Software technology has a major impact on the world economy.

In the Software Technology track of the Computer Science MSc programme, the engineering of complex software systems takes on a central role. In this track, you will acquire knowledge and skills to design, develop and implement efficient algorithms, large-scale data structures and complex software architectures. Furthermore, you will learn how to integrate them in real-world information-processing systems. Illustrative topics include distributed, multimedia, knowledge and secure processing, web and software engineering, visualization and interaction.

Software technology has a major impact on the economies of industrialised countries. Information-processing systems provide the backbone for almost all administrative and logistic operations within commercial production, business and public administration.

Without software, high-tech systems are useless, whether large (e.g., a self-driving car or a robot for computer-assisted surgery) or small (e.g., a smartphone or a simple electronic card payment system).

Moreover, software permeates all aspects of our life in society, ranging from Internet-based services like e-mail, online games, social networks and cloud computing, to large-scale scientific computing systems, traffic control systems and wireless sensor systems. All these systems need to have effective algorithms for their correct operation, 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 specific focus of the Software Technology track.
Designing large distributed and decentralized software systems to help organisations and networks of people to work 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, to name just a few of the examples an architect needs to consider. You will learn how to design and develop such systems and learn about software architecting, distributed architectures and algorithms, agent technology, cybersecurity and cloud computing techniques, among others.

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 others.
Bas Dado (Netherlands)

I am very interested in algorithms that do cool stuff, such as rendering the amazing visual quality we have these days in games and animated movies or the impressive feats achieved by Machine Learning lately. The Master programme ST is a perfect fit for this, as you get courses that explain how these algorithms work in detail. Overall, you get a lot of freedom in the courses you choose which allows you to specialize in the subjects you are most interested in. Personally, I really enjoyed the courses and projects on Computer Graphics (by Elmar Eisemann) and the Pattern Recognition and Machine Learning courses (by David Tax and Marco Loog, among others). These courses do a great job in giving you a good idea of the most common problems and solutions you encounter. The projects allow you to explore these algorithms in more detail. Currently, I am co-owner of OrbitGames together with Olivier Hokke. As the company name suggests, we are a game development company. We are focussing mostly on serious games for several customers (“KosmosKlikker” and “Mathy” for IWAL, “Held” for the Hartstichting). KosmosKlikker makes children associate sounds with their symbol (i.e. the sound of ‘a’ with the symbol ‘a’ and the sound of ‘e’ with the symbol ‘e’). This strengthens the connection between the sounds and symbols in their brain, which should improve their reading skills. I also work at ISAAC in Eindhoven, one of the best company’s in e-commerce in the Netherlands. There, I work mostly on the web portal of a consumer finance company. This portal allows clients to apply for a new credit card or loan and check existing credit card and loan details. This is challenging because the system is quite complicated and, of course, security is a big concern. There’s a lot more to tell about all the projects I enjoyed during my studies and the current projects I am doing, but my overall advice would be: if you like doing cool projects and learning a lot about the complex algorithms that make up machine learning, computer graphics, AI and security, then ST at TU Delft is a great choice!
Admission requirements and application procedures

Dutch BSc degree
If you hold a Dutch BSc degree closely related to the Master’s programme, you will be admitted directly. However, if your undergraduate programme is not closely related to the Master’s programme you will be required to take additional courses in what is called a bridging programme. This may be a standard programme or it may be tailored to your specific situation.

To see which Master’s programmes are open to you on completion of your bachelor’s degree from a non-technical Dutch university go to www.studychoice.nl If you completed your bachelor’s at a technical university, go to www.doorstroommatrix.nl

Dutch HBO degree
An HBO Bachelor’s degree does not qualify you for direct admission to a TU Delft Master’s programme. You will first need to complete a supplementary programme in order to bring your knowledge to the required level. You can do this during your HBO programme by means of a bridging programme after completing your HBO diploma. Entrance requirements for mathematics and English (some exceptions) apply for the bridging programme.
See www.hbodoorstroom.tudelft.nl for detailed information. Applications through Studielink: www.tudelft.studielink.nl

International applicants
To be considered for admission to an MSc programme you will need to meet TU Delft’s general admission requirements.

1. A University Bachelor’s degree (or proof that you have nearly completed a Bachelor’s programme) in a main subject closely related to the MSc programme to which you are applying, with good grades on the key courses.
2. A BSc Cumulative Grade Point Average (CGPA) of at least 75% of the scale maximum
3. Proof of English language proficiency. A TOEFL (Test of English as a Foreign Language) with an overall Band score of at least 90 and a minimum score of 21 for each section. Please note that we only accept the TOEFL internet-based test. Or an IELTS (academic version) with an overall Band score of at least 6.5 and a minimum of 6.0 for each section. Or proof that you have passed the University of Cambridge ‘Certificate of Proficiency in English’ with a minimum grade B or the University of Cambridge ‘Certificate in Advanced English’

For international students, the application period starts October 1 and closes at April 1. To start an MSc application, please complete the online application and pay the refundable application fee of € 100. Next, you will receive an email with the link to upload the required documents.

For more information about the application procedure and studying at TU Delft in general, go to www.admissions.tudelft.nl

Introduction week
All international students will be welcomed with the award-winning introduction programme. The introduction consists of a variety of workshops and projects, during which you will get to know other international students, visit the highlights of Delft and learn the ins and outs of the TU Delft campus.

After this very interesting and fun week, you will be introduced to the EEMCS faculty. During the Master Kick Off, you will receive helpful information about the Dutch education system and meet the fellow students from your programme in a variety of social and educational activities.

For further information
Please visit the webpage for all details, complete requirements, deadlines and contact information, please visit:
www.tudelft.nl/msc/cs

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