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Brochure

How to choose your study

BSc Computer Science & Engineering

Brochure 1—How to choose your study

In this brochure you will find information on how to choose the right programme.

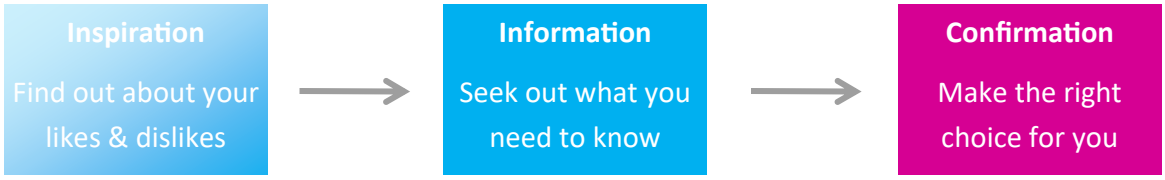
For more information about the Matching & Selection procedure we recommend to check the Selection website.

Content

TU Delft

Choosing the right programme in 3 steps

Choosing the right study programme can be a challenging process. The following three steps can help you:



Step 1 Inspiration

The first step is all about finding out what makes you tick. Ask your parent(s), guardian(s) or friends for help. They can ask you questions and help in structuring information, while you create an overview. Start by asking questions related to what you like to do and are excited to learn more about. Write your answers down, as reading back later can help you, and make your answers as specific as possible. Instead of stating that you like to solve problems, make it more concrete: "I like to solve puzzles by making use of mathematics" or "I want to be an expert in data analytics" or "I want to help people with technological innovation."

Remember to also ask yourself questions about matters that you do *not* like as well, as this helps focus your search. Think about what makes you procrastinate or which courses you did *not* like at all. Also take practical limits into account, such as the requirements, your budget, the language of the programme and whether you can travel to campus or need to move house. Start with your practical limits and the things you do *not* like, will help you in framing your search boundaries. From there work towards what you do like in order to establish which study programmes are most suitable for you.

Step 2 Information

After having decided what inspires you, it is important to gather more information. You can find information online, however attending a campus tour, visiting the university open days and signing up for student-for-a-day will provide you with a chance to experience everything first-hand and obtain an inside perspective. Come prepared by asking yourself what you already know and what you still want to find out, to ensure that you obtain the information you need. We recommend checking out several universities and programmes to help you fine-tune your choice. What sets them apart and what is important to you when making your final choice? Answering questions like these can help you in narrowing down your choices.

Step 3 Confirmation

The inspiration and information phase will help you in taking your last step, confirming which programme is most suitable for you by creating a top 3. You can make a decision by listening to what really matters to you and where you feel most at home. Remember that all studies will incorporate things that you do *not* like, the right motivation and the right environment and people around you, will keep you going at times like this.

Why study CSE @TU Delft?

Studying Computer Science and Engineering at the TU Delft means that you will learn to tackle and solve problems at an analytical level from an engineering perspective. You will try and find the answer by applying theory to so-called 'why' questions. You will look for answers to questions such as: "why has this been done this way?" or "is there a better way of doing it?" or "can I demonstrate that my current method is the optimal way?" As a research university TU Delft focuses on **answering 'why' questions** and requires you to plan and organize your study independently. Although all computer science programmes at research universities in the Netherlands share considerable overlap in courses, they can differ in their educational philosophy or engineering approach. **The BSc CSE programme at TU Delft combines the scientific foundations of engineering with group assignments and extensive project work.**

What is the difference between studying at a research university or at HBO?

Whereas research universities teach students the underlying principles of programming languages, universities of applied sciences (HBO) have a more practical orientation and are more focused on learning and applying a range of commonly used programming languages. In other words, universities of applied sciences focus more on **answering 'how' questions**. Students who want to build, are practically oriented and prefer more guidelines and structure are recommended to consider studying at HBO. Today's ICT job market has a high demand for graduates from both types of universities. **It is important to choose the university and the programme that best meets your interests and learning needs.**

Curriculum BSc CSE

TU Delft is planning to offer two tracks for CSE fom September 2023 onwards: the *Bilingual track (Dutch-English)* and the *English track*. 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 here. The English track is fully taught in English. The curriculum of the first year at TU Delft entails quite a bit of mathematics. For this reason, it is important that you like math and are reasonably good at it. If maths is not your strong suit, we recommend you to consider a university of applied sciences or to choose a different study programme at a research university, possibly combined with a minor in the field of computer science.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Year 1	Software Object Oriented Programming	Mathematics Calculus	Mathematics Linear Algebra	Mathematics Probability Theory & Statistics
	Models Reasoning & Logic	Models Algorithms & Data Structures	Models OOP Project	Software Software Quality & Testing
	Systems Computer Organisation	Data Web & Database Technology	Data Information & Data Management	Systems Computer Networks

The first year entails more practically oriented *Software* courses where you will work in project groups and learn to program in, for instance, Java. More abstract courses like *Mathematics* and *Models* will teach you more about reasoning, structures, vectors and matrices and in the *Data* courses you will learn more about programming, websites and databases. **This is the right programme for you if you like to puzzle, want to learn more than just programming and are keen to solve problems in an analytical way.**

The second year contains compulsory courses and allows you to choose between three so-called variants of 15 ECTS each, entitled Multimedia, Systems or Data. At the end of year two, you will work in a small team with fellow students on a large software project, where you will develop software for an external stakeholder. In your final year, you can broaden or deepen your knowledge with a minor or go on exchange, choose three electives and finish the programme with a research project.

What typifies a TU Delft student

The study programme is designed with a certain academic attitude in mind. TU Delft students can be characterized as analytical engineers with a critical mind-set. We aim to educate open-minded team players who are curious problems solvers and independent, pro-active learners.

Programmes at TU Delft are intense and require students to spend about 40 hours a week on their studies. This includes 12 hours of lectures, 10 hours of lab courses and projects and 18 hours of self-study. Emphasis is placed on independent study and personal responsibility. This means that you need to plan well, prepare properly for lectures and practical sessions and make every effort to obtain good results. Although lecturers and teaching assistants are there to guide you in the learning process, you will spend most of your time studying individually or with fellow students. Self-discipline, responsibility and team skills are thus essential, as it is your own responsibility to stay up to date with the material and look for help if things turn out different than expected.

Matching & Selection Procedure and more

A fixed capacity, a so-called numerus fixus procedure, has been set to ensure the quality of the BSc Computer Science and Engineering (CSE) at TU Delft. Please check the admission requirements and application procedure for more information. Make sure to apply through the Dutch national application system Studielink before the 15th of January in order to participate in the Matching & Selection procedure. Please note that it takes time to obtain a login for Studielink, to collect the required documents and to complete your application. Start in time as all deadlines are fixed. More information about the procedure can be found on the website.

How to prepare for the selection

For the selection procedure you will be tested on 3 selection criteria: Mathematics, Systematic Reasoning & Logical Thinking and Algorithmic & Computational Thinking. Some elements you can prepare for and some elements not. You can find the specifics for each element below:

Mathematics

You can prepare for this element by following the free **online pre-university calculus course** (select the audit track) and by reading the **syllabus** and **formula sheet**, which will be published in the Matching & Selection Brochure. The syllabus will give you a better insight into what is expected from you in this test. You should be able to apply techniques and formulas from memory, except for the formulas on the formula sheet. Please remember that you will need to do all calculations by yourself as a calculator is not allowed.

Systematic Reasoning & Logical Thinking

You can prepare for this element by studying chapter 2 of the textbook Delftse Foundations of Computation. You can skip all the sections starred (*) in the contents of the book, as explained in chapter 1. This book can be downloaded for free from the TU Delft Open Textbook repository. At TU Delft we train our students to become analytical engineers and curious problem-solvers. Although you will find exercises in the book, you will not find any official answers, nor do we provide any more than those already included in the book.

S. Hugtenburg & N. Yorke-Smith (2018) *Delftse Foundations of Computation.* Retrieved from https://textbooks.open.tudelft.nl/index.php/textbooks/

Algorithmic & Computational Thinking

You will be tested on your potential to solve puzzles, process-oriented thinking skills and your ability to come up with efficient solutions to real-world computational problems. You *cannot* prepare for the Algorithmic & Computational Thinking as this is an aptitude test.

Binding Study Advice (BSA)

Admission to the programme means that you have fulfilled the entry requirements. The Matching & Selection procedure attempts to make a good match between your capabilities and the requirements of the programme, however starting the programme is no guarantee for success. All Dutch universities are required by Dutch law to issue a binding recommendation on the continuation of studies (BSA). This BSA determines whether you may continue with your programme based on the amount of ECTS you obtained during your first year. By passing a course you will obtain 5 ECTS. At TU Delft you will have to obtain at least 45 of the 60 ECTS in your first year. Students who obtain fewer than 45 ECTS will receive a negative BSA. This means that your registration will be terminated and you will *not* be allowed to register for the same programme for the upcoming four years. On average the number of students per year who receive a positive BSA at the end of their first year and are allowed to continue with the BSc CSE programme is 75%.

Study duration

It is also important that you are aware of the consequences of *not* achieving all your courses: 60 ECTS in your first year. Although achieving 45 ECTS allows you to continue your studies, it will most likely also result in a study delay. Most students who receive 45 ECTS in the first year take four years or longer to obtain their bachelor degree, which will certainly add to the total costs of your study. Only 34% of the Computer Science & Engineering students at the TU Delft complete the programme within 4 years.

Introduction & extracurricular activities

The introduction period consists of activities for the upcoming Computer Science & Engineering first year students in Mid-August and the OWee week, which is for all new first years. During your studies, TU Delft offers a wide range of Sports & Culture activities to explore yourself and expand your playground. Christiaan Huijgens (CH) is the study association of Computer Science & Engineering. CH represents the interests of students and organises study-related activities and the book sale. Students can also join a student association to get to know more people outside of their own study programme and take part in additional activities.

More information

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