CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ
CAREERS SERVICE

Your Degree in Environmental Engineering… What Next

Climate change, global warming and the urgent need for sustainable living and development at all levels have underpinned the rapid need for skilled and specialist environmental engineers.

Environmental engineers focus on projects related to natural resources rather than man-made projects and prioritise environmental protection and conservation in design and development projects. Specialisations include power generation and energy supply, relating to the design, development and implementation of new energy systems, such as wave/tidal energy or wind power, and utilities.

Environmental engineering is a wide discipline. It essentially has three main activity areas: waste and water management, industrial waste management and renewable energy/sustainable development. Some graduates can find work with environmental consultancies, most of which are small scale and owner-managed. The recent Irish government initiative to provide grants to households converting to more environmentally friendly sources of energy has cemented the establishment of alternative sources of energy as an essential and viable development. This initiative is set to further develop and widen the career opportunities in the research, design, installation and maintenance of alternative sources of energy, including geothermal, solar, wind, wave and biomass. More research opportunities are beginning to arise in the area of sustainable development in general.

Knowledge, Skills and Attributes

An environmental engineer needs:

- to enjoy technical and engineering activities
- good communication skills
- the ability to identify, analyse and solve problems
- an interest in the environment and conservation
- good planning and organisation skills
- logical and mathematical reasoning
- research and analytical skills
- teamwork
- technical skills

Options

Environmental Engineering (BEng Level 7) CIT

http://www.cit.ie/course/CR055

- This new BEng(Hons) is currently going through the CIT new programme approval process.

There is an intention to develop a two year add-on at level 8 for Environmental Engineering but this is not definite yet. The reason it will be a two year add-on is to ensure the students' qualification is accredited by Engineer's Ireland

- The logical progression for the Level 7 BEng in Environmental Engineering students is to the proposed BEng(Hons) in Environmental Engineering, these students must take the Technological Maths 311 elective in semester 2.

In essence the Technological Maths 311 elective is to prepare students for a Level 8 in engineering.

Or

- Alternatively these Level 7 BEng students may progress to the BSc(Hons) in Construction Management, such students must take the Financial & Contract Management elective in semester 2.

- Essentially the Environmental students have two electives to take in semester 2 so the environmental students can keep their progression options open for another period of time.

Students must confirm details with their department before making any choices for level 8 in CIT.

Other Options:

Environmental Engineering, Institute of Technology Sligo

http://itsligo.ie/study-at-it-sligo/all-cao-courses/beng-in-environmental-engineering/

Further Study Opportunities

Graduates can progress to an honours degree in

- BSc in Construction Project Management at IT Sligo
- BSc in Environmental Science at IT Sligo

Note from Sligo IT: "Students can progress to L8 BSc (Hons) in Construction Project Management once they have a Level 7 degree in a cognate area (pass degree is sufficient). We provide an advanced entry option for Level 7 graduates from Environmental Engineering to progress into the 3rd year of the Level 8 in Environmental Science. Unfortunately it is not possible to accept transfers into the 4th year of the Level 8 due to prerequisites. We would certainly consider applications from Level 7 graduates of Environmental Engineering from CIT similar to that outlined above".

Energy & Environmental Engineering, Institute Technology Tallaght

https://www.it-tallaght.ie/index.cfm/page/course?id=33 (level 7)

https://www.it-tallaght.ie/index.cfm/page/course?id=107 (level 8)

Outcomes

Length of course: 3 years

Follow-on Honours Bachelor Degree offered (1 year)

Note from IT Tallaght: "Upon completion of the Level 7 B.Eng in Energy & Environmental Engineering the successful student can progress to the Level 8 B.Sc in Energy Systems Engineering.
This add-on was developed by IT Tallaght to complement the B.Eng award. The BSc is also offered as a stand-alone Programme with the B.Eng award embedded within it.
The level 8 Programme is open to other students from other colleges but it does contain aspects of electrical eng, mechanical eng (thermodynamics), business modules and some other specialist areas.
There is no module dealing with Environmental Engineering in this L8 Programme.
Although our Level 7 had an element of environmental eng it was primarily an energy programme.
We would need to look at what the student has studied up to this point.
Although our Level 7 had an element of environmental eng it was primarily an energy programme.
We can discuss if there is compatibility between the CIT Level 7 and our Level 8 if an interested student contacts our department with a transcript".

Civil & Environmental Engineering Tralee

http://www.ittralee.ie/en/InformationAbout/Courses/SchoolofScienceTechnologyEngineeringandMathematics/TechnologyEngineeringandMathematics/TL745-BEnginCivilandEnvironmentalEngineering/

Progression Opportunities - Level 8
Bachelor of Science (Hons) in Construction Management (+2 Years).

This course is of two years duration, made up of two study blocks (fifteen weeks each), one industrial placement (twenty weeks) and a dissertation (eleven weeks).

Graduate Employment- types of companies

There are a wide range of engineering related sectors in Ireland providing employment opportunities for engineers from varying disciplines. There are over 1200 national and multinational employers, 600 of these companies are Irish and employ over 16,000 people in sectors as diverse as medical technologies, pharmaceutical and bio-pharmaceutical, chemical, electrical, electronic and telecommunications, food and drink, materials handling and automation.

Enterprise Ireland has lists of Irish employers in the engineering sector, including an up to date engineering sector profile

www.enterprise-ireland.com/en/publications click on *Corporate Reports and Published Strategies* and *Sector and Company Directories.*

Industrial Development Agency-IDA has a comprehensive list of all multi-national companies in Ireland. Companies manufacturing engineering products and devices in addition to all manufacturers who employ engineers are listed.

www.idaireland.com click on business sectors and company databases for a full profile.

FINDING EMPLOYMENT

Employers seeking final year /postgraduate Engineering students or recent graduates generally advertise their roles as either *Graduate Jobs* or *Graduate Programmes.*

Graduate Progammes:

Some large companies offer Graduate Programmes which range in duration from 18 months to 2 years normally. This may involve just one role or a rotation of roles in the same department or different departments to learn about the company and see where your interests and skills lie. Training and mentoring is usually included. In most cases companies are offering a full time permanent role to a graduate as part of the programme.

Competition for places is tough as large numbers of students apply for a small number of places with companies. Many companies recruit between October and December so final year students need to be on look out as soon as the academic year starts. Recent graduates can often apply too but check with the company first.

N.B. Companies often advertise graduate programmes or graduate jobs on the job page of a College/University Careers Service website as well as on www.gradireland.com

Check the jobs page on CIT's Careers & Employability Service website; http://www.mycit.ie/careers.

Register with gradireland to get email alerts on employment opportunities as well as job search advice www.gradireland.com

Get a copy of the **Gradireland Careers Directory** for Ireland (north and south) which is available at CIT's Careers and Counselling Service, 2nd Floor, Student Centre.

POSTGRADUATE STUDY

Gaining a postgraduate qualification brings with it many benefits. It enables you to gain further more specialized knowledge of your field of study; it can give you a specific technical, vocational or professional qualification and facilitate you in developing a range of key skills including: research, analysis, evaluation and written communication.

For further information, go to the 'Further/Postgraduate Study' link on the Students page of our website; http://www.mycit.ie/careers.

It is advisable to contact each college directly for their individual entry requirements as they will vary.

However here are a few such examples:

CIT MEng in Civil Engineering (Environment and Energy) programme.

http://www.cit.ie/course/CRCENEN9

Admission Requirements:

Applicants should hold a minimum of a second class honours grade 2 in a professionally accredited Level 8 honours Degree Programme in Civil Engineering or a cognate discipline.
Equivalent recognition may be given through the recognition of Prior Learning (RPL) process on an individual case by case basis to candidates who have not achieved this academic standard but who can demonstrate significant relevant professional experience in the discipline of Civil, Environmental or Energy Engineering.

IT Sligo MEng in Civil Engineering

http://itsligo.ie/courses/meng-in-civil-engineering/

Applicants must have an honours degree (2:2 or above) in Civil Engineering, Environmental Engineering, Structural Engineering or equivalent. All applicants should apply directly through the Registrar's office of the Institute of Technology, Sligo. The admissions office will assess all degrees obtained in another country using the guidelines supplied by the National Qualifications authority

Queens University Belfast MSc/PGDip Environmental Engineering

http://www.qub.ac.uk/schools/SchoolofPlanningArchitectureandCivilEngineering/PostgraduateStudy/MastersProgrammes/EnvironmentalEngineering/

A 2.2 Honours degree or above or equivalent recognised qualification in a relevant Engineering/Science discipline (eg Civil Engineering, Geology) with sufficient mathematical background (at least A-level, although undergraduate courses with a high mathematical content, eg statistics, can be acceptable). A 2.1 Honours degree or above is required for those with an insufficient mathematical background.

UCD MEngSc Water Waste & Environmental Engineering

You will need:
A recognised bachelor's degree (honours) in engineering (minimum 4-yr, 240 ECTS), preferably in civil engineering or environmental engineering, or equivalent.
High academic grades, i.e., a minimum 2H1 Honours level or its equivalent (your transcript should include grades for each subject taken)
Names and contact details of two referees who can assess your intellectual ability, maturity and motivation.

See also www.postgradireland.com and Engineers Ireland www.engineersireland.ie

Potential Areas of Employment

- Consulting Engineers
- State/Semi-State Bodies
- Utility Companies
- Local Authorities
- Contractors
- Self-Employed Consultant

FURTHER RESOURCES

Engineers Ireland www.engineersireland.ie

Environmental Jobs: https://www.greenjobs.ie/

Irish Engineering Enterprises Federation – www.ibec.ie/ieef

Association for Consultancy and Engineering www.acei.ie

Society of Manufacturing Engineers – www.sme.org

Pharmachemical Ireland – www.pharmachemicalireland.ie

Environmental Protection Agency – www.epa.ie

Environmental Research Institute – www.ucc.ie/en/eri

Gradireland Publications – 'Engineering' is available at the Careers and Counselling Service or download from www.gradireland.com

For career opportunities in environmental engineering in the UK see www.targetjobs.co.uk