ETH zürich

MSc ETH in Science, Technology and Policy

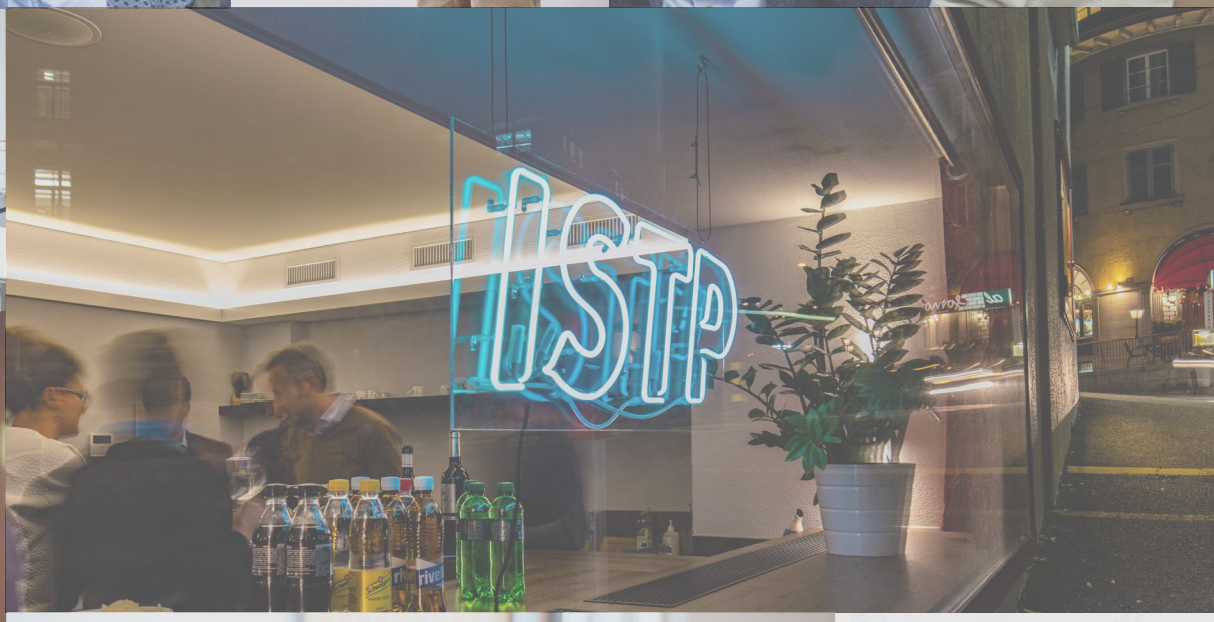
New interdisciplinary programme

ISTP








ISTP







Urban Upgrading & Crime Prevention: A Study of Cape Town Using Agent-based Modeling

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MSc ETH in Science, Technology and Policy

The MSc in Science, Technology and Policy (STP) is an interdisciplinary specialised Master's degree programme at ETH Zurich.

Science and engineering play an increasingly important role in national and international public policy making, in the sense of:

- helping decision-makers identify and understand societal challenges
- assessing potential solutions, which often involve science and technology
- evaluating how implemented policy interventions in society perform in terms of effectiveness, efficiency, and fairness.

To contribute effectively to policy making in such areas, science and engineering skills are essential, but so are academic skills in policy analysis. Policy analysis is a distinct academic field that draws on concepts, models, and methods from economics, political science, psychology, and other social sciences. Applying such skills to substantive real-world issues, whose analysis also requires science and engineering know-how, is at the core of our Master's programme in Science, Technology and Policy.

ETH Zurich's Institute of Science, Technology and Policy (ISTP) offers an interdisciplinary specialised Master's (MSc) Programme (120 ECTS) in order to enable students who have already completed a degree in science and engineering to acquire policy analysis skills, while deepening their knowledge of science and engineering at the Master's level.

ISTP students participating in a colloquium.

Students can specialise in topics such as the human handling of resources, minerals, and the environment through coursework as well as research.

The entry requirement is a BSc degree in science or engineering (including mathematics and architecture). The MSc STP curriculum focuses on developing policy analysis skills (25%), advancing science and engineering skills in one of five possible areas (25%), case study seminars and elective courses (25%), as well as a Master's thesis. The Master's thesis should combine skills in science, engineering, and policy analysis in order to study specific societal challenges.

Students will acquire skills to systematically analise societal challenges at the interface of science, technology and policy; develop and assess policy-options for addressing such challenges, and evaluate the effectiveness and efficiency of policies that are being implemented.

This combination of science, engineering, and policy analysis skills is in high demand, particularly in governmental agencies, technology and life sciences firms, industry, consulting firms, international organisations, NGOs, and academia.

The programme is designed for students with at least a BSc degree in natural sciences or engineering (including mathematics and architecture), with a strong interest in taking an active role in policy making and policy analysis.

Course Description

The four-semester long Master's programme is structured into four types of courses that link the different disciplines and provide a broad spectrum of expertise. More specifically, students acquire skills in the following ways:

(1) Courses in social sciences, which focus on policy analysis and evaluation as well as social and political processes and institutions;

(2) Supplementary natural sciences or engineering courses ("minors"), which deepen knowledge gained during the Bachelor's programme;

(3) Case studies and a Master's thesis which address concrete policy issues in an interdisciplinary manner;

(4) Electives or an internship.

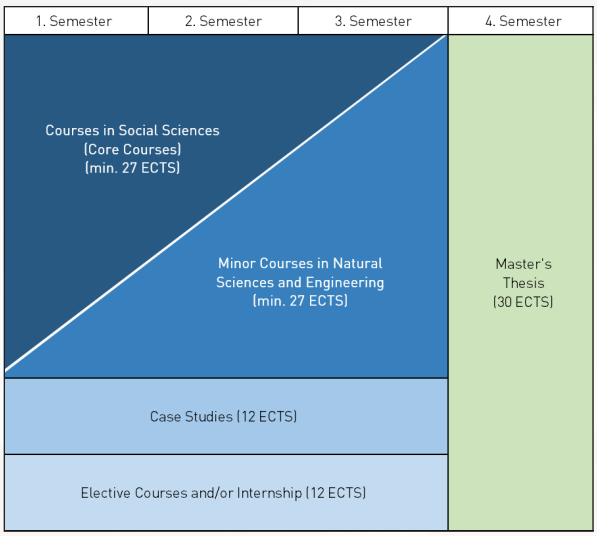
Language of instruction is English. The maximum permitted duration of studies is four years.

A total of 120 credit points (ECTS) must be acquired for the Master's degree within the following categories:

- Courses in Social Sciences min. 27 ECTS
- Minor Courses min. 27 ECTS
- Case Studies min. 12 ECTS
- Elective Courses min. 12 ECTS
- Internship (Optional)
- Master's Thesis min. 30 ECTS

Courses in Social Sciences (Core Courses)

The core courses build knowledge in the main topics of the study program, primarily policy analysis, policy processes, and institutions. All courses in this category are compulsory.



MSc of Science, Technology and Policy programme schedule with corresponding ECTS points.

Find out more about renewable energy systems and the energy transformation in one of our minors (Energy & Mobility).

Minor Courses

A selection of five minors provides students with knowledge beyond the foundational concepts in the Bachelor's degree, with the intent of deepening subject and methodological expertise in each student's specialist area. Students must choose a minor at the beginning of their studies. The categories are:

- Data & Computer Science
- Energy & Mobility
- Life Sciences & Health
- Resources & Environment
- Urbanization & Planning

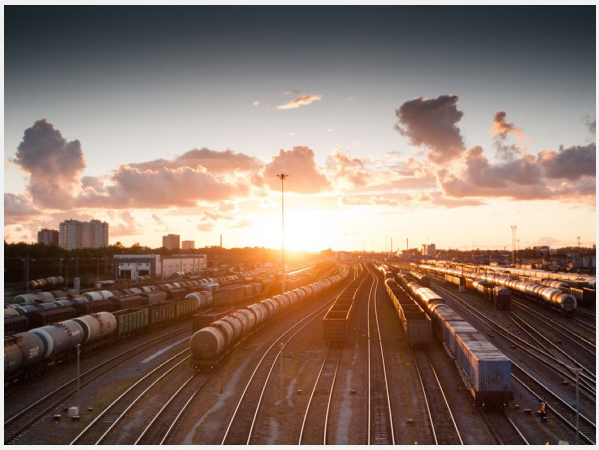
While students may choose any minor they wish, students are strongly advised to choose a minor category that is related to their field of study during their Bachelor's degree. Students with a Bachelor's certificate in architecture are asked to apply only for the Urbanization & Planning minor and students with a Bachelor's certificate in mathematics are asked to apply only for the Data & Computer Science minor. The minor courses are offered by other ETH departments in the respective field.

Case Studies

Case studies focus on using knowledge gained in the core and minor courses to further investigate interdependencies between the natural sciences and engineering and political and social sciences.

Electives

Electives serve to consolidate subject knowledge specific to the degree programme and extend knowledge in the social sciences, humanities and other disciplines. An internship in a public or private institution can also be part of the elective courses.



Energy and mobility are increasingly important in our society. Their impact and possible solutions are part of one of our minors.

Internship

Students may participate in an internship which familiarizes them with the potential future working environment and gives them an opportunity to become involved in the current projects of the respective institution. The programme offers two different possibilities: a) complete a short internship (180 working hours, 6 ECTS points), or b) complete a long internship (360 working hours, 12 ECTS points).

Master's Thesis

The Master's thesis generally concludes the degree programme. With the Master's thesis, students demonstrate their ability to conduct independent, scientifically structured work. Students have six months to complete the Master's thesis, which is the equivalent of a full-time semester workload.

For further information about all STP courses visit **www.istp.ethz.ch/msc-courses**

Skills and Abilities

The specific knowledge and skills that STP Master's students will acquire can be divided into three types: domain-specific knowledge, technical skills, and personal and social skills.

Domain-Specific Knowledge

Graduates with a Master's degree in Science, Technology, and Policy have knowledge of the phenomena of strategic decision-making in a complex institutional environment.

In addition to core competencies in their home departments (natural sciences or engineering), they have mastered skills in public policy, which merges economics, political science, law, decision-theory, social psychology, and ethics with skills in empirical data analysis, cultural studies, and communication.

Technical Skills

Graduates with a MSc STP degree have developed the following skills:

Analytical Skills

Ability to analyse the interests of stakeholders, their competing definitions of public problems, and the range of options that are possible given institutional, budgetary, and physical constraints;

Ability to model the effects of public policies, including the associated laws and regulatory changes, which are of interest to stakeholders and have an impact on economic welfare and other indicators of quality of life;

Ability to evaluate the effects of past policies based on sound empirical methods; and

Application of sound scientific methods in environments of ill-defined problems and competing interests.

Policy Design Skills

Ability to design effective policy proposals from the perspective of their organization or employer based on an appreciation of public decision-making institutions, organizations, and processes.

Personal and Social Skills

Graduates also acquire personal and social skills:

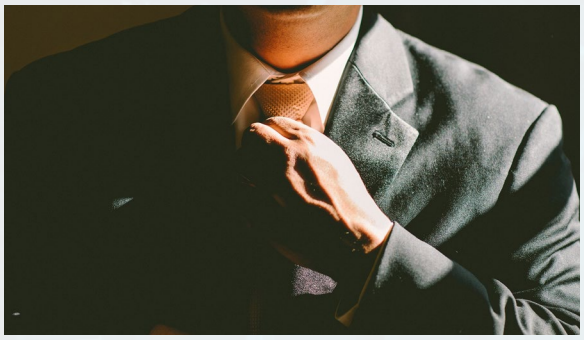
Leadership and consensus building skills that allow them to work in challenging institutional environments, appreciating and working with competing goals, priorities, and preferences;

Ability to actively listen and learn from a wide variety of stakeholders; and

Ability to communicate personal knowledge and insights in a manner that is respectful and strategic.

Career Perspectives

The skills that are acquired in the MSc STP are in high demand, particularly in government agencies, technology and life sciences firms, consulting firms, industry, international organisations, NGOs, and also academia.



Career perspectives with a MSc in Science, Technology and Policy.

Research and Education

In academia, graduates promote an interdisciplinary approach to research and education, and their research will aim at integrated technical-social solutions to global issues.

Industry and Government

In industry and government, graduates apply innovative insights and approaches to problem solving in the real world.

Consulting

In consulting, graduates contribute to feasible and effective solutions to real-world problems based on innovative new methods at the interface of science, technology, and policy.

International Organisations

Given their interdisciplinary backgrounds and leadership skills, STP graduates are attractive employees for international organisations.

Interested?

Ask us questions on our social media channels, arrange a personal meeting with us at the ISTP facilities or come to one of our future info events or colloquia to get in touch with the ISTP community.

For more information visit www.istp.ethz.ch

Alumni Testimonials

Learn more about the MSc STP programme from our former MSc students.

"Through my Master's degree in Science, Technology and Policy I have not only learned about the political and regulatory systems and the toolset to apply in these areas, but also about how to consider all stakeholders involved in order to find the best solution for the whole ecosystem. This completes my in-depth technical knowledge as a mechanical engineer focusing on energy and mobility, and gives me an advantage over both the classical engineers and political scientists to foresee challenges and endeavors that may arise in this particular field of interest."

Amir Mikail, Project Manager, Isopin,

Previous Education: Master in Mechanical Engineering

"The small class size and the excellent student-to-teacher ratio enabled a cooperative and well-adjusted learning environment. The STP – MSc program helped me better understand the needs and considerations of regulators and gave me the language to communicate more effectively with them."

Helene Wiesinger, PhD Candidate at Chair of Ecological Systems Design, ETH Zürich,

Previous Education: Master in Chemistry

"The MAS at ISTP broadened my horizons and helped me see links between technology and society more clearly."

Lene Petersen, WWF Switzerland,

Previous Education: Master in Environmental Engineering

"Above all else, the STP programme has taught me to think critically and to analyse the social systems in which technologies are being used."

Scott Reiser, KPMG Zurich,

Previous Education: Master in Physics

"I loved the intimate atmosphere and collaborative spirit at the ISTP. The interdisciplinary curriculum and interesting case studies were a great preparation for my current job at the Swiss Parliament."

Fabian Dalbert, Swiss Parliament,

Previous Education: Master in Electrical Engineering and Information Technology

ISTP students exchanging thoughts after a colloquium.

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