



UNIVERSITY OF
BIRMINGHAM

ELECTRONIC,
ELECTRICAL AND
SYSTEMS ENGINEERING



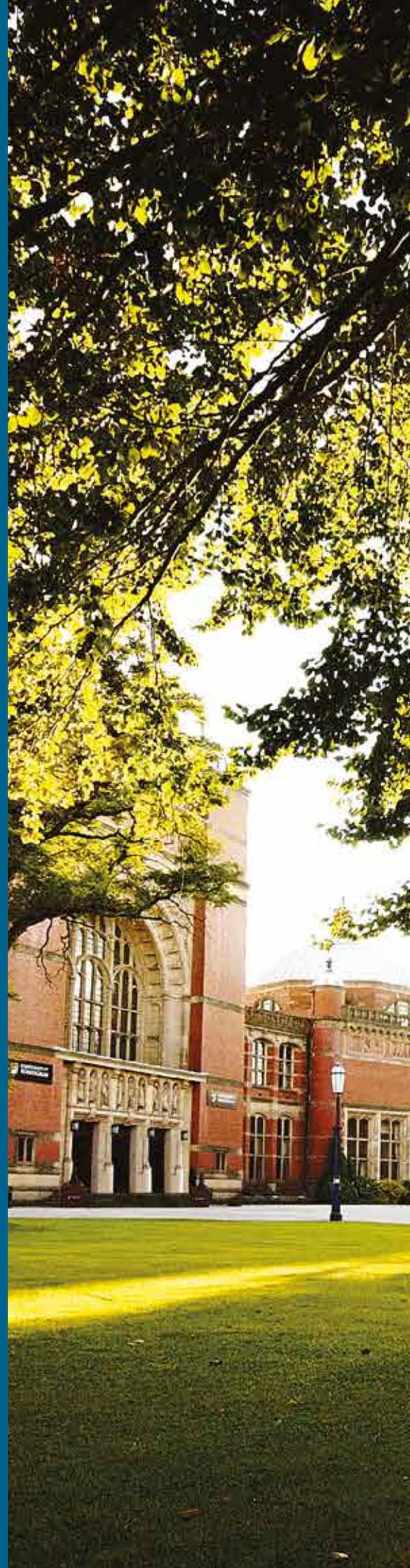
**POSTGRADUATE STUDIES IN ELECTRONIC,
ELECTRICAL AND SYSTEMS ENGINEERING**

Introduction to Electronic, Electrical and Systems Engineering

WORLD-LEADING RESEARCH AND CLOSE COLLABORATION WITH INDUSTRY, GUIDING YOU FURTHER ALONG YOUR CHOSEN CAREER PATH.

'I am delighted that you are considering postgraduate study at Birmingham. We are a research-led university and postgraduate students are central to our learning community. Our wide portfolio of research makes us one of the most popular universities for postgraduate study in the UK. We value our postgraduate community and constantly strive to develop and enhance the services, facilities and opportunities available to you. We offer a comprehensive range of taught, research and combined programmes, and are eager to receive applications from highly motivated and well-qualified graduates.'

Professor Peter Gardner
Head of Department
Electronic, Electrical and Systems Engineering





Communications Engineering

MSc

Equipping you for a rewarding career in a dynamic field that's vital to global economic growth. Giving you Masters-level specialist knowledge of the underlying principles and advanced applications of communication systems, this programme equips you perfectly for a career in the industry.

FACT FILE

Start Date: September

Duration: 1 year full-time
or 2–3 years part-time

Fees for 2020–21: UK/EU students:
£9,900 full-time, £4950 part-time (year 1)
International students: £23,310

Entry requirements: 2:1 Honours degree
in electrical engineering, electronic
engineering, computing or physics

Covering a wide range of topics, you will complement your specialist skills and technical knowledge with a range of supporting skills, such as interpreting requirements, making decisions, giving technical presentations and working in a team. The course is designed for students with good mathematical skills.

Course content

This course consists of 180 credits. As well as your core modules, you will choose three optional modules.

Core modules

- Introduction to Communications Engineering – 20 credits
- Digital Communications and Signal Processing – 20 credits
- Electromagnetics, Antennas and Propagation – 20 credits
- Individual Project – 60 credits

Optional modules (choose three)

- Satellite, Mobile and Optical Communications – 20 credits
- Computer and Communication Networks – 20 credits
- Radar and Satellite Navigation – 20 credits
- RF and Microwave Engineering – 20 credits

More about the course

You will study core modules covering advanced specialist topics, plus cross-programme modules allowing you to specialise in your chosen area, along with an individual research project – which is sometimes undertaken in collaboration with industry.

The programme covers a wide range of topics in communication engineering and provides options from outside the core specialism. As well as acquiring specialist technical knowledge, you will develop generic skills such as: interpreting requirements and specifications to produce effective design solutions; making decisions on the basis of incomplete information; giving technical presentations, and working in a team. These are achieved through a combination of group and individual exercises.



CAREERS

Enhance your professional prospects

This course will equip you for a rewarding career in this dynamic field. Companies in both mature and rapidly growing economies are keen to secure professionals with specialist knowledge of the underlying principles and advanced applications of communications systems, meaning that upon graduation your career prospects will be excellent.

World-class learning and teaching

Assessment is by a combination of written examination and course work. There is a strong emphasis on course work to deepen understanding. While most students study the course full-time, it is also suitable for practising engineers wishing to study part-time or take a single module for CPD points. The modules are completed in three-day sessions allowing you to focus one topic at a time.



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 5089

Email: pgtengineering@contacts.bham.ac.uk

NEXT STEPS

For module information and to apply, visit:

www.birmingham.ac.uk/comms-eng

Electrical Power Systems

MSc

Meeting the growing demand for engineers trained in electrical power systems and renewable energy. Also available as a two-year programme: Electrical Power Systems with Advanced Research.

FACT FILE

Start Date: September

Duration: 1 year full-time; 2–3 years part-time. Electrical Power Systems with Advanced Research: 2 years full-time; 4–6 year part-time

Fees for 2020–21: UK/EU students: £9,900 full-time, £4950 part-time (year 1)
International students: £23,310

Entry requirements: 2:1 Honours degree in electrical engineering, electronic engineering or physics

The 3rd energy industry revolution is taking place where the key is the development of electrical power systems in the contexts of smart grids. Electrical power systems are playing a pivotal role in the development of a sustainable energy supply, enabling renewable energy generation. This programme will give you the skills and specialist knowledge you need to significantly enhance your career prospects in the electrical power industry, developing your power engineering skills through expert teaching and extensive research work undertaken in collaboration with power industry partners.

Course content

This course consists of 180 credits.

Core modules

- Introductory Module for Electrical Power Systems – 20 credits
- Power System Economics – 20 credits
- Power Systems Operation and Control – 20 credits
- HVDC and FACTS – 20 credits
- Individual Project – 60 credits

- Renewable Energy Systems Integration – 20 credits
- Power System Stability, Control and Protection – 20 credits

More about the course

The course is designed to bridge the gap between theory and practice and help you understand how to use the advanced methods to solve the real challenges the energy industry is facing. You will also develop your ability to critically evaluate methodologies, analytical procedures and research methods in:

- Control concepts and methods
- Advanced energy conversion systems and power electronic applications
- Advanced power electronic technologies for electrical power networks – HVDC and FACTS
- Electrical power system engineering – using state-of-the-art computational tools and methods, and design of sustainable electrical power systems and networks
- Economic analysis of electrical power systems and electricity markets

World-class learning and teaching

This programme will develop your power engineering skills through expert teaching and extensive research work undertaken in collaboration with power industry partners. Some modules are taught by leading industry experts, offering exciting opportunities to understand the real challenges that the power industry and how to develop innovative solutions.

While most students study the course full-time, it is also suitable for practising engineers wishing to study part-time or take a single module to given them CPD points. The modules are completed in three-day sessions allowing you to focus one topic at a time.



CAREERS

Enhance your professional prospects

This course meets the industrial demand for the training and education of both existing and future engineers in the advanced concepts of electrical power systems and renewable energy. It aims to produce graduates of the highest calibre who will be much in demand due to their skills, knowledge and ability to lead in teams involved in the operation, control, design, and economic analysis of the electrical power systems and networks of the future – smart grids.



LEARN MORE

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NEXT STEPS

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www.birmingham.ac.uk/electrical-power-systems

Electronic and Computer Engineering

MSc

Develop your skills and understanding in a field that affects all aspects of business and is crucial to economic growth. Electronics is at the heart of a wide range of business and entertainment systems and is vital to the growth of the global economy.

FACT FILE

Start Date: September

Duration: 1 year full-time
or 2–3 years part-time

Fees for 2020–21: UK/EU students:
£9,900 full-time, £4950 part-time (year 1)
International students: £23,310

Entry requirements: 2:1 Honours degree
in electrical engineering, electronic
engineering, computing or physics

The integration of computing and communications with interactive digital media is evident in many modern innovations that are creating a revolution in business and the life of individuals. This programme is designed to equip you with the knowledge and skills you need to play a leading part in the future research, development and application of these technologies.

Course content

This course consists of 180 credits. As well as your core modules, you will choose three optional modules.

Core modules

- Introductory Module for Computer Engineering – 20 credits
- Digital Design – 20 credits
- Software and Systems – 20 credits
- Individual Project – 60 credits

Optional modules: (choose three)

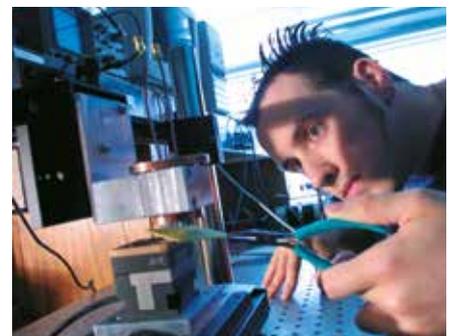
- Small Embedded Systems – 20 credits
- Data Mining and Machine Learning – 20 credits
- Computer and Communications Networks – 20 credits
- Sensing and Control for Autonomous Systems – 20 credits

More about the course

The wide range of modules allows you to create a personalised study package and your individual project is an opportunity for you to develop your specialist knowledge even further. Some projects are undertaken in collaboration with companies and, in some cases, you may work on company premises investigating issues of direct concern to future product development. Example projects include wireless access systems, 3G mobile radio for light aircraft and wearable computing.

World-class learning and teaching

While most students study the course full time, it is also suitable for practising engineers wishing to study part-time or take a single module to given them CPD points. The modules are completed in three-day sessions allowing you to focus one topic at a time. Assessment is by a combination of written examination and course work. There is a strong emphasis on course work to deepen understanding.



CAREERS

Enhance your professional prospects

This course will equip you for a rewarding career in a dynamic field. Students with this degree have readily found work in the past. Companies in both mature and rapidly growing economies are keen to secure professionals with specialist knowledge in the topics covered throughout this course, meaning that upon graduation your career prospects will be excellent.



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.

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www.birmingham.ac.uk/electronic-computer-eng

— POSTGRADUATE ADVICE —
**ASK US A
QUESTION**

The best thing about my course is that I have experienced both taught and research curricula. I have been taught by visiting lecturers with many years of experience in academia and the power industry, while the research curriculum has given me an insight into research work that has helped me to decide if I want to pursue a PhD in the future.

OLUWATOMISIN AINA, Electrical Power Systems with Advanced Research MSc.

ASK US A QUESTION: www.pg.bham.ac.uk/ask



UNIVERSITY OF
BIRMINGHAM

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B15 2TT, United Kingdom
www.birmingham.ac.uk

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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