Computer Science
Software Technology

MSc Programme

Software permeates all aspects of our life, ranging from Internet-based services like online games, social networks and cloud computing, to large-scale scientific computing systems and traffic control systems. These systems need to have effective algorithms, good performance, high reliability and a well-thought-out architecture to make them easy to build and to maintain. Such essential features very well describe the focus of the Software Technology track.

Degree	Master of Science
Starts	September
Type	full-time
Credits	120 ECTS, 24 months
Language	English
Application deadline	*International BSc Degree* 15 January (non-EU/EFTA) 1 April (EU/EFTA) *Dutch BSc Degree* 1 July (Bridging programme*) 31 August (Direct admission)
Tuition fee	€ 18.750 (non-EU) / € 2.168 (EU)
Scholarships	scholarships.tudelft.nl

TUDelft

In the Software Technology (ST) track of the Computer Science MSc programme, the engineering of complex software systems takes on a central role. In this track, you will learn how to integrate them in real-world information-processing systems. Illustrative topics include distributed, multimedia, knowledge and secure processing systems, web and software engineering, visualisation and interaction.

Programme
ST offers you freedom in choosing your subjects and specialisations. An overview of available courses can be found at *studyguide.tudelft.nl*. Some of the subjects covered in the ST track are:

Designing large distributed and decentralized software systems to help organisations and networks of people to work

*The bridging programmes are only available for applicants with a Bachelor degree of a Dutch University of Applied Sciences (HBO) or a Bachelor's degree of a (Dutch) University (WO). More information:
https://www.tudelft.nl/studenten/faculteiten/ewi-studentenportal/onderwijs/schakelprogrammas/

Specialisations

Algorithmics
Computer Graphics and Visualisation
Cyber Security
Embedded and Networked Systems
Interactive Intelligence
Multimedia Computing
Distributed Systems
Pattern Recognition & Bioinformatics
Software Engineering
Web Information Systems
Programming Languages

Common Core courses

Compiler Construction
Distributed Algorithms
Real-Time Systems
Behaviour Change Support Systems
3D Computer Graphics and Animation
Advanced Algorithms
Multimedia Search and Recommendation
Security and Cryptography
Web Science & Engineering
Machine Learning 1
Software Architecture

For more information on all courses, please visit: www.studyguide.tudelft.nl

together. For example large multinational financial organisations that provide 24/7 payment services or social community-based platforms for sharing music or movies. Another example is all types of medical and/or health support systems, such as diagnostic support systems to help people in establishing and maintaining healthy behaviour. Such systems need to be reliable, efficient and secure. You will learn how to design and develop such systems, and learn about distributed architectures and algorithms, agent technology, cybersecurity and cloud computing techniques, among other subjects.

Designing customer-specific programming languages that support the construction of modern software systems. Modern software systems are tremendously complex and have to address a multitude of requirements such as security, availability, responsiveness, data persistence, and others. Given such complexity, software bugs are not surprising yet pose a significant financial and reputational threat. To reduce the risk for software bugs, large companies frequently design custom programming languages such as Rust, Hack, Go and Dafny. You will learn how to design and develop such languages yourself and learn about data-flow analysis, security analysis, type systems, program instrumentation, software verification, compiler construction, and user interaction design, among other subjects.

Master's Thesis

In the second year, you will join one of the research groups for your thesis project. Some examples of graduation projects are:

- Reliability of critical infrastructures, such as nuclear power plants and smart cities.
- Development of a 'recipe' for new programming languages, so all languages share a common ground.
- Continuous deployment of a payment app of a large bank, enabling faster changes and more flexibility.
- High performance computing on large data sets e.g. to create realistic lighting effects in natural scenes.

Career perspective

Companies
Exact, Capgemini, Atos, Getronics, Novell, Lucent, Philips, ASML, ING

Positions
Software architects, software engineers, consultants, designers, analysts and researchers