Electrical Power Systems Masters/MSc

Postgraduate degree programme: Electrical Power Systems Masters/MSc

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. Globally there is a big shortage of skilled engineers for designing, operating, controlling and the economic analysis of future electricity networks – smart grids

The MSc Electrical Power Systems will give you the timely skills and specialist knowledge required to significantly enhance your career prospects in the electrical power industry. This programme will develop your power engineering skills through expert teaching and extensive research work undertaken in collaboration with power industry partners.

Some modules will be taught by leading industry experts, offering exciting opportunities to understand the real challenges that the power industry is facing and will work with you to develop and provide innovative solutions. In addition, students working on relevant MSc projects may have the opportunity to work with leading industry experts directly

This programme also aims to provide graduates with the 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.

Study here and find out why the University of Birmingham has been awarded The Times and The Sunday Times University of the Year 2013-14

Course fact file

Type of Course: Continuing professional development, taught

Study Options: Full time

Duration: 12 months full time (can also be studied part-time)

Start date: September/October

Related courses

Electrical Power Systems with Advanced Research Masters/MSc (Two Year)

Postgraduate degree courses - Electronic, Electrical and Computer Engineering

Contact

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School of Electronic, Electrical and Computer Engineering

Details

Postgraduate degree programme: Electrical Power Systems Masters/MSc

This MSc programme 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 with the right skills and knowledge who will be capable of leading in teams involved in the operation, control, design, and economic analysis of the electrical power systems and networks of the future – smart grids.

It will meet the demand for the research and development of sustainable electrical power systems and the demand for training and education of existing and future power engineers in the advanced concepts and understanding of sustainable electrical power systems and renewable energy.

Related links

- **Electrical Power Systems with Advanced Research Masters/MSc (Two Year)**
- **Postgraduate degree courses - Electronic, Electrical and Computer Engineering**
- **Postgraduate degree courses FAQ**
- **Electronic, Electrical and Computer Engineering MSc and MRes brochure (PDF 3.7MB)**

Why study this course

The course is to fill in the gap between theory and practice and provide the opportunity to understand how to use the advanced methods to solve the real challenges that energy industry is facing. The leading power system experts from industry will provide unique course materials which may not be found elsewhere.

Modules

Compulsory Modules

- Introductory Module for Electrical Power Systems
- Power System Economics
- Intelligent Systems
- Power System Operation and Control
- HVDC and FACTS
- MSc Project

Optional Modules

- Small embedded systems
- Embedded Digital Signal
- ProcessingComputer and Comms Networks

Fees and funding

Tuition fees

Tuition fees for 2013/2014 are as follows:

£6,480 for home/EU students

£16,770 for international students

Part-time programmes

Most part-time programmes run for two years and their fees are one half of the standard full-time programme fees. A small number of part-time programmes run for three years and in these cases the annual fees are one third of the total full-time cost. Contact us for further information.

UK student visa regulations mean that students classed as overseas for fees purposes may normally only register on a full-time basis.

Also see the **fees for international students** page.

Further funding information

Learn more about **fees and funding**

Scholarships and studentships
Scholarships may be available. International students can often gain funding through overseas research scholarships, Commonwealth scholarships or their home government.

For further information contact the School directly or email **financialsupport@bham.ac.uk**

Entry requirements

At least a lower second-class Honours degree in Electrical Engineering, Electronic Engineering or Physics from a university of high international standing

Learn more about **entry requirements**.

International students
We accept a range of qualifications from different countries – learn more about **international student entry requirements**. English language requirements can be found on this page.

How to apply

When clicking on the Apply Now button you will be directed to an application specifically designed for the programme you wish to apply for where you will create an account with the University application system and submit your application and supporting documents online. Further information regarding how to apply online can be found on the **How to apply pages**

Apply now

Related links

Postgraduate degree courses - Electronic, Electrical and Computer Engineering

Postgraduate degree courses FAQ - Electronic, Electrical and Computer Engineering

Electronic, Electrical and Computer Engineering MSc and MRes brochure (PDF 3.7MB)

Learning and teaching

Patterns of study

The majority of students study our taught Masters programmes full time. Our programmes are also suitable for practising engineers who wish to study part-time or take a single module to earn Continuing Professional Development (CPD) points. Many modules are completed in three-day sessions allowing you to focus one topic at a time. Following each session of lectures there is an opportunity for you to deepen your understanding through private study and in most cases there is also an assessed

assignment.

Overview module

There is a shared introduction to topics from communications engineering, requirements analysis and object-oriented design, and an introduction to and recap of C programming. For the communications engineering programmes there is an introduction to key issues in the design of antennas, radio frequency circuits and link budgets. For the computing programmes there is an introduction to object-oriented programming.

Core modules

These modules cover the advanced specialist topics required for your specific degree programme, such as statistical signal processing and coding and advanced digital design. These technologies are at the heart of many current developments in modern electronic systems.

Cross-programme option modules

These options specialize in topics relevant to each degree programme and give you the opportunity to adapt the programme that you have chosen to study. The prior knowledge needed for each module is specified in the student handbook to help you make the most appropriate choice. This allows you the greatest possible freedom to customise your study package appropriately.

Individual project

This is an opportunity for you to develop specialist knowledge. 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. Typical projects include the development of hardware for automotive radar signal processing and the detection of leaks in landfill sites, wireless access systems, 3G mobile radio for light aircraft, the creation of 3D worlds for surgery simulation and wearable computing.

Assessment and awards

Assessment is by a combination of written examination and course work. There is a strong emphasis on course work to deepen understanding. The pass mark is 50%. A merit is awarded to students with an average of 60% or more and a distinction is awarded to students with an average of 70% or more, in both taught and project modules. There are prizes for students who perform especially well overall and for those who complete exceptionally good individual projects.

Related staff

Professor Xiao-Ping Zhang

Employability

University Careers Network

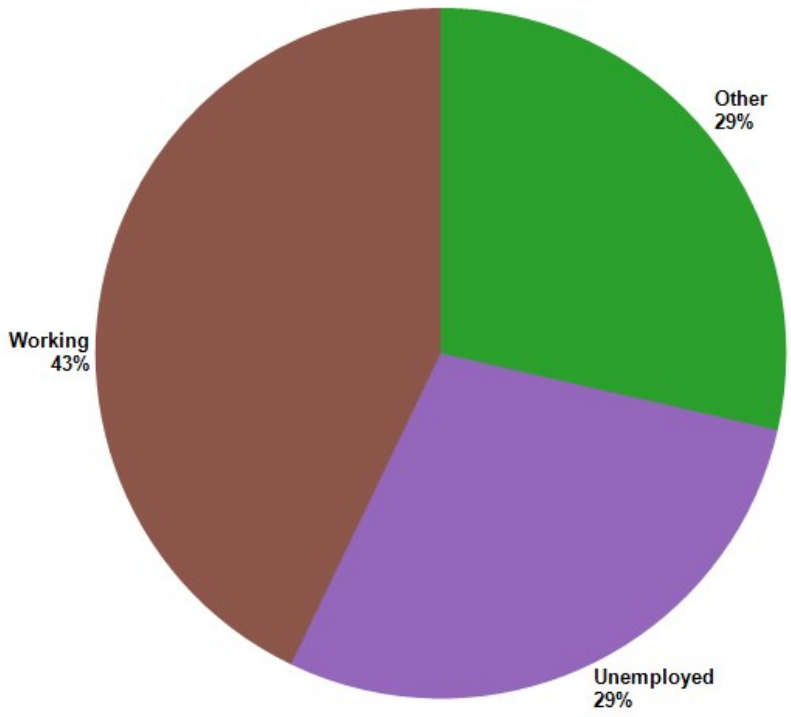
Preparation for your career should be one of the first things you think about as you start university. Whether you have a clear idea of where your future aspirations lie or want to consider the broad range of opportunities available once you have a Birmingham degree, our Careers Network can help you achieve your goal.

Our unique careers guidance service is tailored to your academic subject area, offering a specialised team (in each of the five academic colleges) who can give you expert advice. Our team source exclusive work experience opportunities to help you stand out amongst the competition, with mentoring, global internships and placements available to you. Once you have a career in your sights, one-to-one support with CVs and job applications will help give you the edge.

If you make the most of the **wide range of services** you will be able to develop your career from the moment you arrive.

Destinations of Leavers from Higher Education (DLHE) 2011/12 (postgraduate taught graduates)

The DLHE survey is conducted 6 months after graduation.



Examples of employers

Aero Engine Controls

Jaguar Land Rover

Ministry of Defence

Price Waterhouse Coopers

Ernst and Young

Arup

Glaxo SmithKline

NHS

Talk Talk

Autologic

Examples of occupations

Electronic Engineer

Applications Engineer

Communications (Electronic) Engineer - Officer

Optimisation Consultant

Manufacturing Engineer

Junior Business Analyst

Test Engineer

Service Specialist

IT Analyst

Development Engineer

Further study - examples of courses

- MSc Project Management
- MSc Radio Frequency and Microwave Engineering
- MSc Electronic and Computer Engineering
- MSc Physics and Technology
- Postgraduate Certificate in Education - teaching
- AAT accountancy

Visit the **Careers section of the University website** for further information.

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