Prifysgol Wrecsam
Wrexham University

PROGRAMME SPECIFICATION

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Award titles

Programme Title(s)

BEng (Anrh) Peirianneg Awyrenegol a Mecanyddol
BEng (Hons) Aeronautical and Mechanical Engineering

BEng (Anrh) Peirianneg Awyrenegol a Mecanyddol (gyda lleoliad diwydiannol)
BEng (Hons) Aeronautical and Mechanical Engineering (with industrial placement)

MEng Peirianneg Awyrenegol a Mecanyddol
MEng Aeronautical and Mechanical Engineering

BEng (Anrh) Peirianneg Fodurol
BEng (Hons) Automotive Engineering

BEng (Anrh) Peirianneg Fodurol (gyda lleoliad diwydiannol)
BEng (Hons) Automotive Engineering (with industrial placement)

MEng Peirianneg Fodurol
MEng Automotive Engineering

BEng (Anrh) Peirianneg Drydanol ac Electronig
BEng (Hons) Electrical and Electronic Engineering

BEng (Anrh) Peirianneg Drydanol ac Electronig (gyda lleoliad diwydiannol)
BEng (Hons) Electrical and Electronic Engineering (with industrial placement)

MEng Peirianneg Drydanol ac Electronig
MEng Electrical and Electronic Engineering

BEng (Anrh) Peirianneg Adnewyddadwy a Chynaliadwy
BEng (Hons) Renewable and Sustainable Engineering

BEng (Anrh) Peirianneg Adnewyddadwy a Chynaliadwy (gyda lleoliad diwydiannol)
BEng (Hons) Renewable and Sustainable Engineering (with industrial placement)

Internal Programme Title(s) (if different to the title on the certificate)

BEng Electrical and Electronic Engineering (level 6 top-up)

Programme to be included in Graduation Ceremonies

Yes

Delivery period

Sept 2022-Sept 2026

Intake points

Once a year: September intake

Regulatory details

Regulatory details
Awarding body
Wrexham University
Programme delivered by
Wrexham University MEng/BEng (Hons) Aeronautical and Mechanical Engineering MEng/BEng (Hons) Automotive Engineering MEng/BEng (Hons) Electrical and Electronic Engineering MEng/BEng (Hons) Renewable and Sustainable Engineering BEng (Hons) Aeronautical and Mechanical Engineering (with industrial placement) BEng (Hons) Automotive Engineering (with industrial placement) BEng (Hons) Electrical and Electronic Engineering (with industrial placement) BEng (Hons) Renewable and Sustainable Engineering (with industrial placement) Despark College BEng (Hons) Automotive Engineering Dimensions International College BEng (Hons) Electrical and Electronic Engineering (level 6 top-up)
Location of delivery
Plas Coch Campus Despark College – BEng (Hons) Automotive Engineering only Dimensions International College – BEng Electrical and Electronic Engineering (level 6 top-up) only
Faculty/Department
Faculty of Arts, Science and Technology
Exit awards available
BEng (Ord) / Dip HE / Cert HE Aeronautical and Mechanical Engineering BEng (Ord) / Dip HE / Cert HE Automotive Engineering BEng (Ord) / Dip HE / Cert HE Renewable and Sustainable Engineering BEng (Ord) / Dip HE / Cert HE Electrical & Electronic Engineering
Professional, Statutory or Regulatory Body (PSRB) accreditation
This information is correct at the time of validation, please refer to the PSRB register for current accreditation status. The programmes have been developed in line with PSRB requirements, including IMechE, IET, RAes & EI. The new BEng programmes (home provision only, including Industry Placement routes) have been re-accredited by their relevant accreditation bodies from Sept 22 intake to Sept 25 intake. MEng programmes are pending output review in the next monitoring visit.

Programme Name	Accreditation Bodies	Accreditation Type
BEng (Hons) Aeronautical and Mechanical Engineering	IET, IMechE, RAeS	Partial CEng
BEng (Hons) Automotive Engineering[1]	IET, IMechE	Partial CEng
BEng (Hons) Renewable & Sustainable Engineering	EI, IET, IMechE	Partial CEng

BEng (Hons) Electrical and Electronic Engineering	IET	Partial CEng

Please add details of any conditions that may affect accreditation (e.g., is it dependent on choices made by a student?) *e.g., completion of placement.*

The accreditation only applies to home provision. Programmes delivered at partner institutions are not accredited but partner students can still apply for professional engineer registration without an accredited qualification.

HECoS codes

Aeronautical and Mechanical Engineering 100114
Automotive Engineering 100201
Electrical and Electronic Engineering 100163
Renewable and Sustainable Engineering 100175

UCAS code

BEng Aeronautical and Mechanical engineering BA22
BEng Automotive engineering H431
BEng Electrical and Electronic engineering H600
BEng Renewable and Sustainable engineering HH36
BEng Aeronautical Engineering (with industrial placement) AEIP
BEng Automotive Engineering (with industrial placement) AUIP
BEng Electrical and Electronic Engineering (with industrial placement) EEIP
BEng Mechanical Engineering (with industrial placement) MGIP
BEng Renewable and Sustainable Engineering (with industrial placement) RSIP
MEng Aeronautical and Mechanical engineering MEAE
MEng Automotive engineering MEAU
MEng Electrical and Electronic engineering MEEE
MEng Renewable and Sustainable engineering MERS

Relevant QAA subject benchmark statement/s

QAA Subject Benchmark Statement Engineering (2019)
https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-engineering.pdf?sfvrsn=1f2c881_16

Mode of study

Full time

Normal length of study for each mode of study

3-year Bachelor's degree
4-year Bachelor's with Foundation Year
4-year Bachelor's with Industrial Placement Year
4-year Integrated Masters
1 year Top-up Bachelor's degree (Electrical and Electronic Engineering)

Language of study

English

Transitional arrangements for re-validated provision if applicable

For BEng Aeronautical and Mechanical Engineering the last intake will be the current 2021/22 academic year and we will then teach out. All students currently enrolled on the continuing programmes will be transferred onto the revalidation programme structures from September 2022.

The following University Award Regulations apply to this programme (*highlight the appropriate ones and delete the others)*

General Regulations and Definitions

Regulations for Bachelor's degrees, Diplomas, Certificates and Foundation Degrees

Regulations for Integrated master's degrees

OFFICE USE ONLY	
Date of validation event:	16th June 2022
Date of approval by Academic Board:	*22nd August 2022*
Approved Validation Period:	*5 years from Sept 2022*
Transitional arrangements approved (if revalidation)	*All students currently enrolled on the continuing programmes will be transferred onto the revalidation programme structures from September 2022, except for BEng Aeronautical and Mechanical Engineering which will be phased out.*
Date and type of revision:	11 May 2023 *27th Sept 2023 APSC approval replace COM439 Problem Solving with Programming with COM474 Programming Fundamentals.* *17th January 2024 Removal of the part time option as a mode of study for BEng and MEng programmes* *13th August APSC approval to change the programme title of BEng/MEng Aeronautical Engineering to BEng/MEng Aeronautical and Mechanical Engineering* 16th October 2024 APSC approval to remove optional modules (AM2)
Language Admissions Policy	

1. Criteria for admission to the programme

Standard entry criteria

Entry requirements are in accordance with the University's admissions policy, please click on the following link for more information. Admissions policies

The University's entry requirements are set out on our Admissions webpages

Qualification	Entry requirements
Foundation Year	48 – 72 Tariff points and /or relevant experience
3-year Bachelor's degree	80 – 112 Tariff points
Integrated Masters (4 years)	120 Tariff points

These figures are intended as a general guide. Each application is considered individually.

International entry qualifications are outlined on the UK National Information Centre for global qualifications and skills (UK ENIC) As equivalent to the relevant UK entry qualification.

In addition to the academic entry requirements, all applicants whose first language is not English or Welsh must demonstrate English language proficiency.

European students are able to provide this evidence in a number of ways (please see academic-entry-requirements for details), including IELTS.

International students are required to provide an English Language Certificate which meets the requirements of the University *(please see English-language-requirements for details).*

Non-Standard entry criteria

For direct entry to the Level 6 of the programme, applicants must have achieved a qualification at Level 5 or better in a relevant discipline. Entry to the programme may be gained by students who can present one of the pieces of evidence listed below:

a) Have passed a Dip HE in a relevant discipline.
b) Have passed a French DUT.
c) Have achieved a minimum of 120 ECTS credits in a relevant discipline.
d) Have passed a Foundation Degree or HND in a cognate discipline.
e) Have passed a qualification from an EU or other overseas country equivalent, as defined as equivalent NARIC, to a DipHE or better in a relevant discipline.

2. Record of Prior (Experiential) learning

Applicants may enter the programme at various levels with Recognition of Prior Learning (RPL) or Recognition of Prior Experiential learning (RPEL) in accordance with the University General Regulations. Any programme specific restrictions are outlined below.

3. DBS Requirements

No DBS checks are required for students to undertake the programmes concerned in this programme specification. In line with the Universities Disciplinary Procedure for Students, all students are required to disclose a criminal record acquired during the student's enrolment with the University.

4. Suitability for Practice Procedure

N/A

5. Aims of the programme

The key aim of the programmes is to develop intellectual and application skills through knowledge acquisition, problem solving, deductive skills, synthesis, analysis, and evaluation. This also encompasses social and environmental implications.

The graduates from the programmes will

- be pragmatic, taking a systematic approach and the logical and practical steps necessary for often complex concepts to become reality.
- seek to achieve sustainable solutions to problems and have strategies for being creative, innovative, and overcoming difficulties by employing their skills, knowledge and understanding in a flexible manner.
- be skilled at solving problems by applying their numerical, computational, analytical, and technical skills, using appropriate tools.
- be risk, cost and value-conscious, and aware of their ethical, social, cultural, environmental, health and safety, and wider professional responsibilities.
- be familiar with the nature of business and enterprise in the creation of economic and social value appreciate the global dimensions of engineering, commerce, and communication;
- be able to formulate and operate within appropriate codes of conduct, when faced with an ethical issue.
- be professional in their outlook, be capable of team working, be effective communicators, and be able to exercise responsibility and sound management approaches.

6. Distinctive features of the programmes

Distinctive features of BEng (Hons) Aeronautical and Mechanical Engineering programme

The BEng (Hons) Aeronautical and Mechanical Engineering programme aims to equip graduates with knowledge, understanding and skills of aeronautical and mechanical engineering-based subjects and their applications in aeronautical and mechanical industries, such as aerodynamics, engineering mechanics, engineering design, aircraft structures and vibration, thermodynamics, propulsion, aircraft design, aircraft stability, and control, modern aircraft technology, etc. This includes the use of variety of computer-aided design and analysis tools, such as industry-required MATLAB/Simulink, Computer Aided Design, Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD) tools. It also aims to provide the breadth and depth of learning, skills, and attitudes for graduates to meet the future needs of a rapidly changing technology and business environment. The graduates will be equipped with analytical, computational, design and transferable skills, and including an awareness of social and environmental implications, and will be able to play leading professional roles in Aeronautical and Mechanical Engineering and related industries, to show initiative, to take responsibility and to make decisions in complex and unpredictable situations.

Career opportunities are wide ranging and the present shortage of practising engineers in the fields of aeronautical, mechanical, and manufacturing engineering will lead to an increased demand from industry in future years. Students on these programmes in the past have been successful in seeking employment as engineering professionals with renowned organisations such as Airbus, British Airways, Jaguar Cars Ltd, J C Bamford Excavators Limited (JCB), Kellogg's Co. of Great Britain Ltd, Kronospan Ltd, Rolls Royce plc, Siemens, and Toyota Motor Manufacturing Ltd.

Distinctive features of MEng Aeronautical and Mechanical Engineering programme

The MEng Aeronautical and Mechanical Engineering programme covers all the learning outcomes of the BEng (Hons) Aeronautical and Mechanical Engineering and beyond to provide a greater range and depth of specialist knowledge, within a research and industrial environment, as well as a broader and more general academic base.

The study of the MEng Aeronautical and Mechanical Engineering is designed as an integrated whole from entry to completion, lasting for 4 years, with the earlier parts being delivered in common with a parallel BEng (Hons) Aeronautical and Mechanical Engineering. The MEng degree meets the expectations of the qualifications descriptor for master's degrees. The period of study at the lower level meets the expectations of the BEng (Hons) Aeronautical and Mechanical Engineering.

A 60-credit Industrial Placement and Project is integrated in the MEng programme, which enhances students' industrial experience and further brighten students' career opportunities.

The MEng Aeronautical and Mechanical Engineering programme aims to produce graduates with knowledge, understanding and skills of aeronautical engineering-based subjects and their applications in aeronautical and mechanical industries, such as advanced aerodynamics, engineering mechanics, engineering design, aircraft structures and vibration analysis, thermodynamics, propulsion, aircraft design, aircraft stability, advance flight mechanics and control, modern aircraft technology, composite design and applications, intelligence advanced control systems design, etc., including the use of variety of computer-aided design and analysis tools, such as industry-highly-required MATLAB/Simulink, Computer Aided Design, Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD) tools. It also aims to provide the breadth and depth of learning, skills, and attitudes for

graduates to meet the future needs of a rapidly changing technology and business environment. The graduates will be equipped with analytical, computational, design and transferable skills, and including an awareness of social and environmental implications, and will be able to play leading professional roles in Aeronautical and Mechanical Engineering and related industries, to show initiative, to take responsibility and to make decisions in complex and unpredictable situations.

Career opportunities are wide ranging and the present shortage of practising engineers in the fields of aeronautical, mechanical, and manufacturing engineering which should lead to an increased demand from industry in future years. Students on these programmes in the past have been successful in seeking employment as engineering personnel with renown organisations such as Airbus, British Airways, Jaguar Cars Ltd, J C Bamford Excavators Limited (JCB), Kellogg's Co. of Great Britain Ltd, Kronospan Ltd, Rolls Royce plc, Siemens, Toyota Motor Manufacturing Ltd, to name a few.

Distinctive features of BEng (Hons) Automotive Engineering programme

The University has a proven track of success in Automotive Engineering and Motorsport. The BEng (Hons) Automotive Engineering course aims to prepare candidates with the general knowledge and skills of the modern engineering scene as well as the specific areas of modern automotive chassis and powertrain design, analysis, development, and optimisation. It contains a set of key modules covering automotive systems, automotive dynamics and powertrain analysis, design, etc., covering the essential aspects of the modern automotive engineering field. This provides a solid background for a career in the automotive engineering and motorsport sectors.

The BEng (Hons) Automotive Engineering programme is also available as a full-time three-year programme at Despark College, Malaysia.

Lecturers and supporting staff have industrial experience as required by the professional body (EAB) and are practitioners (track racing, car building). The laboratories at Glyndŵr University are equipped with up-to-date specialist equipment and vehicles. The programme provides the opportunity to combine practical aspects as well as simulation-based projects. The university operates a computer lab with industry relevant software, e.g., MATLAB/Simulink, Computer Aided Design, Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD) tools.

An open and inclusive culture supports the positive nature of the students' learning experience. Strong links to local, national, and international companies ensure the standard of teaching is industry relevant and they provide students with clarity and insight into their professional career paths.

Distinctive features of MEng Automotive Engineering programme

The MEng Automotive Engineering programme covers all the learning outcomes of the BEng (Hons) Automotive Engineering and goes beyond it to provide a greater range and depth of specialist knowledge, within a research and industrial environment, as well as a broader and more general academic base.

The study of the MEng Automotive Engineering is designed as an integrated whole from entry to completion, lasting for 4 years, with the earlier parts being delivered in common with a parallel BEng (Hons) Automotive Engineering. The MEng degree meets the expectations of the qualifications descriptor for master's degrees. The period of study at the lower level meets the expectations of the BEng (Hons) Automotive Engineering.

A 60-credit Industrial Placement and Project is integrated in the MEng programme, which enhances students' industrial experience and further brighten students' career opportunities.

The University has a proven track of success in Automotive Engineering and Motorsport. The MEng Automotive Engineering course aims to prepare candidates with the knowledge and skills on the areas of modern automotive chassis and powertrain design, analysis, development, and optimisation. It contains a set of key modules covering automotive systems, automotive dynamics and powertrain analysis, design, etc., covering the essential aspects of the modern automotive engineering field. This provides a solid background for a career in the automotive engineering and motorsport sectors.

Lecturers and supporting staff have industrial experience as required by the professional body (EAB) and are practitioners (track racing, car building). The laboratories at Wrexham University are equipped with up-to-date specialist equipment and vehicles. The programme

provides the opportunity to combine practical aspects as well as simulation-based projects. The university operates a computer lab with industry relevant software, e.g., MATLAB/Simulink, Computer Aided Design, Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD) tools.

An open and inclusive culture supports the positive nature of the students' learning experience. Strong links to local, national, and international companies ensure the standard of teaching is industry relevant and they provide students with clarity and insight into their professional career paths.

Distinctive features of BEng (Hons) Renewable and Sustainable Engineering programme

The UK and many other counties worldwide have signed legally binding contracts to reduce carbon dioxide emissions by 100% in 2050. This will mean a transition from traditional fossil fuel energy sources to renewable and sustainable energies. This BEng (hons) programme offers a graduate a chance to access this exciting, dynamic, and highly innovative field.

The programme aims to provide an up-to-date overview of all renewable energy sources. This includes the engineering skills associated with selecting, designing, and installing the apparatus to capture, as well as store, convert and transfer energy into useful forms.

As well as the engineering aspects this programme also covers energy economics and markets including cost/ benefit/ tariff/risk analysis of renewables compared with traditional fossil fuel and nuclear energy sources. Socio-economic, energy security and political issues are addressed as well as environmental factors of different energy sources.

In addition to the specialist renewable energy and sustainable modules the programme also delivers a wide range of related supporting subjects including:

- Mechanical and electrical engineering
- Engineering modelling and structural analysis.
- Structures
- Business research, etc.

The future of renewable energy will have reliance on innovative forward-thinking businesses, politicians, engineers, and managers and as such this programme encourages creativity and entrepreneurship to produce solutions to real world problems.

The diverse and unique mix of skills gained in completing this programme is designed to equip a student with a wide range of employability skills not only within renewable energy but many other engineering sectors. This has the potential to result in opportunities to seek employment worldwide within the energy sector.

Distinctive features of MEng Renewable and Sustainable Engineering programme

The MEng Renewable and Sustainable Engineering programme covers all the learning outcomes of the BEng (Hons) Renewable and Sustainable Engineering and goes beyond it to provide a greater range and depth of specialist knowledge, within a research and industrial environment, as well as a broader and more general academic base.

The study of the MEng Renewable and Sustainable Engineering is designed as an integrated whole from entry to completion, lasting for 4 years, with the earlier parts being delivered in common with a parallel BEng (Hons) Renewable and Sustainable Engineering.

The MEng degree meets the expectations of the qualifications descriptor for master's degrees. The period of study at the lower level meets the expectations of the BEng (Hons) Renewable and Sustainable Engineering.

A 60-credit Industrial Placement and Project is integrated in the MEng programme, which enhances students' industrial experience and further brighten students' career opportunities.

The UK and many other counties worldwide have signed legally binding contracts to reduce carbon dioxide emissions by 80% in 2050. This will mean a transition from traditional fossil fuel energy sources to renewable and sustainable energies. This MEng programme offers a graduate a chance to access this exciting, dynamic, and highly innovative field.

The programme aims to provide an up-to-date overview of all renewable energy sources. This includes the engineering skills associated with selecting, designing, and installing the apparatus to capture, as well as store, convert and transfer energy into useful forms.

As well as the engineering aspects this programme also covers energy economics and markets including cost/ benefit/ tariff/risk analysis of renewables compared with traditional fossil fuel and nuclear energy sources. Socio-economic, energy security and political issues are addressed as well as environmental factors of different energy sources.

In addition to the specialist renewable energy and sustainable modules the programme also delivers a wide range of related supporting subjects including:

- Mechanical and electrical engineering
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The diverse and unique mix of skills gained in completing this programme is designed to equip a student with a wide range of employability skills not only within renewable energy but many other engineering sectors. This has the potential to result in opportunities to seek employment worldwide within the energy sector.

Distinctive features of BEng (Hons) Electrical & Electronic Engineering programme

The BEng (Hons) Electrical & Electronic Engineering programme aims to produce graduates with knowledge and skills in electrical and electronic engineering-based subjects and their applications in electrical and electronic industries, such as analogue and digital electronics, embedded systems, electrical power engineering, industrial automation, and programmable logic controllers (PLCs), electronic design and testing, digital signal processing and electronic design and testing.

The programme of study includes the use of a variety of computer-aided design and analysis tools such as MathWorks MATLAB, Siemens Step 7 and National Instruments Multisim.

The programme also aims to provide the breadth and depth of learning, skills, and attitudes for graduates to meet the future needs of a rapidly changing technology and business environment. The graduates will be equipped with analytical, computational, design and transferable skills, including an awareness of social, environmental, and ethical implications,

and will be able to play leading professional roles in electrical and electronic engineering and related industries by showing initiative and taking responsibility to make decisions in complex and unpredictable situations.

Career opportunities are wide ranging and to prepare the students to fill the present shortage of practising engineers in the fields of electrical engineering, specialisms at level 6 within the electrical route of the programme features an optional module in power electronics and electrical machines. To prepare students for the fast-changing roles in electronic engineering, the electronic route of the programme includes an optional module in Wireless Communication and Antennas.

Distinctive features of MEng Electrical and Electronic Engineering programme

The MEng Electrical & Electronic Engineering programme covers all the learning outcomes of the BEng (Hons) Electrical & Electronic Engineering programme and goes beyond it to provide a greater range and depth of specialist knowledge, within a research and industrial environment, as well as a broader and more general academic base.

The study of the MEng Electrical & Electronic Engineering programme is designed to be an integrated programme from entry to completion, lasting for 4 years, with the earlier parts being delivered in common with a parallel BEng (Hons) Electrical & Electronic Engineering programme. The MEng degree meets the expectations of the qualifications descriptor for master's degrees.

A 60-credit Industrial Placement and Project is integrated in the MEng programme, which enhances students' industrial experience to improve students' career opportunities.

The MEng Electrical & Electronic Engineering programme aims to produce graduates with knowledge and skills in electrical and electronic engineering-based subjects and their applications in industry, such as convertors drives and energy systems, renewable technology and storage integration engineering, and intelligent system design and control engineering.

The graduates will be equipped with analytical, computational, design and transferable skills, including an awareness of social and environmental implications, and will be able to play leading professional roles in electrical and electronic engineering related industries, to show initiative and to take responsibility in making decisions in an area of engineering which is continually developing and changing with technical developments.

Career opportunities are wide ranging, and the present shortage of practising engineers in the fields of electrical and electronic engineering has produced an increased demand for graduates in the field of electrical and electronic engineering.

7. Credit Accumulation and exit awards

Exit Awards
Successful completion of 120 credits at Level 4 entitles the student to the exit award of Certificate of Higher Education (in one of the corresponding areas listed below)

- Aeronautical and Mechanical Engineering
- Automotive Engineering
- Electrical and Electronic engineering
- Renewable and Sustainable Engineering

Successful completion of 240 credits including a minimum of 120 credits at Level 5 entitles the student to a Diploma of Higher Education (in one of the corresponding areas listed below)

- Aeronautical and Mechanical Engineering
- Automotive Engineering
- Electrical and Electronic Engineering
- Renewable and Sustainable Engineering

Successful completion of 300 credits including a minimum of 60 credits at Level 6 and 120 credits at Level 5 entitles the student to a Bachelor's degree (Ordinary) (in one of the corresponding areas listed below)

- Aeronautical and Mechanical Engineering
- Automotive Engineering
- Electrical and Electronic Engineering
- Renewable and Sustainable Engineering

8. Programme Structure Diagram, including delivery schedule

All MEng/BEng programmes have some shared modules and specialist modules. The following diagrams shows the overview of all the programmes (at different levels) in columns with modules in rows. This demonstrates the commonality and distinctiveness of the grouping of the modules. This structure facilitates the streamlined and efficient delivery of common topics/modules whilst enabling the specialisms of the programmes to be delivered to the relevant groups.

MEng/BEng (Hons) Engineering (Specialisms) - Part-Time & Full-Time

Level 4

<table>
<tr><th></th><th>Aeronautical and Mechanical Engineering</th><th>Automotive Engineering</th><th>Renewable & Sustainable Engineering</th><th>Electrical & Electronic Engineering</th></tr>
<tr><td></td><td colspan="4">Level 4</td></tr>
<tr><td rowspan="3">SEM (1)</td><td colspan="4">ENG461 Engineering Mathematics</td></tr>
<tr><td colspan="4">ENG4B1 Introduction to Electrical & Mechanical Engineering Science</td></tr>
<tr><td colspan="4">ENG4B2 CAD and Production Science</td></tr>
<tr><td rowspan="3">SEM (2)</td><td colspan="4">ENG4B3 Engineering Professional Development</td></tr>
<tr><td colspan="3">ENG4B4 Materials and Environment</td><td>COM474 Programming Fundamentals</td></tr>
<tr><td>ENG4B5 Modern Aircraft Technology</td><td>ENG492 Automotive Systems</td><td>ENG4B7 Future Energy Systems & Sustainability</td><td>ENG467 Analogue and Digital Electronics</td></tr>
</table>

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MEng/BEng (Hons) Engineering (Specialisms) - Part-Time & Full-Time

Level 5

	Aeronautical and Mechanical Engineering	Automotive Engineering	Renewable & Sustainable Engineering	Electrical & Electronic Engineering
	Level 5			
SEM (1)	ENG5A4 Engineering Futures – Research, Ethics, and Sustainability			
	ENG537 Further Engineering Mathematics			
	ENG5A5 Mechanics, Structures & FEA			ENG5B4 Intelligent Control System Design
SEM (2)	ENG5A6 Computer Aided Manufacturing		ENG565 Electrical Power Engineering	
	ENG5A7 Flight Mechanics, Avionics and Control	ENG557 Automotive Design	ENG5B2 Wind and Hydro Energy Engineering	ENG5AC Industrial Automations & PLCs
	ENG538 Thermo-fluids and Propulsion	ENG5A8 Automotive Powertrains & Fluids	ENG5B3 Solar and Biomass Energy Engineering	ENG53E Embedded Systems
1 Year	ENG5B5 Industrial Placement[1]			

[1] Only applicable to industrial placement year route of Full time BEng (Hons) Engineering (Specialisms)

Prifysgol Wrecsam
Wrexham University

BEng (Hons) Engineering (Specialisms) - Part-Time & Full-Time

Level 6

	Aeronautical and Mechanical Engineering	Automotive Engineering	Renewable & Sustainable Engineering	Electrical & Electronic Engineering
	Level 6			
SEM (1)	ENG6A5 Mechanical Engineering Modelling & Simulation			ENG6C2 Digital Signal Processing
	ENG687 Aerodynamics	ENG6B1 Automotive Dynamics	ENG6B7 Smart grids, storage, and energy mix	ENG60D Electronics Design and Testing
	ENG6A7 Aircraft Design & Flight Stability	ENG6B2 Modern Automotive Powertrains	ENG6B8 Energy saving, Low carbon and recycling systems	ENG6B9 Power Electronics and Electrical Machines
SEM (2)	ENG6A8 Professional Engineering			
SEM (1-2)	ENG6AG Project (40 Credits)			

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MEng Engineering (Specialisms) - Part-Time & Full-Time

Level 6 (Level 4 & 5 are in line with BEng Engineering (specialism), respectively)

	Aeronautical Engineering	Automotive Engineering	Mechanical Engineering	Renewable & Sustainable Engineering	Electrical & Electronic Engineering
	Level 6				
SEM (1)	ENG6A5 Mechanical Engineering Modelling & Simulation				ENG6C2 Digital Signal Processing
	ENG687 Aerodynamics	ENG6B1 Automotive Dynamics	ENG6AC Machine and Production Systems	ENG6B7 Smart grids, storage, and energy mix	ENG60D Electronic Design and Testing
	ENG6A7 Aircraft Design & Flight Stability	ENG6B2 Modern Automotive Powertrains	ENG6B5 Advanced Engineering Design and Manufacturing	ENG6B8 Energy saving, Low carbon and recycling systems	ENG6B9 Power Electronics and Electrical Machines
SEM (2)	ENG6C4 Industrial Placement and Project (60 Credits)				

Prifysgol Wrecsam
Wrexham University

MEng Engineering (Specialisms) - Part-Time & Full-Time

Level 7

	Aeronautical Engineering	Automotive Engineering	Renewable & Sustainable Engineering	Electrical & Electronic Engineering
	Level 7			
SEM (1)	ENG776 Group Design Project (40 Credits)			
SEM (1)	ENG777 Mechanical Engineering Systems Modelling & Simulation			ENG778 Electrical and Electronics Engineering Systems Modelling & Simulation
SEM (2)	ENG783 Design with Composites-Theory & Practice	ENG783 Design with Composites-Theory & Practice	ENG781 Renewable Technology & Storage Integration Engineering	ENG782 Intelligent System Design & Control Engineering
	ENG779 Applied Aerodynamics	ENG784 Modern & Innovative Powertrains	ENG787 Energy Reduction & Sustainability	ENG789 Convertors, Drives and Energy Systems
	ENG780 Advanced Flight Mechanics & Control	ENG785 Advanced Automotive Chassis Design	ENG788 Climate Change, Consequences, Solution & Policies	ENG790 Circuit Design Analysis & Testing

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Wrexham University

MEng/BEng (Hons) Aeronautical and Mechanical Engineering

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery (i.e., semester 1,2)
Level 4	ENG461	Engineering Mathematics	20	Core	1
Level 4	ENG4B1	Introduction to Electrical & Mechanical Engineering Science	20	Core	1
Level 4	ENG4B2	CAD and Production Science	20	Core	1
Level 4	ENG4B3	Engineering Professional Development	20	Core	2
Level 4	ENG4B4	Materials and Environment	20	Core	2
Level 4	ENG4B5	Modern Aircraft Technology	20	Core	2
Level 5	ENG5A4	Engineering Futures – Research, Ethics, and Sustainability	20	Core	1
Level 5	ENG537	Further Engineering Mathematics	20	Core	1
Level 5	ENG5A5	Mechanics, Structures & FEA	20	Core	1
Level 5	ENG5A6	Computer Aided Manufacturing	20	Core	2
Level 5	ENG5A7	Flight Mechanics, Avionics and Control	20	Core	2
Level 5	ENG538	Thermo-fluids and Propulsion	20	Core	2
Level 6	ENG6AG	Project [1]	40	Core	1, 2
Level 6	ENG6A5	Mechanical Engineering Modelling & Simulation	20	Core	1
Level 6	ENG687	Aerodynamics	20	Core	1
Level 6	ENG6A7	Aircraft Design & Flight Stability	20	Core	1
Level 6	ENG6A8	Professional Engineering [1]	20	Core	2
Level 6	ENG6C4	Industrial Placement and Project [2]	60	Core	2
Level 7	ENG776	Group Design Project [2]	40	Core	1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation [2]	20	Core	1
Level 7	ENG779	Applied Aerodynamics [2]	20	Core	2
Level 7	ENG780	Advanced Flight Mechanics & Control [2]	20	Core	2
Level 7	ENG783	Design with Composites-Theory & Practice [2]	20	Core	2

[1] Modules for BEng (Hons) programmes only.
[2] Modules for MEng programmes only.

Prifysgol Wrecsam
Wrexham University

MEng/BEng (Hons) Automotive Engineering

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery (i.e., semester 1,2)
Level 4	ENG461	Engineering Mathematics	20	Core	1
Level 4	ENG4B1	Introduction to Electrical & Mechanical Engineering Science	20	Core	1
Level 4	ENG4B2	CAD and Production Science	20	Core	1
Level 4	ENG4B3	Engineering Professional Development	20	Core	2
Level 4	ENG4B4	Materials and Environment	20	Core	2
Level 4	ENG492	Automotive Systems	20	Core	2
Level 5	ENG5A4	Engineering Futures – Research, Ethics, and Sustainability	20	Core	1
Level 5	ENG537	Further Engineering Mathematics	20	Core	1
Level 5	ENG5A5	Mechanics, Structures & FEA	20	Core	1
Level 5	ENG5A6	Computer Aided Manufacturing	20	Core	2
Level 5	ENG557	Automotive Design	20	Core	2
Level 5	ENG5A8	Automotive Powertrains & Fluids	20	Core	2
Level 6	ENG6AG	Project [1]	40	Core	1, 2
Level 6	ENG6A5	Mechanical Engineering Modelling & Simulation	20	Core	1
Level 6	ENG6B1	Automotive Dynamics	20	Core	1
Level 6	ENG6B2	Modern Automotive Powertrains	20	Core	1
Level 6	ENG6A8	Professional Engineering [1]	20	Core	2
Level 6	ENG6C4	Industrial Placement and Project [2]	60	Core	2
Level 7	ENG776	Group Design Project [2]	40	Core	1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation[2]	20	Core	1
Level 7	ENG785	Advanced Automotive Chassis Design [2]	20	Core	2
Level 7	ENG784	Modern & Innovative Powertrains [2]	20	Core	2
Level 7	ENG783	Design with Composites-Theory & Practice [2]	20	Core	2

[1] Modules for BEng (Hons) programmes only.
[2] Modules for MEng programmes only.

Prifysgol Wrecsam
Wrexham University

MEng/BEng (Hons) Electrical and Electronic Engineering

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery (i.e., semester 1,2)
Level 4	ENG461	Engineering Mathematics	20	Core	1
Level 4	ENG4B1	Introduction to Electrical & Mechanical Engineering Science	20	Core	1
Level 4	ENG4B2	CAD and Production Science	20	Core	1
Level 4	ENG4B3	Engineering Professional Development	20	Core	2
Level 4	COM474	Programming Fundamentals	20	Core	2
Level 4	ENG467	Analogue and Digital Electronics	20	Core	2
Level 5	ENG5A4	Engineering Futures – Research, Ethics, and Sustainability	20	Core	1
Level 5	ENG537	Further Engineering Mathematics	20	Core	1
Level 5	ENG5B4	Intelligent Control System Design	20	Core	1
Level 5	ENG565	Electrical Power Engineering	20	Core	2
Level 5	ENG5AC	Industrial Automations & PLCs	20	Core	2
Level 5	ENG53E	Embedded Systems	20	Core	2
Level 6	ENG6AG	Project [1]	40	Core	1, 2
Level 6	ENG6C2	Digital Signal Processing	20	Core	1
Level 6	ENG60D	Electronic Design and Testing	20	Core	1
Level 6	ENG6B9	Power Electronics and Electrical Machines	20	Core	1
Level 6	ENG6A8	Professional Engineering [1]	20	Core	2
Level 6	ENG6C4	Industrial Placement and Project [2]	60	Core	2
Level 7	ENG776	Group Design Project [2]	40	Core	1
Level 7	ENG778	Electrical and Electronics Engineering Systems Modelling & Simulation [2]	20	Core	1
Level 7	ENG789	Convertors, Drives and Energy Systems [2]	20	Core	2
Level 7	ENG790	Circuit Design Analysis and Testing [2]	20	Core	2
Level 7	ENG782	Intelligent System Design & Control Engineering [2]	20	Core	2

[1] Modules for BEng (Hons) programmes only.
[2] Modules for MEng programmes only.

Prifysgol Wrecsam
Wrexham University

MEng/BEng (Hons) Renewable and Sustainable Engineering

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery (i.e., semester 1,2)
Level 4	ENG461	Engineering Mathematics	20	Core	1
Level 4	ENG4B1	Introduction to Electrical & Mechanical Engineering Science	20	Core	1
Level 4	ENG4B2	CAD and Production Science	20	Core	1
Level 4	ENG4B3	Engineering Professional Development	20	Core	2
Level 4	ENG4B4	Materials and Environment	20	Core	2
Level 4	ENG4B7	Future Energy Systems & Sustainability	20	Core	2
Level 5	ENG5A4	Engineering Futures – Research, Ethics, and Sustainability	20	Core	1
Level 5	ENG537	Further Engineering Mathematics	20	Core	1
Level 5	ENG5A5	Mechanics, Structures & FEA	20	Core	1
Level 5	ENG565	Electrical Power Engineering	20	Core	2
Level 5	ENG5B2	Wind and Hydro Energy Engineering	20	Core	2
Level 5	ENG5B3	Solar and Biomass Energy Engineering	20	Core	2
Level 6	ENG6AG	Project [1]	40	Core	1, 2
Level 6	ENG6A5	Mechanical Engineering Modelling & Simulation	20	Core	1
Level 6	ENG6B7	Smart grids, storage, and energy mix	20	Core	1
Level 6	ENG6B8	Energy saving, Low carbon and recycling systems	20	Core	1
Level 6	ENG6A8	Professional Engineering [1]	20	Core	2
Level 6	ENG6C4	Industrial Placement and Project [2]	60	Core	2
Level 7	ENG776	Group Design Project [2]	40	Core	1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation [2]	20	Core	1
Level 7	ENG787	Energy Reduction & Sustainability [2]	20	Core	2
Level 7	ENG788	Climate Change, Consequences, Solution & Policies [2]	20	Core	2
Level 7	ENG781	Renewable Technology & Storage Integration Engineering [2]	20	Core	2

[1] Modules for BEng (Hons) programmes only.

[2] Modules for MEng programmes only.

9. Intended learning outcomes of the programme

MEng/BEng (Hons) Aeronautical and Mechanical Engineering

Knowledge and Understanding (MEng/BEng (Hons) Aeronautical and Mechanical Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
A1	Acquire knowledge of mathematics, statistics natural science, and engineering concepts and principles relevant to engineering.	Develop sound application of analytical techniques, and general and specialist engineering knowledge and understanding.	Develop critical analysis of analytical techniques, and the general and specialist engineering knowledge and understand complex engineering systems.	Maintain and extend critical analysis of analytical techniques, and the general and specialist engineering knowledge and critical understanding of complex engineering systems.	Maintain and extend critical analysis of analytical techniques, and the general and specialist engineering knowledge and critical evaluation of complex engineering systems. Much of the knowledge will be at the forefront of the subject of study and informed by a critical awareness of new developments and the wider context of engineering.
A2	Describe current technologies and their uses within engineering.	Explain current and future technologies and develop an awareness of the sustainability implications.	Critically analyse current issues and prospects at the forefront of the discipline.	Critically evaluate current issues and prospects in technology advances in the discipline.	Extend the critical evaluation and analysis of current issues and synthesise prospects at the forefront of the discipline.
A3	Identify and illustrate design processes, explain the applied methodologies, and develop an awareness of the environmental, commercial, economic, and social context of engineering processes, and outline relevant legal requirements governing engineering activities,	Review and evaluate the design process and the applied methodologies. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice and industry standards.	Design solutions for problems with consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice and industry standards.	Design solutions for complex problems that meet a combination of societal, user, business and customer need as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes	Develop technological solutions for complex problems that evidence some originality and meet a combination of societal, user, business and customer need as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal,

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
	including personnel, health & safety.			of practice and industry standards.	environmental, and commercial matters, codes of practice and industry standards.
A4	Describe modern aircraft technologies and identify scientific principles relevant to the advances in modern aircraft.	Explain the scientific principles governing the design and analysis of aircraft structure, dynamics, and control.	Critically analyse modern aircraft design, and knowledge of aerodynamics, flight mechanics, flight stability and control, and structural vibration analysis.	Critically analyse and evaluate modern aircraft design and analysis technologies, and knowledge of aerodynamics, flight mechanics, flight stability and control, and structural vibration analysis.	Maintain and extend comprehensive knowledge and critical application of modern aircraft design and analysis technologies, and an in-depth understanding of aerodynamics, flight mechanics, and flight control.

Intellectual Skills (MEng/BEng (Hons) Aeronautical and Mechanical Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
B1	Identify problems and potential causes and effects.	Identify and analyse problems and use diagnostic methods to recognise causes and achieve satisfactory solutions.	Critically identify and analyse problems and use diagnostic methods to recognise causes and to implement an engineering task to achieve satisfactory solutions.	Identify a project, critically evaluate the requirements of the project, and plan the work and resources needed to enable effective implementation of an engineering task or project with consideration for cost, quality, safety, and environmental impact.	Identify and define project requirements, problems, and opportunities, and plan the work and resources needed to enable effective implementation of a significant engineering task or project, based on a strong application of legal requirements, appropriate ethical conduct and associated risks that may occur and with consideration for cost, quality, safety, and environmental impact.
B2	Apply given tools/ methods to the solution of well-defined problems and begin	Identify the appropriate investigations and apply an integrated or systems	Identify the appropriate investigations and apply an integrated or systems approach to the solution of	Identify the appropriate investigations, apply an integrated or systems approach to the solution of	Identify the appropriate investigations and research needed to undertake the design, development and

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
	to appreciate the complexity of the issues	approach to the solution of broadly defined problems.	broadly defined problems with consideration of budget and resource elements.	complex problems, and manage (organise, direct and control), programme or schedule, budget and resource elements of engineering tasks or projects.	critical analysis required to complete an engineering task and conduct these activities effectively, apply an integrated or systems approach to the solution of complex problems, and manage (organise, direct and control), programme or schedule, budget and resource elements of a significant engineering task or project.
B3	Analyse well-defined problems reaching conclusions. Select and apply appropriate computational and analytical techniques to model well-defined problems.	Analyse broadly defined problems reaching substantiated conclusions. Select and apply appropriate computational and analytical techniques to model broadly defined problems, recognising the limitations of the techniques employed.	Critically analyse broadly defined problems to reach substantiated conclusions. Select and apply appropriate computational and analytical techniques to model broadly defined problems, recognising the limitations of the techniques employed.	Critically analyse and evaluate complex problems to reach substantiated conclusions. Select and apply appropriate computational and analytical techniques to model complex problems, recognising the limitations of the techniques employed.	Formulate and critically analyse complex problems to reach substantiated conclusions. Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed.
B4	Form opinions based upon knowledge and understanding of the subject in question and evaluate the environmental and societal impact of solutions to broadly defined problems.	Present arguments to uphold decisions following an evaluation of a particular subject. Evaluate the environmental and societal impact of solutions to broadly defined problems.	Assess, interpret, and implement decisions following an evaluation of a particular subject. Evaluate the environmental and societal impact of solutions to broadly defined problems.	Assess, interpret, and implement decisions with an awareness of technical, economic, and commercial implications. Critically evaluate the environmental and societal impact of solutions to complex problems and minimise adverse impacts.	Assess, interpret, and implement decisions with a critical awareness of technical, economic, and commercial implications. Critically 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.

Subject Skills (MEng/BEng (Hons) Aeronautical and Mechanical Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
C1	Conduct given laboratory experiments to investigate engineering principles and properties of devices and systems.	Devise laboratory experiments to prove engineering principles and properties of devices and systems.	Conduct and analyse experiments, adapting experimental procedures to novel situations, if necessary, critically analysing experimental data in detail, and drawing conclusions.	Conduct and critically analyse experiments, adapting experimental procedures to novel situations, if necessary, critically analysing experimental data in detail, and drawing comprehensive conclusions.	Use practical laboratory and workshop skills to investigate complex problems. Conduct and critically analyse experiments, adapting experimental procedures to novel situations, if necessary, critically analysing experimental data in detail, and drawing comprehensive conclusions.
C2	Design and construct devices and systems to meet given performance criteria.	Design and construct devices/systems and devise methods of testing to check for given performance criteria.	Design, construct and test devices and systems to meet given performance criteria, including the use of computer-based tools where appropriate.	Design, construct, test and critically evaluate devices and systems to meet given performance criteria, including the use of computer-based tools.	Design, construct, test and critically evaluate devices and systems to meet given performance criteria, including the use of computer-based tools.
C3	Monitor processes or systems and develop an awareness of possible improvements.	Monitor processes or systems, trend processes and make predictions, to bring about continuous improvement.	Extract and evaluate information relating to trends and processes to make predictions, to solve engineering problems.	Critically analyse and evaluate processes, techniques or systems relating to unfamiliar problems with an awareness of quality issues and their application to continuous improvement.	Critically analyse and evaluate processes, techniques or systems relating to complex problems with a critical awareness of quality issues and their application to continuous improvement.
C4	Perform data acquisition and conduct investigation on modern aircraft technology applications.	Conduct structural strength and dynamic stability analyses in a modern aircraft design process.	Systematically plan and carry out aircraft structural, dynamic, stability, and control analysis and design.	Deal with the issues of aircraft structural vibration, dynamic and control design, and analysis systematically and creatively, and make sound engineering judgements.	Deal with the issues of complex and innovative aircraft configuration, structure, dynamic and control design, and analysis systematically and creatively, and make sound engineering judgements.

Practical, Professional and Employability Skills (MEng/BEng (Hons) Aeronautical and Mechanical Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
D1	Propose and plan a self-directed individual programme of investigation.	Plan, undertake and report a self-directed individual programme of investigation and design.	Propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.	Propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.	Synthesise, propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.
D2	Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.
D3	Use oral, written, and electronic methods for the communication of technical and other information.	Use oral, written, and electronic methods for competent communication of technical and other information.	Communicate effectively on complex engineering matters with technical and non-technical audiences.	Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used.	Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used. Identify problems, bias, and recommendations effectively through graphical, written, and verbal forms of communication.
D4	Identify basic information and suitable sources, carry out searches and bring information together in a way that ensures work is accurate, clear, and properly saved.	Plan how to obtain and use required information for the purpose of an activity and use appropriate structures and procedures to explore and develop information.	Use information technology to source information, to prepare reports, to model performance using specialised software packages.	Use information technology competently to source information, to prepare reports, to model performance using specialised software packages.	Use information technology competently - to source information and synthesise solutions, to prepare reports, to model performance using specialised software packages.
D5	Work reliably without close supervision accepting responsibility for tasks undertaken. Use CPD to	Demonstrate the ability to work reliably and effectively without supervision accepting responsibility for	Be able to reflect on own performance and self-management. Plan and record self-learning and	Evaluate and reflect on own performance and self-management. Plan and record self-learning and	Evaluate and reflect on own performance and self-management. Plan and record self-learning and

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
	maintain competence and reflective practice	tasks undertaken. Make effective use of CPD to ensure ongoing competence at the level of future intended practice.	development as the foundation for lifelong learning/CPD.	development as the foundation for lifelong learning/CPD.	development as the foundation for lifelong learning/CPD.
D6	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.	Interpret the role of the engineer as a manager of themselves and of others, ensuring professional and ethical conduct and acting within the legal framework governing engineering activities.	Interpret the role of the engineer as a manager of themselves and of others, ensuring the highest level of professional and ethical conduct and acting within the legal framework governing engineering activities.	Interpret the role of the engineer as a manager of themselves and of others, ensuring the highest level of professional and ethical conduct and acting within the legal framework governing engineering activities.

MEng/BEng (Hons) Automotive Engineering

Knowledge and Understanding (MEng/BEng (Hons) Automotive Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
A1	Acquire knowledge of mathematics, statistics natural science, and engineering concepts and principles relevant to engineering.	Develop sound application of analytical techniques, and general and specialist engineering knowledge and understanding.	Develop critical analysis of analytical techniques, and the general and specialist engineering knowledge and understand complex engineering systems.	Maintain and extend critical analysis of analytical techniques, and the general and specialist engineering knowledge and critical understanding of complex engineering systems.	Maintain and extend critical analysis of analytical techniques, and the general and specialist engineering knowledge and critical evaluation of complex engineering systems. 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.
A2	Describe current technologies and their uses within engineering.	Explain current and future technologies and develop an awareness of the sustainability implications.	Critically analyse current issues and prospects at the forefront of the discipline.	Critically evaluate current issues and prospects in technology advances in the discipline.	Extend the critical evaluation and analysis of current issues and synthesise prospects at the forefront of the discipline.
A3	Identify and illustrate design processes, explain the applied methodologies, and develop an awareness of the environmental, commercial, economic, and social context of engineering processes, and outline relevant legal requirements governing engineering activities, including personnel, health & safety.	Review and evaluate the design process and the applied methodologies. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice and industry standards.	Design solutions for problems with consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice and industry standards.	Design solutions for complex problems that meet a combination of societal, user, business and customer need as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice and industry standards.	Develop technological solutions for complex problems that evidence some originality and meet a combination of societal, user, business and customer need as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
					of practice and industry standards.
A4	Describe different automotive systems, including both traditional car and electrical car, and the knowledge and skills in workshop practices.	Be able to explain key concepts in automotive engineering and specify vehicle performance and automotive engines.	Model automotive powertrains and critically analyse the key indicators of car stability and dynamics.	Critically evaluate automotive engineering and be able to solve complex problems pertaining to them.	Maintain and extend comprehensive analysis and critical evaluation of automotive engineering design, analysis, evaluation, and testing.

Intellectual Skills (MEng/BEng (Hons) Automotive Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
B1	Identify problems and potential causes and effects.	Identify and analyse problems and use diagnostic methods to recognise causes and achieve satisfactory solutions.	Critically identify and analyse problems and use diagnostic methods to recognise causes and to implement an engineering task to achieve satisfactory solutions.	Identify a project, analyse the requirements of the project, and plan the work and resources needed to enable effective implementation of an engineering task or project with consideration for cost, quality, safety, and environmental impact.	Identify and define project requirements, problems, and opportunities, and plan the work and resources needed to enable effective implementation of a significant engineering task or project, based on a strong understanding of legal requirements, appropriate ethical conduct and associated risks that may occur and with consideration for cost, quality, safety, and environmental impact.
B2	Apply given tools/ methods to the solution of well-defined problems and begin to appreciate the complexity of the issues	Identify the appropriate investigations and apply an integrated or systems approach to the solution of broadly defined problems.	Identify the appropriate investigations and apply an integrated or systems approach to the solution of broadly defined problems with consideration of budget and resource elements.	Identify the appropriate investigations, apply an integrated or systems approach to the solution of complex problems, and manage (organise, direct and control), programme or schedule, budget and resource elements of engineering tasks or projects.	Identify the appropriate investigations and research needed to undertake the design, development and critical analysis required to complete an engineering task and conduct these activities effectively, apply an integrated or systems approach to the solution of complex problems, and manage (organise, direct and control), programme or schedule, budget and resource elements of a significant engineering task or project.
B3	Analyse well-defined problems reaching	Analyse broadly defined problems reaching	Critically analyse broadly defined problems to reach	Critically analyse complex problems to reach	Formulate and critically analyse complex problems

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
	conclusions. Select and apply appropriate computational and analytical techniques to model well-defined problems.	substantiated conclusions. Select and apply appropriate computational and analytical techniques to model broadly defined problems, recognising the limitations of the techniques employed.	substantiated conclusions. Select and apply appropriate computational and analytical techniques to model broadly defined problems, recognising the limitations of the techniques employed.	substantiated conclusions. Select and apply appropriate computational and analytical techniques to model complex problems, recognising the limitations of the techniques employed.	to reach substantiated conclusions. Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed.
B4	Form opinions based upon knowledge and understanding of the subject in question and evaluate the environmental and societal impact of solutions to broadly defined problems.	Present arguments to uphold decisions following an evaluation of a particular subject. Evaluate the environmental and societal impact of solutions to broadly defined problems.	Assess, interpret, and implement decisions following an evaluation of a particular subject. Evaluate the environmental and societal impact of solutions to broadly defined problems.	Assess, interpret, and implement decisions with an awareness of technical, economic, and commercial implications. Critically evaluate the environmental and societal impact of solutions to complex problems and minimise adverse impacts.	Assess, interpret, and implement decisions with a critical awareness of technical, economic, and commercial implications. Critically 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.

Subject Skills (MEng/BEng (Hons) Automotive Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
C1	Conduct given laboratory experiments to investigate engineering principles and properties of devices and systems.	Devise laboratory experiments to prove engineering principles and properties of devices and systems.	Conduct and analyse experiments, adapting experimental procedures to novel situations if necessary, critically analysing experimental data in detail, and drawing conclusions.	Conduct and critically analyse experiments, adapting experimental procedures to novel situations, if necessary, critically analysing experimental data in detail, and drawing comprehensive conclusions.	Use practical laboratory and workshop skills to investigate complex problems. Conduct and critically analyse experiments, adapting experimental procedures to novel situations if necessary, critically analysing experimental data in detail, and drawing comprehensive conclusions.
C2	Design and construct devices and systems to meet given performance criteria.	Design and construct devices/systems and devise methods of testing to check for given performance criteria.	Design, construct and test devices and systems to meet given performance criteria, including the use of computer-based tools where appropriate.	Design, construct, test and critically evaluate devices and systems to meet given performance criteria, including the use of computer-based tools.	Design, construct, test and critically evaluate devices and systems to meet given performance criteria, including the use of computer-based tools.
C3	Monitor processes or systems and develop an awareness of possible improvements.	Monitor processes or systems, trend processes and make predictions, to bring about continuous improvement.	Extract and evaluate information relating to trends and processes to make predictions, to solve engineering problems.	Critically analyse and evaluate processes, techniques or systems relating to unfamiliar problems with an awareness of quality issues and their application to continuous improvement.	Critically analyse and evaluate processes, techniques or systems relating to complex problems with a critical awareness of quality issues and their application to continuous improvement.
C4	Be able to describe automotive manufacture and the impact of powertrains on the general design of a vehicle.	Be able to design and implement automotive chassis and powertrains.	Be able to find solutions to an automotive specific field, using various tools and techniques, including numerical simulation.	Be able to deal with the complex evaluation and to find solutions to an automotive specific field, using various tools and techniques, including numerical simulation.	Be able to conduct critical evaluation and to develop comprehensive and innovative solutions to complex automotive engineering problems using various tools and techniques, including numerical simulation.

Practical, Professional and Employability Skills (MEng/BEng (Hons) Automotive Engineering)

	Level 4	Level 5	Level 6	Level 6	Level 7
D1	Propose and plan a self-directed individual programme of investigation.	Plan, undertake and report a self-directed individual programme of investigation and design.	Propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.	Propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.	Synthesise, propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.
D2	Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.
D3	Use oral, written, and electronic methods for the communication of technical and other information.	Use oral, written, and electronic methods for competent communication of technical and other information.	Communicate effectively on complex engineering matters with technical and non-technical audiences.	Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used.	Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used. Identify problems, bias, and recommendations effectively through graphical, written, and verbal forms of communication.
D4	Identify basic information and suitable sources, carry out searches and bring information together in a way that ensures work is accurate, clear, and properly saved.	Plan how to obtain and use required information for the purpose of an activity and use appropriate structures and procedures to explore and develop information.	Use information technology to source information, to prepare reports, to model performance using specialised software packages.	Use information technology competently - to source information, to prepare reports, to model performance using specialised software packages.	Use information technology competently - to source information, to prepare reports, to model performance using specialised software packages.
D5	Work reliably without close supervision accepting responsibility for tasks undertaken. Use CPD to	Demonstrate the ability to work reliably and effectively without supervision accepting responsibility for tasks undertaken. Make	Be able to reflect on own performance and self-management. Plan and record self-learning and development as the	Evaluate and reflect on own performance and self-management. Plan and record self-learning and development as the	Evaluate and reflect on own performance and self-management. Plan and record self-learning and development as the

	Level 4	Level 5	Level 6	Level 6	Level 7
	maintain competence and reflective practice	effective use of CPD to ensure ongoing competence at the level of future intended practice.	foundation for lifelong learning/CPD.	foundation for lifelong learning/CPD.	foundation for lifelong learning/CPD.
D6	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.	Interpret the role of the engineer as a manager of themselves and of others, ensuring professional and ethical conduct and acting within the legal framework governing engineering activities.	Interpret the role of the engineer as a manager of themselves and of others, ensuring the highest level of professional and ethical conduct and acting within the legal framework governing engineering activities.	Interpret the role of the engineer as a manager of themselves and of others, ensuring the highest level of professional and ethical conduct and acting within the legal framework governing engineering activities.

MEng/BEng (Hons) Mechanical Engineering

Knowledge and Understanding (MEng/BEng (Hons) Mechanical Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
A1	Acquire knowledge of mathematics, statistics natural science, and engineering concepts and principles relevant to engineering.	Develop sound application of analytical techniques, and general and specialist engineering knowledge and understanding.	Develop critical analysis of analytical techniques, and the general and specialist engineering knowledge and understand complex engineering systems.	Maintain and extend critical analysis of analytical techniques, and the general and specialist engineering knowledge and critical understanding of complex engineering systems.	Maintain and extend critical analysis of analytical techniques, and the general and specialist engineering knowledge and critical evaluation of complex engineering systems. 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.
A2	Describe current technologies and their uses within engineering.	Explain current and future technologies and develop an awareness of the sustainability implications.	Critically analyse current issues and prospects at the forefront of the discipline.	Critically evaluate current issues and prospects in technology advances in the discipline.	Extend the critical evaluation and analysis of current issues and synthesise prospects at the forefront of the discipline.
A3	Identify and illustrate design processes, explain the applied methodologies, and develop an awareness of the environmental, commercial, economic, and social context of engineering processes, and outline relevant legal requirements governing engineering activities, including personnel, health & safety.	Review and evaluate the design process and the applied methodologies. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice and industry standards.	Design solutions for problems with consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice and industry standards.	Design solutions for complex problems that meet a combination of societal, user, business and customer need as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice and industry standards.	Develop technological solutions for complex problems that evidence some originality and meet a combination of societal, user, business and customer need as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
					of practice and industry standards.
A4	Describe different types of materials and their impact on manufacturing.	Explain materials behaviour in combination with applied machine design.	Critically analyse engineering design in the area of mechanical engineering.	Critically evaluate modern mechanical engineering design, analysis, and testing.	Be able to develop comprehensive analysis and critical evaluation on modern mechanical engineering design, analysis, evaluation, and testing.

Intellectual Skills (MEng/BEng (Hons) Mechanical Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
B1	Identify problems and potential causes and effects.	Identify and analyse problems and use diagnostic methods to recognise causes and achieve satisfactory solutions.	Critically identify and analyse problems and use diagnostic methods to recognise causes and to implement an engineering task to achieve satisfactory solutions.	Identify a project, analyse the requirements of the project, and plan the work and resources needed to enable effective implementation of an engineering task or project with consideration for cost, quality, safety, and environmental impact.	Identify and define project requirements, problems, and opportunities, and plan the work and resources needed to enable effective implementation of a significant engineering task or project, based on a strong understanding of legal requirements, appropriate ethical conduct and associated risks that may occur and with consideration for cost, quality, safety, and environmental impact.
B2	Apply given tools/ methods to the solution of well-defined problems and begin to appreciate the complexity of the issues	Identify the appropriate investigations and apply an integrated or systems approach to the solution of broadly defined problems.	Identify the appropriate investigations and apply an integrated or systems approach to the solution of broadly defined problems with consideration of budget and resource elements.	Identify the appropriate investigations, apply an integrated or systems approach to the solution of complex problems, and manage (organise, direct and control), programme or schedule, budget and resource elements of engineering tasks or projects.	Identify the appropriate investigations and research needed to undertake the design, development and critical analysis required to complete an engineering task and conduct these activities effectively, apply an integrated or systems approach to the solution of complex problems, and manage (organise, direct and control), programme or schedule, budget and resource elements of a significant engineering task or project.
B3	Analyse well-defined problems reaching	Analyse broadly defined problems reaching	Critically analyse broadly defined problems to reach	Critically analyse complex problems to reach	Formulate and critically analyse complex problems

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
	conclusions. Select and apply appropriate computational and analytical techniques to model well-defined problems.	substantiated conclusions. Select and apply appropriate computational and analytical techniques to model broadly defined problems, recognising the limitations of the techniques employed.	substantiated conclusions. Select and apply appropriate computational and analytical techniques to model broadly defined problems, recognising the limitations of the techniques employed.	substantiated conclusions. Select and apply appropriate computational and analytical techniques to model complex problems, recognising the limitations of the techniques employed.	to reach substantiated conclusions. Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed.
B4	Form opinions based upon knowledge and understanding of the subject in question and evaluate the environmental and societal impact of solutions to broadly defined problems.	Present arguments to uphold decisions following an evaluation of a particular subject. Evaluate the environmental and societal impact of solutions to broadly defined problems.	Assess, interpret, and implement decisions following an evaluation of a particular subject. Evaluate the environmental and societal impact of solutions to broadly defined problems.	Assess, interpret, and implement decisions with an awareness of technical, economic, and commercial implications. Critically evaluate the environmental and societal impact of solutions to complex problems and minimise adverse impacts.	Assess, interpret, and implement decisions with a critical awareness of technical, economic, and commercial implications. Critically 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.

Subject Skills (MEng/BEng (Hons) Mechanical Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
C1	Conduct given laboratory experiments to investigate engineering principles and properties of devices and systems.	Devise laboratory experiments to prove engineering principles and properties of devices and systems.	Conduct and analyse experiments, adapting experimental procedures to novel situations if necessary, critically analysing experimental data in detail, and drawing conclusions.	Conduct and critically analyse experiments, adapting experimental procedures to novel situations if necessary, critically analysing experimental data in detail, and drawing comprehensive conclusions.	Use practical laboratory and workshop skills to investigate complex problems. Conduct and critically analyse experiments, adapting experimental procedures to novel situations if necessary, critically analysing experimental data in detail, and drawing comprehensive conclusions.
C2	Design and construct devices and systems to meet given performance criteria.	Design and construct devices/systems and devise methods of testing to check for given performance criteria.	Design, construct and test devices and systems to meet given performance criteria, including the use of computer-based tools where appropriate.	Design, construct, test and critically evaluate devices and systems to meet given performance criteria, including the use of computer-based tools.	Design, construct, test and critically evaluate devices and systems to meet given performance criteria, including the use of computer-based tools.
C3	Monitor processes or systems and develop an awareness of possible improvements.	Monitor processes or systems, trend processes and make predictions, to bring about continuous improvement.	Extract and evaluate information relating to trends and processes to make predictions, to solve engineering problems.	Critically analyse and evaluate processes, techniques or systems relating to unfamiliar problems with an awareness of quality issues and their application to continuous improvement.	Critically analyse and evaluate processes, techniques or systems relating to complex problems with a critical awareness of quality issues and their application to continuous improvement.
C4	Be able to describe the different stages of the design process and will be able to apply these principles to machines and machine components.	Be able to demonstrate skills of effective design, modelling and performance analysing of basic structural systems to machines and machine components.	Be able to analyse mechanical engineering solutions and make sound engineering judgment to solve related problems and/or to develop new design approaches.	Be able to deal with the complex evaluation and find solutions to mechanical engineering problems using various tools and techniques, including numerical simulation.	Be able to conduct critical evaluation and to develop comprehensive solutions to complex mechanical engineering problems using various tools and techniques, including numerical simulation.

Practical, Professional and Employability Skills (MEng/BEng (Hons) Mechanical Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
D1	Propose and plan a self-directed individual programme of investigation.	Plan, undertake and report a self-directed individual programme of investigation and design.	Propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.	Propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.	Synthesise, propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.
D2	Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.
D3	Use oral, written, and electronic methods for the communication of technical and other information.	Use oral, written, and electronic methods for competent communication of technical and other information.	Communicate effectively on complex engineering matters with technical and non-technical audiences.	Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used.	Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used. Identify problems, bias, and recommendations effectively through graphical, written, and verbal forms of communication.
D4	Identify basic information and suitable sources, carry out searches and bring information together in a way that ensures work is accurate, clear, and properly saved.	Plan how to obtain and use required information for the purpose of an activity and use appropriate structures and procedures to explore and develop information.	Use information technology to source information, to prepare reports, to model performance using specialised software packages.	Use information technology competently - to source information, to prepare reports, to model performance using specialised software packages.	Use information technology competently - to source information, to prepare reports, to model performance using specialised software packages.
D5	Work reliably without close supervision accepting responsibility for tasks undertaken. Use CPD to	Demonstrate the ability to work reliably and effectively without supervision accepting responsibility for tasks undertaken. Make	Be able to reflect on own performance and self-management. Plan and record self-learning and development as the	Evaluate and reflect on own performance and self-management. Plan and record self-learning and development as the	Evaluate and reflect on own performance and self-management. Plan and record self-learning and development as the

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
	maintain competence and reflective practice	effective use of CPD to ensure ongoing competence at the level of future intended practice.	foundation for lifelong learning/CPD.	foundation for lifelong learning/CPD.	foundation for lifelong learning/CPD.
D6	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.	Interpret the role of the engineer as a manager of themselves and of others, ensuring professional and ethical conduct and acting within the legal framework governing engineering activities.	Interpret the role of the engineer as a manager of themselves and of others, ensuring the highest level of professional and ethical conduct and acting within the legal framework governing engineering activities.	Interpret the role of the engineer as a manager of themselves and of others, ensuring the highest level of professional and ethical conduct and acting within the legal framework governing engineering activities.

MEng/BEng (Hons) Electrical and Electronic Engineering

Knowledge and Understanding (MEng/BEng (Hons) Electrical and Electronic Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
A1	Acquire knowledge of mathematics, statistics natural science, and engineering concepts and principles relevant to engineering.	Develop sound application of analytical techniques, and general and specialist engineering knowledge and understanding.	Develop critical analysis of analytical techniques, and the general and specialist engineering knowledge and understand complex engineering systems.	Maintain and extend critical analysis of analytical techniques, and the general and specialist engineering knowledge and critical understanding of complex engineering systems.	Maintain and extend critical analysis of analytical techniques, and the general and specialist engineering knowledge and critical evaluation of complex engineering systems. 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.
A2	Describe current technologies and their uses within engineering.	Explain current and future technologies and develop an awareness of the sustainability implications.	Critically analyse current issues and prospects at the forefront of the discipline.	Critically evaluate current issues and prospects in technology advances in the discipline.	Extend the critical evaluation and analysis of current issues and synthesise prospects at the forefront of the discipline.
A3	Identify and illustrate design processes, explain the applied methodologies, and develop an awareness of the environmental, commercial, economic, and social context of engineering processes, and outline relevant legal requirements governing engineering activities, including personnel, health & safety.	Review and evaluate the design process and the applied methodologies. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice and industry standards.	Design solutions for problems with consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice and industry standards.	Design solutions for complex problems that meet a combination of societal, user, business and customer need as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice and industry standards.	Develop technological solutions for complex problems that evidence some originality and meet a combination of societal, user, business and customer need as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
					of practice and industry standards.
A4	Describe different types of electrical and electronic components.	Explain electrical and electronic components in the context of electrical and electronic circuit design.	Critically analyse electrical and electronic engineering in the context of the design, analysis, and testing of electrical and electronic circuits and systems.	Critically evaluate electrical and electronic engineering in the context of the design, analysis, and testing of electrical and electronic circuits and systems.	Be able to develop comprehensive analysis and critical evaluation of electrical and electronic design, analysis, evaluation, and testing in the context of industrial and manufacturing practices.

Intellectual Skills (MEng/BEng (Hons) Electrical and Electronic Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
B1	Identify problems and potential causes and effects.	Identify and analyse problems and use diagnostic methods to recognise causes and achieve satisfactory solutions.	Critically identify and analyse problems and use diagnostic methods to recognise causes and to implement an engineering task to achieve satisfactory solutions.	Identify a project, analyse the requirements of the project, and plan the work and resources needed to enable effective implementation of an engineering task or project with consideration for cost, quality, safety, and environmental impact.	Identify and define project requirements, problems, and opportunities, and plan the work and resources needed to enable effective implementation of a significant engineering task or project, based on a strong understanding of legal requirements, appropriate ethical conduct and associated risks that may occur and with consideration for cost, quality, safety, and environmental impact.
B2	Apply given tools/ methods to the solution of well-defined problems and begin to appreciate the complexity of the issues	Identify the appropriate investigations and apply an integrated or systems approach to the solution of broadly defined problems.	Identify the appropriate investigations and apply an integrated or systems approach to the solution of broadly defined problems with consideration of budget and resource elements.	Identify the appropriate investigations, apply an integrated or systems approach to the solution of complex problems, and manage (organise, direct and control), programme or schedule, budget and resource elements of engineering tasks or projects.	Identify the appropriate investigations and research needed to undertake the design, development and critical analysis required to complete an engineering task and conduct these activities effectively, apply an integrated or systems approach to the solution of complex problems, and manage (organise, direct and control), programme or schedule, budget and resource elements of a significant engineering task or project.
B3	Analyse well-defined problems reaching	Analyse broadly defined problems reaching	Critically analyse broadly defined problems to reach	Critically analyse complex problems to reach	Formulate and critically analyse complex problems

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
	conclusions. Select and apply appropriate computational and analytical techniques to model well-defined problems.	substantiated conclusions. Select and apply appropriate computational and analytical techniques to model broadly defined problems, recognising the limitations of the techniques employed.	substantiated conclusions. Select and apply appropriate computational and analytical techniques to model broadly defined problems, recognising the limitations of the techniques employed.	substantiated conclusions. Select and apply appropriate computational and analytical techniques to model complex problems, recognising the limitations of the techniques employed.	to reach substantiated conclusions. Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed.
B4	Form opinions based upon knowledge and understanding of the subject in question and evaluate the environmental and societal impact of solutions to broadly defined problems.	Present arguments to uphold decisions following an evaluation of a particular subject. Evaluate the environmental and societal impact of solutions to broadly defined problems.	Assess, interpret, and implement decisions following an evaluation of a particular subject. Evaluate the environmental and societal impact of solutions to broadly defined problems.	Assess, interpret, and implement decisions with an awareness of technical, economic, and commercial implications. Critically evaluate the environmental and societal impact of solutions to complex problems and minimise adverse impacts.	Assess, interpret, and implement decisions with a critical awareness of technical, economic, and commercial implications. Critically 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.

Subject Skills (MEng/BEng (Hons) Electrical and Electronic Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
C1	Conduct given laboratory experiments to investigate engineering principles and properties of devices and systems.	Devise laboratory experiments to prove engineering principles and properties of devices and systems.	Conduct and analyse experiments, adapting experimental procedures to novel situations, if necessary, critically analysing experimental data in detail, and drawing conclusions.	Conduct and critically analyse experiments, adapting experimental procedures to novel situations, if necessary, critically analysing experimental data in detail, and drawing comprehensive conclusions.	Use practical laboratory and workshop skills to investigate complex problems. Conduct and critically analyse experiments, adapting experimental procedures to novel situations, if necessary, critically analysing experimental data in detail, and drawing comprehensive conclusions.
C2	Design and construct devices and systems to meet given performance criteria.	Design and construct devices/systems and devise methods of testing to check for given performance criteria.	Design, construct and test devices and systems to meet given performance criteria, including the use of computer-based tools where appropriate.	Design, construct, test and critically evaluate devices and systems to meet given performance criteria, including the use of computer-based tools.	Design, construct, test and critically evaluate devices and systems to meet given performance criteria, including the use of computer-based tools.
C3	Monitor processes or systems and develop an awareness of possible improvements.	Monitor processes or systems, trend processes and make predictions, to bring about continuous improvement.	Extract and evaluate information relating to trends and processes to make predictions, to solve engineering problems.	Critically analyse and evaluate processes, techniques or systems relating to unfamiliar problems with an awareness of quality issues and their application to continuous improvement.	Critically analyse and evaluate processes, techniques or systems relating to complex problems with a critical awareness of quality issues and their application to continuous improvement.
C4	Be able to describe the different stages of the design process and will be able to apply these principles to electrical and electronic components.	Be able to demonstrate skills of effective design, modelling and performance analysing of basic electrical and electronic machines and components.	Be able to analyse solutions to electrical and electronic engineering problems using various tools and techniques, including numerical simulation.	Be able to deal with the complex evaluation and find solutions to electrical and electronic engineering problems using various tools and techniques, including numerical simulation.	Be able to conduct critical evaluation and to develop comprehensive solutions to complex electrical and electronic engineering problems using various tools and techniques, including numerical simulation.

Practical, Professional and Employability Skills (MEng/BEng (Hons) Electrical and Electronic Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
D1	Propose and plan a self-directed individual programme of investigation.	Plan, undertake and report a self-directed individual programme of investigation and design.	Propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.	Propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.	Synthesise, propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.
D2	Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.
D3	Use oral, written, and electronic methods for the communication of technical and other information.	Use oral, written, and electronic methods for competent communication of technical and other information.	Communicate effectively on complex engineering matters with technical and non-technical audiences.	Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used.	Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used. Identify problems, bias, and recommendations effectively through graphical, written, and verbal forms of communication.
D4	Identify basic information and suitable sources, carry out searches and bring information together in a way that ensures work is accurate, clear, and properly saved.	Plan how to obtain and use required information for the purpose of an activity and use appropriate structures and procedures to explore and develop information.	Use information technology to source information, to prepare reports, to model performance using specialised software packages.	Use information technology competently - to source information, to prepare reports, to model performance using specialised software packages.	Use information technology competently - to source information, to prepare reports, to model performance using specialised software packages.
D5	Work reliably without close supervision accepting responsibility for tasks undertaken. Use CPD to	Demonstrate the ability to work reliably and effectively without supervision accepting responsibility for	Be able to reflect on own performance and self-management. Plan and record self-learning and	Evaluate and reflect on own performance and self-management. Plan and record self-learning and	Evaluate and reflect on own performance and self-management. Plan and record self-learning and

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
	maintain competence and reflective practice	tasks undertaken. Make effective use of CPD to ensure ongoing competence at the level of future intended practice.	development as the foundation for lifelong learning/CPD.	development as the foundation for lifelong learning/CPD.	development as the foundation for lifelong learning/CPD.
D6	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.	Interpret the role of the engineer as a manager of themselves and of others, ensuring professional and ethical conduct and acting within the legal framework governing engineering activities.	Interpret the role of the engineer as a manager of themselves and of others, ensuring the highest level of professional and ethical conduct and acting within the legal framework governing engineering activities.	Interpret the role of the engineer as a manager of themselves and of others, ensuring the highest level of professional and ethical conduct and acting within the legal framework governing engineering activities.

MEng/BEng (Hons) Renewable and Sustainable Engineering

Knowledge and Understanding (MEng/BEng (Hons) Renewable and Sustainable Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
A1	Acquire knowledge of mathematics, statistics natural science, and engineering concepts and principles relevant to engineering.	Develop sound application of analytical techniques, and general and specialist engineering knowledge and understanding.	Develop critical analysis of analytical techniques, and the general and specialist engineering knowledge and understand complex engineering systems.	Maintain and extend critical analysis of analytical techniques, and the general and specialist engineering knowledge and critical understanding of complex engineering systems.	Maintain and extend critical analysis of analytical techniques, and the general and specialist engineering knowledge and critical evaluation of complex engineering systems. 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.
A2	Describe current technologies and their uses within engineering.	Explain current and future technologies and develop an awareness of the sustainability implications.	Critically analyse current issues and prospects at the forefront of the discipline.	Critically evaluate current issues and prospects in technology advances in the discipline.	Extend the critical evaluation and analysis of current issues and synthesise prospects at the forefront of the discipline.
A3	Identify and illustrate design processes, explain the applied methodologies, and develop an awareness of the environmental, commercial, economic, and social context of engineering processes, and outline relevant legal requirements governing engineering activities, including personnel, health & safety.	Review and evaluate the design process and the applied methodologies. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice and industry standards.	Design solutions for problems with consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice and industry standards.	Design solutions for complex problems that meet a combination of societal, user, business and customer need as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice and industry standards.	Develop technological solutions for complex problems that evidence some originality and meet a combination of societal, user, business and customer need as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
					of practice and industry standards.
A4	Describe factors and issues of energy production, and to demonstrate an understanding of the social, economic, and environmental issues surrounding sustainability and energy security.	Explain key concepts in renewable energy, and to design and specify renewable energy schemes predicting energy output with sound judgment considering the environmental, economic, and social consequences.	Critically analyse renewable energies and strategies to solve problems pertaining to them.	Critically evaluate renewable energies and strategies to solve complex problems pertaining to them and to analyse and critically apprise current and emerging technologies.	Maintain and extend comprehensive analysis and critical evaluation of renewable energies and strategies to solve complex problems pertaining to them and to analyse and critically apprise current and emerging technologies.

Intellectual Skills (MEng/BEng (Hons) Renewable and Sustainable Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
B1	Identify problems and potential causes and effects.	Identify and analyse problems and use diagnostic methods to recognise causes and achieve satisfactory solutions.	Critically identify and analyse problems and use diagnostic methods to recognise causes and to implement an engineering task to achieve satisfactory solutions.	Identify a project, analyse the requirements of the project, and plan the work and resources needed to enable effective implementation of an engineering task or project with consideration for cost, quality, safety, and environmental impact.	Identify and define project requirements, problems, and opportunities, and plan the work and resources needed to enable effective implementation of a significant engineering task or project, based on a strong understanding of legal requirements, appropriate ethical conduct and associated risks that may occur and with consideration for cost, quality, safety, and environmental impact.
B2	Apply given tools/ methods to the solution of well-defined problems and begin to appreciate the complexity of the issues	Identify the appropriate investigations and apply an integrated or systems approach to the solution of broadly defined problems.	Identify the appropriate investigations and apply an integrated or systems approach to the solution of broadly defined problems with consideration of budget and resource elements.	Identify the appropriate investigations, apply an integrated or systems approach to the solution of complex problems, and manage (organise, direct and control), programme or schedule, budget and resource elements of engineering tasks or projects.	Identify the appropriate investigations and research needed to undertake the design, development and critical analysis required to complete an engineering task and conduct these activities effectively, apply an integrated or systems approach to the solution of complex problems, and manage (organise, direct and control), programme or schedule, budget and resource elements of a significant engineering task or project.

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
B3	Analyse well-defined problems reaching conclusions. Select and apply appropriate computational and analytical techniques to model well-defined problems.	Analyse broadly defined problems reaching substantiated conclusions. Select and apply appropriate computational and analytical techniques to model broadly defined problems, recognising the limitations of the techniques employed.	Critically analyse broadly defined problems to reach substantiated conclusions. Select and apply appropriate computational and analytical techniques to model broadly defined problems, recognising the limitations of the techniques employed.	Critically analyse complex problems to reach substantiated conclusions. Select and apply appropriate computational and analytical techniques to model complex problems, recognising the limitations of the techniques employed.	Formulate and critically analyse complex problems to reach substantiated conclusions. Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed.
B4	Form opinions based upon knowledge and understanding of the subject in question and evaluate the environmental and societal impact of solutions to broadly defined problems.	Present arguments to uphold decisions following an evaluation of a particular subject. Evaluate the environmental and societal impact of solutions to broadly defined problems.	Assess, interpret, and implement decisions following an evaluation of a particular subject. Evaluate the environmental and societal impact of solutions to broadly defined problems.	Assess, interpret, and implement decisions with an awareness of technical, economic, and commercial implications. Critically evaluate the environmental and societal impact of solutions to complex problems and minimise adverse impacts.	Assess, interpret, and implement decisions with a critical awareness of technical, economic, and commercial implications. Critically 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.

Subject Skills (MEng/BEng (Hons) Renewable and Sustainable Engineering)

	Level 4	Level 5	Level 6	Level 6 Hons)	Level 7
C1	Conduct given laboratory experiments to investigate engineering principles and properties of devices and systems.	Devise laboratory experiments to prove engineering principles and properties of devices and systems.	Conduct and analyse experiments, adapting experimental procedures to novel situations, if necessary, critically analysing experimental data in detail, and drawing conclusions.	Conduct and critically analyse experiments, adapting experimental procedures to novel situations, if necessary, critically analysing experimental data in detail, and drawing comprehensive conclusions.	Use practical laboratory and workshop skills to investigate complex problems. Conduct and critically analyse experiments, adapting experimental procedures to novel situations, if necessary, critically analysing experimental data in detail, and drawing comprehensive conclusions.
C2	Design and construct devices and systems to meet given performance criteria.	Design and construct devices/systems and devise methods of testing to check for given performance criteria.	Design, construct and test devices and systems to meet given performance criteria, including the use of computer-based tools where appropriate.	Design, construct, test and critically evaluate devices and systems to meet given performance criteria, including the use of computer-based tools.	Design, construct, test and critically evaluate devices and systems to meet given performance criteria, including the use of computer-based tools.
C3	Monitor processes or systems and develop an awareness of possible improvements.	Monitor processes or systems, trend processes and make predictions, to bring about continuous improvement.	Extract and evaluate information relating to trends and processes to make predictions, to solve engineering problems.	Critically analyse and evaluate processes, techniques or systems relating to unfamiliar problems with an awareness of quality issues and their application to continuous improvement.	Critically analyse and evaluate processes, techniques or systems relating to complex problems with a critical awareness of quality issues and their application to continuous improvement.
C4	Be able to describe climate change and the way humans contribute to it with the use of fossil fuels, how various current energy systems work and the need for effective energy storage and carbon free solutions.	Be able to deal with renewable energy scheme designs and feasibility studies, making sound engineering judgements.	Be able to analyse and creatively deal with renewable energy scheme designs and feasibility studies systematically, making sound engineering judgements on energy	Be able to critically analyse climate change and the way humans contribute to it with the use of fossil fuels, and to analyse how various current energy systems work and the need for	Be able to demonstrate comprehensive knowledge and a critical evaluation of climate change and the way humans contribute to it with the use of fossil fuels, to analyse how various current energy systems work and

	Level 4	Level 5	Level 6	Level 6 Hons)	Level 7
			storage and carbon free solutions.	effective energy storage and carbon free solutions.	the need for effective energy storage and carbon free solutions, and to conduct critical evaluation and to develop comprehensive solutions to sustainable energy systems.

Practical, Professional and Employability Skills (MEng/BEng (Hons) Renewable and Sustainable Engineering)

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
D1	Propose and plan a self-directed individual programme of investigation.	Plan, undertake and report a self-directed individual programme of investigation and design.	Propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.	Propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.	Synthesise, propose, plan, undertake and report a self-directed individual programme of investigation, design, and implementation.
D2	Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.	Use a risk management process to identify, critically evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.
D3	Use oral, written, and electronic methods for the communication of technical and other information.	Use oral, written, and electronic methods for competent communication of technical and other information.	Communicate effectively on complex engineering matters with technical and non-technical audiences.	Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used.	Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used. Identify problems, bias, and recommendations effectively through graphical, written, and verbal forms of communication.
D4	Identify basic information and suitable sources, carry out searches and bring information together in a way that ensures work is accurate, clear, and properly saved.	Plan how to obtain and use required information for the purpose of an activity and use appropriate structures and procedures to explore and develop information.	Use information technology to source information, to prepare reports, to model performance using specialised software packages.	Use information technology competently - to source information, to prepare reports, to model performance using specialised software packages.	Use information technology competently - to source information, to prepare reports, to model performance using specialised software packages.
D5	Work reliably without close supervision accepting responsibility for tasks undertaken. Use CPD to	Demonstrate the ability to work reliably and effectively without supervision accepting responsibility for tasks undertaken. Make	Be able to reflect on own performance and self-management. Plan and record self-learning and development as the	Evaluate and reflect on own performance and self-management. Plan and record self-learning and development as the	Evaluate and reflect on own performance and self-management. Plan and record self-learning and development as the

	Level 4	Level 5	Level 6	Level 6 (Hons)	Level 7
	maintain competence and reflective practice	effective use of CPD to ensure ongoing competence at the level of future intended practice.	foundation for lifelong learning/CPD.	foundation for lifelong learning/CPD.	foundation for lifelong learning/CPD.
D6	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.	Interpret the role of the engineer as a manager of themselves and of others, ensuring professional and ethical conduct and acting within the legal framework governing engineering activities.	Interpret the role of the engineer as a manager of themselves and of others, ensuring the highest level of professional and ethical conduct and acting within the legal framework governing engineering activities.	Interpret the role of the engineer as a manager of themselves and of others, ensuring the highest level of professional and ethical conduct and acting within the legal framework governing engineering activities.

10. Learning and teaching strategy

The MEng/BEng Engineering provisions have shared and subject specific modules, allowing students to collaborate, engage, and explore their respective chosen programme. The philosophy of the programme reflects and develops the University's strategic mission and aims. The learning and teaching strategy for the programmes accords fully with Glyndŵr University's Active Learning Framework (ALF) and Strategy for Supporting Student Learning and Achievement (SSSLA) and has been informed by the QAA Subject Benchmark statement for Engineering (2019).

The modules are taught through a combination of lectures, seminars, and workshops. An active and inclusive approach is used to engage learners in the topics and will involve individual, group work and flipped learning experiences aligned to the university's Active Learning Framework (ALF). The approach offers students a flexible and adaptive learning experience that can accommodate a range of options that includes both on campus learning and digital resources and mechanisms as a learning blend, as appropriate. This may include synchronous and asynchronous learning.

The Moodle VLE and other on-line materials and resources will be available to support learning. ALF offers a balance between the classroom elements and digitally enabled activity incorporating flexible and accessible resources and flexible and accessible feedback to support learning.

The approach taken towards teaching and learning is based on ALF of learning designed to enable and maximise the abilities of the students to work in a wide variety of fields and disciplines within engineering. Thus, they are enabled to become independent, autonomous, and reflective whilst also developing collaborative, strategic and professional capacities. They will develop and demonstrate critical analytical skills and problem-solving capabilities and the ability to be creative, proactive, and innovative. To this end, a variety of teaching and learning methods will be provided.

The team recognises that the learning and teaching strategy should reflect the different requirements of the students. To achieve this the team have agreed the following strategy:

1 To ensure that the teaching methods adopted for classroom and related activity are planned to ensure that tutors use a range of examples, reflecting the diversity of experiences when explaining the application of theory to practice.
2 To ensure that group discussions, case study / problem solving activity relate to and reflect the various aspects of practice represented within the classroom.
3 Where guest lecturers are used, they will be briefed by the module tutor to ensure that they are aware of the student profile and that the proposed presentation / lecture accommodates this.
4 Students will be supported by tutorial discussions between the tutor and students to ensure that the proposed learning reflects the practice needs of the students.
5 To ensure that the assessment strategy and methods of assessment are sufficiently flexible to enable students to apply and demonstrate their learning in a context which is relevant to them.

The learning and teaching methods adopted reflect the QAA descriptors in the following ways:

1 Lectures are used to impart key information and show case new ways of working which will enable students to develop a sound understanding of the principles of their field of study as well as identifying new ways of working.

2 Case studies, role plays, and group working will be used to facilitate application of the principles more widely. They will also be used to prompt discussion and practise problem solving skills. This will also allow students to evaluate the appropriateness of different approaches to solving problems.
3 The use of portfolios facilitates reflection on the qualities necessary for employment, requiring the exercise of personal responsibility and decision making. Additionally, they will allow students to identify the limits of their knowledge and skills and identify strategies for development.
4 Assessments are used to facilitate learning as well as providing an indication of student achievement.

The programme team has developed a strategic approach to delivering learning and teaching which meets the needs of the student group, enables skills development, allows for the practical application of knowledge, and encourages students to become reflective practitioners. The balance between face-to-face lectures and directed study is detailed within the module specifications. Students will be encouraged, through classroom activities and assessments, to reflect on both their own and organisational behaviour to improve their performance as well as giving them the knowledge and confidence to contribute towards the development of their organisational performance.

Knowledge and Understanding: Acquisition of knowledge is by means of lectures, practical and laboratory-based exercises, investigative exercises involving searching of various sources, directed reading and further reading. Pre-written notes will have a role in supporting these activities. Understanding is developed through tutorials, discussion, evaluation exercises and individual exercise sheets.

Intellectual Skills: These skills are developed by the students undertaking individual activities, within tutorials and practical sessions, or by being required to contribute to group activities. In each case, throughout the course a range of problems are set requiring the student to carry out information searches, analysis, design formulation, synthesis, test definition, modelling (software based), methodology or by calculation. Reflective self-evaluation forms part of this. Critical evaluation is encouraged via debate and discussion in the tutorials.

Intellectual Skills: Intellectual skills include communication skills, ability to work in a group or on one’s own, management of time, use of computers and other technology, the application of calculations (the discipline of regularly attending and contributing to classes exercises the transferable skills of self-management and time management). Each module specification provides examples of transferable skills covered within its learning outcomes. Beyond this most modules require performance in several skill areas including self-management, communication, and use of computer packages. All of these are monitored by the module tutors and feedback given.

Practical, Professional and Employability Skills: These skills are developed by student to conduct their analysis, synthesis, evaluation, and problem in their programme module studies. The active learning processes in their assignments or projects, group-learning activity are designed to practice and enhance their skills.

VLE (Virtual Learning Environment)
Extensive use is made of Wrexham University’s VLE, Moodle, to enhance the learning experience. Moodle is used by staff to provide information about the courses and individual modules, and as a repository of lecture notes and links to other sources of information. It can also be used for interactive activities such as quizzes and exercises.

11. The University Skills Framework

At Wrexham University we aim to help students develop and enhance key employability skills and capabilities during their study. There are three key areas with different attributes, attitudes and skillsets and the aim is to help students to have the opportunity to enhance and develop skills such as resilience, adaptability, confidence, team working, emotional intelligence and communication, creativity and acting ethically and sustainably. Programmes are designed to enable students to develop and enhance these skills via module content, module learning outcomes and assessment opportunities. Each module will help provide different opportunities for developing and enhancing these capabilities, referred to as the University Skills Framework.

The Careers team are available to provide information, advice and guidance and access to resources for potential students, current students, and graduates. WGUConnect provides students with access to an online directory of vacancies.

The Careers team can support students with employability and interview skills such as use of the STAR (Situation, Task, Action, Result) technique that many recruiters use to gather relevant information about a specific capability that the job requires.

12. Work based/placement learning statement

BEng route

For those students studying the BEng route only, work based/placement learning is featured in the optional placement year that takes place at the end of level 5. There will be specific support for any BEng students taking the placement year, including a robust reporting system. The full details of the placement process are explained in the placement handbook. Students are expected to find and secure a suitable placement opportunity. This could be done independently or in collaboration with a member of staff at the University or in partnership with the WRL unit.

During the Placement, we ask that the student be assigned a Mentor, to support them while on placement. This person should be a member of staff with whom the student is likely to have daily contact. The role of the Mentor is to act as a critical friend who will be able to provide general guidance, advice, and support for the student with the achievement of the placement-based tasks.

A Placement Supervisor from the University will maintain contact with the setting and visit the student once during the placement. Where appropriate, the monitoring visit may be carried out remotely. The Placement Supervisor will also be there to support each student.

The Industrial Placement will normally take place during the academic year (October to May), as if over the two normal University semesters. As such its duration should normally be in the region of 24 weeks, no less than 20 weeks, and no more than 28 weeks.

Students returning from placement to their level 6 (final year) will be invited to take part in the Engineering (re)Freshers' Week activities that will be held in the first week of each new academic year following the end of the placement. This will give returning students an opportunity to meet their new peer groups and to become familiar with any changes to University processes or practice that may have occurred whilst they were on placement.

MEng route

Work based/placement learning for MEng is integrated in the Industrial Placement and Project module, which is an integral component of the integrated MEng degree programmes. It will normally be for 16 weeks (including statutory holiday), commencing February to May.

Although it will be the student responsibility to find their own placement, the University via its Work Related Learning unit will offer significant help and support. It is anticipated that a placement officer will be appointed to be in regular contact with both students and companies/organisations.

The search for student's placement for the Industrial Placement and Project will commence at the end of Level 5 for arrangements to be established in October. By beginning of December, students will visit their intended placement with the Module Leader or their Academic Supervisor and the Placement Officer to devise the project outline. The objectives of the work to be undertaken by the student will be discussed and agreed with the employer (or work placement provider), the student and the Industrial Placement and Project Module Leader/Academic Supervisor to ensure that the work to be undertaken by the student is both of value to the employer and meets the requirements of the module learning outcomes.

The objectives (learning outcomes), and the means of the student achieving them, will be articulated, and formalised through a Learning Agreement agreed and signed by all stakeholders. Hence, the Module Leader/Academic Supervisor will arrange a meeting with the employer/ Industrial Supervisor and the student to discuss and agree the following which will be monitored on a regular basis throughout the period of the student's placement.

- How the Industrial Placement and Project module operates.
- How the placement provider will ensure that the student will have access to a working environment that enables them to confirm knowledge, develop skills and demonstrate competence to achieve the module learning outcomes.
- How the student will evidence appropriate work.
- The role and responsibility of the module leader in supporting the student and liaising with the employer.
- The role and responsibility of the employer/ Industrial Supervisor in supporting the student at work.
- The role and responsibility of the student in terms of achieving academic objectives and conducting themselves professionally at work.

The employer/ Industrial Supervisor's professional profile will be assessed by the Module Leader to ensure their experience is appropriate to support the student. Separate placement handbooks for employers/ Industrial Supervisor and students will be provided. Additionally, the employer/ Industrial Supervisor will be briefed by the Module Leader on the programme requirements so they will be fully prepared to provide support and guidance to the student.

During the Industrial Placement and Project, the Academic Supervisor will maintain contact with the student and the employer/ Industrial Supervisor on an on-going basis according to the individual requirements of both either in person, by telephone, by e-mail, or by video conferencing. Irrespective of the amount of informal contact already made during the placement at least three formal meetings will be arranged to enable the Module Leader/Academic Supervisor along with the Placement Officer to discuss the student's progress with the employer/ Industrial Supervisor and student both on an individual and joint basis. Items for discussion at these meetings will include, but not be limited to:

- Student's progress towards previously identified objectives.
- Any additional support needs of the employer or student.
- Student's ability to apply new knowledge and skills.

- Actual benefit to the student and employer of the application of new knowledge and skills.
- Application of practical, professional and employability skills demonstrated by the student.
- Student and employer module-related documentation.

Upon completion of placement the Module Leader will be responsible for marking the assessments with contributions from the employer and will undertake a formal review of the placement with the student making use of the employer/ Industrial Supervisor feedback material. This formal review will discuss, but not be restricted to:

- Success in terms of meeting identified objectives.
- Enabling or limiting factors affecting achievement of objectives.
- Ability to apply new learning and skills at work.
- Ability to apply practical, professional and employability skills.
- Individual reflection leading to identification and definition of academic and vocational progress.

The Module Leader will be responsible for ensuring parity of student experience within the individual placement through reviewing all Learning Agreements.

In exceptional circumstances where the Industrial Placement and Project has been terminated at no fault of the student, it will continue at Glyndŵr University as a simulated work-based project.

13. Welsh medium provision

Students are entitled to submit assessments in the medium of Welsh. When a student elects to submit the assessment in the Welsh language, the Coleg Cymraeg Cenedlaethol can support the team with additional resources and external subject specific assessors. In addition, Welsh language personal tutorials can be made available for students and Welsh students can seek Welsh language placements in a work-based setting.

14. Assessment strategy

The programme team are committed to delivering an assessment strategy which is in line with SSSLA and ALF and reflects the requirements of the QAA Subject Benchmark Statement Engineering (2019).

A wide range of assessment methods have been adopted in the programmes to meet diverse learning styles and enable the students to meet modular and programme requirements, through either individual or group assessment, and students will be informed as to whether assessment is of a diagnostic, formative, or summative nature. The assessment methods used reflect the needs of the student group and allows for the knowledge and learning outcomes of the programme to be tested as well as allowing for the development and assessment of practical and transferable skills.

There is a commitment to enable students to focus on their own learning needs and to use assessment as a means for evaluating their own practice.

Professional body requirements have been integrated into module assessment to foster developmental progression on the programmes, with cognisance paid to how these assessments may impact upon the student's final grade achievement.

Where assessed group work is undertaken, students will be expected, through the production of meeting notes and action plans, to demonstrate that they have contributed equally to the task. This element of personal contribution will determine the individual's overall module assessment. i.e., not all students within a group should expect the same mark.

With respect to exams, to meet the criteria for accreditation, AHEP4 mapping and to measure learning outcomes, exams are designed so that all answers must be answered, rather than providing a choice.

Knowledge and Understanding
Assessment of Knowledge and Understanding in engineering modules is principally by means of unseen examinations at Levels 5 6, and 7, although experimentation with novel assessment methods such as portfolio preparation and presentation are being introduced. Many modules use 'in-class test' assessment involving practical work or written investigative assignments.

Intellectual Skills
Small-scale and highly specific problems are tested by means of an unseen examination component, particularly prevalent in the mathematical and analytical modules. In many modules, particularly in the Project (Honours) (L6), Industrial Placement and Project (L6), and Group Design Project (L7) modules, larger scale design exercises are set and assessed by means of a report reflecting on the activity carried out.

Practical Skills
Assessment of practical skills is covered entirely within practical exercises and the associated reporting, particularly project-based modules. In these modules, practical demonstrations are required as part of a presentation.

Grading
Assessment will be graded using the suggested criteria grid detailed in line with SSSLA, the criteria will be contextualised for each assessment. All work will be assessed by tutors at Glyndŵr University. Students will receive written feedback within the target times set out by Glyndŵr University.

Plagiarism
Where practicable, Turnitin will be used a tool to support students to develop their academic writing style as well as to detect plagiarism or collaboration.

Double Marking and Moderation
All module assessments will be internally verified with a sample being moderated by the external examiner in accordance with Glyndŵr University's Regulatory Requirements.

Extenuating Circumstances and Deadlines for Submission
Students will be informed of the penalties which apply for non-submission. Students will be made aware of the procedure relating to extenuating circumstances and will be encouraged to work closely with their tutors should they require support and guidance on this matter.

Feedback to students
Feedback, both formal and informal is given to students throughout the programme. Feedback may be verbal, given during tutorials or lab exercises, where both student and lecturer can identify problems and steps can be taken to improve future work. Feedback is presented as part of a continuous assessment plan, such as the development of a portfolio; this may be verbal or written feedback, or it may be formal written feedback, as in the case of assignment marking with comments.

It should be noted that much of the feedback, not only identifies problems along with suitable guidance, but also highlights the student's achievements. This approach usually works better than simply "must try harder."

In some cases, 'progressive feedback' is the most suitable approach, particularly when there are many problems with an individual student's work. i.e., do not try to mend everything all at once, as this can lead to the student becoming demoralised, but rather work on the most important aspects first, whilst introducing other improvements later.

Assessment Methods
Formative assessment is essential to learning in its aim is to give appropriate and timely feedback to students on their learning, and to help them to improve their future work. Assessment methods will be appropriate for the outcome being assessed. In addition to formal examination, some other forms of the assessments are used.

In-Class Tests
In-class tests will comprise distinct types of 'unseen' assessment, such as an 'unseen' paper, or Moodle quiz/questions sat in a controlled environment. An exception to the unseen element is when a case study is required for reference. In-class tests will take place in an appropriate time after the corresponding module contents have been delivered.

Indicative feedback of results will be provided to students within three weeks of the submission date. Official results will be provided in the form of a transcript after assessment boards have been convened.

Assignment
This is a single task given to the student in the form of a 'brief' defining the assignment requirements at or near the beginning of the module. This may require the student to carry out investigations and literature searches in their own time and under their own initiative or it may require independent problem solving based on work covered in the lectures/tutorials. The work is normally required in the form of a formal report submitted by a given deadline. Sometimes a presentation, either individually or as a group forms part of the assessment.

Portfolio
This is a term referring to a collection of small, and diverse, exercises whose individual marks are brought together in a single folder to form a single in-course mark. Examples are where a series of laboratory exercises form part of the module. Feedback is given after each exercise (called formative assessment) so that a student is aware of progress made on an on-going basis.

Course work
For some modules, a course work for case study might be the most appropriate form of assessment whereby the student would investigate a particular scenario, software programme or an instrumentation system. They would analyse the 'subject' and convey their critical opinions; this could be verbally (oral presentation) or a short report. Frequently the student is given three or four scenarios to consider simultaneously, thereby enabling comparison of advantages and disadvantages.

Module code & title	Assessment type and weighting	Indicative submission date
Level 4 Modules		
Engineering Mathematics	50% In-class Test 50% In-class Test	Wk 7, Sem 1 Wk 12, Sem 1

Module code & title	Assessment type and weighting	Indicative submission date
Introduction to Electrical & Mechanical Engineering Science	100% Portfolio	Wk 11, Sem 1
CAD and Production Science	100% Portfolio	Wk 11, Sem 1
Engineering Professional Development	100% Portfolio	Wk 11, Sem 2
Materials and Environment	50% In-class Test 50% Written Assignment	Wk 7, Sem 2 Wk 11, Sem 2
Modern Aircraft Technology	100% Portfolio	Wk 11, Sem 2
Automotive Systems	100% Portfolio	Wk 11, Sem 2
Mechanical Systems	100% Portfolio	Wk 11, Sem 2
Future Energy Systems & Sustainability	50% Exam 50% Coursework	Wk 11, Sem 2
Analogue and Digital Electronics	100% Portfolio	Wk 11, Sem 2
COM474 Programming Fundamentals	50% Coursework 50% Coursework	Wk 7, Sem 2 Wk 11, Sem 2
Level 5 Modules		
Engineering Futures – Research, Ethics, and Sustainability	100% Portfolio	Wk 11, Sem 1
Further Engineering Mathematics	50% In-class Test 50% In-class Test	Wk 7, Sem 1 Wk 12, Sem 1
Mechanics, Structures & FEA	50% Exam 50% Coursework	Wk 7, Sem 1 Wk 11, Sem 1
Computer Aided Manufacturing	100% Portfolio	Wk 11, Sem 2
Flight Mechanics, Avionics and Control	50% Written Assignment 50% Exam	Wk 7, Sem 2 Wk 12, Sem 2
Thermo-fluids and Propulsion	30% Coursework 70% Exam	Wk7, Sem2 Wk 12, Sem 2
Automotive Powertrains & Fluids	100% Exam	Wk 12, Sem 2
Fluid Mechanics and Thermodynamics	30% Coursework 70% Exam	Wk7, Sem2 Wk 12, Sem 2
Automotive Design	60% Portfolio 40% Presentation	Wk 11, Sem 2
Machine Design and Manufacturing	100% Portfolio	Wk 11, Sem 2
Wind and Hydro Energy Engineering	100% Coursework	Wk 11, Sem 2
Solar and Biomass Energy Engineering	100% Coursework	Wk 11, Sem 2
Intelligent Control System Design	100% Portfolio	Wk 12, Sem 1
Electrical Power Engineering	50% Portfolio 50% Exam	Wk 7, Sem 2 Wk 12, Sem 2
Industrial Automations & PLCs	100% Portfolio	Wk 12, Sem 2
Embedded Systems	100% Portfolio	Wk 11, Sem 2
Level 6 Modules		
Project	80% Written Assignment 20% Presentation	Wk 11, Sem 2

Module code & title	Assessment type and weighting	Indicative submission date
Mechanical Engineering Modelling & Simulation	100% Coursework	Wk 11, Sem 1
Electrical and Electronic Engineering Modelling & Simulation	100% Coursework	Wk 11, Sem 1
Aerodynamics	50% Written Assignment 50% Exam	Wk 7, Sem 1 Wk 12, Sem 1
Aircraft Design & Flight Stability	50% Written Assignment 50% Exam	Wk 7, Sem 1 Wk 12, Sem 1
Professional Engineering	60% Group report 40% Portfolio	Wk 11, Sem 2 Wk 12, Sem2
Industrial Placement and Project	100% Project	Wk11, Sem 2
Automotive Dynamics	100% Written Assignment	Wk 11, Sem 1
Modern Automotive Powertrains	100% Exam	Wk 12, Sem 1
Machine and Production Systems	50% Case Study 50% Exam	Wk 7, Sem 1 Wk 12, Sem 1
Advanced Engineering Design and Manufacturing	100% Written Assignment	Wk 12, Sem 1
Manufacturing Systems and Sustainable Engineering	50% Coursework 50% Exam	Wk 7, Sem 2 Wk 12, Sem 2
Smart Grids, Storage, and Energy Mix	100% Exam	Wk 12, Sem 1
Energy Saving, Low Carbon and Recycling Systems	100% Portfolio	Wk 11, Sem 1
Power Electronics and Electrical Machines	50% Exam 50% Portfolio	Wk 12, Sem 1 Wk7, Sem1
Electronic Design and Testing	100% Exam	Wk 12, Sem 1
Digital Signal Processing	100% Portfolio	Wk 12, Sem 1
Level 7 Modules		
Group Design Project	100% Group Project	Wk 12, Sem 1
Mechanical or Electrical & Electronic Engineering Systems Modelling & Simulation	100%Coursework	Wk 12, Sem 1
Applied Aerodynamics	100% Coursework	Wk 12, Sem 2
Advanced Flight Mechanics & Control	100% Exam	Wk 12, Sem 2
Renewable Technology & Storage Integration Engineering	100%Coursework	Wk 12, Sem 1
Intelligent System Design & Control Engineering	100%Portfolio	Wk 12, Sem 1
Design with Composites-Theory & Practice	100%Coursework	Wk 12, Sem 1
Modern & Innovative Powertrains	100% Exam	Wk 12, Sem 2
Advanced Automotive Chassis Design	100% Coursework	Wk 12, Sem 2
Structural Integrity & Optimisation	100% Coursework	Wk 12, Sem 2
Digital Manufacture	100% Exam	Wk 12, Sem 2

Module code & title	Assessment type and weighting	Indicative submission date
Energy Reduction & Sustainability	100% Coursework	Wk 12, Sem 2
Climate Change, Consequences, Solution & Policies	100% Exam	Wk 12, Sem 2
Convertors, Drives and Energy Systems	100% Exam	Wk 12, Sem 2
Circuit Design Analysis & Testing	100% Exam	Wk 12, Sem 2

15. Assessment and award regulations

Derogations

A derogation from regulations has been approved for all BEng programmes which means that whilst the pass mark is 40% overall, each element of assessment (where there is more than one assessment) requires a minimum mark of 30%. For Level 7 modules of integrated masters degree, the pass mark is 50% overall and each element of assessment requires a minimum mark of 40%.

Failure may be compensated at the time of attempted level completion up to a maximum of 30 credits across all levels of the programme. However, no compensation is permitted for the final year of the degree, specifically, Level 6 of BEng (Hons) and Level 7 of MEng degree. Individual and Group based project module must not be compensated, including ENG4B3, ENG5A4, ENG6AG and ENG6C4.

Non-Credit Bearing assessment

N/A

Borderline Classifications (Undergraduate programmes)

In considering borderline cases the Assessment Board shall raise the classification to the next level if all of the following criteria are met:

- At least 50% of the credits at level 6 fall within the higher classification.
- All level 6 modules must have been passed at the first attempt.
- The mark achieved for the Project module is within the higher classification.

Ordinary Degrees

The BEng ordinary degree provides, at a professional level, the academic entry requirements to meet the Engineering Council definition of an Incorporated Engineer (IEng) and level-6 Project (40 credits) must be successfully completed in order to achieve the exit award of an ordinary degree.

Restrictions for trailing modules (Taught Masters)

N/A

Prerequisites for processing to MRes research component

N/A

16. Accreditation

The programmes have been developed in line with PSRB requirements, including IMechE, IET, RAes & IE.

The new BEng programmes (home provision only, including Industry Placement routes) have been re-accredited by their relevant accreditation bodies from Sept 22 intake to Sept 25 intake. MEng programmes are pending output review in the next monitoring visit.

Programme Name	Accreditation Bodies	Accreditation Type
BEng (Hons) Aeronautical and Mechanical Engineering	IET, IMechE, RAeS	Partial CEng
BEng (Hons) Automotive Engineering[1]	IET, IMechE	Partial CEng
BEng (Hons) Renewable & Sustainable Engineering	EI, IET, IMechE	Partial CEng
BEng (Hons) Electrical and Electronic Engineering	IET	Partial CEng

17. Quality Management

All provision is expected to comply with the University processes for quality assurance, the QAA Quality Code and any specific PSRB requirements to ensure the quality of the learning and teaching on the programme. The University uses the following mechanisms to help evaluate, enhance, and review programmes delivery:

Student Evaluation of Module Questionnaire
Student Voice Forum
Individual student feedback
Student representatives
Annual Monitoring reports
Periodic review and re-validation process
External Examiner reports
PSRB requirements and accreditation activities
National Student Survey (NSS)

18. Support for Students

The University has a range of departments that offer support for students such as:

- Library & IT Resources
- Inclusion Services
- Careers Service
- Chaplaincy
- Counselling & Wellbeing
- Student Funding and Welfare
- Student Administration

Please access the Glyndŵr website at www.glyndwr.ac.uk to find out more about the Departments.

Glyndŵr Student Union offers support for students, please access their website at to find out more. https://www.wrexhamglyndwrsu.org.uk/

All students at Wrexham Glyndŵr University are allocated a Personal Tutor whose main responsibility is to act as the first point of contact for their personal students and to provide pastoral and academic support throughout their studies at the University.

19. Equality and Diversity

Glyndŵr University is committed to providing access to all students and promotes equal opportunities in compliance with the Equality Act 2010 legislation. This programme complies fully with the University's Equality and Diversity Policy, ensuring that everyone who has the potential to achieve in higher education is given the chance to do so. Please click on the following link for more information about equality and diversity

DATE OF APPROVAL	
Date of programme delivery approval event:	23 February 2023
Date of approval by Academic Board:	10 May 2023

APPENDIX 1 – PARTNER PROVIDER SUPPLEMENT TO PROGRAMME SPECIFICATION

When printed this becomes an uncontrolled document. Please check the Programme Directory for the most up to date version by clicking here.

Programme Title(s): BEng (Hons) Automotive Engineering
This is the intended award title from the definitive Programme Specification and what will be printed on the award certificate.

1	***Awarding body***
	Wrexham University
2	**Partner Provider**
	Despark College
3	**Location of delivery**
	Despark College, Lot 20, Jalan 51A/223, Section 51A, 46100, Petalingjaya, Selangor, Malaysia, 46100
4	**Faculty/Department**
	Faculty of Arts, Sciences and Technology
5	**Mode of study**
	Full time
6	**Frequency / timing of intake/s**
	2 intake point per academic year (Sept & Jan)
7	**Language of study**
	English
8	**Name of academic link (correct at the point of programme approval)**
	Olivier Durieux

9 GU Approved Partner Programme Delivery Schedule(s)

September intake – f/t

Year 1 (Level 4)	**Year 2** (Level 5)	**Year 3** (Level 6)
ENG461 Engineering Maths *Core Module* *20 Credits* Trimester 1	**ENG537** Further Engineering Maths *Core Module* *20 Credits* Trimester 1	**ENG60G** Dissertation *Core Module* *40 Credits* Trimester 2
ENG458 Mechanical Science *Core Module* *20 Credits* Trimester 1	**ENG53B** Business, Research & Professional Development *Core Module* *20 Credits* Trimester 1	**ENG685** Engineering Modelling & Simulation *Core Module* *20 Credits* Trimester 1
ENG459 Electrical Science *Core Module* *20 Credits* Trimester 1	**ENG53C** Engineering Mechanics & Design *Core Module* *20 Credits* Trimester 1	**ENG687** Aerodynamics *Core Module* *20 Credits* Trimester 1
ENG484 Engineering Design Practice *Core Module* *20 Credits* Trimester 2	**ENG52J** Structures Analysis *Core Module* *20 Credits* Trimester 2	**ENG692** Automotive Dynamics & Powertrain Analysis *Core Module* *20 Credits* Trimester 1
ENG490 Materials & Manufacturing *Core Module* *20 Credits* Trimester 2	**ENG52M** Internal Combustion Engine Systems *Core Module* *20 Credits* Trimester 2	**ENG690** Structural Vibration *Optional Module* *20 Credits* Trimester 1
ENG492 Automotive Systems *Core Module* *20 Credits* Trimester 2	**ENG557** Automotive Design *Core Module* *20 Credits* Trimester 2	**ENG691** Composite Materials *Optional Module* *20 Credits* Trimester 1

January intake – f/t

Year 1 (Level 4)	**Year 2** (Level 5)	**Year 3** (Level 6)
ENG484 Engineering Design Practice *Core Module* *20 Credits*	**ENG52J** Structures Analysis *Core Module* *20 Credits*	**ENG692** Automotive Dynamics & Powertrain Analysis *Core Module*

Trimester 2	Trimester 2	*20 Credits* Trimester 1
ENG490 Materials & Manufacturing *Core Module* *20 Credits* Trimester 2	**ENG52M** Internal Combustion Engine Systems *Core Module* *20 Credits* Trimester 2	**ENG690** Structural Vibration *Optional Module* *20 Credits* Trimester 2
ENG492 Automotive Systems *Core Module* *20 Credits* Trimester 2	**ENG557** Automotive Design *Core Module* *20 Credits* Trimester 2	**ENG691** Composite Materials *Optional Module* *20 Credits* Trimester 2
ENG461 Engineering Maths *Core Module* *20 Credits* Trimester 1	**ENG537** Further Engineering Maths *Core Module* *20 Credits* Trimester 3	**ENG60G** Dissertation *Core Module* *40 Credits* Trimester 3
ENG458 Mechanical Science *Core Module* *20 Credits* Trimester 1	**ENG53B** Business, Research & Professional Development *Core Module* *20 Credits* Trimester 1	**ENG685** Engineering Modelling & Simulation *Core Module* *20 Credits* Trimester 2
ENG459 Electrical Science *Core Module* *20 Credits* Trimester 1	**ENG53C** Engineering Mechanics & Design *Core Module* *20 Credits* Trimester 1	**ENG687** Aerodynamics *Core Module* *20 Credits* Trimester 2

Trimesters in WGU are typically 14 weeks in duration.
Trimester 1 – Sept to Dec
Trimester 2 – Jan to May
Trimester 3 – June to Aug

DATE OF APPROVAL	
Date of programme delivery re-approval event:	23 February 2023
Date of approval by Academic Board:	10 May 2023

APPENDIX 1 – PARTNER PROVIDER SUPPLEMENT TO PROGRAMME SPECIFICATION

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Programme Title(s): BEng (Hons) Electrical and Electronic Engineering
This is the intended award title from the definitive Programme Specification and what will be printed on the award certificate.
(to note this is a Level 6 top up offer however the title on the certificate will read as noted above)

1	***Awarding body***
	Wrexham University
2	**Partner Provider**
	Dimensions International College
3	**Location of delivery**
	Dimensions International College, 277 River Valley Road Singapore 238318
4	**Faculty/Department**
	Faculty of Arts, Science and Technology
5	**Mode of study**
	Full time
6	**Frequency / timing of intake/s**
	4 intake point per academic year (July/October/January/April)
7	**Language of study**
	English
8	**Name of academic link (correct at the point of programme approval)**
	Andrew Sharp

9 GU Approved Partner Programme Delivery Schedule(s)

Glyndwr University Programme Academic Calendar (2023 - 2024)

Part A - Programme Information

General Programme Information

Programme Name	Cohort	Teaching Start Date
BEng (Hons) Electrical & Electronic Engineering (Top-Up Degree)	*BEEE 08*	*2 Oct 2023*
Admissions Cut Off Date		
20 Oct 2023		

Term Information

Semester	Dates	Modules taught during the semester
Sem I	2-Oct-23 to 23-Dec-23	ENG6C1 Wireless Communication and Antennas ENG6C2 Digital Signal Processing
Sem II	8-Jan-24 to 30-Mar-24	ENG6A8 Professional Engineering ENG60D Electronics Design and Testing
Sem III	1-Apr-24 to 21-Jun-24	ENG6AG Project
Sem IV	1-Jul-24 to 28-Sep-24	

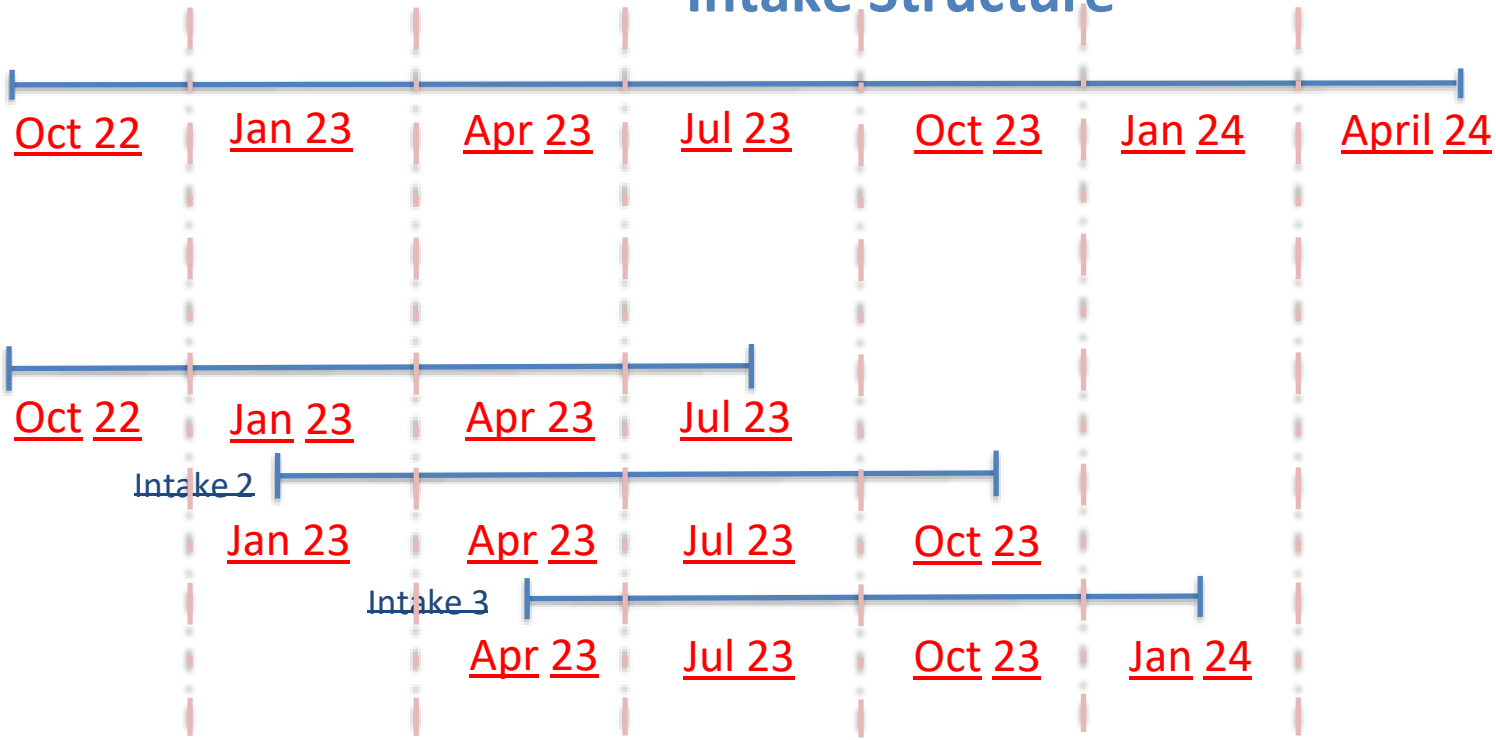
Programme Assessment Information

Module Codes / Title	Credit Value	Assessment Method	Weighting (%)	Deadline for assignment submission / Exam Date	Deadline for feedback to students	Exam Board Date
ENG6C1 Wireless Communication and Antennas	20 (Core)	Examination	50	16 Dec 2023	22 Jan 2024	Feb 2024

		Coursework	50	23 Dec 2023		
ENG6C2 Digital Signal Processing	20 (Core)	Portfolio	100	28 Dec 2023		
Programme Assessment Information						
Module Codes / Title	**Credit Value**	**Assessment Method**	**Weighting (%)**	**Deadline for assignment submission / Exam Date**	**Deadline for feedback to students**	**Exam Board Date**
ENG6A8 Professional Engineering	20 (Core)	Group Project	60	23 Mar 2024	20 Apr 2024	Jun 2024
		Portfolio	40	26 Mar 2024		
ENG60D Electronics Design and Testing	20 (Core)	Examination	100	30 Mar 2024		
Programme Assessment Information						
Module Codes / Title	**Credit Value**	**Assessment Method**	**Weighting (%)**	**Deadline for assignment submission / Exam Date**	**Deadline for feedback to students**	**Exam Board Date**
ENG6AG Project	40 (Core)	Written Assignment	80	21 Sep 2024	19 Oct 2024	Feb 2025
		Presentation	20	28 Sep 2024		

DIMENSIONS

Illustration of Term Dates and Intake Structure



• Our intakes are planned in sync with our term dates. Currently there are 4 semesters in a year, so we are proposing 4 corresponding intakes per year (*every Jan, Mar, Jun, Sep*) so new students are rolled in at the start of each semester. To create economies of scale, we will need to have 4 intakes. Should there be less than 4 intakes per year, it will have to be a permutation of the existing terms (*Jan and June, or Mar and Sep*) as we are currently running on a rolling intake, but we will still be running on a 4-semester year and the team will

still have to make provision for 4 semesters with 2 intakes. This means that reduced intakes doesn’t result in a material change to the workload for administrators but will definitely translate to reduced student numbers.

- In essence, as DIMENSIONS is running the programmes on a rolling intake (ie. new students join existing students at the start of each semester), DIMENSIONS will only offer the curriculum for the academic year regardless of whether we are offering 2 intakes or 4, and no additional resources and/or examination board from Glyndŵr are needed since we are inserting a new intake at the start of each semester where there are already existing students.