

Bachelor / Computer Science and Engineering

Using social media to localise disasters, making friendly care-robots and recognising objects in images. In the Computer Science and Engineering (CSE) degree programme at TU Delft, you will learn the theory and practice of developing software and processing data for the intelligent systems of today and the future.

This could include medical systems, security and perhaps even the new YouTube.

Mathematical analysis and modelling, logical reasoning, programming algorithms and working with concepts of programming languages are all important here, and so is collaboration. This is why, at least once a year, you will work on a project with a group of fellow students, designing complex systems to control unmanned vehicles.

What does the programme look like?

Delft University of Technology is planning to

offer two tracks for the Bachelor Computer Science and Engineering starting in September 2023: the *Bilingual track (Dutch-English)* and the *English track*. VWO students are admissible for the Dutch-English track, in which several academic skills, such as presenting and writing, will be taught in Dutch. Furthermore, you will be able to ask questions in Dutch during the math instructions, mentoring and computer labs. All the other study materials will be offered in English. Students from the different tracks follow the same curriculum and lectures, therefore you will study in a diverse and international environment.

Students with a foreign diploma are only admissible for the English track, unless they can show a Dutch language proficiency certificate. You can find more information about the language requirements on our Admission website. The English track is fully taught in English.

Both tracks consists of a mixture of lectures, practical assignments, group projects and considerable amount of self-study. Each quarter in the first year consists of three courses: a fundamental course, a more applied course and a more practical course. You will learn how to analyse and design computer systems and their underlying algorithms. You will also study the subject of computability theory, addressing questions such as: what is computing, what can



computers do and what can they not do, and how can you describe machines in a mathematical way? Artificial intelligence, computer graphics, data mining and image processing are also part of the programme.

Furthermore, you will learn about the underlying principles of programming languages, data structures, software quality, how to model complex systems and how users interact with such systems. You will learn to solve problems systematically. In addition, you will regularly collaborate with other students on projects.

Admission requirements

VWO N&T, N&G/E&M/C&M with Math B
Non Dutch: see website

Language requirements

Bilingual (Dutch-English) track: Dutch and English
English track: English

Numerus Fixus - Selectieprocedure

Yes. 550 first year students in 2023-2024

Binding Study Recommendation (BSA)

75% of students get a positive BSA

Average study week (40 hours)

Lectures: 12 hours
Lab/Group work: 10 hours
Self-study: 18 hours

“The variety of courses in the bachelor have allowed me to develop myself broadly as a computer scientist, not only individually, but also in a team.”

Pravesh Moelchand

Master Student Computer Science

What will you learn?

In the first year, you will take a compulsory set of courses. This is divided into approximately 40% fundamental computer science, 35% mathematics and 25% computer science skills.

The courses include among others:

- Object-Oriented Programming: You will learn the basics of programming. At the end of this course, you will be able to develop small applications.
- Computer Organisation: You will learn how the individual components of a computer form a working machine. This course teaches you the low-level mechanisms involved in making hardware and software work together.
- Calculus: Many concepts from computer science heavily lean on mathematics. In calculus we build on Mathematics B, but the pace is much faster and the level much more in-depth. Together with other mathematics courses, calculus provides the mathematical foundations a computer scientist requires.

In the third quarter, you will work together on a project, for example to develop an application to help illiterate people. The second year consists of compulsory



courses and electives. You can choose from three variant blocks, each comprising three courses. Within the variants, you can learn how to automatically recognise license plate numbers, how to program for embedded systems or how to process and analyse large amounts of data in the cloud. As part of the curriculum, you will work in a small team with fellow students on a large software project, developing software for a company to tackle a socially or economically relevant issue. Examples of such projects include programming a drone that can independently survey a commercial greenhouse or developing a scheduling application for a hospital. You will start your third year with a minor, which is aimed at broadening your knowledge or preparing you for a Master's programme.

87%



of the bachelor graduates start a master's programme

550



CSE first year students in 2023-2024

35%



mathematics in the first year

100%



of the study material is in English

What competencies does a student of Computer Science and Engineering need to have?

- Affinity with mathematics
- A high level of motivation
- Perseverance
- Ability to think abstractly

Which Master's programmes are possible after completing this Bachelor's?

- Computer Science
 - Data Science and Technology
 - Software Technology
 - Artificial Intelligence Technology
- Embedded Systems

What can you do after completing this programme?

- Critically analyse and tackle problems in complex environments
- Collaborate in teams and with end users
- Design and develop robust, highquality software
- Quantify how good an algorithmic solution is

10%

Academic Skills

10%

Computer Systems

15%

Mathematics

20%

Data Science

20%

Fundamental Computer Science

25%

Software Engineering



More information?
Check the programme website.

Find us on Social Media  @eemcs_tudelft