Kregel & Carlota Perez & Erik S. Reinert

Case Studies in Technologies and Industries, Rainer Kattel

Innovation Systems, Tarmo Kalvet

E-Governance, Wolfgang Drechsler & Margit Suurna & Tarmo Kalvet

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**Free courses (5 credits)****Internship (30 credits)****MA thesis (30 credits)**