

## **Your Degree in Engineering...What Next?**

*“Scientists discover the world that exists; Engineers create the world that never was.” Theodore Von Karmen 1881*

### **What Skills have I gained from my Engineering Degree?**

A qualification in engineering is highly regarded and valued by many employers for the relevant, transferable skills and competencies they can bring to a wide range of professional fields. In fact there are more qualified engineers employed in professional sectors other than their chosen specialism than any other degree stream.

#### **Core skills gained from an engineering degree include:**

- Analysis and problem solving
- Logical and mathematical reasoning
- Research and analytical skills
- Teamwork
- Technical skills

### **What Can I do with my Engineering Degree?**

Graduating from your engineering degree leaves you with a diverse range of opportunities to consider. Ideally you will spend a lot of your final year carefully researching your options which includes **graduate employment or further study**.

### **Graduate Employment- types of companies**

There are a wide range of manufacturing and 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](http://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](http://www.idaireland.com) click on business sectors and company databases for a full profile.

## **Employment -prospects and trends**

Engineering forms a significant part of the Irish Republic's economy. There are approximately 26,000 people employed within the engineering sector, representing 1.4% of national employment, according to the National Skills Bulletin. Over 170 engineering firms are multinational, working in key sectors such as automotive, electrical engineering, aerospace, materials handling and automation. Many leading firms are also expanding into areas such as advanced manufacturing, research and development, supply chain management and shared services. Ireland also has an expanding indigenous clean technology industry, with companies such as Ocean Energy developing ocean energy prototypes around the country. The food and forestry sectors also offer great potential for Ireland to boost exports.

In recent years, the growth areas have been in electrical engineering, which has seen a growth of +13.2% on average annually according to the National Skills Bulletin, and production, design and quality control engineering, which has seen a +9.7% average annual growth. Manufacturing has rebounded significantly in recent times in Ireland, with a recent Purchasing Manager's Index report (September 2014) showing that the sector was showing the strongest growth seen since 1999.

## **Some Skills in Demand**

- 1: Production & process engineering roles. These include computer aided design, process safety and system control.
- 2: Product development and design. These roles include the areas of chemical, biotechnology, pharmaceutical, food and medical devices.
- 3: Precision engineering roles in areas like tool making and design for the automotive, pharmaceutical and medical device sectors
4. Graduate engineers earn good salaries, which rise significantly with further experience and a professional qualification.

## **Biomedical Engineering**

The medical technologies sector in Ireland is substantial and growing. Over 14 of the largest multinational companies have located here while a significant but growing number of indigenous enterprises are engaged in the design, development, testing and manufacture of a wide range of preventative, diagnostic and treatment systems and products for the healthcare sector.

**Employers include:** Stryker, Abbott, Boston Scientific, Medtronic and DePuy.

## **Chemical & Process Engineering**

**Main jobs** are in design and development, testing, production, maintenance and troubleshooting. Employment opportunities arise with manufacturers of chemicals for all kinds of uses, the main ones of which include:

Food and drink, pharmaceutical and medical treatment and diagnostic products, water and wastewater treatment, oil refinement/petrochemicals, cosmetics and household products

**Employers include:** Abbott, Henkel, Alcan, GlaxoSmithKline, Pfizer, Unilever, Elli Lilly, BOC Gases, Irish Cement and Coca Cola.

### **Civil & Structural Engineering**

Main jobs are in design, planning, construction and supervision. Opportunities arise in the five main sub categories: construction, structural, transportation, environmental & water and geotechnical.

**Employers include:** Local Authorities, building contractors such as Sisk, Bam, McNamara Construction, Bowen Construction, PJ Hegarty consultancies such as : Fehilly Timoney & Company, RPS Consulting Engineers, Malachy Walsh, Project Management, and Arup.

### **Electrical Engineering**

**Main jobs** are in design, development, testing and maintenance in the manufacture of electrical products, services/utilities and energy & power generation. Main employment sectors breakdown into the following categories: power engineering, control engineering, computer engineering and telecommunications engineering.

**Employers include:** ESB, Airtricity, Eirgid, Analog Devices, Siemens and a wide range of industries engaged in manufacturing/production, all of whom require the skills of electrical engineers in the management and maintenance of power systems.

### **Electronic Engineering**

**Main jobs** are in the design, development testing and maintenance of products and systems in the fields of all communications, signal processing and control systems.

**Employers include:** Abbott, Ericsson, Siemens and Intel.

### **Mechanical Engineering**

The broadest and most versatile of all engineering disciplines, there are more mechanical engineers in the world than any other type. Mechanical engineers are employable across the widest stream of sectors.

**Main jobs:** are in the design, development, testing and maintenance of all power producing machines and technology from design/manufacturing tools and automated systems to parts and whole systems for engines, turbines and generators.

**Employers include:** Glen Dimplex, ESB and Aer Lingus.

### **Sustainable Energy Engineering**

Employment opportunities are on the increase in the design, development, testing production, storage and maintenance of renewable and sustainable sources of energy. Particularly strong areas of current and future development in Ireland are in wind energy and tidal energy. Others areas include biomass and solar power.

**Employers include:** SWS, Airtricity and ESB.

### **Transport & Auto Engineering**

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Main jobs are in sales/retail, management and supervisory positions in the motor trade and parts sector. Employment opportunities arise with main car dealers, importers, parts manufacturers and wholesalers and distributors.

Many graduates who choose to graduate at Certificate Level or Degree Level may opt to fully qualify as mechanics through a FAS apprenticeship and gain a National Craft Certificate. Exemptions are given. For more information contact FAS –see their website [www.fas.ie](http://www.fas.ie)

### **FINDING EMPLOYMENT**

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

#### **Graduate Programmes:**

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](http://www.gradireland.com)

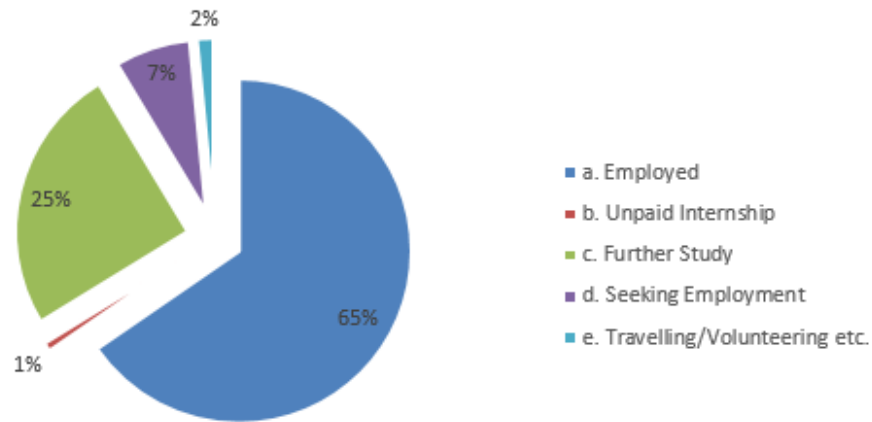
Check the jobs page on CIT's Careers & Employability Service website; <http://www.mycit.ie/careers>.

Register with gradireland to get email alerts on employment opportunities as well as job search advice [www.gradireland.com](http://www.gradireland.com)

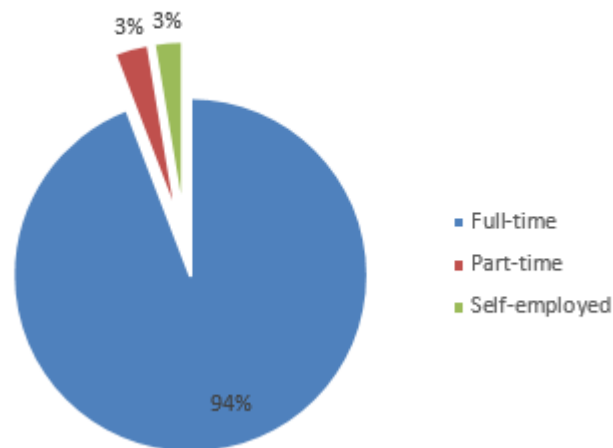
Get a copy of the **Gradireland Careers Directory** for Ireland (north and south) which is available at CIT's Careers and Counselling Service, 2<sup>nd</sup> Floor, Student Centre.

## What are the 2015 graduates doing now

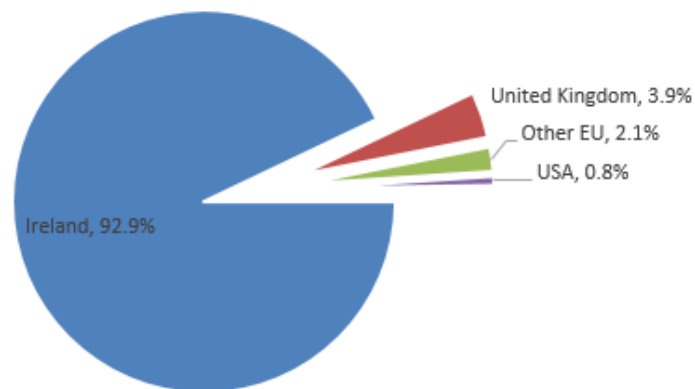
### 2015 E&S Graduates (major awards): Current Situation



### 2015 E&S Grads (major awards): Employment Mode



### 2015 E&S Graduates (major awards): Employment Location



Employer	Job Titles
Abbott Vascular	Manufacturing Engineer
ABEC	Designs Engineer
Acer Control	Lab Technician
Agility	Project Engineer
Airflow Services	Building Services Engineer
Alps Electric Ireland Ltd	Operator
Alternative Heating and Cooling	Heating Technician
Analog Devices International	Design Evaluation Engineer, Equipment Maintenance Technician
Apple	Manufacturing Engineer, Quality Engineer
Arup	Design Engineer
Audi Cork	Aftersales Executive
Aviva	Back Office Advisor
Bilfinger	Project/ Facilities Engineer
Bio Marine	CAD Technician
Blackwater Motors	Service Advisor, Apprentice Technician
BMD Ltd	Junior Engineer
Boston Scientific	Manufacturing Engineer, Engineer
Continental	Head of ITS Security & Privacy
Cork City Council	Executive Technician Mechanical
Country Clean Recycling	Graduate Environmental Health & Safety Officer
Cronin comercial	Labourer
DCS group	Project engineer
DD Electrical	Electrical engineer
DePuy Synthes	Senior Manufacturing Engineer, Maintenance Technician, Manufacturing Engineer, Technician 3
Dew Valley Foods	Factory Technician/Supervisor
Dornan Engineering Ltd.	Commercial Engineer
DPS Engineering	Electric and Instrumentation Engineer
Dungarvan Transport Ltd	Transport Planning Assistant
EDC	Junior Building Services Engineer
Eli Lilly	Maintenance Planner, Bioprocess Engineer, Process Engineer
EMC	Energy Engineer, Software Quality Engineer
Enerco Energy Limited	Project Engineer, Project Engineer (Solar)
Eneterprise Systems Partners	Junior Systems Engineer

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EPS Group	Industry Sales Engineer, Product Development & Technical Support, Utilities and Facilities Maintenance Team Leader
ESB International	Electrical Engineer
ESI Technologies	Technical Support Engineer
Fexco	Customer Service Representative
Ford Ireland	Business Fleet Specialist
Forde Steel Buildings	Steel Detailer
Glan Agua Ltd	Graduate Engineer
Glenmill Engineering	Engineering Draftsman
GSK	Laboratory Support Technicians
Henry Construction Projects Limited	Graduate Engineer
Hyde Engineering + Consulting	Engineer I
Intel	Process Specialist, Manufacturing Technician, Technician x 2, Process Technician
Jacobs Engineering Group	Piping Designer, Chemical Engineer, Graduate Electrical Engineer, Commissioning and Qualification Engineer
JDR Cable Service	Graduate Design Engineer
Johnson and Johnson	GOLD Associate Quality Operations
Jones Engineering	Graduate Engineer
Kearys of Cork	Service Advisor
Kinsale Energy	Safety Engineer
Kirby Group	Commissioning Engineer
Lehane Motors	Service Administration/Provider
Maitech	Sales Manager
Malachy Walsh & Partners	Graduate Electrical Engineer
Master Engineering	Drafting
MEP	Junior Mechanical Engineer
Metric Group Ltd	Software Developer
Milestone Solutions	Automation Engineer
Volkswagon	Service Advisor
MSD	Production Operator, Automation Engineer, Chemical Engineer
MSL Engineering	Piping Engineer
Murocon Engineering Services	Project Manager
Nahanagan Electrical	Electrical Engineer
Novartis	Process Engineer
Optien Limited	Energy Engineer
Pfizer	Elect/Inst Maintenance Technician
Pharmaco Engineering	Design Project Engineer

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Phillips 66	Mechanical Engineer
Plaster B Ltd. & Tony Doyle	Haulage Sales Rep.
PM Group	Process Engineer, Electrical Engineer, Mechanical Engineer
Powerpoint Engineering	Electrical Engineer
PRL Group	Transport Operator
Protect Performance Plastics Limited	Junior Mechanical Design Engineer
Regeneron	Biotech Production Specialist
Roche Ireland	Engineer
Rockwell Automation	Graduate Validation Engineer
Ross Feed	Machine Operation
Sanmina	Manufacturing Technician
Somex	Manufacturing Engineer
SPS Group	Supervisor
Stryker	Manufacturing Engineer, Additive Engineer, Advanced Manufacturing Engineer, Quality Technician, Engineer
Tricel	Graduate Engineer
UTC Swindon	Teacher of Engineering
VCE part of EMC	Material Planner
Verde LED	Applications Engineer
Wright Medical	Production Operator
Wyett Nutrition	Manufacturing Project Engineer
Xilinx	Software Test Engineer
Zenith Technologies	Automation Engineer, Validation Engineer

### **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>.

See also [www.postgradireland.com](http://www.postgradireland.com) and Engineers Ireland [www.engineersireland.ie](http://www.engineersireland.ie)

### **ALTERNATIVE CAREERS FOR ENGINEERS**

- Fire and safety: Graduates are employed as chief fire officers, plant engineers, engineering consultants, inspectors for the Health and Safety Authority and site engineers. There are opportunities in all major industries.



- Patents: Occasionally, opportunities arise in the patents office for engineering graduates. This could be a public service position advertised through the Civil Service, or a private sector position for pharmaceutical companies.
- Technical sales and marketing: Engineering graduates can find employment with manufacturers of specialised engineering products who need qualified sales and marketing people with the ability to thoroughly understand the product/process. Employers include all large and small engineering companies.
- Technical writing: Technical writing is a niche growth area. A postgraduate qualification is now available in Ireland. The key skill is to make complex scientific and technical information clear and understandable to those unfamiliar with it.
- Consultancy: There are many consultancy firms that require the competencies acquired by engineering graduates.

### **FURTHER RESOURCES**

Engineers Ireland [www.engineersireland.ie](http://www.engineersireland.ie)

Irish Engineering Enterprises Federation – [www.ibec.ie/ieef](http://www.ibec.ie/ieef)

Association for Consultancy and Engineering [www.acei.ie](http://www.acei.ie)

Society of Manufacturing Engineers – [www.sme.org](http://www.sme.org)

Pharmaceutical Ireland – [www.pharmaceuticalireland.ie](http://www.pharmaceuticalireland.ie)

Gradireland Publications – ‘Engineering’ is available at the Careers and Counselling Service or download from [www.gradireland.com](http://www.gradireland.com)

For career opportunities in engineering in the UK see [www.targetjobs.co.uk](http://www.targetjobs.co.uk)