

Computer Science and Engineering

Bachelor



25%
Software
Engineering

20%
Fundamental
Computer Science

20%
Data Science

15%
Mathematics

10%
Computer
Systems

10%
Academic
Skills

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.

Admission requirements	VWO N&T N&G/E&M/C&M with Math B Non Dutch: see website
Language	English
Intake of first-year students in 2020-2021	500
BSA in 2019-2020	64%
Numerus Fixus	Yes
40 hours / study week	
12 hours	Lectures
10 hours	Group work
18 hours	Self-study

What does the degree programme look like?

The programme consists of a mixture of lectures, practical assignments, group projects and considerable 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 such questions 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.

What will you learn?

In the first year, you will take a compulsory combination of courses. This is divided into about 40% fundamental computer science, 40% mathematics and 20% 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 various applications.

Computer Science and Engineering

- **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 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. It is also possible to do the minor at a different university in the Netherlands or abroad.

The degree programme is rounded off with the Research Project. This project is carried out individually at TU Delft and involves research into a subject related to computer science. For example, this could involve implementing a new algorithm and the necessary experimental tools to evaluate it against existing alternatives.

Are you interested? Join information events like open days, online trial studying or student for a day.

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

- Affinity with mathematics
- Highly motivated
- Perseverance
- Ability to think abstractly



500
CSE first year
students
in 2020-2021

Where can you potentially find a job?

- Google
- Exact
- KPMG
- ASML
- ING
- Booking.com
- TNO
- Consultancy agency
- Own company

87%
of the bachelor
graduates start
a master's
programme



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

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



30%
mathematics
in the first year

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, high-quality software
- Quantify how good an algorithmic problem solution is



What potential jobs could you do?

- Software engineer
- Data scientist
- Security analyst
- Systems analyst
- Consultant
- Researcher
- Entrepreneur
- Teacher