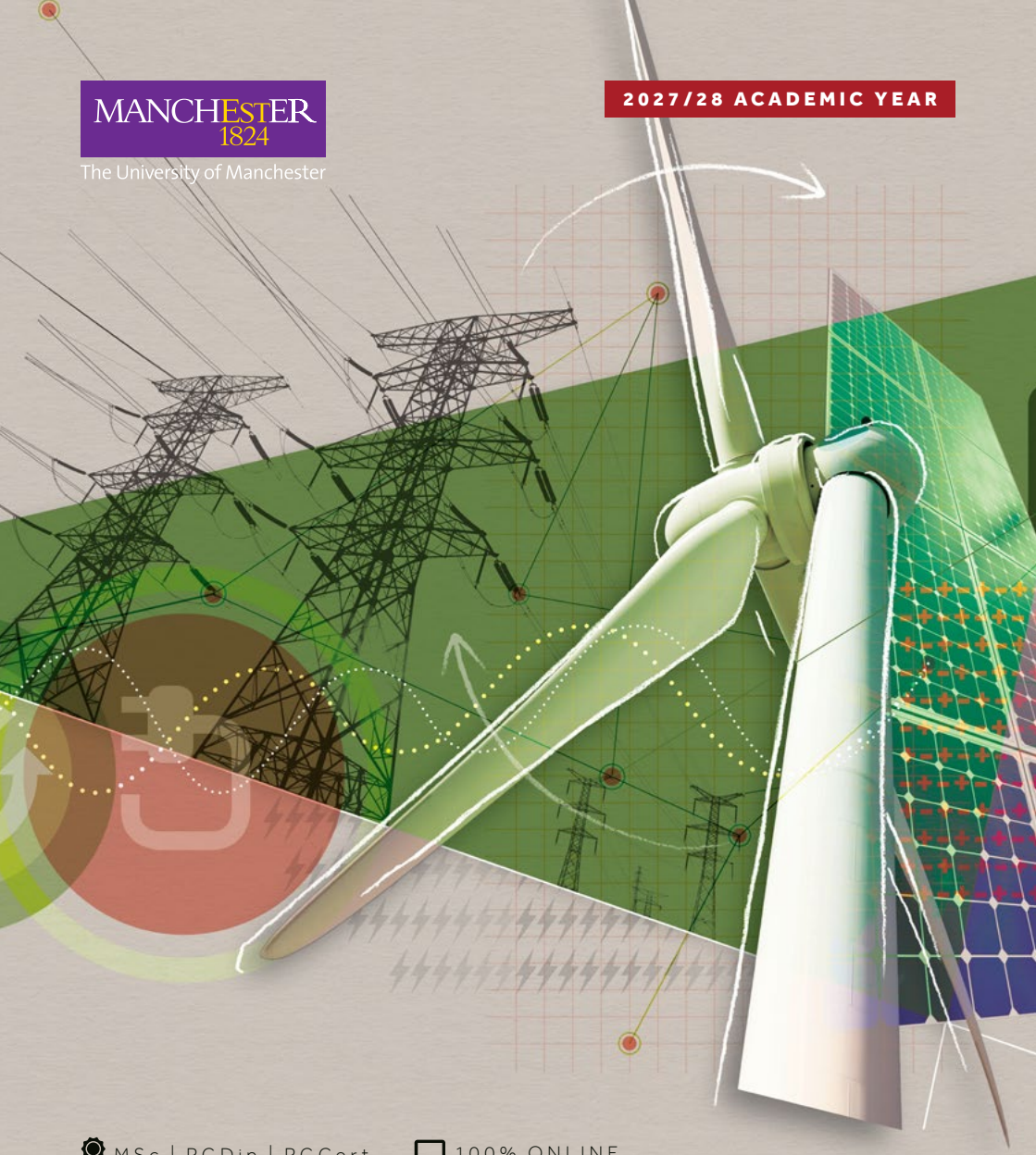
MANCHESTER 1824
The University of Manchester

2027/28 ACADEMIC YEAR



MSc | PGDip | PGCert  100% ONLINE

# SUSTAINABLE ELECTRICAL POWER SYSTEMS ENGINEERING

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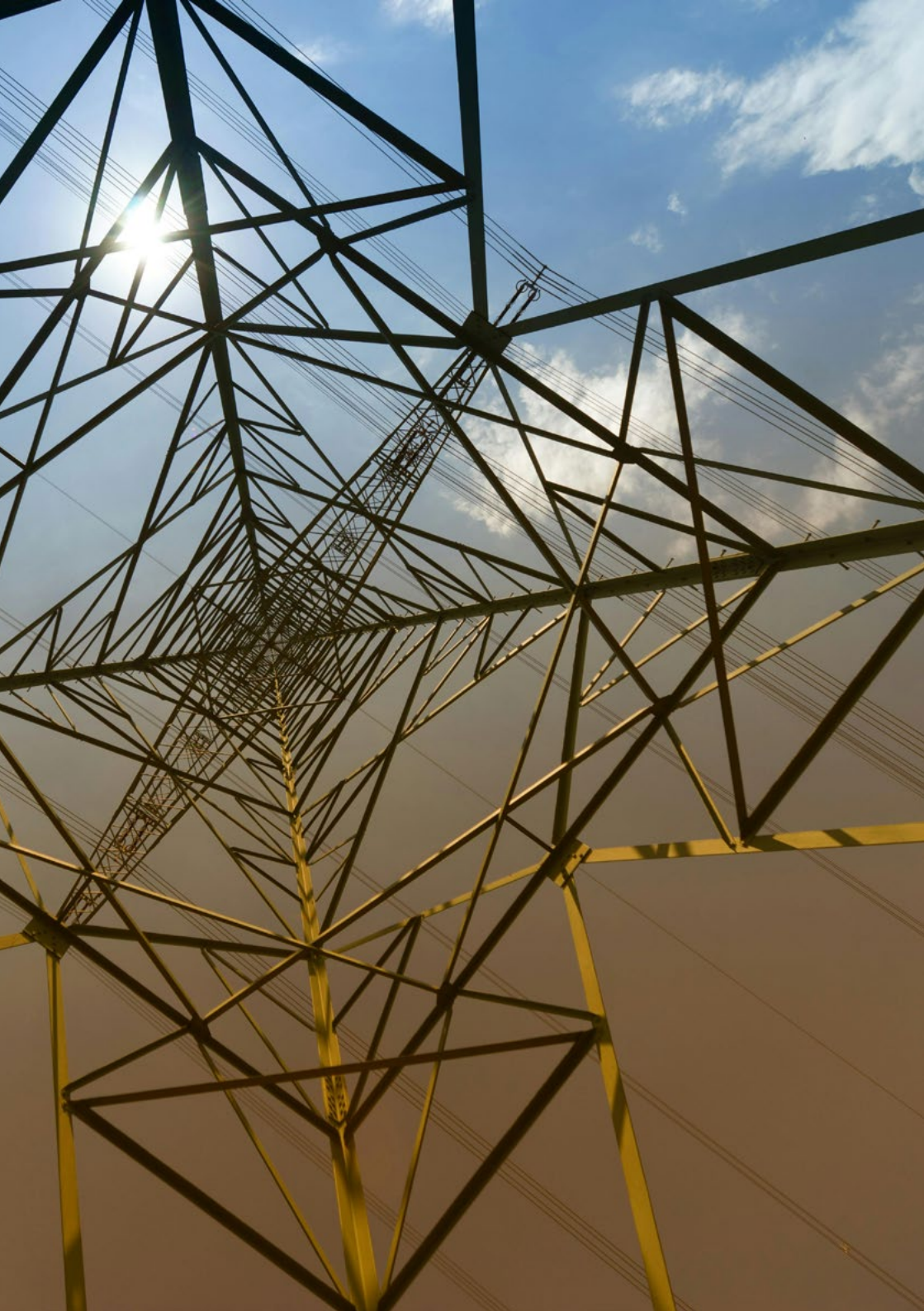


# COURSE OVERVIEW

**Electrical power systems engineering is at the apex of change, with the commanding potential to transform outdated systems.**

In this course, you will develop your knowledge and understanding of how electrical networks will be designed and operated in the future, helping you to keep up with the rapid pace of change.



MSc, PGDip, PGCert, Modular



Next enrolment: September 2027



**MSc**
min. 30 months
**PGDip**
min. 24 months
**PGCert**
min. 12 months



Dependent on study level and location.
See all course fees



Learning through lab simulations, online lectures, group tutorials and discussion forums



Approx. 15-20 hours per week



Apply your learning into practice and gain deeper understanding of the theories and techniques



24/7 library access

## A HISTORY OF EXPERTISE

Join one of the longest-running power system courses in the world, taught by high-profile researchers and professors.

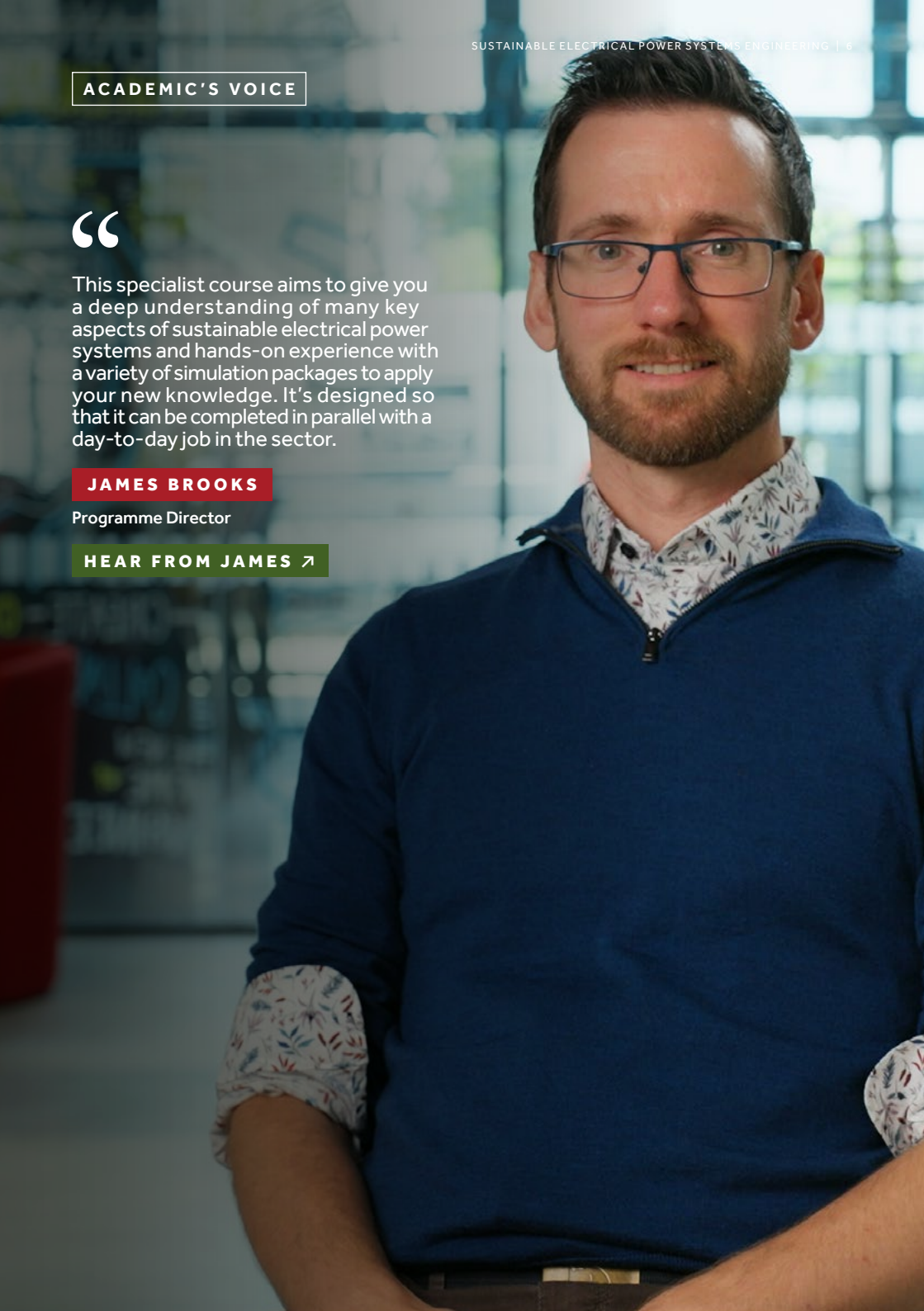
## BUILD A POWERFUL NETWORK

Collaborate with like-minded professionals from top employers including Siemens, National Grid and ABB.

## PART OF A THRIVING DEPARTMENT

The Department of Electrical and Electronic Engineering have been educating electrical, electronic and mechatronic engineers for more than a century. With strong industry links to global companies, our courses provide an excellent base for a career in engineering.

## ACADEMIC'S VOICE



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This specialist course aims to give you a deep understanding of many key aspects of sustainable electrical power systems and hands-on experience with a variety of simulation packages to apply your new knowledge. It's designed so that it can be completed in parallel with a day-to-day job in the sector.

**JAMES BROOKS**

Programme Director

**HEAR FROM JAMES ↗**

# WHO IS THIS COURSE FOR?

**If you're an engineer in the electric power sector and want to embrace the challenges and opportunities of this rapidly-evolving industry, this course is for you.**

The course is tailored to industry needs, making it ideal for those wanting to upskill and advance their careers in electrical power systems engineering. You'll achieve this by learning the latest developments in the electricity industry and receiving up-to-the-minute training.

Our students come from diverse organisations from distribution networks to component designers, as Power Systems Engineers, Commissioning Engineers, Protection Engineers, Design Engineers, and more.

With a choice of MSc, PGDip, PGCert or modular entry, you can tailor your learning to your needs. And if you are working towards your chartership, the IET-accredited MSc will support your professional goals.



# BENEFITS TO YOUR CAREER

With a focus on practical applications and the latest developments in electrical power systems engineering, this course was designed to help you get ahead in your career.

+ **Future-focussed content**
  Be at the forefront of the move toward a greener future. Investigate, compare, and analyse sustainable innovations in electrical power systems.

+ **Understand the entire energy system**
  Gain a solid understanding of the characteristics of components such as generators, lines, cables, transformers and power electronic devices, giving you a holistic view of electrical energy systems to become an expert in your field.

+ **IET accreditation**
  This course is currently in the process of being re-accredited by the Institution of Engineering and Technology and the Institute of Measurement and Control under licence from the UK regulator, the Engineering council for the 2027 to 2031 intakes.

+ **Build your professional network**
  Collaborate with peers working for a wide range of employers from large engineering consultancies (Siemens, ABB) to distribution networks and component manufacturers, adding a strengthened global context and wider understanding to your practice.

Our graduates work with organisations including:

nationalgrid Scottish & Southern Electricity Networks

ABB SIEMENS



# INTEGRATING THEORY AND PRACTICE

The course was created with the electrical power systems industry at its core. The course content is designed to provide you with practical skills so that you can apply your learning directly to your workplace from day one.



The course has been designed to support those working in the industry. The landscape is changing and there is a great need for continuous professional development to acquire in-depth knowledge and refresh your qualifications. The content focuses on real-world challenges, allowing you to directly map your learnings into your organisation and effect change from the outset. Therefore, a collaboration between academics and professionals is more important than ever.

**COLIN STELFOX**
Engineering Assurance Senior Manager,
National Energy System Operator

NESO
National Energy System Operator

## RENOWNED ACADEMICS

Our academics from the Department of Electrical and Electronic Engineering have a vast wealth of experience and are working at the forefront of electrical power systems engineering, giving you the expert knowledge and practical skills to thrive in the workplace.

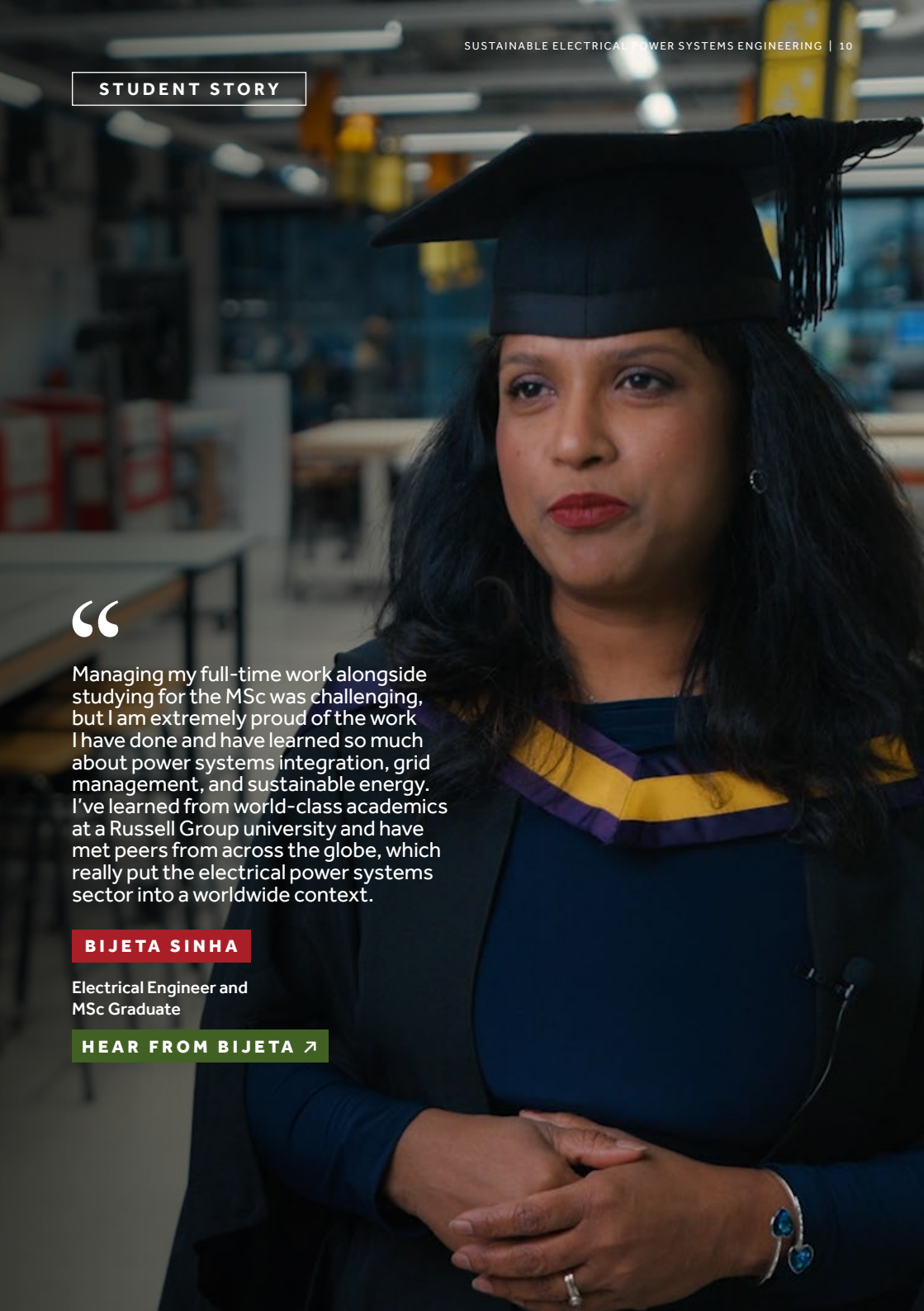
## SPECIALIST SOFTWARE

Learn to utilise industry standard software packages to model and analyse electrical power systems, enabling you to identify risks, detect faults, and assess their stability. You'll be able to transfer your computing skills directly to the workplace.

## APPLIED LEARNING

The dissertation project allows you to bring together all the specialist knowledge you have acquired and combine it with your industry experience to explore an area of your choosing - enabling you to build valuable expertise or solve real-world problems for your company.

STUDENT STORY



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Managing my full-time work alongside studying for the MSc was challenging, but I am extremely proud of the work I have done and have learned so much about power systems integration, grid management, and sustainable energy. I’ve learned from world-class academics at a Russell Group university and have met peers from across the globe, which really put the electrical power systems sector into a worldwide context.

**BIJETA SINHA**

Electrical Engineer and MSc Graduate

**HEAR FROM BIJETA ↗**

# COURSE UNIT OVERVIEW

## STUDY PATHWAYS

To achieve a **Master of Science**, you need to complete 8 mandatory units and the dissertation project. To achieve a P**ostgraduate Diploma**, you need to complete 8 mandatory units. To achieve a **Postgraduate Certificate**, you need to complete 2 mandatory and 2 optional units. If you are admitted on the **modular level**, and you pass the first two mandatory units, you will be considered for a transfer to the MSc by the exam board.

## 01

### INTRODUCTION TO SUSTAINABLE ELECTRICAL ENERGY SYSTEMS (15 CREDITS)

+ **Mandatory for MSc, PGDip, PGCert & Modular**

+ This unit aims to help you understand the structure and components of electrical energy systems from the perspectives of a national grid, a distribution network, and an industrial/ commercial facility.

## 02

### ANALYSIS OF ELECTRICAL POWER AND ENERGY CONVERSION SYSTEMS (15 CREDITS)

+ **Mandatory for MSc, PGDip, PGCert & Modular**

+ The unit aims to impart knowledge and skills for mathematical modelling as well as the techniques for steady-state and dynamic analysis of electric power transmission networks.

## 03

### POWER SYSTEM PLANT, ASSET MANAGEMENT AND CONDITION MONITORING (15 CREDITS)

+ **Mandatory for MSc, PGDip**
+ **Optional for PGcert**

+ Studying this unit will help you to evaluate the design of the major items of power system plant through calculations that are paper-based, within spreadsheets and based on the use of commercial software packages.

## 04

### POWER SYSTEM OPERATION AND ECONOMICS (15 CREDITS)

+ **Mandatory for MSc, PGDip**
+ **Optional for PGcert**

+ This unit aims to introduce you to the fundamentals of power system operation and economics. The emphasis is placed on the need to balance the desire to operate and plan as economically as possible, with the need to maintain the security of the system.

## 05

### SMART GRIDS AND SUSTAINABLE ELECTRICITY SYSTEMS (15 CREDITS)

- **Mandatory for MSc, PGDip**
- **Optional for PGcert**

- This unit explores smart grid technologies and their role in modernising electrical power systems, applying simulation and evidence-based analysis to real-world network challenges and drawing on current research and professional experience.

## 06

### POWER SYSTEM DYNAMICS AND QUALITY OF SUPPLY (15 CREDITS)

- **Mandatory for MSc, PGDip**
- **Optional for PGcert**

- This unit introduces you to the basics of power system dynamics and quality of electricity supply issues and to discuss the most widely used and recommended methodologies for enhancement of power system stability and mitigation techniques.

## 07

### POWER SYSTEM PROTECTION (15 CREDITS)

- **Mandatory for MSc, PGDip**
- **Optional for PGCert**

- This unit aims to introduce the classical and advanced operating principles and main features of various types of relays and protection schemes.

## 08

### BUSINESS CASES FOR SUSTAINABLE INNOVATIONS (15 CREDITS)

- **Mandatory for MSc, PGDip**

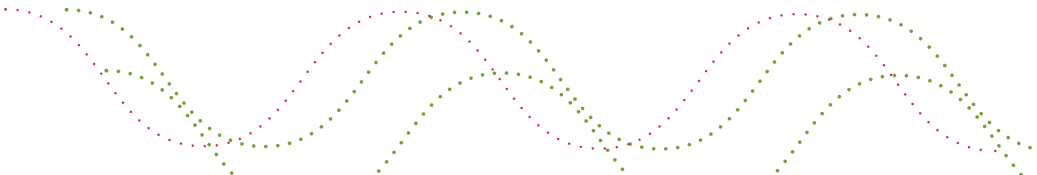
- This unit prepares you for individual or team-based research projects by introducing methods used in research and development.

## 09

### PROJECT (60 CREDITS)

- **Mandatory for MSc**

- Your dissertation project will ideally be based on a problem you and your company need to resolve, ensuring the programme delivers value for both you and your employer.



# 01 INTRODUCTION TO SUSTAINABLE ELECTRICAL ENERGY SYSTEMS



# INTRODUCTION TO SUSTAINABLE ELECTRICAL ENERGY SYSTEMS (15 CREDITS)

## ABOUT THIS UNIT

**This unit provides a foundational understanding of sustainable electrical energy systems, examining their structure from the perspectives of national grids, distribution networks, and industrial facilities.**

You will explore the components of these systems, including power transformers, generators, energy storage, and renewable energy sources, and learn how they integrate into larger networks. The course introduces analytical techniques such as power flow, phasors, and per-unit calculations, enabling you to perform quantitative analyses of electrical systems.

In addition to technical knowledge, the unit emphasises research skills, including the evaluation of academic literature and the comparison of power systems worldwide, focusing on sustainable practices.

Delivered entirely online, this unit blends video lectures, exercises, discussions, and tutorials to support flexible and independent learning.

## LEARNING OUTCOMES

- Understand the processes and components involved in electrical energy systems, including real and reactive power flow.
- Perform quantitative analysis of simple two-bus systems using equivalent circuits and analytical techniques.
- Calculate line and cable parameters from topology and datasheets.
- Evaluate differences in global power system designs and their implications for sustainability.

## KEY INFORMATION

150 hours total study time (approx. 20 hours per week part-time)

Teaching through live/recorded lectures, weekly tutorials and discussion forums

Assessment via quizzes, forum discussions and a video presentation

Academic Lead: Dr James Brooks

# 02 ANALYSIS OF ELECTRICAL POWER AND ENERGY CONVERSION SYSTEMS



# ANALYSIS OF ELECTRICAL POWER AND ENERGY CONVERSION SYSTEMS (15 CREDITS)

## ABOUT THIS UNIT

**This unit builds on control system analysis and extends your knowledge of electrical, mechanical, and power network systems.**

You will explore advanced modelling techniques for power electronic converters, electrical machines, actuators, and thermal systems. The course delves into power system integration studies, steady-state analysis, and faulted system operation in large-scale networks.

Key topics include power flow problem formulation and solution techniques, real and reactive power control, fault analysis, and the interaction between power systems and power electronics.

The unit emphasises practical skills, such as modelling system behaviour and analysing system performance under steady-state and faulted conditions.

Delivered entirely online, the course is divided into ten sections and combines video lectures, tutorials, and interactive discussions, allowing you to engage at your own pace while receiving structured support.

## LEARNING OUTCOMES

- Analyse the steady-state and faulted operation of power systems and power electronic systems.
- Develop and apply models for system integration studies, fault analysis, and power flow control.
- Understand the limitations of system control and operation in large-scale networks.
- Prepare formal reports and enhance skills in simulation-based analysis.

## KEY INFORMATION

150 hours total study time (approx. 20 hours per week part-time)

Includes 25 hours teaching (15 hours of video lectures, 10 hours of small-group tutorials)

Assessment via coursework, peer report, an online exam, and a mini-viva

Academic Lead: Prof Guang Li

# 03 SMART GRIDS & SUSTAINABLE ELECTRICITY SYSTEMS



# SMART GRIDS & SUSTAINABLE ELECTRICITY SYSTEMS (15 CREDITS)

## ABOUT THIS UNIT

**This unit aims to equip you with the knowledge and skills to critically evaluate smart grid technologies and their role in modernising electrical power systems. You will apply simulation and evidence-based analysis to real-world network challenges, drawing on both current research and your own professional experience.**

The unit surveys some of the technologies, methods, and challenges involved in modernising electricity networks. A series of seminars delivered by subject-matter experts drawn from across the department introduces you to current research and practice in areas such as network modelling, power electronics for distributed generation, energy storage, distribution automation, cyber security, multi-energy systems, and microgrid operation. The specific topics and contributors may evolve year-to-year to reflect advances in the field.

You will develop practical simulation skills through coursework using industry-standard tools and critically evaluate how smart grid developments relate to your own professional context, drawing on your industry experience and sharing insights with peers through small-group tutorials and discussions.

## LEARNING OUTCOMES

- Apply simulation tools to model and analyse the performance of electrical power networks with high penetrations of low-carbon or distributed energy resources.
- Evaluate the impact of smart grid technologies such as converter-interfaced generation, energy storage, distribution automation, and microgrids on distribution network operation.
- Synthesise evidence from the technical literature and professional experience to form and justify a position on the deployment of smart grid technologies.
- Analyse technical, economic, and/or cyber-security considerations in the integration of distributed energy resources across distribution and multi-energy systems.

## KEY INFORMATION



150 hours total study time (approx. 20 hours per week part-time)



Includes 13 hours of video tutorials, supported by weekly facilitated tutorials and assessment-focused tutorials



Assessment via a Smart Grids Report (40%), HV Project Report (35%) and LV Project Report (25%)



Academic Lead: Prof Haiyu Li

# 04 POWER SYSTEM PROTECTION



# POWER SYSTEM PROTECTION (15 CREDITS)

## ABOUT THIS UNIT

**This unit provides an in-depth exploration of power system protection principles, covering both classical and advanced protection schemes.**

You will study the operating principles of various types of relays, protection schemes for electrical plants and systems, and emerging smart grid protection applications.

Key topics include overcurrent protection, differential protection, distance relays, and protection for transformers, busbars, and rotating machines. The unit also introduces modern numerical protection, wide-area monitoring and control, and the integration of communication technologies into protection schemes.

Delivered entirely online, this unit blends video lectures, hands-on simulation exercises, and discussions to equip you with both theoretical knowledge and practical application skills in power system protection.

## LEARNING OUTCOMES

- Identify key components of a protection scheme and apply appropriate relay types.
- Design and analyse protection schemes for transmission, distribution, and industrial networks.
- Evaluate the advantages of numerical protection and intelligent electronic devices (IEDs).
- Use simulation tools to assess fault conditions and protection system performance.

## KEY INFORMATION

150 hours total study time (approx. 20 hours per week part-time)

Includes 35 hours teaching through live/ recorded lectures, tasks and activities

Assessments via an online exam, a mini-viva, discussion, and coursework

Academic Lead: Prof Peter Crossley

# 05 POWER SYSTEM DYNAMICS & QUALITY OF SUPPLY



# POWER SYSTEM DYNAMICS & QUALITY OF SUPPLY (15 CREDITS)

## ABOUT THIS UNIT

**This unit examines power system dynamics and the quality of electricity supply, focusing on stability, reliability, and power quality issues.**

You will explore the dynamic behaviour of power systems, develop models for analysing stability, and assess methods for improving system performance.

The unit also covers quality of supply indicators, including voltage sags, harmonics, and transient disturbances, alongside techniques for mitigating power quality issues.

Key topics include dynamic modelling of power system components, stability studies for small and large disturbances, reliability assessment, and economic implications of power quality.

Through hands-on simulation exercises and case studies, you will apply analytical techniques to evaluate and improve power system performance. Delivered fully online, this unit combines video lectures, tutorials, discussions, and independent study, providing a flexible learning experience.

## LEARNING OUTCOMES

- Develop models for power system dynamic studies and perform stability assessments.
- Evaluate power system performance with respect to stability, reliability, and power quality.
- Analyse and mitigate issues such as voltage sags, harmonics, and transient disturbances.
- Perform economic assessments of power quality and reliability improvements.

## KEY INFORMATION



150 hours total study time (approx. 20 hours per week part-time)



Includes 25 hours teaching (15 hours of video lectures, 10 hours of small group tutorials)



Assessments via an online exam, a mini-viva, coursework, and a peer report



Academic Lead: Dr Panagiotis Papadopoulos

# 06 POWER SYSTEM PLANT, ASSET MANAGEMENT, AND CONDITION MONITORING



# POWER SYSTEM PLANT, ASSET MANAGEMENT, AND CONDITION MONITORING (15 CREDITS)

**This unit explores the design, operation, and management of a power system plant, with a focus on asset management and condition monitoring techniques.**

You will study key components of transmission and distribution systems, such as transformers, cables, switchgear, and overhead lines, learning how their design, insulation, and thermal ratings affect overall power system performance.

The course also introduces ageing mechanisms, diagnostic methods, and the role of asset management in the life cycle of power system components. By combining theoretical knowledge with practical skills, you will develop the ability to assess the condition of power system assets, evaluate their operational suitability, and create effective asset management plans.

Delivered entirely online, this unit includes video lectures, tutorials, and discussions to facilitate flexible and interactive learning.

## LEARNING OUTCOMES

- Describe the design and function of power system plant components and their impact on system performance.
- Analyse the operational environment and suitability of a plant from a design and specification perspective.
- Understand ageing, degradation, and failure mechanisms of power system components.
- Apply measurement and diagnostic techniques for condition assessment and monitoring.
- Develop structured asset management plans linked to system performance and life cycle management.

## KEY INFORMATION

150 hours total study time (approx. 20 hours per week part-time)

Includes 25 hours teaching (15 hours of video lectures, 10 hours of small-group tutorials)

Assessments via an online exam, a mini-viva, discussion, and coursework

Academic Lead: Prof Ian Cotton

# 07 POWER SYSTEM OPERATION AND ECONOMICS



# POWER SYSTEM OPERATION AND ECONOMICS (15 CREDITS)

## ABOUT THIS UNIT

**This unit explores the operation and economic management of electrical power systems, balancing cost efficiency with system security.**

You will examine the mathematical optimisation techniques used in economic dispatch, unit commitment, and power flow management, as well as the role of electricity markets in shaping generation, transmission, and investment decisions.

Key topics include power system security, electricity market structures, transmission pricing, and risk management in energy markets. You will also study the economic principles underlying market-based power system operation and how different stakeholders - such as producers, retailers, and consumers - participate in electricity markets.

Delivered entirely online, the unit combines video lectures, interactive discussions, and software-based optimisation exercises to provide hands-on learning.

## LEARNING OUTCOMES

- Apply mathematical optimisation techniques to power system operation.
- Analyse the impact of security considerations on power system management.
- Evaluate electricity market structures, pricing mechanisms, and risk mitigation strategies.
- Perform economic dispatch and locational marginal price calculations.
- Develop investment strategies for transmission and generation capacity expansion.

## KEY INFORMATION

150 hours total study time (approx. 20 hours per week part-time)

Includes 25 hours teaching (15 hours of video lectures, 10 hours of small group tutorials)

Assessments via an online exam, a mini-viva, discussion, and coursework

Academic Lead: Dr Victor Levi

# 08 BUSINESS CASES FOR SUSTAINABLE INNOVATIONS



# BUSINESS CASES FOR SUSTAINABLE INNOVATIONS (15 CREDITS)

## ABOUT THIS UNIT

**This unit equips you with the skills to develop, analyse, and present business cases for sustainable engineering innovations.**

You will engage in team-based research to explore new product, system, or process designs, considering ethical, regulatory, and sustainability factors.

Key topics include independent research and literature review, project planning and risk management, business model development, and financial analysis.

You will learn to justify technical decisions within a commercial context, culminating in an individual report and an oral presentation of your business case.

Delivered entirely online, the unit includes recorded lectures, team collaboration, and expert guest speakers from industry, providing practical insights into sustainable innovation.

## LEARNING OUTCOMES

- Develop in-depth knowledge of a specific technology area related to electrical power.
- Plan an innovative design informed by ethical, environmental, and regulatory considerations.
- Construct and justify a sustainable business case using data-driven analysis.
- Work effectively in teams and reflect on group decision-making processes.

## KEY INFORMATION



150 hours total study time (approx. 20 hours per week part-time)



Teaching via video lectures and team-based project work



Assessments through an individual report and presentation



Academic Lead: Dr James Brooks

# 09 DISSERTATION PROJECT



# DISSERTATION PROJECT (60 CREDITS)

## ABOUT THIS UNIT

**The dissertation project is the culmination of the MSc in Sustainable Electrical Power Systems Engineering, providing you with the opportunity to apply your knowledge and skills to an in-depth, independent research project.**

You will develop, execute, and present a research project that addresses a specific need, specification, or theoretical question within the field of electrical power systems. Ideally, the topic will be derived from an issue or theme from your current employment, allowing you to apply your skills and knowledge to your work.

This unit allows you to demonstrate professional competence in designing and implementing practical solutions, conducting rigorous analysis, and contributing original insights to the discipline. The dissertation must reflect a comprehensive understanding of the chosen topic, incorporating both theoretical and practical significance.

Delivered via distance learning, the project is supported by regular supervisory meetings, enabling feedback and guidance throughout the research process.

## DISSERTATION SHOWCASE

Explore dissertation work produced by our previous students with our Dissertation Showcase:

**READ NOW ↗**

## LEARNING OUTCOMES

- Describe and evaluate research methodologies and apply disciplinary skills effectively.
- Analyse complex problems, critically review literature, and design appropriate solutions.
- Use software, simulation, CAD tools, and measurement equipment to develop and test solutions.
- Demonstrate creativity, problem-solving, and academic writing skills through the preparation of a professional dissertation.

## KEY INFORMATION

600 hours total study time (approx. 20 hours per week part-time)

Independent study with with regular supervisory support

Assessment via a substantial written dissertation project

Academic Lead: Variable dependent on your project

# STUDY TIMELINE

September — November

## 01

**INTRODUCTION TO SUSTAINABLE ELECTRICAL ENERGY SYSTEMS (15 CREDITS)**

YEAR 1 | 10 WEEKS

November — February

## 02

**ANALYSIS OF ELECTRICAL POWER AND ENERGY CONVERSION SYSTEMS (15 CREDITS)**

YEAR 1 | 10 WEEKS

March — May

## 03

**POWER SYSTEM OPERATION AND ECONOMICS (15 CREDITS)**

YEAR 1 | 10 WEEKS

May — August

## 04

**SMART GRIDS AND SUSTAINABLE ELECTRICITY SYSTEMS (15 CREDITS)**

YEAR 1 | 10 WEEKS

September — November

## 05

**POWER SYSTEMS PROTECTION (15 CREDITS)**

YEAR 2 | 10 WEEKS

November — February

## 06

**POWER SYSTEM DYNAMICS AND QUALITY OF SUPPLY (15 CREDITS)**

YEAR 2 | 10 WEEKS

March — May

## 07

**POWER SYSTEM PLANT, ASSET MANAGEMENT AND CONDITION MONITORING (15 CREDITS)**

YEAR 2 | 10 WEEKS

May — July

## 08

**BUSINESS CASES FOR SUSTAINABLE INNOVATIONS (15 CREDITS)**

YEAR 2 | 10 WEEKS

September

## 09

**DISSERTATION PROJECT (60 CREDITS)**

YEAR 3 | 20+ WEEKS

Although the order of units is scheduled in advance, it may be subject to occasional adjustments.

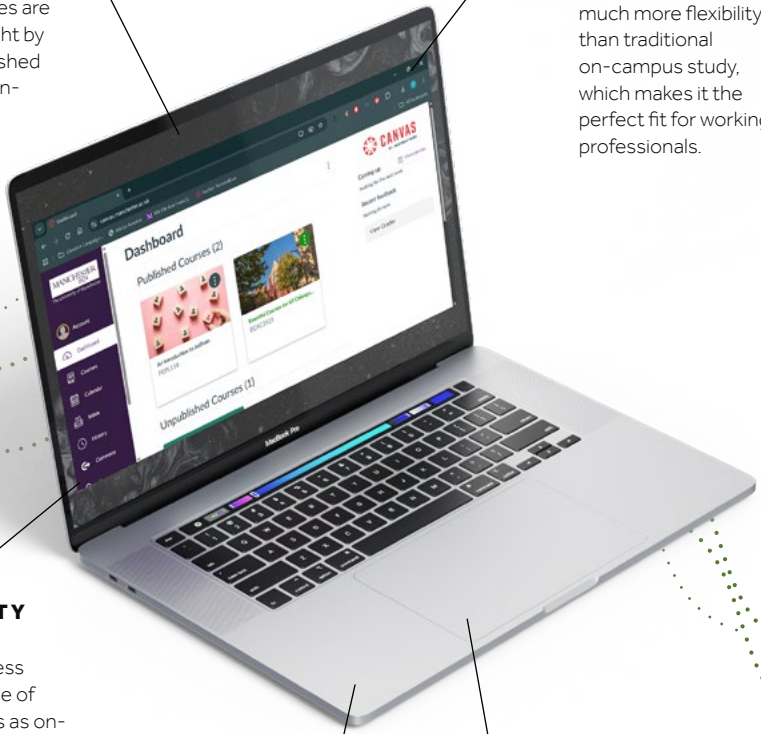
# ONLINE LEARNING AT A GLANCE

### TEACHING EXCELLENCE

Our online courses are created and taught by the same established scholars as our on-campus options.

### FLEXIBILITY

Online learning offers much more flexibility than traditional on-campus study, which makes it the perfect fit for working professionals.




### HIGH QUALITY RESOURCES

You will have access to the same range of excellent facilities as on-campus students.

### AN ONLINE COMMUNITY

Our virtual learning environment provides an opportunity to discuss and collaborate with your peers and academics with interactive features.

### A GLOBAL APPROACH

Online learning at The University of Manchester is designed to be accessed by students from around the globe.

# ONLINE LEARNING IN PRACTICE

Online learning can help you to access the excellence of The University of Manchester from anywhere in the world. The online model is ideal for working professionals who want to study alongside their careers and other commitments by offering flexible, part-time study.

## VIRTUAL LEARNING ENVIRONMENT

Our online, postgraduate courses are taught using a virtual learning environment. This is home to all of the teaching on your course including lectures tutorials, videos and more as well as all learning materials such as reading, discussion boards and journals.

## FLEXIBILITY AND TIMETABLING

Our online, part-time postgraduate courses give you the opportunity to take full responsibility for your studies so you can fit learning around your life.

There are live tutorials online, however, we understand attendance to these will not always be possible around a busy work schedule, so they are recorded for you to watch at a time that suits you.

All the resources you require for your studies are available to you 24/7 so you can adjust your studies to fit around your work and personal life.

## TECHNICAL REQUIREMENTS

Upon receiving an offer you will be asked to confirm that you can meet the following technical requirements for successful completion of the course:

- An average of 15-20 hours available to devote to studying each week.
- Regular access to a computer with internet speeds fast enough to run video conferencing and stream video lectures.
- A computer that meets the software requirements of video conferencing and other software, broadband internet connection, desktop or laptop PC with windows 10 or later, 4GB RAM, 6GB disk space for installation (administrator rights are required to install software).
- Some courses will also require you to download relevant software - you will be provided access to this.
- A smart phone on Android 11.0 or greater, or iOS 11.0 or greater, as you'll need to authenticate your credentials to access your learning materials.

**FIND OUT MORE ABOUT ONLINE LEARNING ↗**

# APPLICATION AND ADMISSIONS

## APPLICATION DEADLINE:
23 August 2027

## COURSE START DATE:
6 September 2027

## ENTRY REQUIREMENTS

We require at least an Upper Second (2.1) class honours degree, or the overseas equivalent, in electrical and electronic engineering disciplines from a reputable institution.

When assessing your application, we take into account your grade average with particular emphasis on relevant course units with marks at 2.1 level. We would expect to see the following topics covered (though the wording on your degree may vary):

- Engineering maths
- Circuit analysis
- Generation/transport of electrical power/energy
- Systems analysis

Find out more about entry requirements including the modular entry route here

## ENGLISH LANGUAGE REQUIREMENTS

The minimum English Language requirement for this course is either:

- IELTS at least 6.5 overall with no subtest below 6.0, or equivalent. Discover more about English language requirements .

## WHAT TO SUBMIT WITH YOUR APPLICATION

When applying for this course you will be required to submit the following:

- Copies of official degree certificates and transcripts of your previous study, showing the subjects taken and grades obtained. If these documents are in languages other than English, please provide official translations in addition to your official certificates and transcripts.
- English language score report (if applicable) or alternative evidence to demonstrate your English language competency.
- A copy of your CV detailing your full work experience.
- A personal statement addressing the questions below (max 500 words):
  - What is your motivation for studying the course?
  - What other relevant experience do you have (e.g. from work, student projects, CPD)? You only need to describe things that will not be obvious from your CV/undergraduate transcript.

**BEGIN YOUR APPLICATION ↗**

# FEES AND FUNDING

## TUITION FEES

| | UK | EU/Int |
|---|---|---|
| MSc | £15,400 | £32,000 |
| PGDip | £10,267 | £21,333 |
| PGCert | £5,133 | £10,667 |
| Modular (per unit) | £1,283 | £2,667 |

## HOW TO FUND YOUR COURSE

Funding your online course is a key consideration when looking to begin your academic journey and your individual circumstances will determine how you can fund your studies.

Whilst funding options for online postgraduate taught courses are not as numerous as those for undergraduate and PhD study, there are still a variety of options to explore for your online course including:

- Postgraduate loans
- Employer funding
- Self-funding
- Scholarships
- Bursaries

**EXPLORE FUNDING OPTIONS ↗**



# NATHANAEL'S STORY

**Nathanael, a Senior Power System Engineer in the Power Quality and Dynamic Performance team within National Grid Electricity Transmission, tells us how the course has deepened his knowledge and helped him to advance his career in the sector.**

"One of the main reasons I chose the MSc in Electrical Power Systems Engineering at The University of Manchester was to deepen my knowledge of power systems - an area I've been passionate about since joining National Grid in 2014. I wanted to take that extra step to broaden my expertise.

"I've applied what I learned in many areas of my work, particularly my dissertation, which was invaluable to my current role."

As part of it, I analysed voltage stability in a network experiencing significant growth in demand and new HVDC connections, leading to potential voltage issues. My research focused on identifying and proposing solutions to these challenges, benefiting both the organisation and colleagues seeking to expand their understanding.

The MSc has shaped my career trajectory by giving me a deeper understanding of different areas within the field. Soon after graduating, I moved into my current role at National Grid Electricity Transmission, a direct result of the knowledge I gained during the programme.



Earning my MSc from The University of Manchester, with its IET accreditation, has been highly valuable. It also contributed to my recent chartership through the IET.

With the industry expanding, career prospects are growing, and we need skilled engineers to tackle future challenges. This MSc has given me the tools to contribute to that progress."

STUDENT STORY



“

The MSc has significantly influenced my career. It broadened my understanding of the field, leading to my current role at National Grid. The MSc's IET accreditation has been invaluable, recently culminating in my chartership.

**NATHANAEL SIMS**

Senior Power System Engineer,
National Grid Electricity Transmission

nationalgrid

WATCH NATHANAEL'S STORY ↗

# WHY MANCHESTER?

## AN INTERNATIONALLY RENOWNED UNIVERSITY

In the QS World University Ranking (2027), the University is placed:

- 7th in the UK;
- 11th in Europe;
- 40th in the world.

## WORLD-CLASS RESEARCH

The University of Manchester's research beacons are examples of pioneering discoveries, interdisciplinary collaboration and cross-sector partnerships that are tackling some of the biggest questions facing the planet.

## OUTSTANDING TEACHING

This quality of research feeds into our taught courses, many of which are also designed to meet the needs of industry.

## SOCIAL RESPONSIBILITY

We were the first university in the UK to set social responsibility as a core goal - this is reflected in our commitment to the UN Sustainable Development Goals.

## GLOBAL INFLUENCE

There are more than 170 nationalities among our student population and our range of online and blended learning courses enable a global audience to benefit from a Manchester education.

Much of our research has a global impact, in areas including health and wellbeing, climate change, international trade and cohesive communities.

We also have agreements with a host of international institutions and organisations that inform our global approach to research and education.

## SUPPORT AND SERVICES

As a student of The University of Manchester, you will receive full access to our facilities and resources such as the online library, careers service and wellbeing support. Many of these services offer personalised support and 24/7 access, and are all accessible to our global community.

STUDENT STORY



“

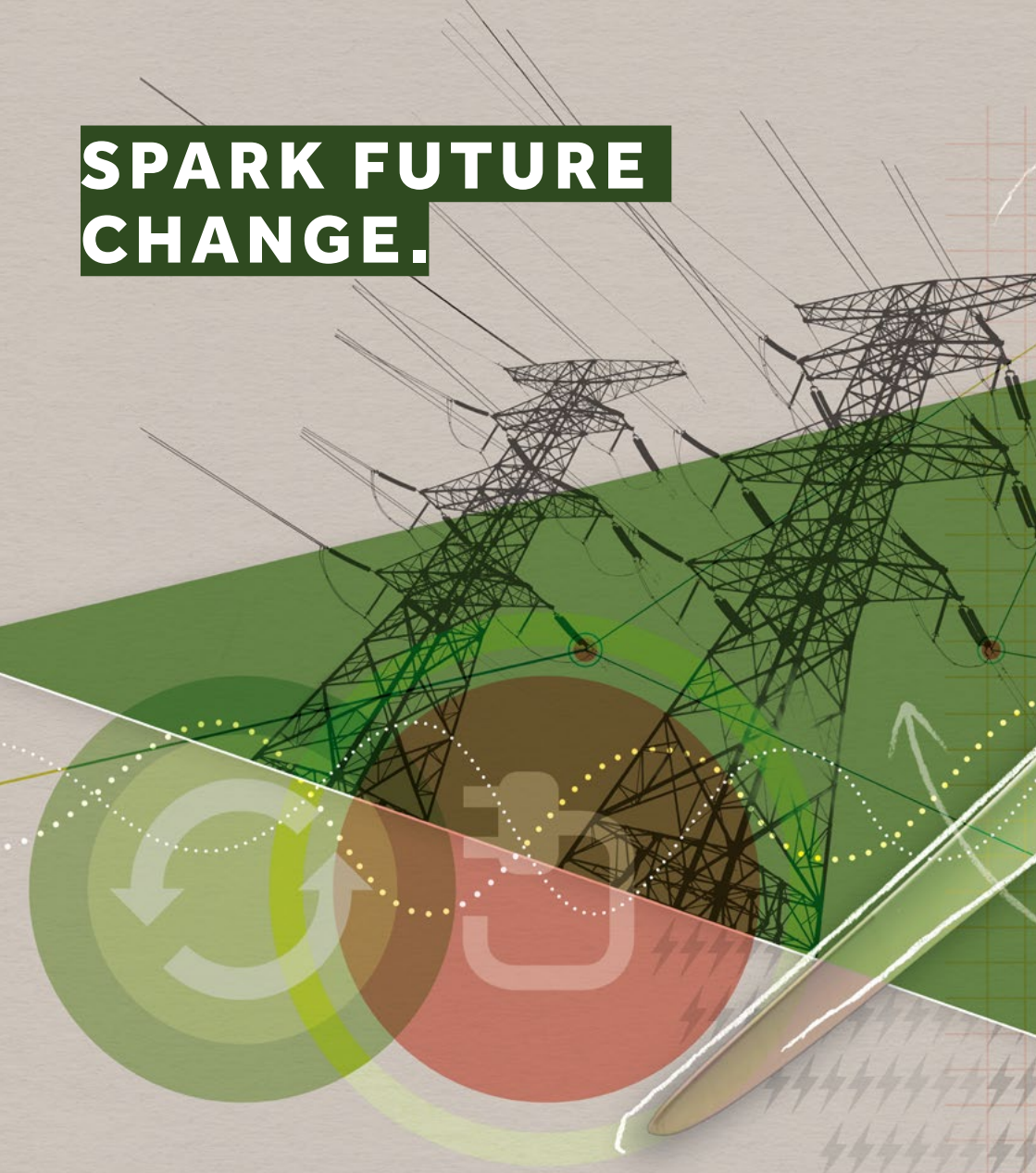
My advice to anyone applying for this course would be go for it! It’s a technically challenging course and takes hard work and dedication. Stick at it, work hard, and you’ll see the results at the end.

**KEVIN SMART**

Electrical Engineer and MSc Graduate

**HEAR FROM KEVIN ↗**

# SPARK FUTURE CHANGE.



manchester.ac.uk/powersystems

studyonline@manchester.ac.uk

**BEGIN YOUR APPLICATION ↗**

This brochure is prepared in advance of the entry dates it relates to and all information is accurate at the time of publication (September 2026).