

## **PROCESS & CHEMICAL ENGINEERING AWARDS 2024-25**

**Monday, 24<sup>th</sup> March 2025 @ 6.00 pm in the Aula Max**

**With a special thanks to our Awards Event Sponsor 2024-25**

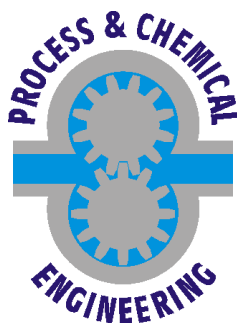


**Represented by -**

Fiona Gohier (MSD, Brinny)	Qualification & Validation (Q&V) Manager, Manufacturing Science and Technology (MSAT)
Niamh Kieran (MSD, Brinny)	Q&V Associate Director, MSAT
John McCaughley (MSD, Brinny)	Director, MSAT



# Process & Chemical Engineering



[Process & Chemical Engineering in UCC](#) has its origins in 1927 and has offered a Bachelor's degree (initially in Food Process Engineering) since 1993 and in Process & Chemical Engineering since 2001. It is now one of the largest disciplines within the [School of Engineering and Architecture](#), University College Cork.

The programme is accredited by both Engineers Ireland and the IChemE and since 2019-20 a 5-year integrated ME is offered. At the end of a successful 3<sup>rd</sup> year, students enter 4<sup>th</sup> year, to embark on a pathway to either the [5-year Integrated ME](#) for eligible students or they may exit after four years with a BE(Hons) degree.

The ME pathway incorporates a professional work placement that takes place during the 2<sup>nd</sup> semester of year 4 and during the summer break (8 months).

There are in excess of 200 students studying Process and Chemical Engineering across the 5 years of the BE & ME programmes.

We also offer a 2-year Part-Time level 9 Masters, [MEngSc Pharmaceutical and Biopharmaceutical Engineering](#), aimed at up-skilling/ re-skilling working professionals in the engineering sector in pharma/biopharma manufacturing. From this year, we have extended this programme to a brand-new Full-Time programme, [MEngSc Engineering in Pharmaceutical and Biopharmaceutical Manufacturing](#), aimed at young graduates and international students, who wish to take the course full-time in one year.

Besides that our Level 7 [Certificate and Diploma in Process and Chemical Engineering](#) provide knowledge base to experienced professionals without a formal Level 8 degree or young graduates from a Non-Engineering background, willing to make a career shift to engineering/ manufacturing.

# Attendee List

## University College Cork

### College Of Science Engineering & Food Science

- Prof Sarah Culloty Head of College
- Ms Sabá Loftus Head of Development

### School Of Engineering & Architecture

- Professor Jorge Oliveira Head School of Engineering & Architecture
- Ms Helen Buckley Manager School of Engineering & Architecture

### Process & Chemical Engineering Staff

- Professor Edmond Byrne Head of Discipline (Process & Chemical)
- Professor Maria De Sousa Gallagher Academic
- Mr Dermot O'Sullivan Academic
- Dr Fatemeh Kavousi Academic
- Dr Archishman Bose Academic
- Dr Francisco Victor Santos da Silva Academic (SOE&A / SOM)
- Dr Vivek Verma Academic
- Dr Richard O'Shea Academic (PCE / CEEE)
- Ms Claire O' Sullivan Administrative
- Mr Donovan Fullam Technical

## Industry

### PM Group

- Paul Ryan Deputy Process Department Manager
- Eoin White Process Engineering Manager, Associate Director

### AbbVie

- Michael McCarthy Engineering Manager
- James Neville Maintenance Engineer
- Damien Budden Operations Manager

### Eli Lilly

- Noel W Henderson Associate Director Personal Representative
- Una Dardis Associate Director Process Engineering

- Aine MacSeoin Principal Process Engineer
- Aiden Sheehan Senior Bioprocess Engineer

## Johnson & Johnson Innovative Medicine

- Claire Walsh Process Engineering Manager, J&J Innovative Medicine
- Shane Quinn Engineering Projects Manager, J&J Innovative Medicine

## MSD

### Ballydine

- Michelle O'Brien Associate Director Product Source Management
- Edel Linehan Manager Engineering
- Joe Sheehan Graduate Development Program Engineer

### Brinny

- Fiona Gohier Qualification & Validation (Q&V) Manager, Manufacturing Science and Technology (MSAT)
- Niamh Kieran Q&V Associate Director, MSAT
- John McCaughley Director, MSAT

## Arcadis

- Stephen Judd European Director of Process Technology
- Nirupam Biswas API/ Bio-Pharma Lead Process Engineer

## PepsiCo

- Niamh O'Riordan Senior Global Engineering Manager
- Michael O'Donovan Associate Global Engineering Manager
- Kim Wilson Global Design Engineer

## Gilead

- Simon Walsh Graduate Engineer
- Ronan Dineen Director of Technical Services

## Jacobs

- Orla O'Connor Process Department Manager
- Peter Bermingham Senior Process Engineer
- Tara Murphy Intermediate Process Engineer
- Adam Buckley Intermediate Process Engineer



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# EVENT SCHEDULE

<b>6:00 pm</b>	MEET & GREET - REFRESHMENTS PROVIDED
<b>6:30 pm</b>	OPENING ADDRESS PROF SARAH CULLOTY (HEAD OF COLLEGE, SCIENCE, ENGINEERING & FOOD SCIENCE)
<b>6:45 pm</b>	WELCOME TO THE DISCIPLINE PROF EDMOND BYRNE (CHAIR, PROCESS AND CHEMICAL ENGINEERING)

## AWARDS

<b>7:00 pm</b>	DR ARCHISHMAN BOSE (MC)
<b>7:05 pm</b>	PM-GROUP, DESIGN PROJECT AWARD
<b>7:10 pm</b>	ABBVIE SUSTAINABILITY PRIZE IN PROCESS & CHEMICAL ENGINEERING
<b>7:15 pm</b>	ELI LILLY AWARDS FOR EXCELLENCE IN PROCESS & CHEMICAL ENGINEERING
<b>7:25 pm</b>	J&J JANSSEN PROCESS & CHEMICAL ENGINEERING SCHOLARSHIP
<b>7:35 pm</b>	MSD (BALLYDINE) AWARD FOR BEST INFOGRAPHIC IN PHARMACEUTICAL ENGINEERING
<b>7:40 pm</b>	ARCADIS DESIGN CHALLENGE
<b>7:45 pm</b>	PEPSICO AWARD FOR EXCELLENCE IN PROCESS DESIGN AND FEASIBILITY ASSESSMENTS
<b>7:50 pm</b>	GILEAD BERNARD MAGUIRE AWARD
<b>7:55 pm</b>	JACOBS PROCESS SAETY AWARD
<b>8:00 pm</b>	A QUICK WORD FROM OUR SPONSORS
<b>8:05 pm</b>	DR ARCHISHMAN BOSE (MC)
<b>8:15 pm</b>	CLOSING ADDRESS PROFESSOR JORGE OLIVEIRA (HEAD OF SCHOOL, ENGINEERING AND ARCHITECTURE)

# WELCOME ADDRESS BY HEAD OF COLLEGE, SCIENCE, ENGINEERING & FOOD SCIENCE



Dear industry champions, colleagues, students, family and friends, I am delighted to welcome you, as Head of the College of Science Engineering and Food Science to our beautiful campus for the Annual Process and Chemical Engineering Awards, 2025. We look forward to this day every year to celebrate the exceptional achievements of our students.

Welcome again, to University College Cork. This is a significant year for University College Cork, as we mark 180 years since UCC, known then as Queen's College Cork, was first established. Throughout the University, this is a special year to celebrate its remarkable history of academic excellence, innovation and service. Since our founding in 1845, UCC has played a vital role in shaping the minds of future leaders and changemakers, advancing research and contributing to the growth and development of Ireland and the world. Queen's College Cork, as it was known then, initially opened with 23 professors and 115 enrolled students, all of whom were men. Today UCC proudly welcomes a diverse community of 26,000 students and 3,000 staff, marked by the launch of the strategic framework [\*Belonging at UCC: A Strategic Framework and Action Plan for Equality, Diversity and Inclusion 2025–2028\*](#) by our president, Prof John O'Halloran. This initiative is designed to foster cultural change and ensure that UCC remains a place where all individuals can thrive.

With 600 academic and research staff, over 5,000 students and generating 1,200 STEM-enabled graduates annually, the College of Science Engineering and Food Science plays a significant role in the advancement of STEM, both in Ireland and internationally. In the College, we are focused on creating and delivering a sustainable future for us all. Tomorrow, in the Spring Conferencing, we will graduate 43 PhDs and 323 Masters students. We develop innovative solutions to support a sustainable and environmentally responsible society. Our graduates have the skills and attributes to play their role in solving these key societal challenges. The College of SEFS is made up of nine academic units, the largest of which is the School of Engineering and Architecture.

The School of Engineering and Architecture is among the top engineering schools in Ireland offering disciplines of architecture, chemical, civil, electrical, electronic, energy, mechanical, and process engineering. The School continues to grow with ambition with our internationally leading research addressing grand challenges and has resulted in the development of world-leading research centres at UCC, including the Tyndall National Institute and the MaREI SFI Research Centre for Energy, Climate and Marine which have informed research and policy nationally and internationally.



Today's celebration would not be possible without the generosity of our sponsors, and partners and we are very grateful for this support over many years. It is a productive collaboration ensuring that our graduates are informed by industry needs as well as a dynamic curriculum. I acknowledge the team from Process and Chemical Engineering and the UCC Alumni and Development Team who continue to play a key role in the advancement of these awards and prizes not only benefiting students, but also the industry and academic community.

The range of awards presented reflects the work of Process and Chemical Engineering, UCC, its mission, its relationships, and its history. Today, nine awards will be presented to fifteen recipients, ranging from 2<sup>nd</sup> year undergraduate students to students in the masters programme. For example, today a recipient will receive The Eli Lilly: Awards For Excellence In Process & Chemical Engineering, one of the most significant awards, acknowledging both academic excellence and contribution to the discipline of Process and Chemical Engineering. I am pleased to announce the following new awards and developments for this year, marking new strides to the Process and Chemical Engineering awards!

- Gilead Sciences: Bernard Maguire Award to promote the understanding of the impact of unit operations and particle technology on the development of life-saving medicines.
- Jacobs Process Safety Award to award excellence in understanding and implementing process safety principles in Process Engineering.
- For the first time, students from the Pharmaceutical and Biopharmaceutical Masters Programme will receive an award, for winning the Jacobs Process Safety Award.

For all Award recipients, today's recognition is testament to your excellence and to the development of graduate attributes reflective of the University's core values. We congratulate you and wish you every success. I wish you every success and wish you a very pleasant and enjoyable evening.

**Professor Sarah Culloty,**  
**Head, College of Science Engineering and Food Science,**  
**University College Cork**

# WELCOME TO THE DISCIPLINE BY HEAD OF DISCIPLINE, PROCESS AND CHEMICAL ENGINEERING



Warm Congratulations to all the Award winners, on your richly deserved and well-earned recognition, and thank you and Congratulations to their parents and supporters for all the assistance you've provided. Hopefully you've enjoyed the evening here in the fitting historic surrounds of the Aula Maxima, as we celebrate your achievements and progress as developing chemical engineer.

Sincere thank you too to all our sponsors: special thanks to MSD (Brinny) as Awards event sponsor this evening, and to all our respective Awards sponsors for your support, time and effort in being here tonight and in recognising the fantastic cohort of students that are coming through their programme; Indeed, our sponsors represent a who's who of some of the top multi-national process industries operating locally and nationally; PM-Group, AbbVie, Eli Lilly, Johnson and Johnson, MSD (Ballydine), Arcadis, Pepsico, Gilead and Jacobs. Sincere thank you to you all!

The ongoing commitment shown by these companies represents a huge encouragement to our students and their programme, and it offers terrific encouragement to our students to see future employers show such interest and commitment to their programme, and indeed to analogous programmes in UCC, in particular across the College of Science Engineering and Food Science (SEFS), and other universities and colleges. It is also wonderful to see some many of our graduates employed across your companies, and particularly to welcome back several graduates of UCC Process and Chemical Engineering here this evening; we are very proud of your achievements and delight in your successes!

Most recent annual CSO figures, for 2023, show that PharmaChem represents some 64%, or nearly two-thirds of all exports by value from the Republic of Ireland, while the Food & Drinks sector export an additional 8%, together representing some 72% of all exports. Exports are worth about €200bn in total to the Irish economy, and in these days of global trade uncertainty and potential tariff wars, with the pharma and drinks sectors here being specifically singled out as targets, it especially behoves us all to seek to control the controllables. This includes ourselves in the higher education sector; continuing to produce graduates of the highest international calibre, technically competent, but also with the ability to think and act critically, and ethically across the board, including in areas of safety, sustainability, empathy and a commitment to societal well-being and human flourishing. It also includes local industry, populated by our graduates, and others, continuing to meet and exceed expectations in delivering projects and innovation, while underpinned by the aforementioned competences. And crucially,

it involves showing the world, and corporate HQ's that there is a flourishing ecosystem of academia and industry in Cork, and around Ireland that makes further investment and support a key strategic imperative for continued corporate success, notwithstanding external factors.

Last year, we offered our thanks to our former colleague Denis Ring (now retired) for his organisation of the Awards ceremony over the past several years and in developing the Awards to the special event they have become, so we salute that legacy tonight, while also thanking his successor Archishman Bose, who I'm sure you'll agree has done a terrific job in overseeing tonight's event. I'd also like to thank Claire O'Sullivan for her tireless work and input around the organisation of the Awards, and for the admin support she provides to the programme and discipline. Thanks also to all who helped oversee and select the various awards, both industry and academic inputs.

Finally, just a word for our incredible students. The achievements earned by some of you tonight represent just the tip of the iceberg in terms of recognising academic engagement and outputs, but yours is representative of a huge amount of ongoing incredible academic work that each and every one of our 170 odd undergraduate students are putting in, while you also juggle with and attend the myriads of other aspects of your lives.

As evidence of this, another of your fellow students, Mary O'Sullivan, of the 5<sup>th</sup> year ME class has been nominated for an *Undergraduate of the Year Award* under the Innovation category, one of just eight students from UCC to be nominated across a range of areas, and one of just two from the College of SEFS, at a ceremony in the Aviva Stadium next month. Congratulations to Mary on that and best wishes in Dublin!

It is important and fair that we pause, reflect on, and celebrate the various aspects of excellence that you have epitomised through your work, as we are doing this evening. Thank you too to your deservedly proud parents for the efforts and sacrifices they have put into supporting you on your journey, and to again thanks to all our sponsors for helping us do just that.

*Comhghairdeachas mic léinn iontach, agus go raibh maith agaibh go léir as a bheith anseo, tráthnóna inniu!*

**Professor Edmond Byrne,  
Head of Discipline, Process and Chemical Engineering,  
School of Engineering and Architecture,  
University College Cork**



## PM GROUP: DESIGN AWARD

**Award:** - A specially minted medal to the value of €300 and a prize of €1,000

**Presented by:**

Eoin White

Process Engineering Manager, Associate Director

**In Attendance:**

Paul Ryan

Deputy Process Department Manager

### PM Group

Celebrating its 50<sup>th</sup> anniversary in 2023 PM-Group have built extensive expertise in pharma, food, data and medical technologies, with over 2,700 employees across a global network of offices.

PM-Group specialise in, Project Management, Strategic Planning Architecture, Engineering Consultancy, Procurement, Construction Services, Commissioning & Qualification, EH&S, Managed Services, Sustainability and Outsourced Technical Services.

### Award Brief

The PM-Group award is presented to the student with the best individual design memo from [PE4050 Design Project](#).

**Responsible for Awardee selection:** Dermot O'Sullivan, module coordinator, PE4050

**2024-25 WINNER**

**MICHAEL MURPHY (4<sup>TH</sup> YEAR)**



The award for 2024-25 goes to Michael Murphy, for his hand-calculation of a 250kW, 70 bar centrifugal pump, part of the process to convert used cooking oil to diesel. Not only were the calculations correctly done, but also the work was presented with easy-to-follow sketches, both general arrangements and pump details, and the report laid out systematically with the assumptions clearly stated and justified, design optimisation and trade-offs assessed. Micheal then checked with pump vendors to identify specific pump models for the service. Exceptional work.



## **ABBVIE: SUSTAINABILITY PRIZE IN PROCESS & CHEMICAL ENGINEERING**

**Award:** - A specially minted medal to the value of €150 and a prize of €500

**Presented by:**

Michael McCarthy

Engineering Manager

**In Attendance:**

James Neville

Maintenance Engineer

Damien Budden

Operations Manager

### **AbbVie**

Founded in 2013, AbbVie is a global, research-driven biopharmaceutical company committed to developing innovative advanced therapies for some of the world's most complex and critical conditions. The company now employs ~2,600 people across eight sites in Ireland.

AbbVie has been listed as one of the best places to work in Ireland for nine consecutive years and named a Best Workplace for Women for the past four years in a row.

The company's mission is to use its expertise, dedicated people and unique approach to innovation to markedly improve treatments across a number of therapeutic areas, including immunology, oncology, virology, aesthetics, neuroscience and eye care.

We harness Irish expertise in complex chemical and biological research, testing discoveries through clinical trials as well as manufacturing many of our medicines and devices here in Ireland.

### **Award Brief**

This award, in recognition of AbbVie's commitment to sustainability and sustainable production, and the importance of sustainability in every facet of their work is an individual award given on the basis of a selection of continuous assessment work taken throughout the module: [\*\*PE3011 Sustainability and Environmental Protection I.\*\*](#)

This third-year module includes topics such as life cycle assessment, water & wastewater treatment, air pollution control and solid waste treatment, as well as consideration of the human impact on the natural environment, the UN Sustainable

Development Goals, values, ethics and framings around sustainability and sustainable development and integrative and systems thinking approaches to sustainability.

The award coheres with imperatives of our discipline, as well as those of UCC and the engineering professional bodies around incorporating sustainability and associated values into our programme, and it helps promotes the formation of sustainability literate as well as ethically informed contemporary graduate engineers.

**Responsible for Awardee selection:** Prof Edmond Byrne and Dr John Fitzpatrick, Module Lecturers.

### 2024-25 WINNER

### SINEAD FARRELLY (3RD YEAR)



Sinead has demonstrated a real passion for sustainability, and for making a real and positive difference her career ahead. For example, in a reflective piece as part one of her assignments for the module, she proposed the following:

*"The principle of interconnectedness is particularly relevant in chemical engineering, where industrial processes impact not just production efficiency, but also ecosystems, waste management, and energy use. Recognizing these connections will guide me in designing more holistic and environmentally responsible solutions. Sustainability in engineering is not just about reducing waste or emissions; it is about creating systems that harmonize with both ecological and social well-being."*

*Sharing stories that inspire hope, and action can motivate others to join the movement for sustainability. Whether I'm working with colleagues or presenting ideas to the public, I hope to use storytelling to connect with people and inspire change."*





## **ELI LILLY: AWARDS FOR EXCELLENCE IN PROCESS & CHEMICAL ENGINEERING**

**Award:** - A specially minted medal and a prize of €300

**Presented by:**

Una Dardis

Associate Director Process Engineering

**In Attendance:**

Noel W Henderson

Associate Director Personal Representative

Una Dardis

Associate Director Process Engineering

Aine MacSeoin

Principal Process Engineer

Aiden Sheehan

Senior Bioprocess Engineer

### **Eli Lilly**

Lilly has been operating in Ireland since 1978 and today the company employs over 3,500 people across three sites and growing.

Lilly's first investment in Ireland began in 1978, with the purchase of a farm near Kinsale, in West Cork. Today, it makes active ingredients for Lilly medicines and reaches patients all over the world. It boasts three state-of-the-art manufacturing technology platforms – chemical synthesis, peptide synthesis and biotechnology – making it a unique site globally.

Lilly Global Business Solutions (GBS) in Little Island, Cork, was established in 2010. In the decade since its establishment, it has evolved from shared service provider to global business partner. From Clinical Development, to Finance, to Patient Support, the GBS teams are now central to the end-to-end delivery of medicines that make life better for patients worldwide. Today the site employs almost 2,000 employees across 62 nationalities, speaking over 50 languages.

Ireland's third and newest Lilly site, Lilly Limerick, is a state-of-the-art biotech manufacturing campus at a greenfield site in Raheen, Co. Limerick. Currently under construction, this "Next Generation Biotech" drug substance facility is on track to be making medicine in 2026 and will be Lilly's most technically advanced manufacturing site to date. Currently, the site has 260 full time employees across a wide range of disciplines and is forecast to employ over 450 people once at full capacity.

Lillys primary areas of focus are diabetes, immunology, and oncology.

### Award Brief

Eli Lilly have sponsored the 'Eli Lilly Awards for Excellence in Process & Chemical Engineering' at UCC from the Academic Year 2006-2007. The Award, which consists of a specially minted medal and a cash prize sponsored by Lilly, is made annually to students from each of the four years in Process & Chemical Engineering at UCC on the basis of academic excellence (70%) and contribution to department (30%).

**Responsible for Awardee selection:** The students are nominated by their class and then chosen by staff on the basis of the selection criteria. Given that the awards are made to a different student each year, students may have up to four chances to enter the Lilly Hall of Fame which multiple people now working at Eli Lilly Kinsale are part of, two of them who are in attendance tonight (Aine & Aiden).

### 2024-25 AWARD WINNERS ARE:

2 <sup>ND</sup> YEAR	ANDREW JOSEPH MURTAGH
3 <sup>RD</sup> YEAR	YZABELLA MARIE CARNEY
4 <sup>TH</sup> YEAR	SEAN JOSEPH HENCHION
5 <sup>TH</sup> YEAR	LEAH EMILY O'REGAN



# Johnson & Johnson Innovative Medicine

## JOHNSON & JOHNSON INNOVATIVE MEDICINE PROCESS & CHEMICAL ENGINEERING SCHOLARSHIP

**Award:** - €2,500 Per Annum and the opportunity for placement. All those shortlisted receive a one-for-all voucher

**Presented by:** -

Shane Quinn      Engineering Projects Manager, J&J Innovative Medicine

**In Attendance:** -

Claire Walsh      Process Engineering Manager, J&J Innovative Medicine

### J&J Innovative Medicine

At their facility in Ringaskiddy, they produce drug substance for the market as well as to support clinical trials for new treatments. They have recently completed a major expansion to introduce more capacity for large-scale production.

J&J is a **worldwide group** of pharmaceutical companies:

- Part of Johnson & Johnson Family of Companies, the USA based Healthcare Corporation
- 40,000 employees working across the five continents
- Around \$4.5 billion investments in research & development annually
- A top 10 company in the global pharmaceutical sales

### Award Brief

Applications were invited from 2<sup>nd</sup> year students and short-listed to six students who are then interviewed by staff from UCC and J&J.

*Scoring for the scholarship:* -

- 20 marks for the Leaving Certificate
- 20 marks for 1<sup>st</sup> year UCC results
- 60 marks for the interview.

- *Enthusiasm (15 marks)*
- *Leadership Potential (15 marks)*
- *Innovation (15 marks)*
- *Interpersonal skills (15 marks)*

**Responsible for Awardee selection:** Dr Fatemeh Kavousi (UCC), Claire O’Sullivan (UCC), Claire Walshe (J&J Innovative Medicine) and Shane Quinn (J&J Innovative Medicine)

**2024-25 WINNER**

**AIDAN THOMAS HIGGINS (2<sup>ND</sup> YEAR)**



**SPECIAL AWARD – PLACEMENT RORY JOHN CASHMAN**

**Runner Ups**

**EOIN CIAN RAJASAKRAN**

**MIDHUL KRISHNA MANU**

**AILBHE CATHERINE O'SULLIVAN**

**BILLY MICHAEL MURPHY**





# MSD: AWARD FOR BEST INFOGRAPHIC POSTER IN PHARMACEUTICAL ENGINEERING

**Award:** - Apple iPad

**Presented by:**

**Michelle O'Brien**      **Associate Director Product Source Management**

**In Attendance:**

**Edel Linehan**      **Manager Engineering**

**Joe Sheehan**      **Graduate Development Program Engineer**

## **MSD Ireland**

MSD Ireland is one of the country's leading healthcare companies, having first established here over 50 years ago. We have a dynamic and diverse team of over 3,000 employees currently across seven sites in Ballydine, Co Tipperary, Brinny, Co Cork, Dunboyne, Co Meath, Carlow and Dublin, and, in addition, operate substantial Human Health and Animal Health businesses. In recent years, we have invested over \$3.5 billion in our Irish operations and our annual turnover ranks us as one of Ireland's top 20 companies. At MSD Ireland, we work at the forefront of science and technology to advance manufacturing excellence and R&D across our Irish sites and global company network. With a long-standing footprint in Ireland, our Irish sites manufacture approximately half of MSD's top twenty products, helping save and enhance lives in over sixty countries around the world.

## **Award Brief**

The Infographic presentation award provides an opportunity for students studying **PE3009 Pharmaceutical Engineering** to explore the design space in pharmaceutical engineering encouraging, enhanced knowledge in technologies and process developments.

**Responsible for Awardee selection:** Dr Vivek Verma, Module Lecturer

**2024-25 WINNER**

**YZABELLA MARIE CARNEY (3<sup>RD</sup> YEAR)**

**Poster Title “*Process Analytical Technology in the continuous manufacturing of drug substances*”**



Yzabella’s infographic provided a comprehensive overview of Process Analytical Technology (PAT) and its crucial role in modern pharmaceutical manufacturing. The work explored the transition from traditional batch processing to continuous production, highlighting the efficiency, cost-effectiveness, and quality improvements enabled by PAT frameworks. It also emphasized the

benefits of advanced analytical tools like spectroscopy and multivariate statistical process control. Yzabella’s work was commended for its clarity, depth, and innovative presentation.





## ARCADIS: DESIGN CHALLENGE AWARD

**Award:** - Apple Watch

**Presented by:**

Stephen Judd

European Director of Process Technology

**In attendance:**

Nirupam Biswas

API/ Bio-Pharma Lead Process Engineer

### Arcadis DPS Group

Arcadis is a global consulting, engineering and construction management company, serving high-tech industries around the world with industry experts in key locations in Europe, the U.S., Asia and the Middle East, bringing world class resources and the latest innovative technologies to every project.

### Award Brief

The Arcadis Design Challenge is aimed at giving the students an introduction to the specific type of design deliverables that are undertaken by the Process Engineering department at an Architectural & Engineering Company in the delivery of capital projects associated with the pharmaceutical and biotech industries. This year, the award was based on the module, ***PE6034 Complex Reaction Systems***.

### Design Challenge

1. Write a design specification for a chemical reactor system that involves the following:
  - i. A reaction mixture that is corrosive to stainless steel
  - ii. Solid addition of a Pyrophoric catalyst
  - iii. Controlled rate addition of a liquid reagent (controlled rate required to control the exotherm)
  - iv. A closed sampling system
2. Draft a PFD for a single-use production bioreactor system which should include the following:
  - i. The bioreactor and all required ancillary equipment
  - ii. Equipment required for a Perfusion approach
3. Outline the considerations associated with a single-use technology assessment for a microbial fermenter (stainless steel Vs single-use).

4. Outline the design features that need to be included for an SPPS reactor system relating to Process and Operator Safety.
5. Outline the design considerations associated with effective cleaning and sterilisation of a production Bioreactor, this should include:
  - i. Sanitary design features associated with the bioreactor
  - ii. CIP design considerations
  - iii. SIP design considerations

**The winning entry was selected on the basis of: -**

- Adherence to assignment brief
- Technical evaluation
- Level of research undertaken
- Conclusions drawn
- Structure and language

**Responsible for Awardee selection:** Dr Fatemeh Kavousi (UCC), Stephen Judd (Arcadis) and Nirupam Biswas (Arcadis)

**2024-25 WINNER**

**KATIE MARIE RYAN (5<sup>TH</sup> YEAR)**



*“We have had many excellent submissions, but Katie Ryan’s stood out due to the level of investigation and research she had put in, leading to high quality technical discussions and evaluations.”*



## **PEPSICO: AWARD FOR EXCELLENCE IN PROCESS DESIGN AND FEASIBILITY ASSESSMENTS**

**Award:** - A prize of €1,000 and option to participate in the PepsiCo intern/grad program if so desired. Top 5 students will be invited to PepsiCo in Cork to meet senior leaders and get a tour of the facilities.

**Presented By:**

Niamh O’Riordan

Senior Global Engineering Manager

**In Attendance:**

Michael O’Donovan

Associate Global Engineering Manager

Kim Wilson

Global Design Engineer

**PepsiCo**

PepsiCo products are enjoyed by consumers more than one billion times a day in more than 200 countries and territories around the world. PepsiCo generated nearly \$92 billion in net revenue in 2024, driven by a complementary beverage and convenient foods portfolio that includes Lay’s, Doritos, Cheetos, Gatorade, Pepsi-Cola, Mountain Dew, Quaker and SodaStream. PepsiCo’s product portfolio includes a wide range of enjoyable foods and beverages, including many iconic brands that generate more than \$1 billion each in estimated annual retail sales.

**Award Brief**

This Award is to showcase the importance of process design and feasibility assessments in any process engineering decision making. As the first to decision making in any process industry, process modelling and feasibility assessments are indispensable skills that every process engineer must master.

This year, the PepsiCo will be awarded to the student with the highest marks in Assignment 1 of module ***PE3016 Process Design and Feasibility Assessments***. As part of this assessment, the students required to model and optimise a biogas-based combined heat and power unit using Aspen Plus process simulation software.

**Responsible for Awardee selection:** Dr Archishman Bose, Module Lecturer

## 2024-25 WINNER

## MAYA SREENAN (3<sup>rd</sup> Year)



Comment on submission: *“The work submitted showcases an excellent understanding of the key principles of Process Design and Feasibility Assessment and proficiency in Process Modelling using Aspen Plus. The report presented is concise, but professional, demonstrating key competencies of a proficient process and chemical engineer.”*

### Runners Ups

**AISHLING BERNADETTE WALSH**

**KILLIAN SPILLANE**

**KATE BRID O'DONOVAN**

**SINEAD FARRELLY**





## GILEAD: BERNARD MAGUIRE AWARD

**Award:** - A specially crafted award (worth €150), and a prize of €500

**Presented By:**

Simon Walsh

Graduate Engineer

**In Attendance:**

Ronan Dineen

Director of Technical Services

### Gilead Sciences

Gilead Sciences has been operating in Ireland for over 25 years. Since 1987, Gilead has delivered nearly 30 innovative medicines that cure, treat, and prevent life-threatening diseases. Through our pioneering internal discovery and development efforts and our extensive network of partnerships, we are well on our way to delivering 10 new medicines in this decade. We continue to confront the biggest public health challenges of our day and make the impossible possible by investing in world-class science, addressing societal barriers to care and building a culture where our employees can make a real impact together.

### Award Brief

This award is named in honour of our late college, Bernard Maguire. Bernard had a diverse career, spanning roles in small molecule operations, ultimately ending up leading bulk tablet manufacturing operations in Gilead Cork. Bernard was a champion for the development of STEM talent within the company and drove people to try to understand the fundamental principles and root causes behind everyday problems seen in daily operations. This award, in Bernard's honour, is to help promote the understanding of the impact of unit operations and particle technology on the development of life-saving medicines.

This award is presented to the highest achieving student in module [\*\*PE3002 Unit Operations and Particle Technology\*\*](#)

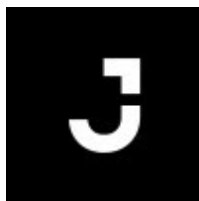
**Responsible for Awardee selection:** Dr John Fitzpatrick, Module Lecturer

**2024-25 WINNER**

**MAYA SREENAN (3<sup>rd</sup> Year)**







## JACOBS: PROCESS SAFETY AWARD

**Award:** - Each winner receives a voucher of €500

**Presented By:**

Orla O'Connor      Process Section Head at Jacobs Engineering

**In Attendance:**

Peter Bermingham      Senior Process Engineer

Tara Murphy      Junior Process Engineer

Adam Buckley      Intermediate Process Engineer

### Jacobs

At Jacobs, we're challenging today to reinvent tomorrow – delivering outcomes and solutions for the world's most complex challenges. With approximately \$12 billion in annual revenue and a team of almost 45,000, we provide end-to-end services in advanced manufacturing, cities & places, energy, environmental, life sciences, transportation and water. From advisory and consulting, feasibility, planning, design, program and lifecycle management, we're creating a more connected and sustainable world.

### Award Brief

At Jacobs Engineering, Process Safety is integral to our commitment to health, safety, and environmental protection. We prioritize managing risks associated with hazardous chemicals and processes in industrial facilities. Through smart engineering solutions and comprehensive process safety management services, we enhance facility reliability, operability, and regulatory compliance. Our BeyondZero approach embodies a culture of continuous improvement and care, aiming for better outcomes for our people, clients, and the environment. This dedication ensures we exceed industry standards, safeguarding our clients and their teams. We are thrilled to recognize the next generation of engineers who diligently incorporate process safety into their work, exemplifying our values and commitment to excellence.

This award is presented to the two highest achieving students in Assignment 1 within module [PE3015 \(PE6055\)](#) **Process Safety**

**Responsible for Awardee selection:** Dr Kevin Cronin (UCC), James King (Jacobs)

## 2024-25 WINNERS

**GIOVANA FERNANDES TEIXEIRA (MEngSc)**

**RODALI MEDHI (MEngSc)**





**UCC**

**Coláiste na hOllscoile Corcaigh**  
University College Cork, Ireland

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**A TRADITION OF  
INDEPENDENT  
THINKING**



**UCC**

University College Cork, Ireland  
Coláiste na hOllscoile Corcaigh