Programme Specification

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Please check the Programme Directory for the most up to date version:

UG Programme Directory

PG Programme Directory

<table>
<tr><th colspan="3">Section 1 – Regulatory Details</th></tr>
<tr><td>1.1</td><td>Awarding body</td><td>Wrexham University</td></tr>
<tr><td>1.2</td><td>Teaching institution</td><td>Wrexham Plas Coch Campus</td></tr>
<tr><td>1.3</td><td>Final award and programme title (Welsh and English)</td><td>MSc Peirianneg (Trydanol)
MSc Engineering (Electrical)</td></tr>
<tr><td>1.4</td><td>Exit awards and titles</td><td>Postgraduate Diploma in Engineering (Electrical)
Postgraduate Certificate in Engineering</td></tr>
<tr><td>1.5</td><td>Credit requirements</td><td>Master of Science (MSc) requires the achievement of 120 credits taught at level 7 and 60 credits dissertation.
Postgraduate Diploma (PG Dip) requires the achievement of 120 credits taught at level 7.
Postgraduate Certificate (PG Cert) requires the achievement of any combination of taught modules amounting to 60 credits across any provision.</td></tr>
<tr><td>1.6</td><td>Intake points</td><td>Full time: September and January
Part time: September</td></tr>
<tr><td>1.7</td><td>Mode of study</td><td>Full & part time</td></tr>
<tr><td>1.8</td><td>Length of delivery</td><td>Full time – 12 months (September Intake)
Full time – 18 months (January Intake)
Part time – 24 months (September Intake)</td></tr>
<tr><td>1.9</td><td>Location of delivery</td><td>Campus based (Wrexham)</td></tr>
<tr><td>1.10</td><td>Mode of delivery</td><td><table><tr><td>Full time</td><td>In person</td></tr><tr><td>Part time</td><td>In person</td></tr></table></td></tr>
<tr><td>1.11</td><td>Language of delivery</td><td>English</td></tr>
<tr><td>1.12</td><td>Faculty</td><td>Faculty of Arts, Computing and Engineering (FACE)</td></tr>
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<tr><th colspan="3">Section 1 – Regulatory Details</th></tr>
<tr><td>1.13</td><td>Subject area</td><td>Engineering</td></tr>
<tr><td>1.14</td><td>HECoS Code</td><td>MSc Engineering (Electrical) 100164</td></tr>
<tr><td>1.15</td><td>Suitable for applicants requiring a Student Visa?</td><td>
<table>
<tr><td>Full time</td><td>In person</td><td>Yes</td></tr>
<tr><td>Part time</td><td>In person</td><td>No</td></tr>
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</td></tr>
<tr><td>1.16</td><td>Is DBS check required on entry?</td><td>No</td></tr>
<tr><td>1.17</td><td>Professional, Statutory or Regulatory Body (PSRB) accreditation</td><td>The engineering programmes have been developed in line with PSRB requirements, including IMechE, IET, & RAeS.
MSc Engineering (Electrical)*IET
*Subject to accreditation 2027
IET - https://www.theiet.org
This information is correct at the time of validation, please refer to the PSRB register for current accreditation status.</td></tr>
<tr><td>1.18</td><td>Welsh Medium Provision</td><td>The programmes will be delivered through the medium of English. Students have the option to submit assessments in the medium of Welsh.
To support Welsh Medium development, the programme includes a 20-credit Welsh for STEM module available as a short course for all engineering students.</td></tr>
<tr><td>1.19</td><td>External reference points</td><td>QAA Subject Benchmark Statement Engineering (2023)
QAA Characteristics Statements
Higher Education Credit Framework
CQFW
PSRB Accreditation Guidelines</td></tr>
<tr><td>1.20</td><td>Derogation to Academic Regulations</td><td>
<table>
<tr><td>Regulation Clause(s) affected</td><td>Derogation Summary</td></tr>
<tr><td>TPG-D2 and D3</td><td>• The minimum mark for each module is 50%.
• Each element of assessment (where there is more than one assessment) requires a minimum mark of 10% below the pass mark (40% for Level 7).</td></tr>
<tr><td>TPG-E10.4, TPG-E5.4</td><td>No compensation allowed due to the requirement for all AHEP learning outcomes to be met.</td></tr>
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</td></tr>
<tr><td>1.21</td><td>Foundation Year route</td><td>No</td></tr>
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Section 1 – Regulatory Details		
1.22	Placement / Work based learning	N/A
1.23	Length and level of the placement	N/A
1.24	Collaborative arrangement	N/A

Section 2 – Programme Details

2.1 Aims of The Programme

The MSc Engineering (Electrical) is designed to equip students with advanced knowledge and applied skills in electrical engineering, with emphasis on intelligent systems, automation, and power infrastructure. This programme prepares graduates and professionals for leadership roles in the evolving electrical and energy sectors, where digitalisation, smart systems, and sustainability are key drivers of innovation.

2.2 Programme Structure and Diagram, Including Delivery Schedule

Full-Time Delivery – September intake (12 months)

The full-time route is designed for intensive study over one academic year. In Semester 1, students complete Research Methods & Postgraduate Studies, Engineering Design & Innovation, and Electrical Systems Modelling & Simulation, developing analytical and design skills for modern electrical applications.

In Semester 2, learners progress to advanced, application-focused modules including Advanced Power Systems and Renewable Integration, Automation, Robotics, and Control Systems, and Machine Learning for Electrical Systems, addressing the growing importance of intelligent control and data-driven engineering. The programme culminates with a Dissertation, completed over Semesters 1 to 3, allowing students to conduct an in-depth research or industry-aligned project focused on electrical engineering innovation.

Full-Time Delivery - January intake (18 months)

This full-time route is designed for those undertaking intensive study, spread over 18 months. In their first Semester, students' complete application-focused modules including Advanced Power Systems and Renewable Integration, Automation, Robotics, and Control Systems, and Machine Learning for Electrical Systems. In their second semester (which is Semester 1 in the next academic year) students will study, Research Methods & Postgraduate Studies, Engineering Design & Innovation, and Electrical Systems Modelling & Simulation, developing analytical and design skills for modern electrical applications.

Throughout their second and third semester, students will complete a substantial Dissertation project, allowing students to conduct an in-depth research or industry-aligned project.

2.2 Programme Structure and Diagram, Including Delivery Schedule

Part-Time (Day Release) Delivery (2 Years)

The part-time route is tailored for working professionals, delivered on a day-release basis to support flexible learning alongside employment. In Year 1, apprentices and professionals complete Engineering Design & Innovation, Electrical Systems Modelling & Simulation, Advanced Power Systems and Renewable Integration, and Automation, Robotics, and Control Systems, with opportunities to apply learning directly in the workplace.

In Year 2, students focus on academic development and future-facing technologies through Research Methods & Postgraduate Studies and Machine Learning for Electrical Systems. The year concludes with a year-long Dissertation, giving students the opportunity to investigate a real-world challenge or opportunity within their employment setting, demonstrating their ability to deliver practical, technically advanced solutions.

Full-time Programme Structure – September intake

Level	Module Code	Module Title	Credit Value	Core/ Option	Semester of delivery
L7	ENG7A3	Research Methods & Postgraduate Studies	20	Core	1
L7	ENG7A4	Engineering Design & Innovation	20	Core	1
L7	ENG7A6	Electrical Systems Modelling & Simulation	20	Core	1
L7	ENG7A9	Advanced Power Systems and Renewable Integration	20	Core	2
L7	ENG7B1	Automation, Robotics, and Control Systems	20	Core	2
L7	ENG7B5	Machine Learning for Electrical Systems	20	Core	2
L7	ENG7B6	Dissertation	60	Core	1 - 3

Full-time Programme Structure – January intake

Level	Module Code	Module Title	Credit Value	Core/ Option	Semester of delivery	Year of Study
L7	ENG7A9	Advanced Power Systems and Renewable Integration	20	Core	2	Yr.1
L7	ENG7B1	Automation, Robotics, and Control Systems	20	Core	2	Yr.1
L7	ENG7B5	Machine Learning for Electrical Systems	20	Core	2	Yr.1
L7	ENG7A3	Research Methods & Postgraduate Studies	20	Core	1	Yr.2
L7	ENG7A4	Engineering Design & Innovation	20	Core	1	Yr.2
L7	ENG7A6	Electrical Systems Modelling & Simulation	20	Core	1	Yr.2
L7	ENG7B6	Dissertation	60	Core	1-2	Yr.2

Part-time Programme Structure						
Level	**Module Code**	**Module Title**	**Credit Value**	**Core/ Option**	**Semester of delivery**	**Year of Study**
L7	ENG7A4	Engineering Design & Innovation	20	Core	1	Yr.1
L7	ENG7A6	Electrical Systems Modelling & Simulation	20	Core	1	Yr.1
L7	ENG7A9	Advanced Power Systems and Renewable Integration	20	Core	2	Yr.1
L7	ENG7B1	Automation, Robotics, and Control Systems	20	Core	2	Yr.1
L7	ENG7A3	Research Methods & Postgraduate Studies	20	Core	1	Yr.2
L7	ENG7B5	Machine Learning for Electrical Systems	20	Core	2	Yr.2
L7	ENG7B6	Dissertation	60	Core	1 - 3	Yr.2

2.3 Programme Learning Outcomes

The following programme learning outcomes have been fully mapped against the AHEP-4 learning outcomes for Partial CEng with further learning accreditation. M6, M8-M15 Learning outcomes achieved at previous level of study.

No.	Learning Outcome	K	I	S	P	PG Cert (L7)	PG Dip (L7)	Masters (L7)	Optional Ref (PSRB standards)
1	Apply a comprehensive knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems. Much of the knowledge will be at the forefront of the particular subject of study and informed by a critical awareness of new developments and the wider context of engineering	☒	☐	☐	☐	☒	☒	☒	M1
2	Formulate and analyse complex problems to reach substantiated conclusions. This will involve evaluating available data using first principles of mathematics, statistics, natural science and engineering principles, and using engineering judgment to work with information that may be uncertain or incomplete, discussing the limitations of the techniques employed	☒	☐	☐	☐	☒	☒	☒	M2
3	Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed	☐	☐	☒	☐	☒	☒	☒	M3
4	Select and critically evaluate technical literature and other sources of information to solve complex problems	☐	☐	☒	☐	☒	☒	☒	M4
5	Design solutions for complex problems that evidence some originality and meet a combination of societal, user, business and customer needs as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards	☐	☒	☐	☐	☒	☒	☒	M5

No.	Learning Outcome	K	I	S	P	PG Cert (L7)	PG Dip (L7)	Masters (L7)	Optional Ref (PSRB standards)
6	Evaluate the environmental and societal impact of solutions to complex problems (to include the entire life-cycle of a product or process) and minimise adverse impacts	☐	☒	☐	☐	☒	☒	☒	M7
7	Function effectively as an individual, and as a member or leader of a team. Evaluate effectiveness of own and team performance	☐	☐	☐	☒	☒	☒	☒	M16
8	Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used	☐	☐	☐	☒	☐	☒	☒	M17
9	Plan, conduct and report on an original programme of work (Dissertation)	☒	☒	☒	☒	☐	☐	☒	-

Note: K- Knowledge and understanding; I-Intellectual Skills; S-Subject Skills; P-Practical, professional and employability skills

2.4 Learning and Teaching Strategy

Key to this provision is the opportunity to work on authentic assessments that replicate as best as possible real world engineering careers. Formal examinations have been removed and replaced where possible with coursework, projects or portfolio. Inbuilt into the assessment strategies are timed assessment that may include software-based assessment, practical evaluation or viva style assessments. Assessments are designed to be innovative and inclusive and will evolve as technology develops.

The learning and teaching strategy aligns with Wrexham University's Active Learning Framework (ALF) incorporating key employability skills. It is flexible, engaging, and responsive to student diversity and professional demands. A blended approach combines on-campus sessions with virtual study activities.

Face-to-Face Learning

Students will engage in lectures, seminars, and workshops in various settings, incorporating case studies and problem-based learning. The programme is mapped to instructional models that increase laboratory-based learning, critical for reinforcing theoretical knowledge through practical application:

Model A: 100% Classroom

Model B: 50% Classroom / 50% Laboratory

Model C: 25% Classroom / 75% Laboratory

Model D: 100% Laboratory

These models promote deeper learning, research capability, and technical proficiency. Laboratory hours have been increased to allow students to apply classroom-acquired theory, reinforcing understanding and preparing them for future innovation in industry or postgraduate research.

Virtual Learning

Delivered through the VLE and Microsoft Teams, virtual learning includes asynchronous tasks (videos, quizzes, readings, virtual visits) and synchronous activities (discussions, case studies, simulations). Sessions will be recorded where appropriate.

Tutorials

Delivered both in person and online, tutorials promote active participation through individual and group engagement. They are designed to encourage critical thinking, reflective practice, and student-led learning, supporting creativity, independence, and a deeper understanding of subject knowledge and professional practice.

2.5 Assessment Strategy

The assessment strategies are designed to be supportive and to build confidence, whilst also ensuring that students engage with core material, develop the fundamental and subject skills required for progression of undergraduate studies, and reward and incentivise students.

Assessment tasks are varied to facilitate students to evidence their learning and include portfolio, presentations, practical and oral assessment which promote authentic assessment and encourage the deeper learning that is a key feature of higher education. Formative feedback opportunities are embedded into each of the modules regularly and encourages students to reflect on their progress.

2.5 Assessment Strategy
Feedback is provided within 15 working days of the assessment submission date and may be delivered individually or in groups, in written, verbal, or recorded formats. This ensures that students receive timely, constructive, and developmental guidance to support continuous learning and improvement.

Disclaimer
Throughout quality assurance processes we have ensured that this programme engages with and is aligned to: • Academic Regulations • The University Skills Framework • Welsh Language Policy • Equality and Diversity Policy • The Student Union offers support for students

Section 3 – Programme set up (office use only)		
3.1	Framework	FRAME046_SEP FRAME046_FEB FRAME045_SEP
3.2	Cost centre	GAME
3.3	Course type (HESA)	N/A
3.4	Fee model	PGT: Fee Band B FT/PT (Fee as specified on website)
3.5	Are any modules taught over either multiple periods or across the HESA year (defined as running 1st August - 31st July)	Yes
3.6	Student funding model	SLC/Self-Financed
3.7	Mode of Attendance (Funding)	In person attendance
3.8	Does the Suitability for Practice Procedure apply to the programme?	No
3.9	Programme Leader	Nick Burdon
3.10	Date of Approval	30/06/2026
3.11	Date and type of Revision	