



UNIVERSITY OF  
BIRMINGHAM

SCHOOL OF  
CHEMICAL  
ENGINEERING

# MSc GLOBAL ENERGY TECHNOLOGIES AND SYSTEMS



# SPECIALISE IN ENERGY AND HELP TO FIND SOLUTIONS TO SOME OF SOCIETY'S BIGGEST CHALLENGES

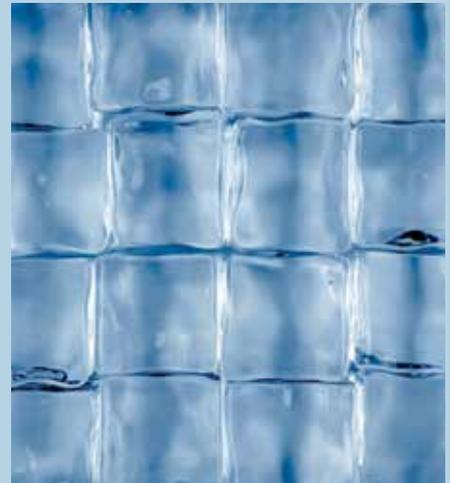
Delivering enough energy to service the demands of a constantly developing world is a major task, and one that is increasingly more dependent on the use of renewable and sustainable energy sources as the world understands more and more about the impact that climate change will have on our environment. Global energy systems will need to evolve to satisfy this demand whilst simultaneously addressing major human and environmental factors.

Our course looks at the relationship between domestic and global energy supply and demand, current and future energy generation and distribution technology, and the policy and legislative drivers that affect their implementation.

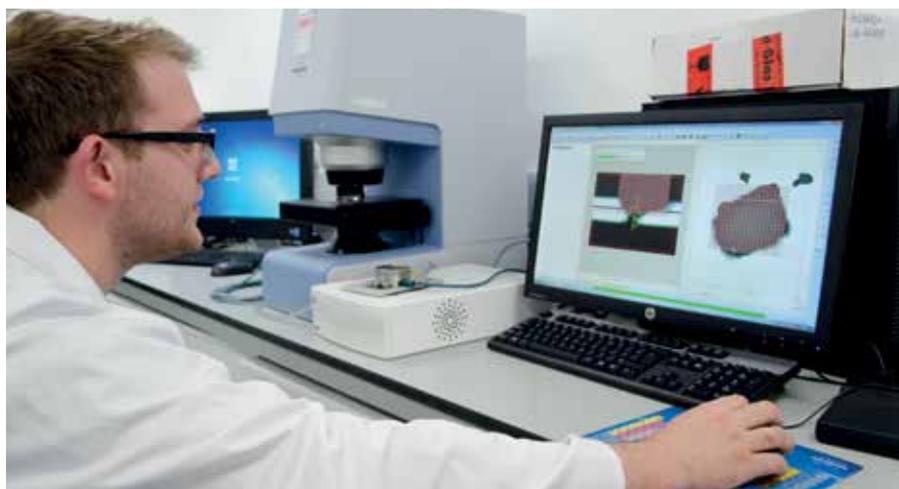
Our graduates will leave us with a broad skill base, prepared for a career in this increasingly crucial sector.

## WHY CHOOSE BIRMINGHAM?

- Explore the energy landscape with leaders in the field and address global sustainability and environmental challenges
- Take a systems approach to study in the energy field by investigating both technological and policy drivers
- Benefit from our collaborations with world-class industry partners, and international, leading-edge engineering and science departments
- The School has a first-class reputation in learning, teaching and research, and is highly placed in both *the Guardian* and *The Times* league tables



# MSc GLOBAL ENERGY TECHNOLOGIES AND SYSTEMS



## FACT FILE

**Start date:** September.

**Duration:** 1 year (full time),  
2/3 years (part time).

**Entry requirements:** A 2:1 Honours degree in engineering or a physical sciences subject. Consideration given to other degrees with a significant mathematical component.

## Course content

The course consists of 180 credits. Most modules are core and are split between energy systems, energy technologies and implementation themes. Students will select from one of two 10-credit options for their final taught module. A 60 credit research project is also in the energy theme under the supervision of one of the School's academics and research teams. The programme spans subjects such as generating technology, energy policy, systems integration and global energy security.

## More about the course

In the autumn semester the course focuses mostly upon energy technologies and sets a foundation for the technical knowledge required to understand how such technology may be implemented, with the fundamentals of energy systems and energy policy also being introduced. The spring semester then focuses heavily on these energy systems aspects as we look to understand how the energy landscape is affected individual and industrial demand, generating capacity, and domestic and global policy.

The summer semester sees students undertaking a research project chosen from proposals put forward by our internationally recognised research groups.

The course has been carefully constructed to ensure that balance is struck between the engineering principles inherent in understanding how our energy is generated, distributed and used, and the systems approach necessary in appreciating the enormous complexity in our utilisation and consumption of energy.

Modules will embed material that gives the opportunity to develop some sought-after skills such as data processing, mathematical modelling, techno-economic analysis, and written communication. Further, module material will be supplemented with seminars from academic and industry professionals.

## Core modules

Energy technologies	Credits
Advanced Energy Technology	20 credits
Thermal Energy Conversion, Storage and Applications	10 credits
Fuel Cells and Hydrogen Technology	10 credits
Nuclear Engineering	10 credits
Energy systems	
Energy Systems and Policy	10 credits
Renewable Energy Systems	10 credits
Energy Systems Modelling	10 credits
Political Economy of Energy and Energy Security	20 credits
Implementation	
Energy Engineering Design	10 credits
Optional modules	
Energy Storage	10 credits
Business and Strategy Development	10 credits

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## CONTINUED

### Research expertise

The School of Chemical Engineering hosts the Thermal Energy branch of the Energy Research Accelerator and boasts significant research expertise through the Birmingham Centre for Cryogenic Energy Storage and the Birmingham Centre for Thermal Energy Storage. Specific research strengths are in the design and production of energy storage materials, the design and modelling of smart grids, systems integration, advanced materials manufacture, and the development and analysis of energy policy.

### World-class teaching and learning

Postgraduate study at the University of Birmingham is a chance to learn from world leaders in their fields. This guarantees you a first-class learning experience, leading to a qualification that is respected the world over and making you an attractive prospect in a very competitive job market.

The MSc is a 12-month full-time advanced course, comprising lectures, seminars, workshops, design exercises and a research project. The course can also be taken on

a part-time basis over two or three years. Modules could potentially be offered individually, eg, to fulfil continuing professional development needs; please contact us to discuss this further.

### The energy professional's landscape

Energy professionals are in increasing demand as we move to more responsive and flexible energy systems. This course will give a

thorough foundation for a career in this sector. Our Careers Network offers a range of events and support services designed to help you maximise your employability: from networking opportunities and career coaching workshops, to our effective-careers-strategy toolkit and one-to-one guidance. We also offer subject-specific careers consultants and advisers for each college and a dedicated careers website for international students.



## LEARN MORE

For full module information and an online application form, please visit our dedicated web pages, or contact our programme staff with your questions.

Tel: +44 (0)121 414 5329  
 Email: [m-sc-admis-chem-eng@bham.ac.uk](mailto:m-sc-admis-chem-eng@bham.ac.uk)  
[www.birmingham.ac.uk/global-energy-msc](http://www.birmingham.ac.uk/global-energy-msc)

This leaflet was written several months in advance of the start of the academic year. It is intended to provide prospective students with a general picture of the programmes and courses offered by the School. Please note that not all programmes or all courses are offered every year. Also, because our research is constantly exploring new areas and directions of study some courses may be discontinued and new ones offered in their place.

Please note the information in this brochure is correct at time of publication but may be subject to change (November 2019).

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UNIVERSITY OF  
BIRMINGHAM

Edgbaston, Birmingham,  
B15 2TT, United Kingdom  
[www.birmingham.ac.uk](http://www.birmingham.ac.uk)