UCD SCHOOL OF CHEMICAL & BIOPROCESS ENGINEERING

60th ANNIVERSARY CELEBRATION

FRIDAY 18 NOVEMBER 2016
O’REILLY HALL, UCD
Our vision is to make APC and Ireland the ‘go-to’ place for advanced pharmaceutical and biotech R&D and to ultimately help patients, all over the world, gain access to their medicines in a quicker, safer, more reliable and cost-effective manner.

Accelerating the delivery of quality, life-changing medicines to patients
Welcome

We are honoured to welcome you to a celebration of 60 years of Chemical & Bioprocess Engineering at UCD. Since its beginning, almost 1500 BE graduates have emerged from the School, which remains the oldest and largest degree-granting school of its type in Ireland.

The mission of the School is to produce graduates with the engineering grounding, cross-disciplinary fluency, transferrable skills and capacity for life-long learning to become future technological and business leaders. Undergraduate teaching is very much supported by the breadth of research currently underway in the School, and, in addition, the size of the School means that we can foster a collegial atmosphere amongst our students, staff, and faculty.

Over the past 10 years we have maintained the excellent quality of our IChemE accredited BE programme, we have developed a number of very successful taught graduate programmes, we have seen a very large increase in research activity which has delivered tangible impact to the Irish economy though a number of award-winning spin-out companies. We also participate in major national and international networks involving collaborative research with industry.

These are exciting times for the School. Building on our reputation, tradition and core values, we have developed an ambitious strategic plan for the School that places the enhancement of the student learning experience at its core. This year, we are introducing the first 5-year integrated Masters (ME) programme in Chemical & Bioprocess Engineering, incorporating an industrial placement of up to 12 months in duration. In the next two years we intend to invest significantly in the enhancement of our teaching laboratories. We will also be expanding the number of academic and technical staff in order to maintain an ideal staff-student ratio as we continue to grow.

We are deeply grateful for your ongoing support and look forward to continuing to maintain links with you.

Eoin Casey
Prof. Eoin Casey
Head of School

Congratulations to UCD Chemical Engineering

Callaghan Engineering, one of Ireland’s leading Consulting Engineering firms, offers an alternative professional engineering service integrating the latest technologies with a personal approach.

With offices in Dublin and Cork we can meet your requirements for detailed engineering design, project and construction management services, along with validation, procurement, regulatory compliance, and consulting expertise in the following sectors:

- Biotechnology
- Pharmaceutical
- Medical Devices
- Data Centres
- General Industry
- Government Agencies
- Educational
- Commercial
- Leisure
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A HISTORY OF CHEMICAL ENGINEERING AT UCD

Chemical Engineering at UCD had its origins in the post-World War II period when the subject began to proliferate in universities around the world. In UCD there was a precursor to chemical engineering, the Diploma in Chemical Technology - a postgraduate course in the Chemistry Department. The degree programme in chemical engineering was established in 1954, with the first three graduates emerging in 1956.

In addition, Bill Riley and George McMahon, who had been involved with the Diploma in Chemical Technology, and Frank Dreschler, from the Mechanical and Electrical Engineering Department contributed to the early teaching of the programme. The position of Chemical Engineering in the College was formally established with the appointment of John O’Donnell to the newly created Chair of Chemical Engineering in 1957.

Further staff appointments came over the years. Paddy O’Flynn - a graduate from 1957 and the first student from the department to undertake postgraduate studies in the US - was appointed in 1959. John Kelly - appointed in 1963 - had also graduated in 1957 and had a short career in a number of Irish industries. John would later become Dean of the Faculty of Engineering and Architecture and, later still, Registrar of UCD. The next appointments were of two chemists; John Byrne, a physical chemist who joined in 1966, and Dan Carroll, an inorganic chemist appointed in 1967. Both held PhDs from UCD and they were able to provide chemistry courses more suitably focused on the needs of process engineering than those available from the Chemistry Department. Noel Murphy, who graduated in 1962, was appointed to the staff in 1971, having gained a PhD from the University of Notre Dame. Noel worked as a chemical engineer in the United States prior to returning as a staff member.

There was no question of the new discipline being located in the Science Faculty as happened in a number of US universities. Its roots were firmly fixed in the Engineering School, in Merrion Street, and the first staff members whose interests were primarily in chemical engineering were John O’Donnell - appointed in 1949 after an industrial career in the ESB and the Sugar Company - and Jim Walsh, who had worked for two years in Shell before his appointment in 1951. John O’Donnell was Head of the Department from 1957 until his retirement in 1988.

In 1980 the next generation of appointments brought in Frank MacLoughlin - a graduate of 1970 and the first PhD from the department to join the staff - and Dermot Malone, who obtained the BE in 1972 and completed his PhD in Cornell University in 1976. Both were recruited initially to meet the teaching requirements for the full-time Diploma in Chemical Engineering which ran from 1979 to 1983; this course had been offered as a two-year part-time course since 1975. As the undergraduate class sizes increased, the need for the diploma course disappeared; class sizes had increased to ca 30 students during the 1980s and also the proportion of female students had been gradually increasing to the 30% level.

Don MacElroy, who graduated in 1974 and spent 10 years on the academic staff at the University of Missouri, was recruited in 1991. In 1989 the Department moved from the Merrion Street location (now to house the Office of the Taoiseach) to the new Engineering Building on the Belfield campus. In 1988 Jim Walsh was appointed Head of Department and remained so until his retirement in 1992.

From 1992 to 2002 the Department was led by Professor Geoff Hamer. Geoff graduated from Birmingham, had worked in Sweden, Holland and Kuwait and had been Professor of Technical Biology at ETH in Zurich before coming to UCD. During this time a new phase of staff recruitments began with Brian Glennon who graduated from UCD in 1988, completed his PhD in 1992, worked for a time with MSD in Ballydine before joining the staff in 1996. Patricia Kieran (’85) completed a master’s degree at the University of Missouri (Rolla) before returning to UCD to graduate with a PhD in 1993. Following a sojourn at DCU she was appointed to the staff in 1999. Eoin Casey graduated in 1994 and gained his PhD from UCD in 1998. Having worked with PFD, a company founded by another UCD Chemical Engineering graduate, Joe Hannon (’87), Eoin returned to join the staff in 2002.

In 2004 Damian Mooney was recruited from The Queen’s University, Belfast, having graduated from UCD with a BE in 1992 and a PhD in 1996. Damian spent some time with Du Pont UK Ltd. before joining Queen’s. In 2004 the staff was augmented with the appointment of Susan McDonnell who received a BSc in Biochemistry from...
University College Dublin and completed a PhD in Cell Biology in Dublin City University (DCU). She then spent four years working as a postdoctoral research fellow in Vanderbilt University, Nashville, Tennessee. In 1992 she was appointed lecturer in the School of Biotechnology, in DCU and moved to the Department of Chemical and Biochemical Engineering at UCD in 2004. The next recruit to the School was Niall English who graduated with a BE in 2000 and a PhD in 2003. Following his PhD, Niall worked as a research engineer in the United States and in the UK. He commenced work in the School in 2007.

The Department of Chemical Engineering in the Faculty of Engineering and Architecture now became the School of Chemical and Bioprocess Engineering in the College of Engineering, Mathematical and Physical Sciences (later, the College of Engineering and Architecture after further re-organisation).

In 2005, Professor Mohamed Al-Rubeai was appointed to the newly established Chair of Biochemical Engineering. Mohamed had held the Chair in Biotechnology at the University of Birmingham since 2000 and established a major research activity in a number of areas including, the production of biopharmaceuticals, mammalian cell culture, tissue engineering, stem cell bioprocessing, metabolic engineering and biomaterials. Mohamed retired in 2015.

The School was joined by Cosima Ioscani Jimenez Del Val who graduated from UCD in 2007 and then worked with Veolia for 3 years. In 2011 he re-joined the Biofilm Group at UCD, headed by Eoin Casey and was appointed as a full-time staff member in 2014.

Don MacElroy was appointed as Professor of Chemical Engineering and Head of Department in 2003. In 2005 the structures at UCD underwent a significant change under the presidency of Dr Hugh Brady.

In 2009, Denis Dowling was appointed to a shared post in the Schools of Chemical & Bioprocess Engineering and Mechanical and Materials Engineering.

In 2014 Don MacElroy stepped down as Head of School to be replaced by Eoin Casey.

Ravindranathan Thampi joined the UCD School of Chemical & Bioprocess Engineering as the SFI-Airticity Professor in Solar Energy Engineering in July 2009. His research group is devoted to the study of chemical solar energy conversion and fuel cell systems. Before joining UCD, Ravi was a group leader and Project Manager at the Laboratory of Photonics & Interfaces (LPI), EPFL, Lausanne, Switzerland, where he worked for over 23 years. Ravi has recently been appointed as Vice-President Internationalisation within the College.

The most recent wave of young recruitments to the School, as Frank MacLoughlin, Don MacElroy and Dermot Malone became eligible for retirement, commenced with the hiring of Eoin Syron, a graduate from 2003. Eoin gained a PhD from UCD in 2007 and then worked with Veolia for 3 years. In 2011 he re-joined the Biofilm Group at UCD, headed by Eoin Casey and was appointed as a full-time staff member in 2014.

In 2014 Don MacElroy stepped down as Head of School to be replaced by Eoin Casey. New staff appointments continued with Dr Ioscani Jimenez Del Val who graduated with a BE in Chemical Engineering from the National Autonomous University of Mexico (UNAM) in 2006. He received his MSc in Advanced Chemical Engineering with Biotechnology in 2008 and was awarded his PhD in 2013, both from Imperial College London. Ioscani joined the staff of the School of Chemical & Bioprocess Engineering in 2014. Philip Donnellan graduated from UCC with a BEng in Chemical Engineering (2011) and completed his PhD in 2014. He was appointed to the Staff in 2015. The most recent appointment is Stephen Ferguson who obtained a BE in chemical engineering in 2008 and graduated with a PhD in 2012. Stephen worked as a Post-Doctoral Associate at MIT and with Biogen in the United States before returning to the School in 2015.

There are two further staff members who have made significant contributions to the School over the years, Adjunct Professors, Michael Egan (65) and Dave O’Reilly (68). Recently both Mark Barrett (’05, APC) and Brendan O’Callaghan (’82, Sanofi-Genzyme) have been appointed as Adjunct Professors.

Student numbers in Chemical Engineering have mirrored the growth in staff numbers and the growth in the Irish process industries. As evident from the roll of names from 60 years of graduating classes, numbers have expanded hugely from the initial class of 3 graduates in 1956.
As of 2016 the number of chemical engineering graduates had risen to 1465 and the largest graduating class, in 2006, consisted of some 46 students. Some two-thirds to three-quarters of all graduates from the School are living and working in Ireland.

Along with the developments in academic staffing the School has benefited from the contributions made by workshop, technical and administrative staff. Dan Cash, Liam Mowlds, Jim Nolan and Liam Morris joined as workshop technicians during the 1960s and with the recruitment of Dan Carroll and John Byrne, first Mrs McGurk, and later Sinead Kerins and Brid Casey provided support for the undergraduate teaching of inorganic and physical chemistry. During the 1970s as the teaching and research activity within the Department expanded, Rose Haney, Tom Burke, Noel Brady and Patricia Connolly and, somewhat later, Pat O’ Halloran were recruited for laboratory support, while Frank Dillon was a highly skilled addition to the workshop. In the early 1980s the Department could even field a creditable soccer team with the assistance of some post-grads. Mention also must be made of Oliver Canniffe who worked tirelessly providing logistical support for staff and students. Naturally, there have been some retirements along the course of the 60 years so that at present the school has lost all of the qualified workshop staff and the remaining technical staff include Noel Brady, Tom Burke, Sinead Kerins, Patricia Connolly, Brid Casey, Noel Brady and Brian Turner.

Chemical Engineering over the years have greatly benefitted from the inspired choice of two of the most important individuals to have graced the front office of the Department. Those of a significant age will remember Sheila Carroll who was recruited in John O’ Donnell’s tenure as Head. When Sheila retired in 1999, ‘The Prof’ acknowledged her pivotal role: “For many years Sheila was probably the greatest asset of the Chemical Engineering Department at UCD. Her charm and helpfulness to newcomers, students, staff and visitors alike, was both an important and appreciated quality. Her knowledge of the intricacies and intrigues within UCD rescued me from many a “faux pas”.”

In 1999 Aoife Carney took over the position held by Sheila. She, too, has placed her individual stamp on the role as the welcoming face of the School for undergraduates, post-graduates, researchers, external examiners, industrial representatives and last, but not least, the staff.
Together, we make the difference.

At Bristol-Myers Squibb, we’re creating innovative medicines for patients fighting serious diseases. We’re also nurturing our own team with inspiring work and challenging career options.

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HEADS OF SCHOOL

Professor John O’Donnell
1957 - 1988

Professor Jim Walsh
1988 - 1992

Professor Geoff Hamer
1992 - 2001

Dr Dan Carroll
2001 - 2003

Professor Don McElroy
2003 - 2014

Professor Eoin Casey
2014 -
40th ANNIVERSARY CELEBRATION
In 1996 the 40th Anniversary of Chemical Engineering at UCD was celebrated. In the afternoon, prior to the night’s celebrations, a major seminar was held to discuss Future Developments in the Chemical and Process Industries in Ireland. Opening the event, the President of UCD, Dr Art Cosgrove, paid tribute to the contribution the Department and its students had made to the College over the previous forty years. Particular note was made of the impact of Professors John O’Donnell and Jim Walsh on the early development of Chemical Engineering in Ireland.

THE JOHN O’DONNELL CONTRIBUTION DINNER

THE JOHN O’DONNELL COMMEMORATIVE BUST EVENT
In 2005, a group of chemical engineering graduates, Desmond J. Green (’61), John J. Kelly (’57), Ray McLoughlin (’61) and Tony Mullins (’69), got together and agreed that a memorial to the late John O’Donnell, a bronze-sculpted head, should be commissioned. In October of that year the formal unveiling of the bronze-sculpted head by sculptor, Philip Flanagan, took place in the Engineering Building.

TOM BURKE MBE!
In 2004, Tom Burke, Section Head Technician in the School, who has collected the stories of Irish people who fought in the First World War, was awarded an Honorary MBE by Queen Elizabeth. Tom, who founded the Royal Dublin Fusiliers Association in 1995, after a chance encounter with a WW1 veteran in Dublin, received the honour for his significant contribution to the British-Irish peace process. He has contributed to radio and TV programmes on the First World War, is a published author in the field and acted as a guide/adviser to then President McAleese on her visits to Wytschaete, Belgium (2007) and Gallipoli (2010). Tom graduated with an MA from UCD in 2014.

50th ANNIVERSARY EVENT
In 2006 the 50th Anniversary of Chemical Engineering was marked with a Gala event in the O'Reilly Hall. In recognition of Professor John O'Donnell's magnificent contribution to the development of the profession in the University, as well as both nationally and internationally, a presentation was made to Mrs Ronnie O'Donnell (Guest of Honour). Presentations, in the form of a special commemorative medal, were made to Professor James J. Walsh, Professor Geoffrey Hamer, Dr Dan Carroll and to Dr Eddie O’Connor (’70) of Airtricity (now Mainstream Renewable Power). The final presentation was made to Paddy O’Flynn in recognition of his lifelong commitment to the Department/School, to Staff Development, to Faculty and University. President Hugh Brady oversaw the medal presentations.
Imagine the Possibilities

Jacobs is one of the world’s largest and most diverse providers of technical professional and construction services, including all aspects of engineering, architecture, and construction, operations and maintenance, as well as scientific and specialty consulting. Our Life Sciences business is the largest professional services provider to the pharmaceutical and biotechnology industries.

We offer opportunities to start your career while still in school. Grow into new challenges as you progress, advance when you are ready to take on more, and participate or potentially lead projects that help change the world.

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Engineering
Maintenance
Operations
Planning
Commissioning
Qualification
Verification

60TH ANNIVERSARY CELEBRATION

UCD CHEMICAL ENGINEERING SOCIETY

The UCD Chemical Engineering Society was founded in 1955-56 by Paddy O’Flynn (BE 1957). Peter O’Callaghan (BE 1956) was the inaugural Auditor, succeeded by Paddy for 1956-57. Then, as now, it was a forum for student social activities (and for activities which might be generously classified as ‘educational’).

Since 1956, the Chem Eng Soc has survived the move from Merrion Street to Belfield, profited from the availability of cheap flights - facilitating student participation in international Chemical Engineering student events, developed its own FaceBook page, earned its own stand at Freshers’ Week (even attracting some non-Chemical Engineering members) and established a corner in Room 142 in the Engineering Building, where members – struggling with the Design Project or a tricky Thermo problem - can make a restorative cup of tea!

In the early 1960s, in a spirit of cross-disciplinary collaboration, a group of Chemical and Civil Engineering students (the Sivikems), led by Kevin Kelly (BE 1963), ran weekly dances in the Four Provinces Ballroom on Harcourt St., with Ray McLoughlin (BE 1961) assisting as bouncer! In the 1970s and 1980s, the Chem Eng Soc organised impressive field trips, including an expedition to the USSR in 1979 (led by Dan Carroll and John Byrne), to the US in 1980 (led by John Kelly) and to Japan in 1981 (led by Jim Walsh). The Class of 1985 ventured to Switzerland. Most Chem Eng Soc trips included a visit to either a distillery or a brewery (or both), to see classic Chemical Engineering unit operations in practice, of course!

In recent years, the Chem Eng Soc has become increasingly involved in professionally-related student activities. Since 2012, UCD has fielded teams for the annual IChemE Frank Morton Event, a UK-based sports day and career fair, for Chemical Engineering students from Ireland and the UK. With Eli Lilly now generously sponsoring IChemE Student
Some Chem Eng Soc trips were much more ambitious as in 1979, when a group of students, shepherded by Dan Carroll and John Byrne, travelled to the USSR.

Membership for all Chemical Engineering undergraduates in Irish higher-level institutions, there has been increased interaction between Chemical Engineering students around the country, culminating in the IChemE All-Ireland Student Sports Day.

UCD Chem Eng Soc teams participated in both the 2015 (UL) and 2016 (QUB) events.

Since 2015, Engineers Ireland Chemical & Process Division has worked with the Chem Eng Soc in hosting Chemical Engineering Membership for all Chemical Engineering undergraduates in Irish higher-level institutions, there has been increased interaction between Chemical Engineering students around the country, culminating in the IChemE All-Ireland Student Sports Day.

Careers: Voices of Experience sessions, allowing current students to meet and learn from experienced professionals. ISPE Young Professionals activities are planned for 2017.

Through Chem Eng Soc social nights, students from different classes get to know one another. The Chem Eng Soc year ends with the annual Staff-Student Dinner, scheduled after the submission of the Final Year Design and Research Projects. The future of the UCD Chemical Engineering Society – and the profession – is in good hands!


UCD students (in white shirts) at the MSD & AbbVie sponsored IChemE All-Ireland Sports Day in QUB, October 2016. The UCD team was led by Chem Eng Soc Auditor 2016-17, Deirdre Belton.
Over the last ten years, the School's research activities have increasingly focused on the three key areas of (i) Bioprocess Engineering, (ii) Advanced Materials, and (iii) Energy Conversion and Storage.

**Bioprocess Engineering** covers a wide number of activities from the design of processes for the manufacture of pharmaceuticals and therapeutic proteins to the study of the behaviour of biofilms in water treatment and biological processes. Research in this area has been commercialised through companies such as OxyMem and APC. The School also works closely with the National Institute for Bioprocessing Research and Training (NIBRT) which is based on the UCD campus. Significant funding for this research comes from industry, Science Foundation Ireland, and the European Research Council.

The study of **Advanced Materials** employs a range of expertise. Molecular simulation is used to help understand the behaviour and design of novel materials. Applications include membranes, hydrogels, ionic liquids, proteins and nanomaterials. Highly sophisticated analytical techniques are used to support this work. Access to this capability is provided through the Nano Imaging & Material Analysis Centre (NIMAC). The Surface Engineering Group carries out research on the use of plasma and other surface treatments to modify the properties of polymers, ceramics and metals.

Research in **Energy Conversion and Storage** is focused on advanced solar and fuel cell technologies. This research group work closely with the Advanced Materials researchers, to identify improved strategies for energy storage and carbon reduction. In 2015, building from their research, Prof. Ravi Thampi and co-workers founded **Insight Renewables**, to harness biomass as...
a renewable fuel. The School is also part of the **UCD Energy Institute**. The Strategy for the Institute was developed by the UCD Energy Advisory Board, chaired by Dr David O’Reilly (BE 1968), former CEO of Chevron.

**APC Ltd** was formed in 2011 by Brian Glennon (class of ’86) and Mark Barrett (class of ’05). From its facility in Cherrywood in Dublin, APC provides process research and development services to the global pharmaceutical industry. The company has over 90 staff and is the biggest employer of PhD-level Chemical Engineers in Ireland. APC was named the Pharmaceutical SME Company of the Year at the Irish Pharmaceutical Industry Awards 2016.

**OxyMem Ltd** was established in 2013 by Eoin Casey (class of ’94) and Eoin Syron (class of ’03) to commercialise novel technology to significantly reduce costs for wastewater treatment. A Global Cleantech 100 Company, OxyMem won EuropaBio’s 2016 Award for Most Innovative European Biotech SME. Its systems are running across Europe, Japan and Brazil. OxyMem currently operates in a manufacturing facility in Athlone and also has offices in Dublin.

The **Nano Imaging and Material Analysis Centre (NIMAC)** provides the university and industry with world-class facilities for electron microscopy allowing all of the research groups gain insight into the nature of the materials being studied.

The **National Institute for Bioprocessing Research & Training (NIBRT)** works closely with the School in the delivery of its undergraduate and postgraduate programmes, as well as providing unique research facilities for bioprocessing research.
Ready to take the next step in your sector?

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MEngSc Biopharmaceutical Engineering

(One Year Full Time / Two – Three Year Part Time)

Pharmaceutical and Biopharmaceutical manufacturing are key sectors in the Irish economy generating over 50 per cent of CDP. This sector has seen significant growth in recent years providing excellent job opportunities for graduates. The programme and its academic content are closely linked with the National Institute for Bioprocessing Research and Training (NIBRT), which is a global centre of excellence for training and research in bioprocessing.

Excellent employment record

This programme has an excellent employment record. It equips graduates with the knowledge and skills to obtain a high level, professional career in the biopharmaceutical sector.

Why study at UCD?

 Tradition

 Established 1854, with 160 years of teaching & research excellence.

 Global profile

 UCD is ranked in the top 1% of higher education institutions worldwide.

 Global community

 Over 7,000 international students from over 125 countries study at UCD.

 Global careers

 Degrees with high employability; dedicated careers support; 1 year stay-back visa (for non-EU students).

 Safety

 Modern parkland campus with 24-hour security, minutes from Dublin city centre.

Course Content and Structure

The programme provides students with an understanding of the principal scientific and engineering challenges involved in the design, operation and management of biopharmaceutical production facilities.

Modules include:
- Animal Cell Culture Technology
- Bioreactor Design
- Biotechnological Modelling and Control
- Bioprocessing Laboratory Practice
- Bioprocess Scale-up and Technology Transfer
- Biotechnology Products
- Bioprocess Design
- Bioprocess Scale-up and Technology Transfer
- Lean Six Sigma
- Principles of Biopharmaceutical Engineering
- Molecular Genetics & Biotechnology
- Research / Design project

Why study Chemical & Bioprocess Engineering?

What is Chemical & Bioprocess Engineering?

Chemical & Bioprocess Engineering involves the transformation of matter and energy into products and services. More specifically, it addresses the design and operation of facilities needed to achieve this transformation in a technically, economically and environmentally acceptable manner.

Why study Chemical & Bioprocess Engineering at UCD?

For more than 60 years, UCD has led the way in the design and delivery of innovative, internationally-recognised programmes in Chemical and Bioprocess Engineering. Our graduates are amongst the best-paid engineering professionals, sought after for employment in sectors from chemical to (bio)pharmaceutical and from energy to pharmaceuticals, biotechnology, food, energy, advanced materials and ICT.

5-Year Integrated ME Programme Content

The ME programme, which is structured to address the most up-to-date theoretical and conceptual aspects, alongside practical and industrial elements of Chemical and Bioprocess Engineering practice, includes extensive project work in both design and research, along with significant Professional Work Experience (PWE). PWE placements, of 6-8 months in duration, commence in Jan/Feb of Year 4 (starting in Jan 2018) where a company can host a research project, this placement may be extended to 12 months (Jan-Dec).

The programme will prepare graduates for careers in a wide range of industries, while also offering the opportunity to work alongside leading researchers in world-class laboratories. The School works closely with its industrial advisors and adjust staff to ensure the programme meets the highest international standards in the teaching and training of Chemical & Bioprocess Engineers.

Key Fact

The 5-Year Integrated ME programme is designed to meet the accreditation requirements of both Engineers Ireland and the Institution of Chemical Engineers (IChemE).

MEngSc Biopharmaceutical Engineering

University College Dublin
Ireland’s Global University

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- Biotechnological Modelling and Control
- Bioprocessing Laboratory Practice
- Bioprocess Scale-up and Technology Transfer
- Biotechnology Products
- Bioprocess Design
- Bioprocess Scale-up and Technology Transfer
- Lean Six Sigma
- Principles of Biopharmaceutical Engineering
- Molecular Genetics & Biotechnology
- Research / Design project

Why study Chemical & Bioprocess Engineering?

What is Chemical & Bioprocess Engineering?

Chemical & Bioprocess Engineering involves the transformation of matter and energy into products and services. More specifically, it addresses the design and operation of facilities needed to achieve this transformation in a technically, economically and environmentally acceptable manner.

Why study Chemical & Bioprocess Engineering at UCD?

For more than 60 years, UCD has led the way in the design and delivery of innovative, internationally-recognised programmes in Chemical and Bioprocess Engineering. Our graduates are amongst the best-paid engineering professionals, sought after for employment in sectors from chemical to (bio)pharmaceutical and from energy to consultancy and design. UCD offers taught and research Masters and PhD opportunities, and our graduates also enter Masters and PhD programmes in leading international universities.

5-Year Integrated ME Programme

UCD has now introduced the first 5-year Integrated Masters programme in Chemical & Bioprocess Engineering in Ireland. This programme has been designed to reflect the changing skills needs of Chemical and Bioprocess Engineers in global industries, including chemicals, pharmaceuticals, biotechnology, food, energy, advanced materials and ICT.

Key Fact

The 5-Year Integrated ME programme is designed to meet the accreditation requirements of both Engineers Ireland and the Institution of Chemical Engineers (IChemE).
PROGRAMME

DRINKS RECEPTION

WELCOME
Pat Kenny, Class of 1969
Presenter, Newstalk

OPENING ADDRESS
Eoin Casey, Class of 1994
Head of School, UCD School of Chemical & Bioprocess Engineering

PRE-DINNER PRESENTATION
Oliver Tatton, Class of 1985
Chairman, Fadata EOOD

DINNER

POST-DINNER PRESENTATION
Brian Glennon, Class of 1986
Professor, UCD School of Chemical & Bioprocess Engineering
Prof. John Kelly, Class of 1957
Paddy O’Flynn, Class of 1957

ENTERTAINMENT
UCD Choral Scholars Alumni
Artistic Director: Dr Desmond Earley

POST-DINNER ENTERTAINMENT
Tadhg Ó Maolagáin, Final Year ChemE, 2016-17 (Bouzouki)
Sáráin Mulligan (Concertina) • Iarlaith Mac Gabhann (Flute)
Caoimhe Mulligan (Fiddle/ Sean-nós Dancing) • George McAdam (Banjo)

MENU

STARTER
Ballymagarvey Seafood Plate
Poached Irish Salmon with Sweet Mustard Dressing, Classic Prawn Cocktail,
Crabmeat Salad with Lemon and Coriander, Smoked Salmon with Red Onion and
Baby Capers

MAIN COURSE
Duet of Wicklow Lamb
Charred Fillet and Mini Rack of Lamb with Wilted Spinach and Wood Mushroom,
Pomme Gratin Red Wine, Honey Roasted Baby Carrots, Rosemary, Smoked Bacon and
Garlic Jus

DESSERT
Warm Chocolate Fondant
With bitter chocolate caramel sauce

WINES
Estacion Cabernet Sauvignon
Terra de Lobos Sauvignon Blanc

*Fish & Vegetarian Options available upon request - please advise your server
Congratulations to the UCD School of Chemical and Bioprocess Engineering on your 60th Anniversary.

Proud sponsor of the annual PM Group Kevin Kelly Design Award at UCD.

Pictured is Amy O’Keeffe, the 2016 winner of the Award.

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UCD CHEMICAL & BIOPROCESS ENGINEERING SCHOLARSHIPS & AWARDS

PAT McADAM SCHOLARSHIP IN CHEMICAL & BIOPROCESS ENGINEERING
This award was established in 2009 by Martin McAdam (BE 1982) to celebrate and honour the life and work of his late wife Pat, a much-loved teacher, and to support excellence in Chemical & Bioprocess Engineering education. The Pat McAdam Scholarship carries a €4000 bursary and is awarded annually to a Stage 2 student, to support a Research Internship. Since 2011, the Pat McAdam Scholar has participated in a prestigious Research Experience for Undergraduates (REU) Program within the Renewable Energy Materials Research Science & Engineering Centre (REMRSEC) at the Colorado School of Mines, in Golden, Colorado.

MARK CARTHY GRADUATE RESEARCH PROJECT AWARD
Since 2008, Mark Carthy (BE 1982), Managing Partner, Orion Healthcare Equity Partners, Boston, USA, has supported the Mark Carthy Graduate Research Project Award (€1000 per project) for the highest-ranking Research Project(s) undertaken by Final Year students.

PM GROUP KEVIN KELLY DESIGN PROJECT AWARD
Since 2001, PM Group has sponsored an annual award for the best Design Project. The award was renamed the PM Group Kevin Kelly Design Award, in honour of the late Kevin Kelly, former Chairman, PM Group.

UCD ENGINEERING GRADUATES’ ASSOCIATION (EGA) GOLD MEDAL IN CHEMICAL & BIOPROCESS ENGINEERING
The UCD EGA Gold Medals honour the highest achieving graduating student in each Engineering discipline. Between 2009 and 2014, the EGA Gold Medal in Chemical & Bioprocess Engineering was sponsored by Helsinn, and presented by Padraig Somers (BE 1982), General Manager, Helsinn Ireland. Since 2015, the Gold Medal in Chemical & Bioprocess Engineering has been sponsored by BMS.

ABBVIE ACHIEVEMENT AWARD IN CHEMICAL & BIOPROCESS ENGINEERING PRACTICE
The AbbVie Achievement Award in Chemical & Bioprocess Engineering Practice award, established in 2015, carries a bursary of €1000 and acknowledges the Chemical & Bioprocess Engineering student who achieves the highest combined score in selected core Stage 3 modules, representing the heart of Chemical & Bioprocess Engineering practice.

TRAVEL AWARDS
While most awards are based on academic achievement, the School very gratefully acknowledges the graduates and graduate employers who support the professional and personal development of our students in very imaginative and beneficial ways. Mark Carthy (BE 1982) and Martin McAdam (BE 1982), who each individually sponsor academic awards, both also fund annual awards (€1000) to support students travelling to undertake personal or professional projects, overseas. Since 2013, Carthy Travel Awards have enabled recipients to: travel to Alaska to work in a gas processing facility; trek the Salkantay Inca Trail in Peru; gain commercial brewing experience to build upon amateur brewing skills; attend an International Summer Summer; intern in China; take up a Graduate role in the US. Recipients of the McAdam Travel Bursary have: taught disadvantaged children in India; attended an International Summer School; interned with an Operational Excellence consultant; undertaken an industrial Traineeship in China.
CHEMICAL & BIOPROCESS ENGINEERING STUDENT AWARD RECIPIENTS 2001-16

PAT McADAM SCHOLARSHIP IN CHEMICAL & BIOPROCESS ENGINEERING

2009 Claire Waddell
2010 Rachel Moran
2011 Donal Finegan
2012 Karl Brennan
2013 Aisling Brazel
2014 Eoin McMullan
2015 Colm Ó Riada
2016 Alice Brennan

MARK CARTHY GRADUATE RESEARCH PROJECT AWARD

2009 Ronan Whelan
2010 David Loughrey
2011 Meabh Doyle
2012 Ashley Humenik & Justine Forkin
2011 Donal Finegan
2014 Andrea Doherty
2015 Niamh MacFhionnlaoich & Katherine Roche
2016 Art O’Connor

EGA GOLD MEDAL IN CHEMICAL & BIOPROCESS ENGINEERING

Helsinn EGA Gold Medal

2009 Claire Waddell
2010 David Loughrey
2011 Graham Power
2012 Justine Forkin
2013 Ian Kenny
2014 Karl Brennan

PM GROUP KEVIN KELLY DESIGN AWARD

2001 Cormac Byrne
2002 Jessica Whelan
2003 Colman Carroll
2004 Eoin Ó Muirechearthaigh
2005 Paul Nagle
2006 Terence McCartan
2007 Robert Fitzpatrick
2008 Gearóid Duane
2009 Graine Phelan
2010 Brendan Cunningham
2011 Edward Judge
2012 John Kerr
2013 Sheila Courtney
2014 Michéal Halton
2015 Conor Waldron
2016 Amy O’Keeffe

CARTHY TRAVEL AWARD

2013 Aoife Ledwidge O’Brien & Darragh Waters
2014 Seán McLaughlin
2015 Amy O’Keeffe
2016 Stephen Jones & William Denning

BMS EGA Gold Medal

2015 Conor Waldron
2016 Art O’Connor

ABBVIE ACHIEVEMENT AWARD IN CHEMICAL & BIOPROCESS ENGINEERING PRACTICE

2015 Justin Ryan
2016 Niamh MacPherson

McADAM TRAVEL BURSARY

2013 Conor Waldron
2014 Kevin O’Toole
2015 James Devane
2016 Katie Kilcoyne

BE WELL.
NOT A WISH, A PROMISE.

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Congratulations to the School of Chemical & Bioprocess Engineering on reaching 60.

Best wishes for continued development and success.

Congratulations to UCD Chemical Engineering Department on its 60th Anniversary!

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Grainne Dunne
2015 Graduate Employee of the Year

CRH is delighted to sponsor the 60th Anniversary celebration of Chemical and Bioprocess Engineering at UCD
UCD School of Chemical & Bioprocess Engineering extends a special word of thanks to our generous sponsors:

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[Logo]

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