

Process And Chemical Engineering

What Next?

Process And Chemical Engineering at UCC

“ Chemical engineers/process engineers are involved in the design, modification and operation of processes to produce desirable products.

Process & Chemical Engineering provides a pathway towards helping meet society's needs. These include energy generation, food production, water supply, waste management, consumer goods and healthcare products. Moreover, societal needs are driven by economic considerations and framed by ecological limits. In this context, the challenges facing society through the twenty first century are substantial.

A number of radical innovations – both technical and non-technical, are required in order to overcome the many challenges ahead. Potential solutions will need to be rooted in economic, social, environmental and political contexts. Process & chemical engineers, with their understanding of material and energy flows and of thermodynamics, are well placed to be key, indeed, lead players in this universal and trans-disciplinary effort.



What can Process And Chemical Engineering Graduates offer employers?

A graduate of Process & Chemical Engineering in UCC will have developed the ability to:

- Demonstrate knowledge, skills and understanding of scientific and mathematical principals and methodologies underpinning an engineering degree and the ability to integrate these to achieve solutions to real problems.
- Understand engineering principles and demonstrate the ability to apply them to analyse key engineering processes.
- Apply a systems approach to engineering problems.
- Investigate and define a problem and identify constraints, including environmental and sustainability limitations, health and safety, and risk assessments.
- Understand customer and user needs.
- Use creativity to establish innovative solutions.
- Ensure fitness for purpose for all aspects of the project, including production, operation, maintenance and disposal.
- Demonstrate an understanding of the commercial and economic context of engineering processes.
- Appreciate the social, environmental, ethical, economic and commercial considerations affecting the exercise of their engineering judgement.
- Understand the requirement for engineering activities to promote sustainable development.
- Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.
- Understand the need for a high level of professional and technical conduct in engineering.
- Apply the practical application of engineering skills, and other relevant knowledge and skills such as workshop and laboratory skills.
- Understand contexts in which engineering knowledge can be applied.
- Use technical literature and other information sources.
- Apply an awareness and understanding of codes of practice and industry standards and quality issues.
- Demonstrate an awareness of quality issues.
- Work with technical uncertainty.
- Apply general transferable skills in a wide range of situations, including problem solving, communication and team working, as well as the effective use of general IT facilities and information retrieval skills.



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First Destinations of Process & Chemical Engineering Graduates

Each year, UCC Career Services produces a First Destinations Report (FDR) based on an annual survey of graduates six months after graduation. Graduates of the programme are faced with a very healthy jobs situation, with strong employment prospects in food, drinks, biopharmaceuticals, environmental and technical services, finance and management, medical devices and consultancy sectors. 0% of BE Process and Chemical Engineering graduates have been seeking employment six months after graduation over the past four years .

5-Year Trend	2008	2009	2010	2011	2012
In Employment	68%	57%	60%	82%	77%
In Further Study or Training	16%	43%	40%	18%	8%
Seeking Employment	16%	0%	0%	0%	0%
Not Available for Work or Study	0%	0%	0%	0%	15%

Who employs Process & Chemical Engineering Graduates?

Graduates who progressed directly to employment have taken up a variety of roles. The following table provides a sample of roles listed on FDR reports returned to the Career Services by graduates of Process and Chemical Engineering.

Employer	Role
Zenith Technologies Dublin	Automation Engineer
Glanbia, Kilkenny	Chemical Engineer
Royal Bank of Scotland	Financial Analyst
Intel	Waste Systems Engineer
Kerrygroup	Maintenance Manager
Irish Cement Ltd.	Chemical Engineer
Kinetics Process Consulting Ltd., Cork	Project Engineer
Dairygold	Shift Manager
Lisheen Mine	Metallurgist
Pfizer, Cork	Tablet Technician
Amazon, Cork	Technician Professional
An Garda Síochána, Dept. of Justice	Garda
Students Union, University College Cork	Students' Union President
Syngenta, Intel, Eli Lilly, BCD, Genzyme	Process Engineer
PM group, Jacobs Engineering	Process Engineer
Intel, Pepsico, Boston Sciencific, Fox's Biscuits,	Engineer
Nestle, Glanbia, TransOcean	Engineer

What Postgraduate courses do Process & Chemical Engineering Graduates Choose ?

Of those who progress directly to postgraduate study, some choose courses that relate directly to the study of Process and Chemical Engineering. The following list provides a sample of the postgraduate courses closely related to Process and Chemical Engineering that are listed by Process and Chemical Engineering graduates on FDRs returned to UCC Career Services.

Course Title	Institution
MEngSc (Mechanical Engineering Manufacturing Process and Automation Systems)	University College Cork
PhD Engineering	University College Cork
MSc in Applied Science (Biotechnology)	University College Cork
MEngSc (Biopharmaceutical Engineering)	University College Dublin
MA (Environmental Science & Engineering)	University Abroad
MEngSc (Bioprocess Engineering)	University College Dublin
MSc (Sustainable Energy Systems)	Waterford Institute of Technology
PhD Chemical Engineering	University College Dublin

Other Process and Chemical Engineering Graduates choose courses that “convert” their degree to a new area that will make good use of their existing knowledge and skills. The next list provides a sample of postgraduate “conversion” courses chosen by UCC Process and Chemical Engineering graduates that are listed by graduates on FDRs returned to UCC Career Services.

Course Title	Institution
Graduate Entry Medicine	University College Cork and Limerick
MSc (Financial Economics) – Investment Banking and Risk Management.	University College Cork
MSc in Corporate Finance	University College Cork
MBS (Information Systems for Business Performance)	University College Cork.
Masters in Management	University College Dublin

Graduate Profiles

Traditional Career Path



Non Traditional Career Path



Long Term Prospects for Process & Chemical Engineering graduates

Process & chemical engineers play a crucial role in everyday life. Many are involved in the design, modification and operation of processes to produce desirable products across a broad range of process industries. Equally, process & chemical engineers can be found across a huge variety of sectors, including PharmaChem (Bio)Pharmaceuticals, Chemicals & Allied Products, Energy, Food & Drink, Water, Environmental, Renewables and Fossil Fuels, Biotechnology, Healthcare & Biomedical, Consumer Goods, Electronics/Computers, Supply Chain Management, Waste Management, Materials, Business and Management, Consultancy (Design, Environmental, General, etc.).

Graduates can become chartered engineers after graduation once they have completed the required amount of extra academic courses and/or professional practice. The Institution of Chemical Engineers (IChemE) has identified six key themes that will concern the profession (and, indeed, society) through the coming decades, as part of their “Roadmap for 21st Century Chemical Engineering”. These are Sustainability and Sustainable Chemical Technology; Health, Safety, Environment and Public Perception of Risk; Energy; Food and Drink; Water; Bioprocess and Biosystems Engineering

Alternative Careers:

An Engineering qualification is an excellent foundation for progression into many non-engineering careers. You will have developed a broad range of transferable skills such as problem-solving, analytical thinking, team-working and project management. These are highly sought after in areas such as business, finance, law, management consulting and supply-chain management. You might also consider roles in teaching or third-world development. Further study may be required to pursue careers in some of these areas, for example an MBA, professional accounting or law exams, or a teaching qualification. Consult the following recommended websites for full details on each of these jobs and useful information on a wide range of career options:

<http://www.gradireland.com/career-sectors>

http://www.prospects.ac.uk/options_chemical_engineering.htm



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Where can I find out more?

Association	Website
<p>Professional Societies</p> <ul style="list-style-type: none">• Engineers Ireland• Institution of Chemical Engineers (UK)• European Federation of National Engineering Associations• International Society for Pharmaceutical Engineering• American Institute of Chemical Engineers <p>General</p> <ul style="list-style-type: none">• The Health & Safety Authority• The Industrial Development Authority• The Environmental Protection Agency <p>Industry Journals</p> <ul style="list-style-type: none">• Samedan Pharmaceutical Publishers	<p>http://www.engineersireland.ie/home.aspx http://www.icheme.org/ http://www.feani.org/site/ http://www.ispe.org/ http://www.aiche.org/</p> <p>http://www.hsa.ie/eng/ http://www.idaireland.com/ http://www.epa.ie/</p> <p>http://www.samedanltd.com/</p>

8 ways to put your degree to work

Employers want graduates with a three-dimensional CV, who are able to demonstrate a healthy balance during their college years between study, work and extra-curricular interests. CVs should provide evidence of maturity, life skills and active citizenship to inform a future employer that they will be taking on a sociable, committed and reliable colleague.

- Get involved in running the Students' Union or a club/society that interests you.
- Gain relevant paid/voluntary work experience during holidays or free days.
- Sign up for training courses that will strengthen your skill set, e.g. languages, ECDL.
- Set up a LinkedIn profile and start building your network.
- Go to the UCC Career Services for careers advice and assistance with regard to CV and interview preparation, job search strategies, and postgraduate options.
- Attend careers events organised on campus and advertised on www.ucc.ie/careers
- Use careers events to initiate relationships with potential employers.
- Check job vacancies regularly on www.ucc.ie/careers and www.gradireland.com

Did you know?

- The BE (Hons) Process & Chemical Engineering Degree is accredited by both Engineers Ireland and the Institution of Chemical Engineers (UK).
- From 2013, those engineering graduates who wish to be eligible to apply for Chartered membership (CEng) of the Institution of Engineers of Ireland will require an additional Masters-level qualification or equivalent.
- An appropriate Masters-level programme will be provided by UCC to give this opportunity to BE Hons (Process & Chemical) graduates.
- The UK's equivalent body, the Engineering Council, have not indicated such a requirement yet; thus graduates of 4 year IChemE MEng level accredited courses (such as this one) would still be eligible for the "Chartered Engineer" title via the IChemE.
- Chartered Engineers are mutually recognised in Ireland, the UK and a number of other countries via the Washington Accord

Contact Us

While this resource provides you with an overview of the career options available with your degree, each person carves their own career path based on their personal values and interests. Your college years are an ideal time to explore career options while gaining new experience and learning new skills. Why not speak to a careers adviser to help you get started?

As a student of UCC, you are entitled to book a free personal consultation with a careers adviser at UCC Career Services. You can return as many times as needed because we understand that it makes sense to begin planning your career from first year onwards – don't wait until final year! We look forward to meeting you, no matter what your year of study. For your convenience, we now have a web-based booking system. Book your appointment online via our website – www.ucc.ie/careers - in the Meet an Advisor section.

Location

3-4 Brighton Villas, Western Road, Cork.
Open 9.30am - 5 pm Monday to Thursday, 9.30am - 4 pm on Fridays

Keep in Touch

www.ucc.ie/en/careers
[www.twitter.com/careersUCC](https://twitter.com/careersUCC)
www.facebook.com/ucc.careers