

## Unit 2: Civil engineering qualifications

Try to answer these questions and then check with the text that follows. Then fill in the blanks with the missing words.

1. How many years is the study of civil engineering here and abroad?
2. What do you know about state licensing to engineers in Greece?
3. What is the situation in the UK, USA, Canada and Australia?

**Fill in the gaps with the words:** granted, awarded, accredited, coupled, established, founded, provides.

The first private college to teach civil engineering in the United States was [Norwich University](#), ----- in 1819 by Captain Alden Partridge.<sup>[15]</sup> The first degree in civil engineering in the United States was ----- by [Rensselaer Polytechnic Institute](#) in 1835. The first such degree to be awarded to a woman was ----- by [Cornell University](#) to [Nora Stanton Blatch](#) in 1905.<sup>[18]</sup>

In the UK during the early 19th century, the division between civil engineering and military engineering (served by the [Royal Military Academy, Woolwich](#)), ----- with the demands of the Industrial Revolution, spawned new engineering education initiatives: the Class of Civil Engineering and Mining was founded at [King's College London](#) in 1838, mainly as a response to the growth of the railway system and the need for more qualified engineers, the private [College for Civil Engineers](#) in [Putney](#) was ----- in 1839, and the UK's first Chair of Engineering was established at the [University of Glasgow](#) in 1840.

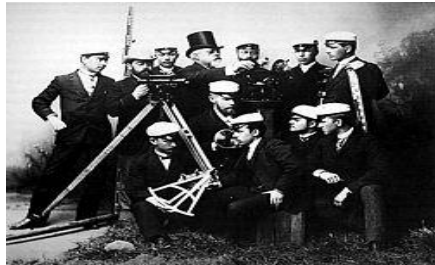
Σχόλιο [u1]: produced

### Education

*Civil engineers* typically possess an [academic degree](#) in civil engineering. The length of study is three to five years, and the completed degree is designated as a [bachelor of technology](#), or a [bachelor of engineering](#). The curriculum generally includes classes in physics, mathematics, [project management](#), design and specific topics in civil engineering. After taking basic courses in most sub-disciplines of civil engineering, they move on to specialize in one or more sub-disciplines at advanced levels. While an undergraduate degree (BEng/BSc) normally ----- successful students with industry- ----- qualification, some academic institutions offer post-graduate

Σχόλιο [u2]:

degrees (MEng/MSc), which allow students to further specialize in their particular area of interest.<sup>[19]</sup>



Surveying students with professor at the [Helsinki University of Technology](#) in the late 19th century.

**Timeline: fill in the gaps with information from the above text**

In 1747	
In 1771	
In 1818	
In 1819	
In 1820	
In 1828	
In 1835	
In 1839	
In 1840	
In 1905	

## Specialization

**What specialties in civil engineering do you know of? Discuss**

**Is it possible to practice more than one specialization? Do civil engineers have to work only in the office? Read on to check your answers.**

Civil engineers usually practice in a particular specialty, such as [construction engineering](#), [geotechnical engineering](#), [structural engineering](#), [land development](#), [transportation engineering](#), [hydraulic engineering](#), and [environmental engineering](#). A civil engineer is concerned with determining the right design for these structures and looking after the construction process so that the longevity of these structures is guaranteed after completion. These structures should also be satisfactory for the

public in terms of comfort.<sup>[7]</sup> Some civil engineers, particularly those working for government agencies, may practice across multiple specializations, particularly when involved in [critical infrastructure](#) development or maintenance.



While all civil engineers tend to spend at least some time working "on site", much of the modern civil engineering work is done in offices, working with plans or computers.

## Work environment

Civil engineers generally work in a variety of locations and conditions. Much of a civil engineer's work is dealing with non-engineers or others from different technical disciplines, so training should give skills preparing future civil engineers in organizational relationships between parties to projects, cost and time.<sup>[8]</sup> Many spend time outdoors at construction sites so that they can monitor operations or solve problems onsite.<sup>[2]</sup> The job is typically a blend of in-office and on-location work. Most work full-time.

## Education and licensing

In most countries, a civil engineer will have graduated from a post-secondary school with a degree in civil engineering, which requires a strong background in [mathematics](#) and the [physical sciences](#); this degree is typically a [bachelor's degree](#), though many civil engineers study further to obtain [master's](#), [engineer](#), [doctoral](#) and [post doctoral](#) degrees. In many countries, civil engineers are subject to [licensure](#). In some jurisdictions with mandatory licensing, people who do not obtain a license may not call themselves "civil engineers".

## Practicing engineers

In most countries, a bachelor's degree in engineering represents the first step towards [professional certification](#), and a [professional body](#) certifies the degree program. After completing a certified degree program, the engineer must satisfy a range of requirements including work experience and exam requirements before being certified. Once certified, the engineer is [designated](#) as a [professional engineer](#) (in the United States, Canada and South Africa), a [chartered engineer](#) (in most [Commonwealth](#) countries), a chartered professional engineer (in Australia and [New Zealand](#)), or a European engineer (in most countries of the [European Union](#)). There are international agreements between relevant professional bodies to allow engineers to practice across national borders.

Σχόλιο [u3]: designate= ορίζω

Σχόλιο [u4]: chartered =πιστοποιημένος

The benefits of certification vary depending upon location. For example, in the United States and Canada, "only a licensed [professional engineer](#) may prepare, sign and seal, and submit engineering plans and drawings to a public authority for approval, or seal engineering work for public and private clients."<sup>[20]</sup> This requirement is enforced under provincial law such as the Engineers Act in [Quebec](#).<sup>[21]</sup> No such legislation has been enacted in other countries including the United Kingdom. In Australia, state licensing of engineers is limited to the state of [Queensland](#). Almost all certifying bodies maintain a [code of ethics](#) which all members must **abide by**.<sup>[22]</sup>

Engineers must obey [contract law](#) in their contractual relationships with other parties. In cases where an engineer's work fails, they may be subject to the law of [tort of negligence](#), and in extreme cases, criminal charges.<sup>[23]</sup> An engineer's work must also comply with numerous other rules and regulations such as [building codes](#) and [environmental law](#).

Σχόλιο [u5]: tort: αδικοπραξία

**What is required of civil engineers in different countries to practise their profession? What kind of certification? Write in note form.**

