Introduction to Chemical Engineering

Discover Brunel

We're delighted you're thinking about studying at Brunel University London.

Our lecturers have put together the following information to help you prepare for your course. This will give you a snapshot of the materials and reading list you'll be using. You'll get a full breakdown of information before you enrol.

On our website you can also find out more about your modules and chat to a current student.

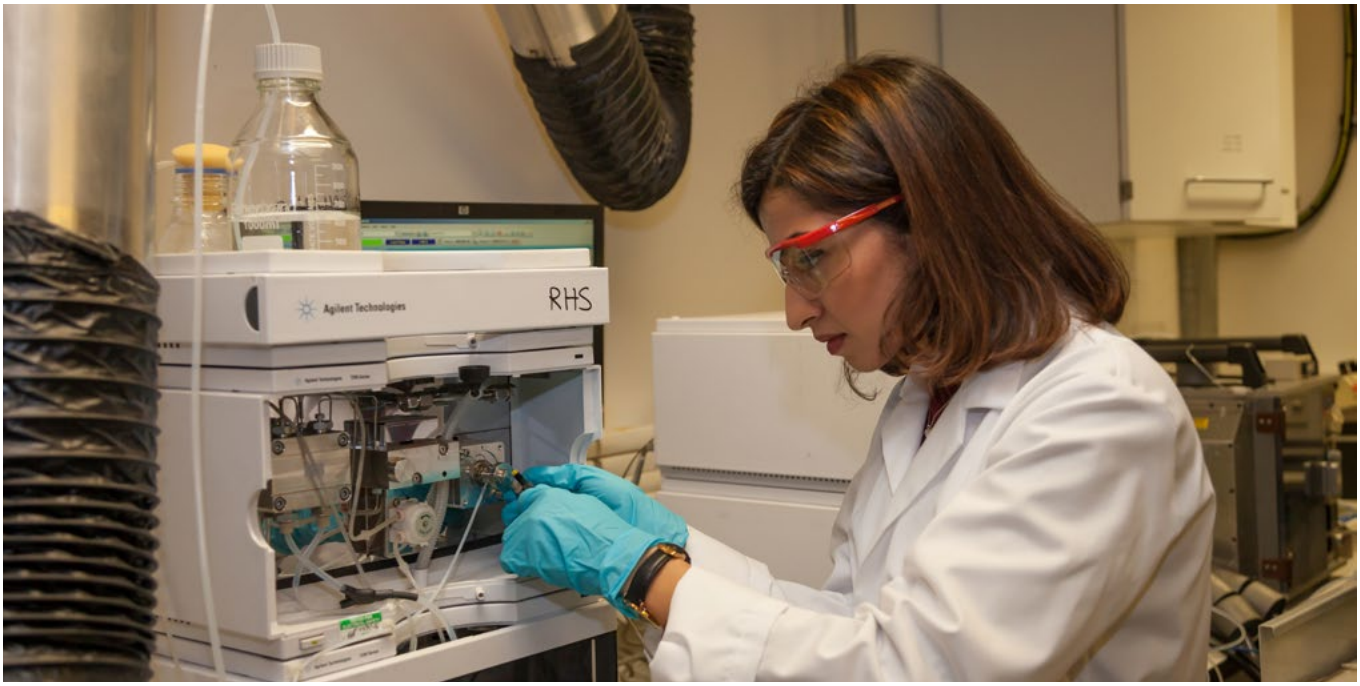
If you have any more questions, please get in touch.

We look forward to welcoming you to Brunel.

Sample lecture/coursework questions

As you progress through your degree, these are the types of questions you'll be able to answer with confidence as a professional chemical engineer:

1. What is Chemical Engineering? How does Chemical Engineering differ from chemistry and other engineering disciplines?
2. What are the unit operations in Chemical Engineering?
3. How would you design and develop a chemical/biochemical engineering process for industry?
4. The engineering profession is acutely aware of its responsibilities to society, public health and its management of our shared natural resources. How does Chemical Engineering play an important role in sustainable development?
5. What do Chemical Engineers after their graduation? How would you become a professional engineer and future leader?
6. How would you integrate digitalisation and cyber security to chemical and biochemical engineering processes to address future challenges?



Reading list

These are two core Chemical Engineering textbooks that will be useful throughout your career.

- Smith, R. (2016) Chemical Process Design and Integration 2nd Ed. Wiley.
- Green, D. and Southard, M. Z. (2018) Perry's Chemical Engineers' Handbook 9th Ed. McGraw-Hill.

The following books are core texts for the first year and electronic access will be available for your study once you are registered at Brunel.

- Stroud, K. A. and Booth, D. J. (2013) Engineering Mathematics 7th Ed. Palgrave.
- Hibbeler R. C. (2016) Engineering Mechanics: Statics in SI Units 14th Ed. Pearson
- Hibbeler R. C. (2016) Engineering Mechanics: Dynamics in SI Units 14th Ed. Pearson
- Boylestad R. L. and Nashelsky L. (2013) Electronic Devices and Circuit Theory 11th Ed. Pearson
- Massey, B. S. and Ward-Smith J. (Ed.) (2011) Mechanics of Fluids 9th Ed. Routledge

Indicative content

Your first-year engineering at Brunel is taught as an integrated course with the Mechanical, Aerospace, Electrical and Civil Engineering departments. Study themes include:

- Engineering maths, statistics and computing (Stroud)
- Engineering systems and energy (Boylestad, Massey)
- Engineering mechanics and materials (Hibbeler)
- Chemical Engineering Introduction Chapter 1 (Smith)
- Chemical Engineering Thermodynamics Chapter 4 (Green)

Study themes in later years include:

- Heat and Mass Transfer
- Chemical Reaction Engineering
- Biochemical Engineering
- Process Control
- Separation Processes
- Process Safety and Design
- Low Carbon Technologies
- Sustainability and Environmental Engineering
- Big Data & Analytics
- Industrial Internet of Things (IIoT) and Cyber Security
- Chemical Engineering Design Project
- Chemical Engineering Research Project