Study in Switzerland

Educating the NEXT generation of digital leaders

Our graduate programs
The future of software is Quantum computing

This program is the first of its kind and seeks to simultaneously prepare students with the software engineering and leadership skills necessary for the quantum future. The dynamic and innovative software systems of the future require a particular kind of individual who possesses in-depth technical knowledge, a holistic approach to solving complex problems, and excellent leadership abilities.

To prepare students for the role of leaders in research and industry, the QSECS master’s program provides a strong software engineering curriculum that covers development and management, and core technical courses in quantum technology. The main areas of research are:

- Software engineering
- Quantum technologies

Constructor Institute’s multi-country setup prepares graduates to play a key role in today’s global and multi-ethnic society. While many students join the technology industry in high-profile roles, the QSECS program also serves as an excellent preparation for Ph.D. research in software engineering, quantum technologies, AI, and other advanced topics.

The main topics covered are:
- Advances in software engineering
- Quantum informatics
- Capstone project
- Agile product development & design
- Entrepreneurship and Intrapreneurship

Facts and figures

- **Pre-requisite**: BSc in Physics or related field (with solid coding skills), BSc in Computer Science or related field.
- **Language of instruction**: English
- **Application & Admission dates**: 15th Jan - Early Bird (tuition fee reduction for Early Bird applicants), 30th Apr for all students - Rolling admission*
- **Program start date**: Mid September (classes)
- **Teaching mode**: Hybrid mode (deal if your visa is not ready on time)
- **Study duration**: Classic program (120 ECTS): 4 semesters, Fast-track and part-time options available

*deadline could be extended due to individual circumstances and availability

What we offer

- Deep interdisciplinary technical and quantum expertise
- Small classes of excellent students and approach
- Strong network of interrelated industries
- Modern methods of teaching and contemporary environment

Program structure

MSc Quantum Software Engineering and Computer Science (QSECS)

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
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<tbody>
<tr>
<td><strong>Computer Science and Software Engineering</strong></td>
<td><strong>Master Thesis</strong></td>
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<tr>
<td><strong>Quality Engineering (5.0 CP)</strong></td>
<td><strong>Transformational Change Management (5.0 CP)</strong></td>
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<tr>
<td><strong>Software Construction, Software Architecture &amp; Software Engineering (5.0 CP)</strong></td>
<td><strong>Customer-centric Mindset and Agile Delivery Management (2.5 CP)</strong></td>
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<tr>
<td><strong>Cryptography (5.0 CP)</strong></td>
<td><strong>Agile Leadership &amp; Strategic Management (2.5 CP)</strong></td>
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<tr>
<td><strong>Introduction to Quantum Physics Or Advanced Programming (6.0 CP)</strong></td>
<td><strong>Academic Writing Skills / Intercultural Training (2.5 CP)</strong></td>
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<tr>
<td><strong>QSECS Capstone</strong></td>
<td><strong>Communication &amp; Presentation Skills for Executives (2.5 CP)</strong></td>
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Tuition:
10,000 CHF per year for EU and EFTA students, 20,000 CHF per year for non-EFTA and non-EU nationals

Location:
Schaffhausen, Switzerland

Scholarships:
Full scholarships and tuition waivers for students with excellent grades are available

Teaching benefits:
Supported by a unique team of world-class scientists, educators, and leaders.

MSc in Quantum Software Engineering and Computer Science (QSECS)
Applying knowledge with the Capstone project

The Capstone project allows students to apply the knowledge and expertise in technical, management and leadership skills gained throughout the master’s program in a “real-world” project that runs over the course of three semesters. The course teaches students how to effectively design reliable systems that meet the needs of producers and customers, developing solutions to agreed-upon problems with industry partners and laboratories that act as clients. Working closely with instructors and assistants, students are mentored and work in a modern environment supported by open-source IDEs and engineering tools.

Career opportunities

Constructor Institute’s master of science programs allow you to graduate with the skills needed to drive innovation in industry, academia, or through your own startup. Through interdisciplinary learning and the development of strong skills in various functional areas, the knowledge gained throughout the master’s program will not only guide you to the career of your choice but will allow you to stand out as an exceptional candidate.

With scientifically up-to-date course content, the skills and knowledge required by the industry needs of today and tomorrow are expertly met. The students profit from unique opportunities such as employment through our network, research project participation, and opportunities to access the EU and Swiss job markets.

Future leadership jobs

- Chief Architect (CA): A crucial and active horizontal role to drive the technology delivery roadmap across the organization.
- Chief Product Officer (CPO): A strategic leader, visionary, and team supervisor of new-generation product management in which computer science, business, and innovation are combined.
- Chief Program Officer (CPO): A new leader who focuses on program value flow and delivery, stakeholder communication, cadence and planning, cross-team collaboration, and continuous improvement.
- Chief Development Officer (CDO): A strategic leader who shapes an enabling engineering environment – people, structure, agile processes, and tools.
- Chief Security Officer (CSO): A transformational leader who takes a “bodyguard” approach rather than a “gate-keeper” one.

Industry partners

At Constructor Institute, we believe that to prepare the next generation of leaders in science, students must learn not only from renowned scientists but also from business leaders. Traditional technical education does not fully prepare students for a technical career. Our network of industry partners has experienced this firsthand. That is why we provide access points to several large software and IT organizations headquartered in Schaffhausen, allowing a one-of-a-kind relationship with industries.

- Acronis: Leader in cyber protection.
- Acumatica: Leading innovator in cloud ERP.
- Parallels: Leader in cross-platform solutions.
- Plesk: Leading WebOps hosting platform.
- cPanel: Industry-leading hosting platform.
- Runa Capital: Global venture capital firm.