Programme Specification

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

UG Programme Directory

PG Programme Directory

Section 1 – Regulatory Details		
1.1	Awarding body	Wrexham University
1.2	Teaching institution	Wrexham Plas Coch Campus
1.3	Final award and programme title (Welsh and English)	BEng (Anrh) Peirianneg Ynni Adnewyddadwy BEng (Hons) Renewable Energy Engineering BEng (Anrh) Peirianneg Ynni Adnewyddadwy (gyda Blwyddyn Sylfaen) BEng (Hons) Renewable Energy Engineering
1.4	Exit awards and titles	BEng (Ord) Renewable Energy Engineering Diploma of Higer Education in Renewable Energy Engineering Certificate of Higher Education in Engineering
1.5	Credit requirements	**Bachelor Honours degree:** 360 credits in total including a minimum of 120 credits at level 6 **BEng (Ord):** 300 credits in total including a minimum of 60 credits at level 6 **Dip HE:** 240 credits in total including a minimum of 120 credits at level 5 **Cert HE:** A minimum of 120 credits at level 4
1.6	Intake points	Once yearly, September
1.7	Mode of study	Full time
1.8	Length of delivery	BEng (Hons) Renewable Energy Engineering - 3 years BEng (Hons) Renewable Energy Engineering with Foundation Year – 4 years
1.9	Location of delivery	Campus based (Wrexham)
1.10	Mode of delivery	Full time | In person

<table>
<tr><th colspan="3">Section 1 – Regulatory Details</th></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>
<tr><td>1.13</td><td>Subject area</td><td>Engineering</td></tr>
<tr><td>1.14</td><td>HECoS Code</td><td>BEng (Hons) Renewable Energy Engineering 100180</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></table></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.
BEng (Hons) Renewable Energy Engineering *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>UG-D3</td><td>Each element of assessment (where there is more than one assessment) requires a minimum mark of 10% below the pass mark (30% for L6).</td></tr></table></td></tr>
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Section 1 – Regulatory Details			
		E10.4, UG-E5.1	• A maximum of 30 credits can be compensated. • No compensation allowed for L5 or L6 modules. • Modules at level 4 that capture AHEP Learning outcomes must also not be compensated (Work Based Learning, Engineering Materials & Processes and Core Engineering Skills and Application).
1.21	Foundation Year route	Yes (STEM Foundation Year)	
1.22	Placement / Work based learning	Optional Work Placement – placements embedded within the programme, which must be completed to pass the module or programme. These may range from one day to a week or a few months and can be delivered as day release or in blocks.	
1.23	Length and level of the placement	The placement will last up to 12 weeks in SEM-2 of the academic calendar through the delivery of ENG6E3 Professional Practice.	
1.24	Collaborative arrangement	N/A	

Section 2 – Programme Details

2.1 Aims of The Programme

The BEng (Hons) Renewable Energy Engineering programme is designed to equip students with the technical expertise, practical skills, and problem-solving capabilities required to drive the global transition to clean, sustainable energy. Delivered full-time and aligned with AHEP-4 standards, the programme blends theoretical knowledge with extensive laboratory-based learning and real-world application.

The aim of this programme is for students to be able to apply knowledge of engineering principles to problems with no immediately known solutions. This knowledge will be built up during the length of teh programmes using lecturers that build up fundamental understanding of mathematics, statistics, natural sciences in teh field of renewable energy.

Key engineering behaviours will be taught and demonstrated in order to comply with being a professional engineer. This will include, diversity, inclusivity, ethics, sustainability, team working, communication and statutory obligations (H&S).

Students will gain experience in how regulations and infrastructure govern this key industry and how the introduction of low energy systems can influence these regulations. Students will be taught the technical component and regulatory understanding to forge a career in this important field of engineering.

2.2 Programme Structure and Diagram, Including Delivery Schedule

In Year 1, students develop a strong foundation in engineering and renewable energy through modules such as Engineering Maths, Core Engineering Skills and Application, and Fundamentals of Renewable Engineering. Practical competencies are built through Engineering Design and CAD, Engineering Materials

2.2 Programme Structure and Diagram, Including Delivery Schedule

& Processes, and Practical Engineering Skills, with hands-on workshops introducing key renewable technologies and digital tools.

In Year 2, students build on this foundation with applied modules such as Renewable Energy System Design, Digital Innovation in Engineering, Energy Storage and Network Integration, and Energy Infrastructure Systems & Governance. Teamwork, design thinking, and analytical skills are developed through the Engineering Design Project, where students collaborate on solving real-world energy challenges.

In Year 3, the programme focuses on specialist and emerging areas including Energy Modelling & Simulation, Smart Grids and Distributed Generation, and Hydrogen and Emerging Energy Technologies. The Professional Practice module enhances graduate readiness and ethical understanding. The year culminates in an individual Project, allowing students to explore a renewable energy topic of personal or industrial relevance, demonstrating their technical ability and independent problem-solving skills.

Full-time Programme Structure

Level	Module Code	Module Title	Credit Value	Core/ Option	Semester of delivery
L4	ENG4C2	Engineering Maths	20	Core	1
L4	ENG4C3	Core Engineering Skills and Application	20	Core	1
L4	ENG4C8	Fundamentals of Renewable Engineering	20	Core	1
L4	ENG4C9	Engineering Design and CAD	20	Core	2
L4	ENG4D1	Engineering Materials & Processes	20	Core	2
L4	ENG4D4	Practical Engineering Skills	20	Core	2
L5	ENG5C5	Renewable Energy System Design	20	Core	1
L5	ENG5D2	Digital Innovation in Engineering	20	Core	1
L5	ENG5D5	Energy Storage and Network Integration	20	Core	2
L5	ENG5D6	Energy Infrastructure Systems & Governance	20	Core	2
L5	ENG5D8	Engineering Design Project	40	Core	1 & 2
L6	ENG6C8	Energy Modelling & Simulation	20	Core	1
L6	ENG6D8	Smart Grids and Distributed Generation	20	Core	1
L6	ENG6D9	Hydrogen and Emerging Energy Technologies	20	Core	1
L6	ENG6E3	Professional Practice	20	Core	2
L6	ENG6E4	Project	40	Core	1 & 2

2.3 Programme Learning Outcomes

The following programme learning outcomes have been fully mapped against the AHEP-4 learning outcomes for Partial CEng Accreditation.

No.	Learning Outcome	K	I	S	P	Cert HE (L4)	Dip HE (L5)	Ordinary (L6)	Honours (L6)	Optional Ref (PSRB standards)
1.1	Apply knowledge of mathematics, statistics, natural science and engineering principles to broadly-defined problems. Some of the knowledge will be informed by current developments in the subject of study.	☒	☐	☐	☐	☐	☒	☐	☐	-
1.2	Apply knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems. Some of the knowledge will be at the forefront of the particular subject of study.	☒	☐	☐	☐	☐	☐	☒	☒	C1
2.1	Analyse broadly-defined problems reaching substantiated conclusions.	☒	☐	☐	☐	☒	☐	☐	☐	-
2.2	Analyse complex problems to reach substantiated conclusions using first principles of mathematics, statistics, natural science and engineering principles.	☒	☐	☐	☐	☐	☐	☒	☒	C2
3	Select and apply appropriate computational and analytical techniques to model complex problems, recognising the limitations of the techniques employed.	☒	☐	☐	☐	☐	☐	☒	☒	C3
4.1	Select and use technical literature and other sources of information to address broadly-defined problems.	☒	☐	☐	☐	☐	☒	☐	☐	-

No.	Learning Outcome	K	I	S	P	Cert HE (L4)	Dip HE (L5)	Ordinary (L6)	Honours (L6)	Optional Ref (PSRB standards)
4.2	Select and evaluate technical literature and other sources of information to address complex problems.	☒	☐	☐	☐	☐	☐	☒	☒	C4
5	Design solutions for complex problems that 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.	☐	☒	☐	☐	☐	☐	☒	☒	C5
6.1	Apply a systematic approach to the solution of broadly-defined problems.	☐	☒	☐	☐	☐	☒	☐	☐	-
6.2	Apply an integrated or systems approach to the solution of complex problems.	☐	☒	☐	☐	☐	☐	☒	☒	C6
7	Evaluate the environmental and societal impact of solutions to complex problems and minimise adverse impacts.	☐	☒	☐	☐	☐	☐	☒	☒	C7
8	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.	☐	☒	☐	☐	☐	☐	☒	☒	C8
9	Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	☐	☒	☐	☐	☐	☐	☒	☒	C9
10	Adopt a holistic and proportionate approach to the mitigation of security risks.	☐	☒	☐	☐	☒	☐	☐	☐	C10

No.	Learning Outcome	K	I	S	P	Cert HE (L4)	Dip HE (L5)	Ordinary (L6)	Honours (L6)	Optional Ref (PSRB standards)
11	Adopt an inclusive approach to engineering practice and recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion.	☐	☒	☐	☐	☐	☐	☒	☒	C11
12.1	Use practical laboratory and workshop skills to investigate broadly-defined problems.	☐	☐	☒	☐	☐	☒	☐	☐	-
12.2	Use practical laboratory and workshop skills to investigate complex problems.	☐	☐	☒	☐	☐	☐	☒	☒	C12
13.1	Select and apply appropriate materials, equipment, engineering technologies and processes.	☐	☐	☒	☐	☐	☒	☐	☐	-
13.2	Select and apply appropriate materials, equipment, engineering technologies and processes, recognising their limitations.	☐	☐	☒	☐	☐	☐	☒	☒	C13
14	Discuss the role of quality management systems and continuous improvement in the context of complex problems.	☐	☐	☒	☐	☐	☐	☒	☒	C14
15	Apply knowledge of engineering management principles, commercial context, project and change management, and relevant legal matters including intellectual property rights.	☐	☐	☒	☐	☐	☐	☒	☒	C15
16	Function effectively as an individual, and as a member or leader of a team.	☐	☐	☐	☒	☐	☒	☐	☐	C16
17.1	Communicate effectively with technical and non-technical audiences.	☐	☐	☐	☒	☒	☐	☐	☐	-

No.	Learning Outcome	K	I	S	P	Cert HE (L4)	Dip HE (L5)	Ordinary (L6)	Honours (L6)	Optional Ref (PSRB standards)
17.2	Communicate effectively on complex engineering matters with technical and non-technical audiences.	☐	☐	☐	☒	☐	☐	☒	☒	C17
18	Plan and record self-learning and development as the foundation for lifelong learning/CPD.	☐	☐	☐	☒	☒	☐	☒	☒	C18
19	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	FRAME001_SEP FRAME005_SEP
3.2	Cost centre	GAME
3.3	Course type (HESA)	N/A
3.4	Fee model	Standard full time UG
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	Olivier Durieux
3.10	Date of Approval	30/06/2026
3.11	Date and type of Revision	