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STEPS to engineering

What is Civil Engineering?

Civil engineering is all about improving and protecting the world we inhabit. It involves the planning, design and construction of facilities that we require for everyday living, industry and transport. It offers a challenging and wide-ranging career which can include the development of airports, offshore oil platforms, bridges, roads, railways, waste collection and treatment systems, and water supply systems. Civil engineering also aims to solve environmental issues such as air pollution, coastal protection and waste treatment.

What do Civil Engineers do?

Civil engineers design, construct and maintain the infrastructure and facilities that are essential to society. Their work includes complex problem solving on projects which are influenced by a mixture of technical, economic, social and environmental factors.

Civil engineering includes several sub-disciplines which offer an exciting and broad range of career choices, allowing students to choose a speciality:

- **Structural:** analysing and designing structures that are safe and can withstand the forces of nature such as bridges, skyscrapers, space platforms and amusement park rides.

- **Transportation:** providing new and improved innovations to meet peoples travel needs on land, sea air and reducing traffic congestion.

- **Environmental and water:** designing systems that will render toxic substances harmless, treat both water and waste water, reduce solid waste volumes, eliminate contaminants from the air, prevent flooding, create energy from hydroelectric power facilities and protect our coasts from erosion. This includes design of dams, canals, treatment plants and pipelines.

- **Construction:** seeing projects through from design stage to construction and completion. These projects include the development and construction of houses, bridges, tunnels, roads, railways, dams, pipelines and major buildings.

- **Geotechnical engineering:** using soil and rock mechanics, to design foundations for structures, land reclamation & tunnelling.

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Career Opportunities

- Aeronautical
- Biomedical
- Biosystems, Agriculture & Food
- Building Services
- Chemical Engineering
- CIVIL
  - Construction
  - Environmental
  - Geotechnical
  - Structural
  - Transportation
  - Water
- Computer & Software
- Electrical Engineering
- Electronic Engineering
- Industrial & Manufacturing
- Mechanical Engineering

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As a civil engineer, technologist or technician, you will have a creative, diverse and challenging career and will be making a real contribution to the needs of both modern and developing societies all over the world. There is currently an abundance of employment opportunities for the civil engineering team both in Ireland and internationally.

- **Local Authorities:** providing services for people living in the area, making sure there are safe roads to drive on, clean water to drink and houses to live in and investigating new services.
- **Contractors:** managing construction work on site, developing and designing construction processes and techniques and supervising a professional team.
- **Consultancies:** designing and planning projects, focusing on services, solutions and environmental impact.
- **Clients:** working with regular construction clients that maintain in-house teams to work on or supervise major projects.

As a civil engineering graduate you can:

- Be responsible for creating what will be the new modern wonders of the world.
- Create and construct skyscrapers, monuments, bridges and transport systems.
- Design systems to reduce environmental pollution.
- Provide clean water and sanitation services in developing countries.

Employers of civil engineering graduates include:

Ascon, ARUP Consulting Engineers, CRH, DBFL, John Paul Construction, PJ Walls, PM, SIAC, SISK, Government bodies and Local Authorities.

Did you know?
An Irish civil engineer, Peter Rice, was a Resident Engineer overseeing the construction of the Sydney Opera House.

Engineering provides a host of exciting opportunities for individual enterprise and job flexibility with rapid progress to creative, responsible and financially rewarding careers.

For more information look up www.steps.ie

Engineers Ireland

Discover Science + Engineering

STEPS to engineering is an Engineers Ireland programme supported by Discover Science & Engineering, the Department of Education & Science, FÁS and industry.