Bachelor of Engineering in:
Civil and Construction Engineering

Double Degrees:
Civil and Construction Engineering with Mining
Civil and Construction Engineering with Commerce

CIVIL AND CONSTRUCTION ENGINEERING AT CURTIN

scieng.curtin.edu.au
Civil and Construction Engineers design and manage the construction of infrastructure essential to contemporary living. Water storage and hydro-electric schemes, rail systems, highways, bridges, tunnels, airports, harbours, offshore oil platforms and power stations all require the expertise of civil and construction engineers.

Civil engineering is the oldest of the engineering disciplines, with examples dating back four thousand years. Examples of civil engineering projects constructed by the Romans are evident – Roman roads and bridges have survived centuries and are still used today.

Contemporary civil engineering projects can be seen everywhere – from skyscrapers, roads and harbours to sanitation systems providing us with clean drinking water. Civil engineers work in design offices, on construction sites, in project offices and at research locations all over the world. Civil engineers can be found anywhere that civil works are planned, designed or constructed.

Good Reasons to Study Civil and Construction Engineering

1. Curtin’s professional and practical course is highly acclaimed by graduates and greatly respected by professional engineers.
2. You are completing two degrees in one – civil and construction engineering, combined into one comprehensive course.
3. You will graduate with a widely recognised qualification that ensures you are ready to start work.
4. Civil engineers are currently in very high demand and this trend is expected to remain strong long into the future.
5. Civil engineers help make a difference to the community by providing clean drinking water and removing waste products, providing environmentally sound designs for structures, roads and services.

Where Do Civil and Construction Engineering Graduates Work?

The roles of civil and construction engineers are diverse, making for interesting, varied and exciting careers.

- **Planning, design and construction** – Core infrastructure such as bridges, roads, pipelines, tunnels, buildings and harbours. Civil and construction engineers are experts in the creative use of structural materials, particularly concrete, steel, timber and metal. They also use resources efficiently and take into account material costs to ensure that engineering solutions are economically viable.
- **Transportation engineering** – Planning, drafting, construction and implementation of transportation installations such as roads, rail systems, waterways and air traffic systems.
- **Hydraulic engineering** – Studies of the effects society has on surface and underground water. This area is sub-divided into water management and hydraulic engineering and examples of career paths include landscape and traffic management, sanitary engineering, water storage and applications to the energy industry.
- **Civil and construction engineering** is responsible for the overall completion of the project and must deal with many management challenges. For this reason civil and construction engineers may be responsible for aspects of projects such as:
  - **Quality** – Ensures materials used are of an appropriate quality and that the project is completed according to plans and specifications.
  - **Staff** – Organises and schedules the activities of a project to ensure all employees are used productively. Important safety, and industrial relations issues must also be considered.
  - **Construction Equipment** – Supervises the use of a wide range of equipment such as large earth-moving machines, cranes, dredges, and pile drivers.
  - **Materials** – Manages transportation, installation and placement of large quantities of materials such as concrete, steel, and huge amounts of rock fill.
  - **Cost** – Ensures the project is completed on or under budget.
  - **Environmental and social needs** – Ensures your work takes care of the environment and meets the needs of society.

Engineering First Year Studio

All Curtin Engineering courses include a common first year of study providing you with solid theoretical and practical experience in a wide range of disciplines. Curtin has established an Engineering First Year Studio designed to reflect a range of engineering professions and to support your transition into university study.

The studio facilities include:

- Open plan design office
- Project meeting rooms
- Learning assistance clinics
- Computing, Electrical and Mechanics laboratories

Curtin’s First Year program was awarded the prestigious Carrick Award for First Year Experience in 2006 placing Curtin as a leader in Australian engineering education.

Civil and Construction Engineering

The Bachelor of Engineering Civil and Construction Engineering is a four year degree. The first year, called the Engineering Foundation Year (EFY), builds fundamental concepts common to all areas of engineering. The second year of the course continues to develop key scientific and mathematical concepts. Engineering concepts such as fundamentals of materials behaviour, stress analysis, engineering drawing and computing are also introduced.

After their first two years, students undertake subjects related to construction management for large civil engineering projects. These include construction control, industrial relations, contract law, cost estimation and finance. By third year, students progress to detailed structural analysis and design, materials, geotechnical engineering, construction engineering and hydraulics.

Civil and construction engineers must be aware of the environmental and social impact of their activities. These are considered in the third and fourth years of the course. During this time, students can take optional units to direct their course toward a career in a more specialised area such as geotechnical engineering, transportation engineering, water engineering, structural engineering, environmental engineering and waste water engineering.

Double Degree Programs

Completing a double degree program leads to a wide range of career opportunities in a variety of industries. They also provide you with increased knowledge across a larger area making it easier for you to find a job on graduation.

Civil and Construction Engineering with Mining

This double degree allows students studying the four year Civil and Construction Engineering degree to complete further studies in mining and seek employment within the minerals industry. The additional year of study is undertaken at the Western Australian School of Mines (WASM).

Graduates are awarded two degrees – the BEng (Civil & Construction Engineering) and the BSc (Mining). This double degree course produces students who graduate as engineers with a strong business knowledge in areas that are relevant to engineering. The combination of the two degrees provides graduates with the ability to seek broader opportunities in the developing engineering industry.

Civil and Construction Engineering with Commerce

This double degree course produces students who graduate as engineers with a strong background in commerce. This will enhance your future opportunities as an engineering manager in public or private organisations.

The program equips graduates with comprehensive practical skills together with business knowledge in areas that are relevant to engineering. The combination of the two degrees provides graduates with the ability to seek broader opportunities in the developing engineering industry.

Curtin offers a unique opportunity for students to study both civil and construction engineering in a combined degree. This combination has proved to be in demand throughout Australia and in many parts of the world, resulting in most Curtin graduates gaining employment almost immediately on completion.
MORE ABOUT:
CIVIL AND CONSTRUCTION ENGINEERING

Entry Requirements
Local Students
Selection is based primarily on Tertiary Entrance Rank (TER). Applicants must meet the standard admission requirements of the University as well as at least three of the following courses: Mathematics 3C/3D, Mathematics Specialist 3C/3D, Physics 3A/3B and Chemistry 3A/3B.

Honours
Honours are awarded to students whose academic performance exceeds a given level throughout their undergraduate degree program. Students may graduate with first class, upper second class or lower second class honours. Honours degrees enhance employment prospects and are essential for students wishing to continue on to postgraduate studies.

More Information
www.prospective.curtin.edu.au

International Students
Minimum university entry requirements for international students are available from www.international.curtin.edu.au. Applicants must demonstrate appropriate high school leaving results in the following areas: Advanced Mathematics, Physics and preferably Chemistry.

Further Study Opportunities
• Master of Engineering Management is a course designed for engineers with one or more years of experience. Taught with Curtin Business School, the degree provides a practical balance between engineering and business skills.
• All of Curtin’s Engineering departments have postgraduate engineering courses which give graduate engineers the opportunity to crossover into new areas or further develop research in their chosen stream.

Current Civil and Construction Engineering Research at Curtin
On completion of a BEng program students with suitable grades are able to undertake further studies by research. Some of the current areas of research include:
• Concrete technology and concrete structures
• Geotechnical engineering (particularly in the environmental, mining mineral processing and offshore engineering areas)
• Water, wastewater and dam engineering
• Structural strengthening and assessment of bridges
• Construction management, construction economics, project evaluation
• IT application in construction

Related Areas of Study
Other similar areas of study offered at Curtin include:
• Bachelor of Engineering (Mining Engineering)
• Bachelor of Applied Science (Construction Management and Economics)
• Bachelor of Applied Science (Architectural Science)
• Bachelor of Surveying

Women in Engineering
Many opportunities exist for diversity in the engineering profession. Employers value the contribution of women and actively seek to employ female engineers. Curtin’s Women in Computing and Engineering Project raises awareness of opportunities for prospective female students and ensures that female computing and engineering students experience a supportive learning environment at Curtin.

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STUDENT PROFILE

Thomas Seber
Bachelor of Engineering (Civil and Construction Engineering)

“It was my dream since high school to complete a degree in civil engineering. I pursued it in a non-conventional way, choosing to do a diploma first and then enrolling at Curtin.”

I always appreciated Curtin’s practical, hands-on approach to learning and experience, and was proud to attend the same uni my father attended some 30 years prior. Since graduation I have represented Curtin at the IPWEA conference and have returned (with my employer) to establish a relationship between industry and education, and I look forward to building on that in years to come.

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Other similar areas of study offered at Curtin include:
• Bachelor of Engineering (Mining Engineering)
• Bachelor of Applied Science (Construction Management and Economics)
• Bachelor of Applied Science (Architectural Science)
• Bachelor of Surveying

Curtin Innovation
Curtin aspires to be a leading edge university of technology. To fulfill this vision, we strive to be innovative and forward looking in everything we do. It’s in our approach to teaching and learning, it’s in our research, it’s in our staff, it’s in our students. It’s in our graduates, it’s in the way we think and act. It’s what we call Curtinovation.