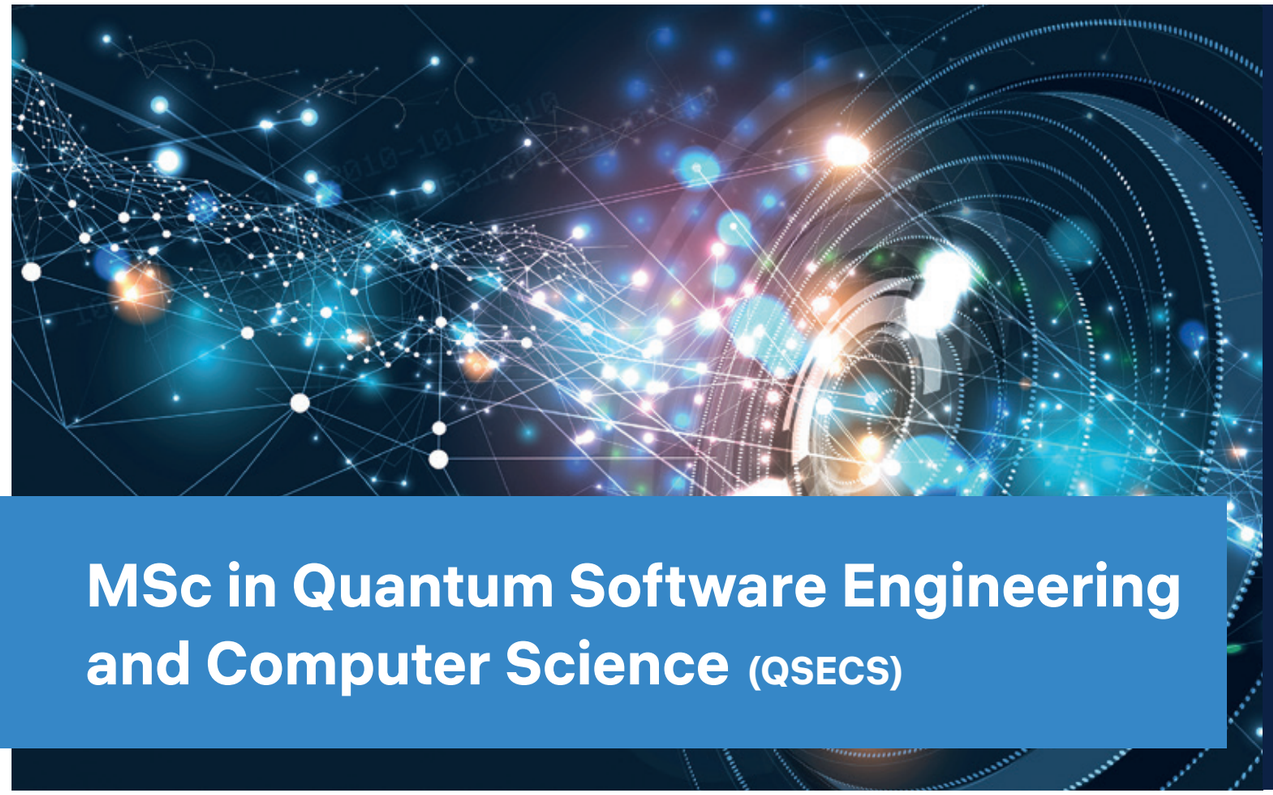
CONSTRUCTOR INSTITUTE

Early bird special by 15th of January

Study in Switzerland

Educating the NEXT generation of digital leaders

Our graduate programs



MSc in Quantum Software Engineering and Computer Science (QSECS)

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 of Apr for all students - Rolling admission*

Program start date
Mid September (classes)

Teaching mode
Hybrid mode (ideal if your visa is not ready on time)

Study duration
Classic program (120 ECTS):
4 semesters; Fast-track and part-time options available

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.

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

*deadline could be extended due to individual circumstances and availability

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.

The Master of Science in Quantum Software Engineering and Computer Science (QSECS) at Constructor Institute provides aspiring students with the unique opportunity to dive into quantum computing, learn software engineering, and understand how to create businesses around these exciting and emergent technologies. It is the ideal program for a physicist with strong coding skills or a computer scientist willing to explore quantum computing.

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

Program structure

MSc Quantum Software Engineering and Computer Science (QSECS)

	Master Thesis (30 CP)						
Year 2	Advances in Software Engineering (5.0 CP)	Quality Engineering (5.0 CP)	Quantum Informatics II (5.0 CP)	Capstone Project III (5.0 CP)	Transformational Change Management (5.0 CP)	Customer-centric Mindset and Agile Delivery Management (2.5 CP)	Agile Leadership & Strategic Management (2.5 CP)
	Architectural Strategy (5.0 CP)	Machine Learning (5.0 CP)	Quantum Informatics I (5.0 CP)	Capstone Project II (5.0 CP)	Product Innovation and Marketing (5.0 CP)	Organizational Behavior (2.5 CP)	Academic Writing Skills / Intercultural Training (2.5 CP)
Year 1	Software Construction, Software Architecture & Software Engineering (5.0 CP)	Cryptography (5.0 CP)	Introduction to Quantum Physics Or Advanced programming (5.0 CP)	Capstone Project I (5.0 CP)	Agile Product Development & Design (5.0 CP)	Entrepreneurship & Intrapreneurship (2.5 CP)	Communication & Presentation Skills for Executives (2.5 CP)
	Computer Science and Software Engineering		Quantum Specific	QSECS Capstone	Leadership courses		

Applying knowledge with the Capstone project

Prof. Manuel Oriol

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.

Studying in Switzerland offers a unique and enriching experience that combines natural beauty, academic excellence, and a high quality of life.

Ananga Thapaliya, Nepal

"It's a flexible and demanding program that prepares you for the real world, equipping you with both hard and soft skills. Whether you come from a technical or business background there is something for everyone – programming, entrepreneurial, and business courses. It gives you so many opportunities by exposing you to new people and a new culture. If you are proactive, you will make connections with a lot of companies, and be able to handle yourself anywhere."

Flora Teklit, Ethiopia

"The way the program is designed is quite innovative. It's a mixture of technology and leadership courses, where you get good exposure to emerging technologies, and is a perfect fit for the current market. It's located in the most beautiful city, Schaffhausen, with supportive faculty members and diverse classmates. You will not regret joining this program!"

Yuri Gritsuk, Belarus

"Switzerland is a great country to be in because of its high standard of living, the tolerance of people and the number of opportunities available."

Check our video here

Take concrete steps toward the career of your dreams

Use the writing of a master's thesis to further enhance your career prospects or diversify into a different functional area.

› **Research project** › **Industry project** › **Startup design**

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 first-hand. 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.

C›ONSTRUCTOR
INSTITUTE

Knowledge through science

Find out more here

Constructor Institute
Rheinweg 9 · 8200 Schaffhausen · Switzerland
www.institute.constructor.org