

Chemical Engineering

Postgraduate study



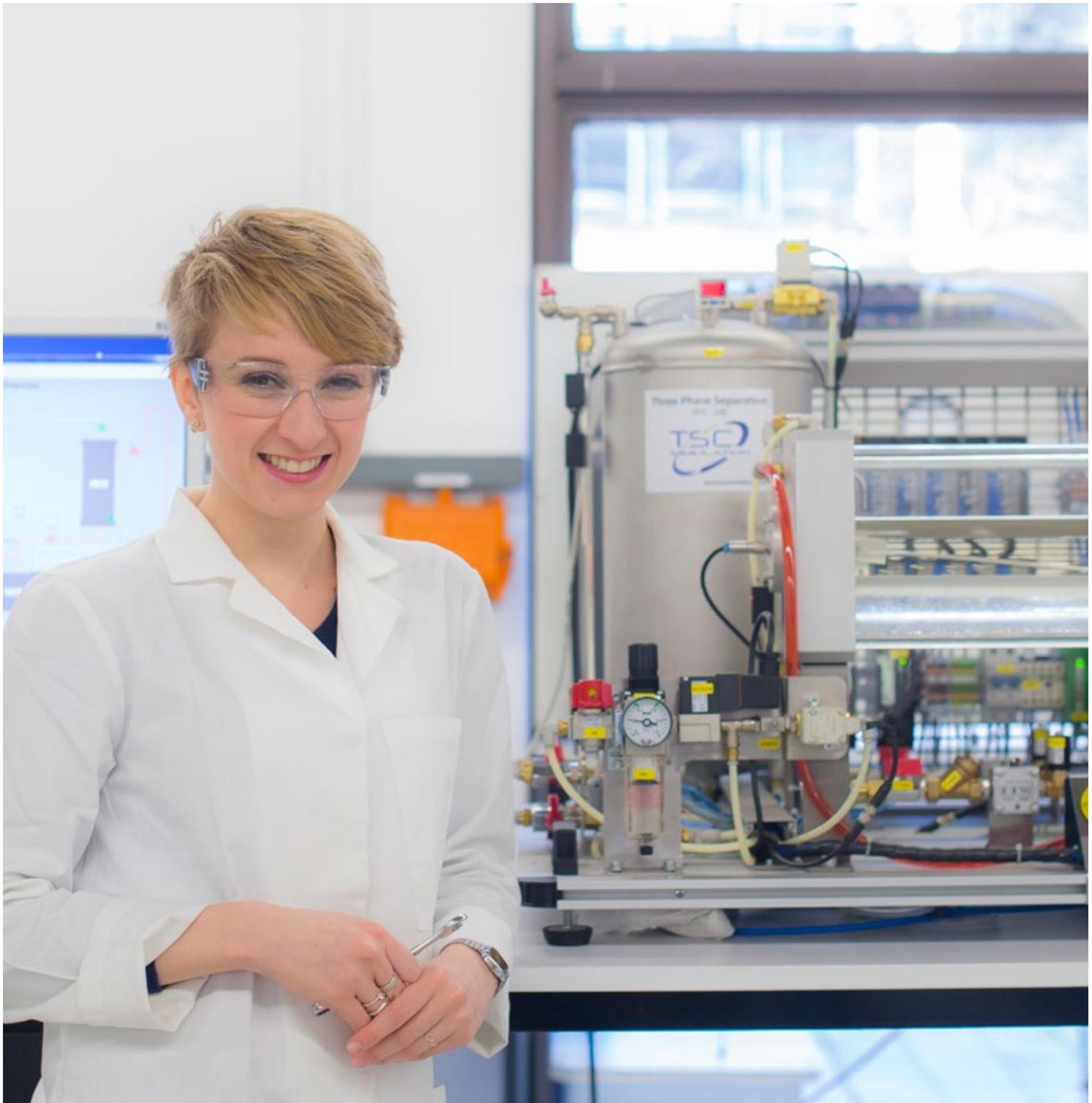
NSS 2017
2ND FOR OVERALL SATISFACTION
IN CHEMICAL ENGINEERING



ALL COURSES
PROFESSIONALLY ACREDITED



DHLE, 2016 GRADUATES¹
£28,000 AVERAGE STARTING SALARY



Welcome

The Department of Chemical Engineering is committed to developing the chemical engineers of the future by providing essential knowledge and training in the sciences, technology, management and communication disciplines.

With a vibrant and exciting community of academic staff, postdoctoral research fellows and influential visitors from all over the world, postgraduate students from our Department of Chemical Engineering have the opportunity to be involved in the latest developments and research within the process industries. Our department is housed within a purpose built facility including a 3952 multi-story mezzanine pilot plant and excellent quality laboratories and services for both bench and pilot scale work. The facility is completed by first-rate computational and IT resources and has a number of mechanical and electronic workshops. Students will also benefit from our new £17m state-of-the-art STEMLab, which contains brand new engineering, science, materials and bio-laboratories.

Inspiring research

Through a multidisciplinary approach that incorporates Biological Engineering, Pharmaceutical Engineering and Micro/Nano-Materials Engineering, our Department delivers cutting edge research that places our students in an excellent position to tackle global challenges expected over the next 50 years. This includes the commercial production of stem cells, smarted disinfection of hospital wards, novel drug delivery methods, advanced water treatment and continuous manufacturing of pharmaceutical products. Our combination of academic support and excellent facilities result in our department ranked highly for student satisfaction, being placed 2nd in the UK for Overall Satisfaction in Chemical, Process and Energy Engineering, with 97% of Students satisfied or very satisfied with their course, National Student



GUARDIAN UNIVERSITY GUIDE
2018
RANKED 8TH FOR
CHEMICAL ENGINEERING



THE COMPLETE UNIVERSITY
GUIDE 2018
UNIVERSITY RANKED 11TH
FOR CHEMICAL ENGINEERING



THE TIMES GOOD
UNIVERSITY GUIDE 2018
RANKED 11TH FOR
CHEMICAL ENGINEERING



Professionally accredited courses
These MSc courses have been independently evaluated so you can be sure they offer you a top level education. Accredited courses provide a fast-track to full chartered engineering status and are looked upon favourably by employers and can therefore improve your career prospects.

The School of Aeronautical, Automotive, Chemical and Materials Engineering is committed to gender equality and tackling discrimination across all equality characteristics. Loughborough University is a committed member of the Athena SWAN gender equality charter and has successfully held a bronze award since 2009.

Advanced Process Engineering MSc

Our MSc in Advanced Process Engineering draws on the expertise of over 20 full-time academic staff to form a research-intensive department designed to provide students with an industry-valued skillset in one of the most industrially relevant disciplines. Students will be required to complete a combination of core and optional modules including Chemical Product Design, and Clean Chemical Energy and Sustainability as well as embarking on a personal research project on a topic of their choice. Past research examples include water purification through oxidation processes and biodiesel processing.

Ranking 8th in the Guardian's University Guide 2018, our Chemical Engineering department has many close links and ties with external companies through a history of knowledge transfer partnerships as well as sponsorship on individual projects from past students. We aim to set our students up with the most amounts of industrially relevant knowledge, experience and skills to give them the best possible chance of attaining high-value jobs across a plethora of career options. Recent graduate destinations include: Tata Steel Europe, Brunei Shell Company, Capula Ltd, and Petroplus as well as many students opting to take their studies further to PhD level.

Programme Director:
Dr Brahim Benyahia
(B.Benyahia@lboro.ac.uk)

Admissions Tutor:
Professor Gianluca Li Puma
(G.Lipuma@lboro.ac.uk)

Core modules

- Applied Engineering Practice
- Downstream Processing
- Planning and Communicating Research
- Applied Heterogeneous Catalysis
- Research Project

Optional modules

- Chemical Product Design
- Interfacial Science and Engineering
- Filtration
- Mixing of Fluids and Particles
- Clean Chemical Energy and Sustainability
- Advanced Computational Methods for Modelling and Analysis of Chemical Engineering Systems
- Process Systems Engineering & Applied IT Practice

Entry qualifications

An honours degree (2:1 or above) or equivalent overseas qualification in a science or engineering subject.

Information online:

- Overseas qualification equivalences
- Fees and funding

Advanced Chemical Engineering with Information Technology and Management MSc

This programme focuses on advancing the student's knowledge of chemical engineering as well as equipping them with the knowledge of how to manage the complex processes and systems that are present within a large-scale chemical processing industry. Students will embark on a set of both core and optional modules including chemical engineering-based modules such as Downstream Processing, and Clean Chemical Energy and Sustainability on top of the IT skills required for these processes as well as entrepreneurship and business skills. Furthermore, all students will have to complete a personal project design to test their ability in tackling an industrially-relevant challenge.

Students will be safe in their knowledge that our Chemical-Engineering department hosts a variety of academics and equipment to provide students with the support and resources needed to make the most of their MSc. Our strong research community has many close links with industrial partners including BP, British Sugar, E.ON, Exxon, and PepsiCo. As a result, many of our students will benefit from both academic as well as financial sponsorship according to their project and company. On top of this, students will find this MSc course to be a valuable stepping-stone if they intend on progressing to a full PhD.

Programme Director:

Dr Brahim Benyahia (B.Benyahia@lboro.ac.uk)

Admissions tutor:

Professor Gianluca Li Puma (G.Lipuma@lboro.ac.uk)

Core modules

- Process Systems Engineering and Applied IT Practice
- Advanced Computational Methods for Modelling and Analysis of Chemical Engineering Systems
- Planning and Communicating Research
- Logistics and Supply Chain Management
- Strategic Management for Construction
- MSc Project

Optional modules

- Filtration
- Chemical Product Design
- Mixing of Fluids and Particles
- Downstream Processing
- Interfacial Science and Engineering
- Clean Chemical Energy and Sustainability

Entry qualifications

An honours degree (2:1 or above) or equivalent overseas qualification in a science or engineering subject.

Information online:

- Overseas qualification equivalences
- Fees and funding

Chemical Engineering Research at Loughborough

Our Department of Chemical Engineering has a strong and growing research programme with world-class research activities and facilities. Given the multidisciplinary nature of our research we work closely with other University departments across the campus as well as other institutions. The Department's research is divided into two key areas although interdisciplinary research and sharing of expertise amongst groups within the Department is commonplace. Our two main research themes include:

Healthcare and Pharmaceuticals

Our vision is to enable Loughborough's engineering strength to be developed at a direct interface with biology and medicine. Based within the Centre for Biological Engineering (CBE) our activities are positioned in the translational space between scientific discovery and the production of cell-based biological products, techniques and therapies. We believe that it has now earned the reputation of being the major UK National Centre for late-stage process-oriented research in Regenerative Medicine. The CBE is one of only four such groups in the world (the others being Toronto, Georgia Tech and Singapore).

- Biological Engineering: The focus of this Group is to understand the interaction of the cell with the process environment for informed process development and scale-up.
- Healthcare Engineering: The focus of this group is the design, manufacture and exploitation of current and next generation medical technologies.

Process Engineering

Multiple research groups covering the full spread of Chemical Process Engineering applied across all industry sectors from food to energy and pharmaceutical manufacture.

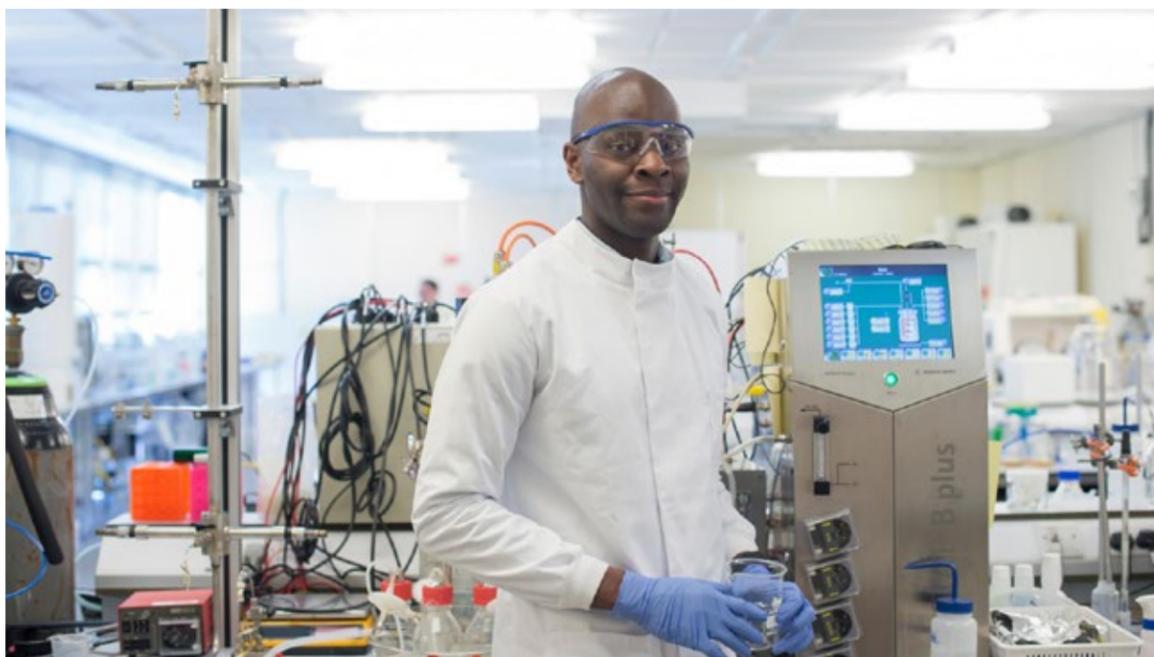
- Pharmaceutical Engineering: Addressing the emerging problems of pharmaceutical production with special emphasis on purification, formulation and administration.
- Micro- and Nano-Materials Engineering: Expertise in particle technology has evolved into nano- and micro- engineering of particles and materials.
- Catalysis and Reaction Engineering: Research is underway on scientific understanding of catalytic phenomena relevant to currently and future industrial processes.
- Energy and Environmental Engineering: Covering a wide range of topics including the development of technology to produce clean fuels.
- Separation and Purification Technology: Covering Both Fundamental Phenomenon as well as the design and simulation of conventional and new processes.

Interested in applying for a research degree?

Funded research studentships become available throughout the year across a wide range of Chemical Engineering topics, funded by UK research councils, industry and Loughborough University.

We also welcome enquiries from individuals who have their own funding or would be interested in a part funded PhD opportunity.

If you are interested in a future PhD opportunity in any of these research areas or generally a PhD within the Department of Chemical Engineering, please contact: Dr Karen Coopman, email: K.Coopman@lboro.ac.uk





Graduate Destinations

Notable companies hosting our postgraduate students over the past three years include:

MSc destinations (graduated in the last three years)

- Affinity Water – Graduate Engineer
- Apetito UK – Graduate Project Engineer
- Loughborough University – PhD research student
- Deutsche Bank – Junior Consultant
- ICL – Researcher
- Avande – Analyst, Business and Technology Integration
- Nigeria LNG Limited – Principal Process Operations Tech
- Yara International (Sweden) – Process Engineer

PhD graduate destinations (graduated in the last four years)

- University of Sheffield – Research Associate
- Kemin Industries – Senior Research Associate
- PCT – Business Leader, Technology Development
- AstraZeneca – Senior Scientist
- University of Cincinnati – Postdoctoral Research Fellow
- Advanced Medical Solutions – Process Engineer
- Novartis (Slovenia) – Scientist
- Nestlé (Switzerland) – Lipid Specialist



Student profiles

Student interview: Callum Mawer – Advanced process Engineering

Why did you choose Loughborough University?

I chose Loughborough University due to its excellent ties and reputation with industry, specifically in the field of Engineering.

What do you enjoy most about your programme?

I have enjoyed the challenge of the modules taught this year, along with the greater emphasis on process operations compared to theory in the undergraduate modules. I have also found undertaking research to be both enjoyable and interesting, adding a different perspective to my studies in Chemical Engineering.

Describe what it is like to be a postgraduate, and how this differs from undergraduate studies?

There is definitely a far greater amount of responsibility and trust given to postgraduates, specifically due to each student conducting individual research alongside PhD students.

Where do you see yourself in five years?

In five years time, I hope to be a chartered Chemical Engineer.

If you could give one piece of advice to a future student, what would it be?

Put 100% into doing as well as possible in every year of your studies, rather than the final years. This takes off a significant amount of pressure at the end, especially if you're just below a certain grade boundary.

Recently graduated PhD student: Serena Morelli

Why did you choose your research degree here at Loughborough University?

I was advised from my previous supervisor about joining Loughborough. I also read a lot about the research group here in Loughborough through papers while I was doing my thesis work and I knew that I wanted to join them.

What did you most enjoy about your research degree?

The availability of equipment and resources in general. There are always resources available to help you realise your independent project. Also, I enjoyed being under the supervision of my two supervisors as they were always friendly and approachable throughout my time here at Loughborough.

Can you provide the title and a brief overview of your research project?

I am producing microbeads (also called microparticles) with an innovative technique called membrane emulsification. The aim of my research is to obtain novel formulations for the release of drugs in specific areas of the human body. My first release target was the stomach and pH sensitive particles were already produced on that purpose.

What do you think of teaching quality and research facilities?

I really enjoyed the facilities of the campus so far and even the resources available for the research such as instruments and equipment in general.

What would you say to someone considering completing a PhD at Loughborough?

It is a really good experience and you can really focus on your work. You will have the resources that you need and I learnt a lot in this part of my study.

What Do you enjoy most about being a Loughborough University student?

The sport facilities and the library are nice ways to relax after a hard day working in the labs. The life on campus is over all very attractive and it is a nice environment to be in.

Do you think Loughborough University has inspired you in any way? Whether that be through inspiring lecturers, extra-curricular activities or a specific module that helped you develop new skills?

All the PhD experience has inspired me. Now that I have graduated I look back and I am confident that coming to Loughborough was the best option for me. I have learnt a lot and I have had the possibility to use a lot of different types of equipment which I am sure will be quite useful for my future career or studies. Overall I feel a lot more confident than before in terms of doing a research project and delivering what I have found out to my colleagues. I feel I improved my presentation skills in these two years and I think that will be useful in the future when I start looking to find a job.



TIMES HIGHER
EDUCATION STUDENT
EXPERIENCE SURVEY
BRITAIN'S BEST
STUDENT EXPERIENCE
OVER THE LAST
10 YEARS 2007-2017



"I chose Loughborough University due to its excellent ties and reputation with industry, specifically in the field of Engineering."

Callum Mawer,
Advanced Process Engineering

General enquiries

Department of Chemical Engineering
Loughborough University
Leicestershire LE11 3TU UK

T: +44 (0)1509 222532
E: ChemEng@Lboro.ac.uk

