



## MSc in Nuclear Engineering

The MSc in Nuclear Engineering provides both theoretical and practical training for engineers and scientists who want to become nuclear specialists.

### Join us and be a part of a new generation of nuclear engineers.

The MSc in Nuclear Engineering at Imperial equips you with specific nuclear skills to satisfy the demands of the nuclear industry and prepares you for a career in nuclear engineering.

The course covers all major aspects of the nuclear industry, from design and build of nuclear power stations, their operations, to decommissioning and final disposal.

### Why study Nuclear Engineering at Imperial?

Imperial College London has a long history of research and teaching in nuclear engineering dating back to the 1950s.

Leading academics from the Centre for Nuclear Engineering (CNE) teach on the MSc course. The multi-disciplinary CNE team includes researchers in the Departments of Mechanical Engineering, Chemical Engineering, and Materials, as well as the unique expertise and experience of our staff at the Imperial College Reactor Centre at the Silwood Park Campus who work at the CONSORT test reactor daily.

### World-leading experts

Experts and leaders in Nuclear Engineering teach on this course, including:

- **Professor Robin Grimes** (FREng, Chief Scientific Advisor to the Foreign and Commonwealth Office)
- **Professor Bill Lee** (FREng, Director of the CNE and former member of CORWM - a government advisory committee on nuclear decommissioning, author of *An Introduction to Nuclear Waste Immobilisation*)
- **Professor Geoff Hewitt** (FRS and FREng with over 50 years of nuclear engineering expertise and author of *Introduction to Nuclear Power*)
- **Professor Steven Cowley** (Director of UKAEA's Culham Centre for Fusion Energy)
- **Trevor Chambers** (CONSORT Reactor Centre Manager)
- **Dr Tony Judd** (former Dounreay Fast Reactor manager and author of *Fast Breeder Reactors*)
- **Dame Professor Sue Ion** (Government Nuclear Consultant)

### Research Project

The research project is a highlight of the MSc. Students spend over four months investigating current and challenging nuclear issues.

Leading Imperial academics, often with an industrial partner, supervise your project. Many students spend their projects conducting research immersed in a collaborating company, or even abroad!

The research project enables you to develop the expertise and skills needed for a career in nuclear engineering. A number of our graduates use contacts built during their project to launch their careers.

### Industrial Links

As a student on the MSc you interact with the CNE's industrial collaborators. These include EDF, EDF Energy, Rolls-Royce, NDA, AWE, Royal Navy, MoD, Westinghouse, AREVA, ANSTO, ITU, CEA, Studsvik, NNL and many others. Their guest lectures offer you an invaluable industrial perspective.

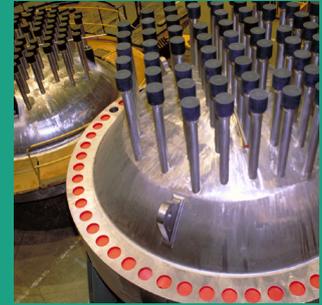
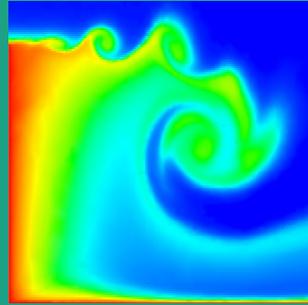
“The Nuclear Engineering MSc was the perfect transitional course to help me stand out in the nuclear sector. It helped me understand all the different areas of the nuclear field and how they fit together holistically. It also made me appreciate the need for nuclear technology in the UK today and the unique challenges it poses. Having completed the MSc, I am now looking forward to helping tackle these challenges in my new job in a nuclear consultancy company (Atkins Consultants Ltd) thanks to Imperial.”

**Kevin McMullan**  
MSc in Nuclear Engineering graduate, 2011



## Minimum entry requirements:

A 2:1 degree or equivalent qualification in an engineering or science discipline (e.g. Materials, Mechanical, Civil, Electrical, Chemical Engineering, Physics or Chemistry). Applicants with relevant industrial experience will also be considered.



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“It was my first intern and regarding the quality of the work, I definitely look forward to supervising other students from Imperial!”

Regis Nhili,  
Nuclear R&D Liaison Officer, EDF Energy/EDF

### Core modules

- » Introduction to Nuclear Energy
- » Nuclear Thermal Hydraulics
- » Nuclear Chemical Engineering
- » Reactor Physics
- » Materials for Reactor Systems
- » Modeling for Nuclear Engineers
- » Nuclear Safety Management
- » Nuclear Waste Management and Decommissioning



### Short courses & Continuing Professional Development

There are five intensive one-week short courses in addition to the core modules.

#### Radiation Protection

Gives an understanding of radioactive material dispersion and biological consequences.

#### Fast Reactors and Nuclear Hydrogen Production

Introduces the history and technology of fast reactors leading to the Gen IV designs and how they can be used to create hydrogen for use in a low carbon world.

#### Nuclear Fusion

This module covers engineering aspects of a future fusion power reactor and is taught by experts from the JET reactor from the Culham Centre for Fusion Energy.

#### Engineer in Industry

World leaders in nuclear fission introduce the history of nuclear power, international regulations and roles of real engineers in the nuclear industry.

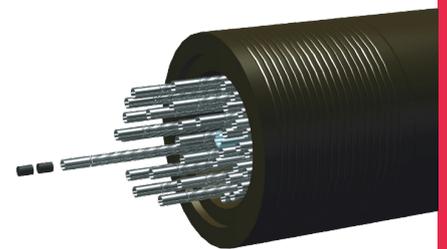
#### Nuclear Island Constructionarium

Build your own reactor! As part of a team of engineers you can work together to construct a scaled down reactor, to realise nuclear safety culture skills and understand the technical issues around civil construction and new build in the UK.

Check out our website for a detailed module synopsis (see purple box).

### Financial support, scholarships and awards

Financial support is available to students who demonstrate an outstanding academic record. Our industrial partners, such as EDF, EDF Energy and Mott MacDonald, provide a variety of funded scholarships. The Department of Materials also provides other bursaries.



At the end of the year the top ranked student receives the *Rolls-Royce Prize for Nuclear Engineering* and the best two research projects receive the *William Penney prizes*, kindly supported by AWE.

### Contact us:

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[www.imperial.ac.uk/materials/courses/msccourses/mscnuclear](http://www.imperial.ac.uk/materials/courses/msccourses/mscnuclear)