Building the future starts here

Can you imagine anything more challenging and exciting than creating a physical environment where people can perform to the best of their abilities? Creating a building – from the early ideas, the first sketches, the realisation and the use phase, right up to refurbishment or demolition – is a true adventure. Developing and realising what you have in mind by connecting technology to an innovative design; meeting the challenge of finding the right materials, coming up with the right solutions within the goals set and proving the reliability of the structure. That is what the Building Engineering track offers you.

As a civil engineer, you need a broad range of knowledge in order to be able to make a valuable contribution to the construction and design of buildings. That is why this track covers everything from the planning phase up to the realisation of a building. We also consider the options for the reuse of buildings. Sustainability is inextricably linked to construction and the times in which we live: we must take account of future generations. What is more, because the aesthetic aspects of buildings are becoming more and more important due to their visual impact on our habitat, architectural and industrial design are becoming increasingly important, too. How else would you know whether an architectural idea is sound, from an engineer’s point of view?

Programme
The MSc track Building Engineering offers a varied and broad programme that deals with every aspect of building engineering over the lifespan of a building.
Curriculum Building Engineering

**First Year**
- Compulsory and Specialisation courses (56 EC)

**Second Year**
- Internship (10 EC) *
- Multidisciplinary Project (10 EC) *
- Additional Graduation Work (10 EC) *
- Electives (10 EC) *
- MSc Thesis (40 EC)

* You must choose two out of four

1 EC = 28 hrs study, according to the European Credit Transfer System (ECTS) • One academic year = 60 EC • Total number of credits in the MSc-track Building Engineering = 120 EC
For more information on all courses: www.studyinguide.tudelft.nl

**Programme specialisations**
The Building Engineering track offers two specialisations. The purpose of this segmentation is to allow you to choose the direction within the track that suits you best. It is a first step in defining your future career direction.

**Building Technology & Physics**
focuses on the techniques that contribute to people’s experience and enjoyment of a building; think of the indoor climate and appearance of a building, for example. You will learn to translate the architect’s wishes into reality. This means determining which materials will be used for the finishing of a building and ensuring that the building is sustainable. Building Technology & Physics is the science of designing high-performance buildings that are durable, comfortable, energy-efficient, affordable and healthy.

To address many building problems, we need a unique mix of heat and mass transfer physics, acoustics, material science, construction technology, human physiology, and engineering analysis and design.

**Structural Design** has emerged in response to modern-day building developments. Increasingly, the design phase of buildings involves not only structural experts and architects, but also structural designers. These ‘designing engineers’ act as a bridge between architects and the structural experts who focus on verification of standards, dimensioning and detailing. The approach is based on the principles of mechanics and knowledge of materials.

Within these specialisations, it is possible to focus on:
- Integral Design & Management
- Technology in Sustainable Development
- Entrepreneurship
- Urban Planning & Engineering
- Infrastructure Planning
- Environmental Engineering

Future students that want to link creativity with technological profundity, choose for Building Engineering. This Master’s offers two directions: Building Technology of Physics and Structural Design. I chose for the latter because I wanted to focus more on building design and become part of the design team with architects and other construction specialists. The university responds cleverly to that objective by encouraging faculties to collaborate. During the High Rise workshop, for example, we were challenged to design a fully integrated and innovative skyscraper together with students of the faculty of Architecture. Beside the fact that it is fun to get to know students from other faculties, we also learned to speak their design language – in my opinion an essential quality for a building engineer. This also corresponds to my experience during my internship at engineering firm Arup in London, where I was given the opportunity to keep on developing myself in this dynamic field. This was such a fantastic experience, I decided to stay and applied for a job; I am now on the verge of continuing my career in the UK. Trust me, whether you want to work on complex buildings in the Netherlands or on impressive structures in Dubai, the world is your playground as a building engineer from Delft University of Technology.

Ir. Roy Crielaard, Alumnus (The Netherlands)
Example of graduation projects

- Preliminary structural design and financial feasibility study of a transportable multifunctional stadium. Increasing numbers of large-scale, high-quality stadiums are being left vacant after the event for which they were built. Therefore, a demountable and transportable multi-functional A-venue stadium has been designed.
- Structural feasibility of the rotating tower in Dubai.
- Glass columns: a fundamental study to slender glass columns assembled from rectangular monolithic flat glass plates under compression as a basis to design a structural glass column for a pavilion.
- A user-centred re-design of indoor comfort for the faculty of Civil Engineering and Geosciences with an energy-conscious approach.
- Flexible mould for production of double-curved concrete elements.

Career prospects

Due to the complexity of buildings, the development of building materials, the ever-changing user requirements and new technological insights, there are many building engineers. Getting all of these specialists to cooperate efficiently is as great a challenge as the actual construction of buildings. As there are many specialised companies involved in construction, there are extensive career opportunities. Think of building contractors, real estate developers, institutional investors, architectural, engineering and consultancy firms, research institutes and educational institutes.

"A good civil engineer has a wide knowledge of the field of building. Not only be able to calculate any structure out of any material (which still is the foundation of a good engineer in civil engineering) but also able to talk with people that actually have to build the design made by the engineer. If an engineer has no or limited knowledge of the way structures are realised or of project management or of building physics this discussion is useless for both parties. Therefore Building Engineering track offers all scientific information to be not a specialist but a well-informed generalist that is able to discuss about all aspects of building. The more than required knowledge of sustainable building and energy saving techniques are also implemented in the Building Engineering track leading to engineers that can give an important contribution to a better world."
Admission requirements and application procedures

Dutch BSc degree
If you hold a Dutch BSc degree in Civil Engineering (CTG), Architecture (BK) or Policy, Technology and Management (TBM) that is closely related to the Master’s programme, you will be admitted directly. If your undergraduate programme is not closely related to the Master’s programme, however, 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 at a Dutch university, go to www.doorstroommatrix.nl. Applications through Studielink: www.tudelft.studielink.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 completing a bridging minor, or by means of a bridging programme after completing your HBO diploma.

Entrance requirements for Mathematics and English (some exceptions) apply to both the bridging minor and 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 for the key courses.

2. A BSc Cumulative Grade Point Average (CGPA) of at least 75% of the scale maximum.

   - 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’ or the University of Cambridge ‘Certificate in Advanced English’ with a minimum grade B.

For international students, the application period starts on 1 October and closes on 1 April. To start an MSc application, please complete the online application and pay the refundable application fee of €100. You will then receive an email with a 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 interesting and fun week, you will be introduced to the CEG faculty. 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.