

# Frequently Asked Questions:

## *Department of Civil Engineering*

### Where do civil engineers find employment and what do they actually do?

A civil engineer can be employed as...

#### 1. An owner:

You own the civil engineering facility and/or manage and maintain it. This includes infrastructure (services such as water, sewer, roads, bridges...) managed by municipalities; provincial government; national departments, such as the Departments of Water and Sanitation, and Public Works and Infrastructure; agencies such as the South African National Roads Agency (SANRAL); port authorities; Rand Water and Transnet. You can also be a property developer responsible for the development of offices, hotels and houses, to name a few.

#### 2. A consultant:

You are responsible for the conceptualisation and design (preparation of drawings and specifications) of a project to meet the needs of a great variety of clients. This may involve design and computer modelling of buildings, earthquakes, rivers, dams, stormwater systems, construction progress, harbours, railways, transport systems and much more. Technology is key in the advancement of our profession.

#### 3. A contractor:

You are the party responsible for the execution of the project. This may range from small construction projects to multi-billion rand/dollar projects, such as the Gautrain and Lesotho Highlands water projects.

The civil engineer always works as part of a team, involving representatives from each of the above parties as well as many other disciplines, including architects, quantity surveyors, environmentalists and geologists. Depending on the party you work for, you may be involved to a greater or lesser extent in feasibility studies, maintenance, calculations and managing people and processes, but will always require logical thinking and problem-solving skills. A strong background in mathematics is essential, but the profession also requires skill to collaborate with and manage people.

Depending on the size of the projects, an engineer will most often be involved in several projects at a time, especially if you work as an owner or consultant.

It is also important to take note that there are many opportunities not directly related to civil engineering, which are available due to your training and logical thinking and problem-solving abilities. CEOs of large financial institutions and top officials in the insurance industry are frequently also civil engineers.

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### **Are there sufficient job opportunities for civil engineers?**

Job opportunities for civil engineers all over the world are cyclical, following the developmental status of the country or region. Civil engineering boomed in South Africa over a sustained period, starting with the highly successful Gautrain and the FIFA World Cup. At present, all industries have been influenced by economic challenges and COVID-19, including civil engineering, but graduate civil engineers are in high demand and a shortage of civil engineers persists in South Africa. Now is an exciting time to enrol for the BEng (Civil) degree, because your career over the next 30 to 40 years will be telling in the design and construction of millions of houses, renewable/sustainable electricity generation plants, water supplies, smart roads, bridges, transport systems, etc. All of this will be based on the 4IR (4th Industrial Revolution), because Stellenbosch University is a leading role player in developing these technologies, and we have 4IR thought leaders among our civil engineering practitioners.

While we hope and trust that all our civil engineers will remain in South Africa after graduation, it is also true that our degree is internationally accepted in terms of international accords, such as the Washington Accord, which is why our engineers, unfortunately for our country, are in high demand internationally.

### **Will I be able to have a balanced student life?**

To be a successful student, you must! And it certainly is possible. This is something you must actively plan, starting in your very first term as you gauge the work load. We can only confirm that BEng (Civil) is a challenging programme, but the trick is to work consistently and efficiently, rather than all the time. Study every day to ensure that you do not fall behind, but find your rhythm of breaks for socialising, recreation, sport or other activities among the many Stellenbosch offers.



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**Does Civil Engineering offer a blend of practical and academic components? Is this an advantage or disadvantage for career opportunities?**

Within the Faculty of Engineering, Civil Engineering is probably the department that offers the most practical opportunities for study and practice. Civil Engineering includes practical sessions in the four years of study, with facets covering all fields, namely: structures, water, transport, geotechnics and management.

The practical sessions include indoor (laboratory) and outdoor (investigations, evaluations and inspections) activities with elements of material testing and analysis, building scaled models of infrastructure, performance evaluation, etc. Throughout your degree you will also be required to use software packages, programming languages and technology during your modules.

The practical activities will invariably be linked to other analytical and digital possibilities. This is particularly applicable to the fourth-year research project. The blend of practical, technology and theoretical inputs will to some degree be influenced by the individual student.

A practical inclination can have a profound influence on career opportunities. Especially in the realm of construction engineering and management, large projects, planning, logistics and innovative solutions, applied knowledge is a sought-after attribute in civil engineering.

**I am aware that the first-year subjects for all engineering students are largely the same. Can I, after Year 1, change to another discipline?**

Yes, it is possible, but this is a decision that needs to be evaluated very carefully, given the need for civil engineers in the various sectors of society. If you want to change, it is a decision that needs to be taken with the approval of both the host department (for which you have registered) and the receiving department, and both heads of department must agree to such a change. Your study record and the capacity of the discipline will be taken into consideration very strongly.



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**I am interested in technology and computers. How much technology is used in civil engineering, or is it all about water, concrete and roads?**

As we go into the 4th industrial revolution, technology is absolutely central in the daily activities of civil engineers. Engineers may use software to analyse a building for wind or earthquake loads. A designer can model a river, spillway or dam using computational fluid dynamic models. Construction managers use drones to inspect buildings and monitor progress. Intelligent transport systems require the simulation of movement of people, cars, trains and other public transport to design smart infrastructure for cities. All our students are taught computer programming and various software packages throughout their degrees, and expected to use such skills to solve various complex problems.

While civil engineers often do not develop technology, they apply technology extensively in the execution of their work. They are involved in larger systems to solve infrastructure challenges which often require a holistic appreciation of all the variables which include technological, societal and financial demands.

**What are the admission requirements and selection criteria for BEng programmes for 2026?**

Please click [here](#) for detailed information on the minimum admission requirements for all four-year engineering programs.

**Where can I find more information?**

Please visit our website at [civeng.sun.ac.za](http://civeng.sun.ac.za) or [click here](#).

Or E-mail us: [civil@sun.ac.za](mailto:civil@sun.ac.za)

Or visit our Facebook page: [Civil Engineering Stellenbosch](#)

Or Instagram: [@CivilEngSU](#)

More frequently asked questions can also be found [here](#).