Prifysgol Wrecsam
Wrexham University

PROGRAMME SPECIFICATION

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Award titles

Programme Title(s)

MSc Engineering:

MSc Engineering (Aeronautical)
MSc Engineering (Aeronautical) with Advanced Practice

MSc Engineering (Mechanical Manufacture)
MSc Engineering (Mechanical Manufacture) with Advanced Practice

MSc Engineering (Automotive)
MSc Engineering (Automotive) with Advanced Practice

MSc Engineering (Renewable & Sustainable Energy)
MSc Engineering (Renewable & Sustainable Energy) with Advanced Practice

MSc Engineering (Electrical & Electronic)
MSc Engineering (Electrical & Electronic) with Advanced Practice

MSc Engineering (Management)
MSc Engineering (Management) with Advanced Practice

MSc Innovative Design
MSc Innovative Design with Advanced Practice

MSc Composite Materials Engineering
MSc Composite Materials Engineering with Advanced Practice

MSc Unmanned Aircraft System (UAS) Technology
MSc Unmanned Aircraft System (UAS) Technology with Advanced Practice

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

N/A

Programme to be included in Graduation Ceremonies

Yes

Delivery period

2022/23 to 2026/27

Intake points

Once yearly, September for full time (including Advanced Practice routes)

Once yearly, January for full time (including Advance Practice routes)

Once yearly, September for part time (excluding Advance Practice routes)

Regulatory details

Regulatory details
Awarding body
Wrexham University
Programme delivered by
Wrexham University Dimensions – Singapore for MSc Engineering (Mechanical Manufacture) & MSc Engineering (Electrical & Electronic)
Location of delivery
Plas Coch Campus, Wrexham Dimensions – Singapore for MSc Engineering (Mechanical Manufacture) & MSc Engineering (Electrical & Electronic)
Faculty/Department
Faculty of Arts, Computing and Engineering (FACE)
Exit awards available
PG Dip Engineering (Aeronautical) PG Dip Engineering (Mechanical Manufacture) PG Dip Engineering (Automotive) PG Dip Engineering (Renewable & Sustainable Energy) PG Dip Engineering (Electrical & Electronic) PG Dip Engineering (Management) PG Dip Innovative Design PG Dip Composite Materials Engineering PG Dip Unmanned Aircraft System (UAS) Technology PG Dip Engineering (Aeronautical) with Advanced Practice PG Dip Engineering (Mechanical Manufacture) with Advanced Practice PG Dip Engineering (Automotive) with Advanced Practice PG Dip Engineering (Renewable & Sustainable Energy) with Advanced Practice PG Dip Engineering (Electrical & Electronic) with Advanced Practice PG Dip Engineering (Management) with Advanced Practice PG Dip Innovative Design with Advanced Practice PG Dip Composite Materials Engineering with Advanced Practice PG Dip Unmanned Aircraft System (UAS) Technology with Advanced Practice PG Cert Engineering
Professional, Statutory or Regulatory Body (PSRB) accreditation
The programmes have been developed in line with PSRB requirements, including IMechE, IET, RAeS & IE. The table below details the accreditation bodies for each programme from Sept 22 intake to Sept 25 intake.

MSc Engineering (Aeronautical)	IET, IMechE, RAeS	Partial CEng (FL)
MSc Engineering (Automotive)	IET, IMechE	Partial CEng (FL)
MSc Engineering (Mechanical Manufacture)	IET, IMechE	Partial CEng (FL)

MSc Engineering (Renewable & Sustainable Energy)	EI. IET	Partial CEng (FL)
MSc Engineering (Electrical & Electronic)	IET	Partial CEng (FL)
MSc Composite Materials Engineering	IET, IMechE, RAeS	Partial CEng (FL)

Note: The accreditation applies to the Advanced Practice routes too. The MSc UAS Technology is accredited by IET, IMechE and RAeS till 2022 intake.

Accreditation listed above are only applicable 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.

Please refer to the PSRB register for current accreditation status.

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.*

No

HECoS codes

Programme Name	HECoS codes
MSc Engineering (Aeronautical) MSc Engineering (Aeronautical) with Advanced Practice	**(100114)** Aeronautical Engineering
MSc Engineering (Mechanical Manufacture) MSc Engineering (Mechanical Manufacture) with Advanced Practice	**(100190)** Mechanical Engineering
MSc Engineering (Automotive) MSc Engineering (Automotive) with Advanced Practice	**(100201)** Automotive Engineering
MSc Engineering (Renewable & Sustainable Energy) MSc Engineering (Renewable & Sustainable Energy) with Advanced Practice	**(100180)** Environmental Engineering
MSc Engineering (Electrical & Electronic) MSc Engineering (Electrical & Electronic) with Advanced Practice	**(100163)** Electrical and Electronic Engineering
MSc Engineering (Management) MSc Engineering (Management) with Advanced Practice	**(100089)** Management Studies
MSc Innovative Design MSc Innovative Design with Advanced Practice	**(100182)** Engineering Design
MSc Composite Materials Engineering MSc Composite Materials Engineering with Advanced Practice	**(101217)** Composite Materials
MSc Unmanned Aircraft System (UAS) Technology MSc Unmanned Aircraft System (UAS) Technology with Advanced Practice	**(100114)** Aeronautical Engineering

UCAS code

N/A

Relevant QAA subject benchmark statement/s

Subject Benchmark Statement Engineering Fourth edition – October 2019

https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-engineering.pdf?sfvrsn=1f2c881_16
Mode of study
Full & part time
Normal length of study for each mode of study
FULL TIME – 12 months (September Intake) FULL TIME (Advanced Practice) – 20 months (September Intake) FULL TIME – 18 months (January Intake) FULL TIME (Advanced Practice) – 20 months (January Intake) PART TIME – 24 months part time (September Intake)
Language of study
English
Transitional arrangements for re-validated provision if applicable
Part Time Year 1/2 students - It is our intention to run out all students on the current programmes from September 2021, students will be consulted if transferring to new modules are deemed more appropriate. Full Time students - It is our intention to run out all students on the current programmes, from September 2021, introducing the new programmes entrants from September 2022.
The following University Award Regulations apply to this programme
General Regulations and Definitions Regulations for Taught Masters Degrees Language Admissions Policy

OFFICE USE ONLY	
Date of validation event:	8th April 2022
Date of approval by Academic Board:	*22nd August 2022*
Approved Validation Period:	*Five years from Sept 2022*
Transitional arrangements approved (if revalidation)	Students will be taught out on the current programmes. Current part time students will be consulted if transferring to new modules are deemed more appropriate.
Date and type of revision:	16th October 2024 APSC approval to remove optional modules (AM2) Sept 25 AM2 approved to remove ADP702 option from Advanced practice routes.

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

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).*

Normal entry requirements for full time and part time intake will be one of:

a) A Bachelor of Engineering Honours Degree, or other Bachelor Honours Degree, normally with an honour's degree with at least a 2:2 classification or equivalent in an appropriate engineering discipline.

b) Applicants who do not meet the minimum entry requirement but have substantial professional experience in a relevant specialist area may be accepted, subject to interview and references.

c) Equivalent qualifications of another overseas country which are deemed satisfactory by the program team.

Normally, the applicants applied through entry points (b) and (c) will be required to attend for an interview. This is not always possible, e.g., overseas students, in which case the application form and 'home' tutor's recommendations will be used to decide suitability; phone, internet and video conferencing may also be used. Places on the programmes will be offered based on applicants' background qualifications and, where appropriate, experiences.

MSc Innovative Design Entry Requirements

For the MSc Innovative Design, the normal entry requirements for full time and part time intake will be:

a) An initial degree in a relevant subject (2:2 or above), or evidence of recent activity in the subject equivalent to these classifications as determined by interview.

Non-Standard entry criteria

According to the Regulations for Glyndŵr University: 'Taught Masters Degrees', it is possible for a non-graduate to be admitted to candidature provided that:

a) They have a non-graduate qualification which Glyndŵr University has deemed to be of a satisfactory standard for the purpose of post graduate admission,

and

b) they held, for a minimum of two years, a responsible position which is relevant to the programme to be pursued within the previous five years.'

Irrespective of a candidate's entry qualifications, the student must provide evidence to the satisfaction of the interview panel of his/her ability to complete academic work of the required standard to successfully complete the scheme of study proposed.

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.

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 the intellectual and application skills of individuals by means of personal management, knowledge acquisition, complex problem analysis, critical evaluation, deductive skills, synthesis, evaluation of solutions, and including an awareness of social and environmental implications. The programmes aim to facilitate the needs of a range of diverse industries at local, national, and international levels, to provide them with potential future employees of the highest calibre. The programme has been devised to give students the opportunities to demonstrate their relevant technical expertise, innovation, commitment, and sound judgment. Thereby producing students who are Engineering professionals and a sought-after asset to future employers.

The Advanced Practice route enables students to advance their knowledge and skills in terms of professional and personal development in preparation for their entry into the job market.

6. Distinctive features of the programme

MSc Engineering (Pathways)

The MSc in Engineering is designed to be accredited by Professional Bodies to provide a Chartered Engineer status. Please refer to the university PSRB register for up-to-date details of current accreditation.

Students can choose to develop their skills in particular aspects through their choice of MSc research project, which would be aligned with one of the University Research Centres.

MSc Engineering (Aeronautical)

Aircraft aerodynamics and flying and handling performances are always the most important and challenging aspects for aircraft designs, particularly with the consideration of advanced materials and advanced aircraft technologies. At Wrexham Glyndŵr University, the MSc Engineering (Aeronautical) programme will enable candidates to develop a deep understanding and solid skills in applied aerodynamics and flight mechanics. Students will grasp detailed knowledge and critically analyse aircraft flight dynamic behaviour and apply modern control approaches for aircraft stability. Candidates will have access to state-of-art Merlin flight simulator for design and testing their own aircraft, will learn and use cutting-edge design, analysis, and simulation software such as ANSYS. Students will have access to the subsonic and supersonic wind tunnels and rapid prototyping facilities, located at the university Wrexham campus. Wrexham Glyndŵr University is located nearby to one of the largest aircraft companies in the world (Airbus), and has close link with aviation industries, such as Rolls-Royce, Raytheon, Magellan Aerospace.

MSc Engineering (Mechanical Manufacture)

Government is focusing heavily on boosting the UK manufacturing industry; failure to meet demands for engineering skills could cost the UK £27bn a year. 58% of all new jobs will be STEM related, and the number of those studying for degrees in science, engineering and

technology must increase by over 40% on current levels if demands are to be met. Of all STEM skills, those in mechanical and manufacturing engineering are becoming increasingly highly valued [1]. Here at Wrexham Glyndwr University, we aim to ensure that the MSc Engineering (Mechanical Manufacture) comprises fit-for-purpose teaching and research experience to provide a solid background for a career in the engineering and manufacturing industry sector. Many of the academic staff have industrial experience spanning a broad range of engineering areas and working levels. Many of our graduate students from previous years are now in jobs at top international companies such as Rolls-Royce, Siemens, Alstom, and Airbus. The taught element of the programme includes design, and stress and fluid dynamics analysis, using state of the art commercial software, such as ANSYS. Students can choose to develop their skills in particular aspects through their choice of MSc research project, which would be aligned with one of the University Research Centres.

[1] A. Kumar, N. Randerson, and E. Johnson, “The state of engineering,” Engineering UK 2015. [Online]. Available: https://www.engineeringuk.com/media/1466/enguk-report-2015-interactive.pdf

MSc Engineering (Automotive)

The MSc Engineering (Automotive) programme contains a set of key modules covering the essential aspects of modern automotive engineering. This provides a solid background for a successful career in the automotive engineering sector (manufacturers, OEM, R&D) or in motorsport, but this is not limited to this: the knowledge and the skills delivered in the course are transferable to other engineering fields. Lectures and assessment are generally based on real case scenarios and industrial needs. Laboratories are equipped with up-to-date specialist equipment and various vehicles including kit cars, race cars, electric and hybrid powertrains. Lecturers and supporting staff have the required industrial experience and are practitioners (i.e., track racing & car building).

The programme provides the opportunity to combine practical aspects as well as simulation-based projects using industry relevant software. An open and friendly atmosphere enhances 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 the best possible starting point into their professional career paths.

MSc Engineering (Renewable & Sustainable Energy)

To meet the 2050 carbon reduction targets to control climate change most countries have signed targets to transition from traditional fossil fuel energy sources to renewable and sustainable energies. This specialism offers a graduate a chance to access this exciting, growing and highly innovative field.

The MSc Engineering (Renewable & Sustainable Energy) provides an up-to-date overview of climate change, its causes, consequences, and solutions. Energy economics and markets are examined together with socio-economic, energy security and political issues. Energy reduction measures are also analysed.

The option renewable technology and energy storage examines all the major renewable energy sources (wind, solar, hydro River, tidal and wave) and how the energy can be assessed, predicted, modelled, and used or stored.

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

MSc Engineering (Electrical & Electronic)

The usage of electronic, automation and motor drive systems has grown immensely over the past few years in both industrial and domestic applications. This domination is based on recent advances in power electronics, electric motors, and control engineering. It has been observed that almost half of the global electrical energy is consumed today by electric derives and automation systems. Electrical and Electronic engineers are also involved with advanced

industrial control including design, software programming and control of embedded systems using microcontrollers and microcomputers.

The telecoms for mobile phone applications requires electronic engineers to provide the development, implementation and maintenances of advanced communication systems and devices. There are also many roles for them in the energy industries, for example, designing and running complex control systems such as those needed to run the National Grid or to control a nuclear power station. To prepare students for these fast-changing roles, the programme specialism covers design, modelling, and test algorithms for complex electrical and electronic assemblies. Software development is an integral part of a modern electronic engineers' role and to support this, software tools such as VEE, MULTISIM and MATLAB are used extensively in the course.

MSc Engineering (Management)

The practice of Engineering Management is a distinct topic – as distinct from the discipline of Management as it is from Engineering. The engineering manager must demonstrate a broad range of skills and maturity in people-skills. The challenge is to lead, while at the same time recognising that those with the capability to solve the problems might require some special support to make this achievable. Frequently, to be an effective engineering manager it is also necessary to be a specialist in some areas too: the ideas of breath and depth are not mutually incompatible, and in this programme, we underpin this by encouraging Engineering Management students to take one specialist module option.

In terms of Engineering Management, again, this is a board topic spanning production, new product development, right through to research and development and innovation management. All students will have the opportunity to gain an overview insight into several modern engineering management topic areas and select a smaller number for more detailed study. These include topics such as LEAN, Six Sigma, The Toyota Way, Process Improvement, industrial logistics, Industry 4.0, statistics and data analytics, quality management, Technology Readiness Levels, Patents and Export Control, Systems Engineering and Transition Engineering. Our innovative Learning and Teaching approach, coupled with sophisticated guided self-study materials will enable each student to take an individually tailored learning trajectory.

The lecturers have experience in industrial engineering management, and this programme integrates the best current industrial practice with the latest emerging technology and engineering management thinking.

MSc Innovative Design

Amid the fast development of technology, product innovation can't be achieved without a deep understanding of user needs and problems to provide user-centred solutions. The strategic aspect of the design brings technology, business, and user needs together to produce innovative solutions. MSc Innovative Design focuses on filling the gap between technology and innovation by applying strategic user-centred design. Students will practically explore human-centred design by implementing the design thinking process. This practice will be supported by several tools and strategies, including creative thinking, lean design thinking, system thinking, problem-solving, error prevention, prototyping techniques, testing and validation.

Students will explore strategic innovation and use design-driven techniques to turn technology into successful user-centred products and services. Strategic design involves business aspects, including measuring the value of design, defining the value proposition through the business model canvas, benchmarking, and other tools. The MSc Innovative Design extends the user-centric applications toward immersive technologies, rapid prototyping, laser cutting and 3D printing.

The teaching approach in MSc Innovative Design will be based on a hands-on approach through individual and group practice, aiming to improve students' professional skills and fulfil the technological, design, and innovative skills required in professional practice.

MSc Composite Materials Engineering

Much has been made of the use of composite materials in the aerospace industry with the Airbus A350XWB and the Boeing Dreamliner being headline news. However, the advantages of using composite materials can be extended to most engineering areas and disciplines also including automotive, motorsport, marine and renewable industries. The rapid emergence of composites has revealed a difficulty in supplying the industry with Engineers that have the requisite knowledge of the materials.

This MSc Composite Materials Engineering programme has been developed with that in mind. The course will equip you with knowledge in manufacturing and characterisation of composite materials and engineering design. Students will learn the full lifecycle of components designed and manufactured with composites. From first principles, potential students will learn the constituent parts of a composite material and understand the reasons for selecting each material. From there manufacturing methodologies will be understood. Design using composites will be taught after the different types of failure mechanisms are shown. Finally repair, recycling and disposal of composites will be discussed in detail.

Currently Wrexham University shares an Advanced Composite Training and Development Centre (ACT&DC) with Airbus at the Broughton site. This fully equipped specialist composite laboratory will be used throughout the programme. Students will be taught by lecturers from industrial and research backgrounds through a combination of lectures, tutorials, laboratory sessions and computer classes. The University is perfectly placed with several composite manufacturers within 30 miles, namely Solvay, Sigmatex and Exel Composites. In addition, there are a few SME and large engineering companies that utilise composite materials for their designs and components. The programme has been developed to allow students with different undergraduate qualifications (provided they are from STEM backgrounds) to study for the masters.

MSc Unmanned Aircraft System (UAS) Technology

Small Unmanned Aircraft (SUA), more commonly referred to as "Drones", are being used for civil purposes in a growth business sector predicted to be worth billions of pounds over the next 10 years. UAS are revolutionising everything from agriculture to filmmaking and are increasingly being used to monitor, research and conduct data gathering missions in a wide range of applications.

The MSc in Unmanned Aircraft System Technology is designed to equip practitioners of the future with the in-depth knowledge required to safely and legally design, manufacture and operate SUA (up to 20kg MTOM) in the UK.

The programme is intended to address the skills shortage in this field and is ideal for students across all disciplines who wish to adapt drone technology to their field of study and people from any industry, employed or self-employed, are eligible to join the course. This programme will provide the skills to extract and process data in a whole range of subject areas, with candidates learning the legal and safety aspects of advanced drone operations, plan missions and conduct actual operations in the field. Flight tuition will be provided by using our drone simulator and out on our dedicated flight-test field.

Advanced Practice Route

The Advanced Practice component will provide students with the opportunity to enhance personal and professional development in preparation for their entry into the job market.

Students will complete the Advanced Practice module:

ADP701: Advanced Practice: Work-Based Learning

- Students will undertake a work placement and be asked to reflect critically on their experience

In addition to practical and professional skills gained during their Advanced Practice semester, students will also be able to engage in the process of critical self-reflection and thereby build up more self-awareness, flexibility and resilience to better prepare themselves for the challenges of the job market, giving them an edge over graduates who have not undertaken a practical work component during their studies.

7. Credit Accumulation and exit awards

The following exit awards are available to students who achieve the following.

a) Master of Science (MSc) requires the achievement of 120 credits taught at level 7 and 60 credits dissertation.

b) Post Graduate Diploma (PG Dip) requires the achievement of 120 credits taught at level 7.

c) Post Graduate Certificate (PG Cert) requires the achievement of any combination of taught modules amounting to 60 credits across any provision.

The following exit awards are available to students who enrol on the Advance Practice provision.

a) Master of Science (MSc) on chosen provision with Advance Practice requires the achievement of 240 credits at level 7, including 120 credits taught modules, 60 credits dissertation, and 60 credits Advanced Practice.

b) Post Graduate Diploma (Pg Dip) with Advanced Practice requires the achievement of 120 credits taught at level 7 and completion of the 60 credit Advanced Practice module.

8. Programme Structure Diagram, including delivery schedule

The details relating to the individual programmes and pathways are expanded later in this document, this section provides an overview of the structure including the delivery schedule.

Programme Structure

		MSc Engineering: (Pathway)					MSc UAS Technology	MSc Composite Materials Engineering
		Aeronautical	**Mechanical Manufacture**	**Automotive**	**Electrical & Electronic**	**Renewable & Sustainable Energy**		
SEM 1	**[A]**	Engineering Research Methods & PG Studies						
	[B]	Engineering Design & Innovation						
	[C]	Mechanical Engineering Systems Modelling & Simulation			Electrical & Electronic Engineering Systems Modelling & Simulation	Mechanical Engineering Systems Modelling & Simulation	UAS Technology & Applications	Composite Manufacture, Assembly & Repair
SEM 2	**[D]**	Design with Composites-Theory & Practice	Design with Composites-Theory & Practice *(Excl. Electrical & Electronic Route)*	Design with Composites-Theory & Practice	*Intelligent System Design & Control Engineering*	Renewable Technology & Storage Integration	UAS Construction	Design with Composites-Theory & Practice
	[E]	Applied Aerodynamics	Structural Integrity & Optimisation	Advanced Automotive Chassis Design	Converters, Drives and Energy Systems	Energy Reduction & Sustainability	UAS Operations & The Law	Analysis, Testing & QA of Composites
	[F]	Advanced Flight Mechanics & Control	Digital Manufacture	Modern & Innovative Powertrains	Circuit Design Analysis & Testing	Climate Change, Consequences, Solution & Policies	UAS Sensor Technology	Environmental & Sustainable Aspects of Composites
SEM 2/3	**[G]**	Dissertation						

Table 1: MSc Engineering provision structure overview, A to C is common modules & D to F is specialist modules for the selected route. (*The coding A to G is to illustrate the delivery pattern in Table 2-5)*

Programme Delivery *(Students meet progression requirements for September Intake)*

September Intake Non-Advanced Practice *(For Full Time Students)*	
Semester 1 (Total 60 Credits)	**[A]**
	[B]
	[C]
Semester 2 (Total 60 Credits)	**[D]**
	[E]
	[F]
Semester 3 (Total 60 Credits)	**[G]**

September Intake With Advanced Practice *(For Full Time Students)*	
Semester 1 (Total 60 Credits)	**[A]**
	[B]
	[C]
Semester 2 (Total 60 Credits)	**[D]**
	[E]
	[F]
Semester 1 (Total 60 Credits)	Advanced Practice: Work-Based Learning
Semester 2 (Total 60 Credits)	**[G]**

September Intake Non-Advanced Practice *(For Part Time Students)*		
Semester 1 (Total 40 Credits)	**[B]**	**[C]**
Semester 2 (Total 40 Credits)	**[D]**	**[E]**
Semester 1 (Total 20 Credits)	**[A]**	
Semester 2 (Total 20 Credits)	**[F]**	**[G]**
Semester 3 (Total 60 Credits)	**[G]**	

Table 2: MSc provision delivery pattern for students meeting the progress requirement for following intakes: full-time September with and without advanced practice option, and part-time September. *(Modules indicated with letters from A to G can be found from table 1)*

Programme Delivery – *(Student fails to meet progression requirement for September Intake)*

September Intake Non-Advanced Practice *(For Full Time Students)*	
Semester 1 (Total 60 Credits)	**[A]**
	[B]
	[C]
Semester 2 (Total 60 Credits)	**[D]**
	[E]
	[F]
Semester 3 (Taught block - Resit)	
Semester 1 (Total 60 Credits)	**[G]**
Semester 2 (Dissertation block - Resit)	

September Intake With Advanced Practice *(For Full Time Students)*	
Semester 1 (Total 60 Credits)	**[A]**
	[B]
	[C]
Semester 2 (Total 60 Credits)	**[D]**
	[E]
	[F]
Semester 3 (Taught block - Resit)	
Semester 1 (Total 60 Credits)	Advanced Practice: Work-Based Learning
Semester 2 (Total 60 Credits)	**[G]**
Semester 3 (Dissertation block - Resit)	

September Intake Non-Advanced Practice *(For Part Time Students)*		
Semester 1 (Total 40 Credits)	**[B]**	**[C]**
Semester 2 (Total 40 Credits)	**[D]**	**[E]**
Semester 3 (Taught block - Resit)		
Semester 1 (Total 20 Credits)	**[A]**	
Semester 2 (Total 20 Credits)	**[F]**	**[G]**
Semester 3 (Taught block - Resit)		
Semester 1 (Total 60 Credits)	**[G]**	
Semester 2 (Dissertation block – Resit)		

Restrictions for trailing modules (Taught Masters)

A student may progress to Dissertation Block/Advanced Practice block when 120 credits have been studied and at least 100 credits have been passed and the referred module is eligible to be trailed, apart from ENG740 Engineering Research Methods and Postgraduate Studies module which is not eligible to be trailed. AP students who fail to meet progression criteria will be transferred out of the AP route and onto the standard programme

Table 3: MSc provision delivery pattern for students not meeting the progress requirement on respective intakes. *(Modules indicated with letters from A to G can be found from table 1)*

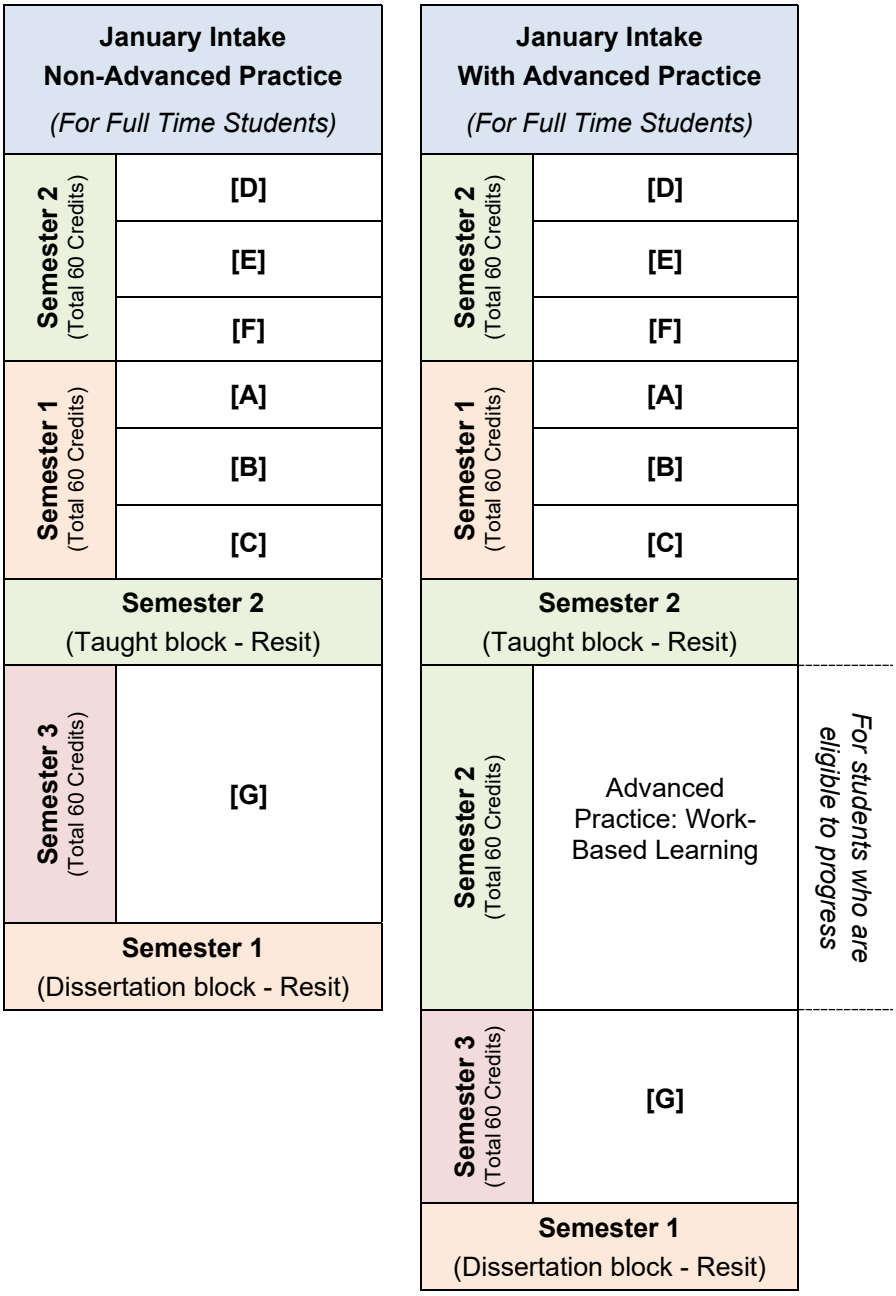
Programme Delivery – *(Student meet progression requirement for January Intake)*

January Intake Non-Advanced Practice *(For Full Time Students)*	
Semester 2 (Total 60 Credits)	**[D]**
	[E]
	[F]
Semester 1 (Total 60 Credits)	**[A]**
	[B]
	[C]
Semester 2 (Total 60 Credits)	**[G]**

January Intake With Advanced Practice *(For Full Time Students)*	
Semester 2 (Total 60 Credits)	**[D]**
	[E]
	[F]
Semester 1 (Total 60 Credits)	**[A]**
	[B]
	[C]
Semester 2 (Total 60 Credits)	Advanced Practice: Work-Based Learning
Semester 1 (Total 60 Credits)	**[G]**

Table 4: MSc provision delivery pattern for students meeting the progress requirement for following intakes: full-time January with and without advanced practice option. *(Modules indicated with letters from A to G can be found from table 1)*

Programme Delivery – *(Student fails to meet progression requirement for January Intake)*



Restrictions for trailing modules (Taught Masters)

A student may progress to Dissertation block/Advanced Practice block when 120 credits have been studied and at least 100 credits have been passed and the referred module is eligible to be trailed, apart from ENG740 Engineering Research Methods and Postgraduate Studies module which is not eligible to be trailed. AP students who fail to meet progression criteria will be transferred out of the AP route and onto the standard programme

Table 5: MSc provision delivery pattern for students not meeting the progress requirement on respective intakes. *(Modules indicated with letters from A to G can be found from table 1)*

Full-time Mode (September Intake)

The taught element of the programme will be delivered in two semesters and each semester has a loading of 60 credits. The six taught modules will have lectures and tutorials/practical work on a weekly basis. The module duration will be a total of 200 hours, which includes 21 hours of scheduled learning and teaching hours and 179 independent study hours. Dissertation block will then take a further one semester having a notional study time of 600 hours. During this time the student will be responsible for managing their time in consultation with an academic supervisor.

Full-time Mode (January Intake)

For the January intake, students will study three specialist modules first during the second semester from January to May. Other three common modules the students will study in the first semester of the next academic year from September to January. On successful completion of the taught element of the programme the students will be progressed to the dissertation block for submission in April/May.

Part-time Mode (September Intake)

The taught element of the programme will be delivered in two academic teaching years. 80 credits or equivalent worth of modules will be delivered in the first year and 40 credits or equivalent in the second year. The part time students would join the full-time delivery with lectures and tutorials/practical work during one day on a weekly basis. The dissertation element will take semesters 2 & 3, having a total notional study time of 600 hours. During this time the student will be responsible for managing their time in consultation with an academic supervisor.

Advanced Practice

The Advanced Practice module is taken on the successful completion of taught credits and before undertaking the dissertation/project module. Students will have the option to take Advanced Practice: Work-Based Learning. In total, students will have to complete 240 credits for programmes with Advanced Practice.

MSc Engineering (Aeronautical) FT Sept Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG779	Applied Aerodynamics	20	Core	SEM-2
Level 7	ENG780	Advanced Flight Mechanics & Control	20	Core	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Engineering (Aeronautical) FT Sept Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG779	Applied Aerodynamics	20	Core	SEM-2
Level 7	ENG780	Advanced Flight Mechanics & Control	20	Core	SEM-2
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-1
Level 7	ENGM66	Dissertation	60	Core	SEM-2

MSc Engineering (Aeronautical) PT Sept Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Year 1					
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG779	Applied Aerodynamics	20	Core	SEM-2
Year 2					
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG780	Advanced Flight Mechanics & Control	20	Core	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-2/3

MSc Engineering (Aeronautical) FT Jan Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG779	Applied Aerodynamics	20	Core	SEM-2
Level 7	ENG780	Advanced Flight Mechanics & Control	20	Core	SEM-2
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENGM66	Dissertation	60	Core	SEM-2

MSc Engineering (Aeronautical) FT Sept Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG779	Applied Aerodynamics	20	Core	SEM-2
Level 7	ENG780	Advanced Flight Mechanics & Control	20	Core	SEM-2
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Engineering (Mechanical Manufacture) FT Sept Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG766	Structural Integrity & Optimisation	20	Core	SEM-2
Level 7	ENG786	Digital Manufacture	20	Core	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Engineering (Mechanical Manufacture) FT Sept Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Mechanical Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG766	Structural Integrity & Optimisation	20	Core	SEM-2
Level 7	ENG786	Digital Manufacture	20	Core	SEM-2
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-1
Level 7	ENGM66	Dissertation	60	Core	SEM-2

MSc Engineering (Mechanical Manufacture) PT Sept Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Year 1					
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG766	Structural Integrity & Optimisation	20	Core	SEM-2
Year 2					
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG786	Digital Manufacture	20	Core	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-2/3

MSc Engineering (Mechanical Manufacture) FT Jan Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG766	Structural Integrity & Optimisation	20	Core	SEM-2
Level 7	ENG786	Digital Manufacture	20	Core	SEM-2
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENGM66	Dissertation	60	Core	SEM-2

MSc Engineering (Mechanical Manufacture) FT Jan Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG766	Structural Integrity & Optimisation	20	Core	SEM-2
Level 7	ENG786	Digital Manufacture	20	Core	SEM-2
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Mechanical Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Engineering (Automotive) FT Sept Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG784	Modern & Innovative Powertrains	20	Core	SEM-2
Level 7	ENG785	Advanced Automotive Chassis Design	20	Core	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Engineering (Automotive) FT Sept Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG784	Modern & Innovative Powertrains	20	Core	SEM-2
Level 7	ENG785	Advanced Automotive Chassis Design	20	Core	SEM-2
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Engineering (Automotive) PT Sept Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Year 1					
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG784	Modern & Innovative Powertrains	20	Core	SEM-2
Year 2					
Level 7	ENG765	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG785	Advanced Automotive Chassis Design	20	Core	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-2/3

MSc Engineering (Automotive) FT Jan Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG784	Modern & Innovative Powertrains	20	Core	SEM-2
Level 7	ENG785	Advanced Automotive Chassis Design	20	Core	SEM-2
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENGM66	Dissertation	60	Core	SEM-2

MSc Engineering (Automotive) FT Jan Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG784	Modern & Innovative Powertrains	20	Core	SEM-2
Level 7	ENG785	Advanced Automotive Chassis Design	20	Core	SEM-2
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Engineering (Renewable & Sustainable Energy) FT Sept Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENG781	Renewable Technology & Storage Integration Engineering	20	Core	SEM-2
Level 7	ENG787	Energy Reduction & Sustainability	20	Core	SEM-2
Level 7	ENG788	Climate Change, Consequences, Solution & Policies	20	Core	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Engineering (Renewable & Sustainable Energy) FT Sept Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENG781	Renewable Technology & Storage Integration Engineering	20	Core	SEM-2
Level 7	ENG787	Energy Reduction & Sustainability	20	Core	SEM-2
Level 7	ENG788	Climate Change, Consequences, Solution & Policies	20	Core	SEM-2
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-1
Level 7	ENGM66	Dissertation	60	Core	SEM-2

MSc Engineering (Renewable & Sustainable Energy) PT Sept Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Year 1					
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENG781	Renewable Technology & Storage Integration Engineering	20	Core	SEM-2
Level 7	ENG787	Energy Reduction & Sustainability	20	Core	SEM-2
Year 2					
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG788	Climate Change, Consequences, Solution & Policies	20	Core	SEM-2
Level 7	ENGM66	Research Dissertation	60	Core	SEM-2/3

MSc Engineering (Renewable & Sustainable Energy) FT Jan Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG781	Renewable Technology & Storage Integration Engineering	20	Core	SEM-2
Level 7	ENG787	Energy Reduction & Sustainability	20	Core	SEM-2
Level 7	ENG788	Climate Change, Consequences, Solution & Policies	20	Core	SEM-2
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENGM66	Dissertation	60	Core	SEM-2

MSc Engineering (Renewable & Sustainable Energy) FT Sept Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG781	Renewable Technology & Storage Integration Engineering	20	Core	SEM-2
Level 7	ENG787	Energy Reduction & Sustainability	20	Core	SEM-2
Level 7	ENG788	Climate Change, Consequences, Solution & Policies	20	Core	SEM-2
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG777	Mechanical Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Engineering (Electrical & Electronic) FT Sept Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG778	Electrical & Electronic Engineering Systems Modelling & Simulation	20	Core	SEM-1

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG782	Intelligent System Design & Control Engineering	20	Core	SEM-2
Level 7	ENG789	Converters, Drives and Energy Systems	20	Core	SEM-2
Level 7	ENG790	Circuit Design Analysis & Testing	20	Core	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Engineering (Electrical & Electronic) FT Sept Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG778	Electrical & Electronic Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENG782	Intelligent System Design & Control Engineering	20	Core	SEM-2
Level 7	ENG789	Converters, Drives and Energy Systems	20	Core	SEM-2
Level 7	ENG790	Circuit Design Analysis & Testing	20	Core	SEM-2
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-1
Level 7	ENGM66	Dissertation	60	Core	SEM-2

MSc Engineering (Electrical & Electronic) PT Sept Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Year 1					
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG778	Electrical & Electronic Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENG782	Intelligent System Design & Control Engineering	20	Core	SEM-2
Level 7	ENG789	Converters, Drives and Energy Systems	20	Core	SEM-2
Year 2					
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG790	Circuit Design Analysis & Testing	20	Core	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-2/3

MSc Engineering (Electrical & Electronic) FT Jan Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG782	Intelligent System Design & Control Engineering	20	Core	SEM-2
Level 7	ENG789	Converters, Drives and Energy Systems	20	Core	SEM-2
Level 7	ENG790	Circuit Design Analysis & Testing	20	Core	SEM-2
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG778	Electrical & Electronic Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ENGM66	Dissertation	60	Core	SEM-2

MSc Engineering (Electrical & Electronic) FT Jan Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG782	Intelligent System Design & Control Engineering	20	Core	SEM-2
Level 7	ENG789	Converters, Drives and Energy Systems	20	Core	SEM-2
Level 7	ENG790	Circuit Design Analysis & Testing	20	Core	SEM-2
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG778	Electrical & Electronic Engineering Systems Modelling & Simulation	20	Core	SEM-1
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-2/3

MSc Innovative Design FT Sept Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG793	Design Thinking and Strategic Innovation	40	Core	SEM-1
Level 7	ENG794	CAD & Digital Production	20	Core	SEM-1
Level 7	ENG795	Project Management, Innovation & Intellectual Property	20	Core	SEM-2
Level 7	ENG796	Generative Design & Immersive Realities	20	Core	SEM-2
Level 7	ENG797	Human Centred Design	20	Core	SEM-2
Level 7	ENG7A2	Innovative Design Project	60	Core	SEM-3

MSc Innovative Design FT Sept Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG793	Design Thinking and Strategic Innovation	40	Core	SEM-1
Level 7	ENG794	CAD & Digital Production	20	Core	SEM-1
Level 7	ENG795	Project Management, Innovation & Intellectual Property	20	Core	SEM-2
Level 7	ENG796	Generative Design & Immersive Realities	20	Core	SEM-2
Level 7	ENG797	Human Centred Design	20	Core	SEM-2
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-2
Level 7	ENG7A2	Innovative Design Project	60	Core	SEM-3

MSc Innovative Design PT Sept Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Year 1					
Level 7	ENG794	CAD & Digital Production Design Thinking and Strategic Innovation	20	Core	SEM-1
Level 7	ENG795	Project Management, Innovation & Intellectual Property	20	Core	SEM-2
Level 7	ENG796	Generative Design & Immersive Realities	20	Core	SEM-2
Year 2					

Level 7	ENG793	Design Thinking and Strategic Innovation	40	Core	SEM-1
Level 7	ENG797	Human Centred Design	20	Core	SEM-2
Level 7	ENG7A2	Innovative Design Project	60	Core	SEM-2/3

MSc Innovative Design FT Jan Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG795	Project Management, Innovation & Intellectual Property	20	Core	SEM-2
Level 7	ENG796	Generative Design & Immersive Realities	20	Core	SEM-2
Level 7	ENG797	Human Centred Design	20	Core	SEM-2
Level 7	ENG793	Design Thinking and Strategic Innovation	40	Core	SEM-1
Level 7	ENG794	CAD & Digital Production	20	Core	SEM-1
Level 7	ENG7A2	Innovative Design Project	60	Core	SEM-2

MSc Innovative Design FT Jan Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG795	Project Management, Innovation & Intellectual Property	20	Core	SEM-2
Level 7	ENG796	Generative Design & Immersive Realities	20	Core	SEM-2
Level 7	ENG797	Human Centred Design	20	Core	SEM-2
Level 7	ENG793	Design Thinking and Strategic Innovation	40	Core	SEM-1
Level 7	ENG794	CAD & Digital Production	20	Core	SEM-1
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-2
Level 7	ENG7A2	Innovative Design Project	60	Core	SEM-3

MSc Composite Materials Engineering FT Sept Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG798	Composite Manufacture, Assembly & Repair	20	Core	SEM-1
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG799	Analysis, Testing & QA of Composites	20	Core	SEM-2
Level 7	ENG7A1	Environmental & Sustainable Aspects of Composites	20	Core	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Composite Materials Engineering FT Sept Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG798	Composite Manufacture, Assembly & Repair	20	Core	SEM-1
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG799	Analysis, Testing & QA of Composites	20	Core	SEM-2
Level 7	ENG7A1	Environmental & Sustainable Aspects of Composites	20	Core	SEM-2
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-1
Level 7	ENGM66	Dissertation	60	Core	SEM-2

MSc Composite Materials Engineering PT Sep Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Year 1					
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG798	Composite Manufacture, Assembly & Repair	20	Core	SEM-1
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG799	Analysis, Testing & QA of Composites	20	Core	SEM-2
Year 2					
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG7A1	Environmental & Sustainable Aspects of Composites	20	Core	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-2/3

MSc Composite Materials Engineering FT Jan Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG799	Analysis, Testing & QA of Composites	20	Core	SEM-2
Level 7	ENG7A1	Environmental & Sustainable Aspects of Composites	20	Core	SEM-2
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG798	Composite Manufacture, Assembly & Repair	20	Core	SEM-1
Level 7	ENGM66	Dissertation	60	Core	SEM-2

MSc Composite Materials Engineering FT Jan Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG783	Design with Composites-Theory & Practice	20	Core	SEM-2
Level 7	ENG799	Analysis, Testing & QA of Composites	20	Core	SEM-2
Level 7	ENG7A1	Environmental & Sustainable Aspects of Composites	20	Core	SEM-2
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG798	Composite Manufacture, Assembly & Repair	20	Core	SEM-1
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Unmanned Aircraft System (UAS) Technology FT Sept Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG772	UAS Technology & Applications	20	Core	SEM-1
Level 7	ENG763	UAV Construction	20	Core	SEM-2
Level 7	ENG762	UAS Operations & The Law	20	Core	SEM-2
Level 7	ENG764	UAS Sensor Technology	20	Core	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Unmanned Aircraft System (UAS) Technology FT Sept Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG772	UAS Technology & Applications	20	Core	SEM-1
Level 7	ENG763	UAV Construction	20	Core	SEM-2
Level 7	ENG762	UAS Operations & The Law	20	Core	SEM-2
Level 7	ENG764	UAS Sensor Technology	20	Core	SEM-2
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Unmanned Aircraft System (UAS) Technology PT Sep Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Year 1					
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG772	UAS Technology & Applications	20	Core	SEM-1
Level 7	ENG763	UAV Construction	20	Core	SEM-2
Level 7	ENG762	UAS Operations & The Law	20	Core	SEM-2
Year 2					
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG764	UAS Sensor Technology	20	Core	SEM-2
Level 7	ENGM66	Research Dissertation	60	Core	SEM-2/3

MSc Unmanned Aircraft System (UAS) Technology FT Jan Intake

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG763	UAV Construction	20	Core	SEM-2
Level 7	ENG762	UAS Operations & The Law	20	Core	SEM-2

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG764	UAS Sensor Technology	20	Core	SEM-2
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG772	UAS Technology & Applications	20	Core	SEM-1
Level 7	ENGM66	Dissertation	60	Core	SEM-3

MSc Unmanned Aircraft System (UAS) Technology FT Jan Intake with Advanced Practice

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery
Level 7	ENG763	UAV Construction	20	Core	SEM-2
Level 7	ENG762	UAS Operations & The Law	20	Core	SEM-2
Level 7	ENG764	UAS Sensor Technology	20	Core	SEM-2
Level 7	ENG740	Engineering Research Methods & PG Studies	20	Core	SEM-1
Level 7	ENG765	Engineering Design & Innovation	20	Core	SEM-1
Level 7	ENG772	UAS Technology & Applications	20	Core	SEM-1
Level 7	ADP701	Advanced Practice: Work-based Learning	60	Option	SEM-2
Level 7	ENGM66	Dissertation	60	Core	SEM-3

9. Intended learning outcomes of the programme

Learning outcomes common to all programmes & pathways covered by this document

Knowledge and Understanding

	Post Graduate Certificate	Post Graduate Diploma	Masters
A1	Apply a comprehensive knowledge of mathematics, statistics, natural science, and engineering principles to the solution of complex problems	Apply a comprehensive knowledge of mathematics, statistics, natural science, and engineering principles to the solution of complex problems	Apply a comprehensive knowledge of mathematics, statistics, natural science, and engineering principles to the solution of complex problems
A2	Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed.	Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed.	Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed.
A3	Formulate and analyse complex problems to reach substantiated conclusions, discussing the limitations of the techniques employed.	Formulate and analyse complex problems to reach substantiated conclusions, discussing the limitations of the techniques employed.	Formulate and analyse complex problems to reach substantiated conclusions, discussing the limitations of the techniques employed.
A4		Develop and synthesis solutions for complex problems that evidence some originality and meet a combination of societal, user, business and customers need as appropriate.	Develop and synthesis solutions for complex problems that evidence some originality and meet a combination of societal, user, business and customers need as appropriate.
A5			Conduct in depth research in current engineering developments and the context within which engineering is applied. With ethics, sustainability, and innovation at the forefront of the subject of study.

Intellectual Skills

	Post Graduate Certificate	Post Graduate Diploma	Masters
B1	Apply advanced engineering principles to the solution of design and operation problems and the investigation of new and emerging technologies.	Apply advanced engineering principles to the solution of design and operation problems and the investigation of new and emerging technologies.	Apply advanced engineering principles to the solution of design and operation problems and the investigation of new and emerging technologies.

	Post Graduate Certificate	Post Graduate Diploma	Masters
B2	Function effectively as an individual, and as a member or leader of a team. Evaluate effectiveness of own and team performance.	Function effectively as an individual, and as a member or leader of a team. Evaluate effectiveness of own and team performance.	Function effectively as an individual, and as a member or leader of a team. Evaluate effectiveness of own and team performance.
B3	Make sound decisions in complex and unpredictable situations, both familiar and unfamiliar.	Make sound decisions in complex and unpredictable situations, both familiar and unfamiliar.	Make sound decisions in complex and unpredictable situations, both familiar and unfamiliar.
B4		Evaluate data sources and make sound judgements in the absence of complete data.	Evaluate data sources and make sound judgements in the absence of complete data.
B5		Analyse complex engineering issues in both a systematic and a creative way.	Analyse complex engineering issues in both a systematic and a creative way.
B6			Plan, conduct and report on an original programme of work (dissertation)
B7			Apply planning and management techniques, with an evaluation of commercial financial implications, in the conduct and management of an engineering project;

Subject Skills

	Post Graduate Certificate	Post Graduate Diploma	Masters
C1	Evaluate the environmental and societal impact of solutions to complex problems and minimise adverse impacts	Evaluate the environmental and societal impact of solutions to complex problems and minimise adverse impacts	Evaluate the environmental and societal impact of solutions to complex problems and minimise adverse impacts
C2	Demonstrate self-direction and originality in tackling and solving systems problems.	Demonstrate self-direction and originality in tackling and solving systems problems.	Demonstrate self-direction and originality in tackling and solving systems problems.
C3	Design solutions for complex problems that evidence some originality	Design solutions for complex problems that evidence some originality	Design solutions for complex problems that evidence some originality
C4		Specify and use laboratory and workshop equipment competently and safely.	Specify and use laboratory and workshop equipment competently and safely.
C5			Select and critically evaluate technical literature and other sources of information to solve complex problems.

Practical, Professional and Employability Skills

	Post Graduate Certificate	Post Graduate Diploma	Masters
D1	Exercise initiative and personal responsibility.	Exercise initiative and personal responsibility.	Exercise initiative and personal responsibility.
D2	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.	Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used.
D3	Exercise judgement in the use of information technology - to source information and to model performance using specialised software packages, with awareness of the limitation's computer models.	Exercise judgement in the use of information technology - to source information and to model performance using specialised software packages, with awareness of the limitation's computer models.	Exercise judgement in the use of information technology - to source information and to model performance using specialised software packages, with awareness of the limitation's computer models.
D4		Apply the independent learning ability required for continuing professional development.	Apply the independent learning ability required for continuing professional development.
D5		Advanced Practice route: Demonstrate knowledge and understanding of operating in a business or employer environment(s) and articulate the deployment of higher-level skills within this context.	Advanced Practice route: Demonstrate knowledge and understanding of operating in a business or employer environment(s) and articulate the deployment of higher-level skills within this context.
D6			Exercise autonomy and self-direction regarding own performance and self-management.

In addition to the common Learning Outcomes listed above, the following Learning Outcomes are specific to MSc Engineering (Aeronautical)

Knowledge and Understanding

	Post Graduate Diploma	Masters
A6	In addition to the core skills, students are expected to develop an expertise in specialist subjects, based on one optional module. The breadth of knowledge range, from composite design, renewable energy supply profiles and energy storage systems, and intelligent	In addition to the core skills, students are expected to develop an expertise in specialist subjects, based on one optional module. The breadth of knowledge range, from composite design, renewable energy supply profiles and energy storage systems, and intelligent

	Post Graduate Diploma	Masters
	system design & control (e.g., artificial intelligence, augmented reality, IoT)	system design & control (e.g., artificial intelligence, augmented reality, IoT)
A7	Evaluate characteristics associated with airflow over aircraft or sections of airframe, using mathematical and computational modelling methods.	Evaluate characteristics associated with airflow over aircraft or sections of airframe, using mathematical and computational modelling methods.
A8	Apply fundamental concepts related to the longitudinal and lateral stability control of aircraft, including the effects of control surfaces and aircraft reaction.	Apply fundamental concepts related to the longitudinal and lateral stability control of aircraft, including the effects of control surfaces and aircraft reaction.

In addition to the common Learning Outcomes listed above, the following Learning Outcomes are specific to MSc Engineering (Mechanical Manufacture)

Knowledge and Understanding

	Post Graduate Diploma	Masters
A6	In addition to the core skills, students are expected to develop an expertise in specialist subjects, based on one optional module. The breadth of knowledge range, from composite design, renewable energy supply profiles and energy storage systems, and intelligent system design & control (e.g., artificial intelligence, augmented reality, IoT)	In addition to the core skills, students are expected to develop an expertise in specialist subjects, based on one optional module. The breadth of knowledge range, from composite design, renewable energy supply profiles and energy storage systems, and intelligent system design & control (e.g., artificial intelligence, augmented reality, IoT)
A7	Understand in depth knowledge of failure mechanisms in static structures and topology optimisation using finite element analysis (FEA).	Understand in depth knowledge of failure mechanisms in static structures and topology optimisation using finite element analysis (FEA).
A8	Verify and enhance engineering practices, products, systems, services and develop analysis of manufacturing methods.	Verify and enhance engineering practices, products, systems, services and develop analysis of manufacturing methods.

In addition to the common Learning Outcomes listed above, the following Learning Outcomes are specific to MSc Engineering (Automotive)

Knowledge and Understanding

	Post Graduate Diploma	Masters
A6	In addition to the core skills, students are expected to develop an expertise in specialist subjects, based on one optional module. The breadth of knowledge range, from composite design, renewable energy supply profiles and energy storage systems, and intelligent	In addition to the core skills, students are expected to develop an expertise in specialist subjects, based on one optional module. The breadth of knowledge range, from composite design, renewable energy supply profiles and energy storage systems, and intelligent

	Post Graduate Diploma	Masters
	system design & control (e.g., artificial intelligence, augmented reality, IoT)	system design & control (e.g., artificial intelligence, augmented reality, IoT)
A7	Understand in depth knowledge of engine thermodynamics, with emphasis on optimisation of modern powertrains.	Understand in depth knowledge of engine thermodynamics, with emphasis on optimisation of modern powertrains.
A8	Evaluate in depth knowledge in automotive chassis engineering, with emphasis on the factors that influence stability, comfort, and vehicle efficiency.	Evaluate in depth knowledge in automotive chassis engineering, with emphasis on the factors that influence stability, comfort, and vehicle efficiency.

In addition to the common Learning Outcomes listed above, the following Learning Outcomes are specific to MSc Engineering (Renewable & Sustainable Energy)

	Post Graduate Diploma	Masters
A6	In addition to the core skills, students are expected to develop an expertise in specialist subjects, based on one optional module. The breadth of knowledge range, from composite design, renewable energy supply profiles and energy storage systems, and intelligent system design & control (e.g., artificial intelligence, augmented reality, IoT)	In addition to the core skills, students are expected to develop an expertise in specialist subjects, based on one optional module. The breadth of knowledge range, from composite design, renewable energy supply profiles and energy storage systems, and intelligent system design & control (e.g., artificial intelligence, augmented reality, IoT)
A7	Understand in depth knowledge in energy demand profiles and employing optimised solutions for energy reduction	Evaluate in depth knowledge in energy demand profiles and employing optimised solutions for energy reduction
A8	Evaluate and understand in depth knowledge of the current scientific understanding on climate change considering a range of socio economic, business, and governmental issues.	Evaluate and understand in depth knowledge of the current scientific understanding on climate change considering a range of socio economic, business, and governmental issues.

In addition to the common Learning Outcomes listed above, the following Learning Outcomes are specific to MSc Engineering (Electrical & Electronic)

Knowledge and Understanding

	Post Graduate Diploma	Masters
A6	In addition to the core skills, students are expected to develop an expertise in specialist subjects, based on one optional module. The breadth of knowledge range, from renewable energy supply profiles and energy storage systems, and intelligent system design & control (e.g., artificial intelligence, augmented reality, IoT)	In addition to the core skills, students are expected to develop an expertise in specialist subjects, based on one optional module. The breadth of knowledge range, from renewable energy supply profiles and energy storage systems, and intelligent system design & control (e.g., artificial intelligence, augmented reality, IoT)

	Post Graduate Diploma	Masters
A7	Understand in-depth knowledge of electrical power & energy systems and evaluate the design and operation of power-system plant, transmission networks, and smart low-carbon distribution.	Understand in-depth knowledge of electrical power & energy systems and evaluate the design and operation of power-system plant, transmission networks, and smart low-carbon distribution.
A8	Develop a critical understanding of electronic circuit design and be able to predict performance based upon analysis and simulation techniques.	Develop a critical understanding of electronic circuit design and be able to predict performance based upon analysis and simulation techniques.

In addition to the common Learning Outcomes listed above, the following Learning Outcomes are specific to MSc Engineering (Management)

Knowledge and Understanding

	Post Graduate Diploma	Masters
A6	In addition to the core skills, students are expected to develop an expertise in specialist subjects, based on one optional module. The breadth of knowledge range, from composite design, renewable energy supply profiles and energy storage systems, and intelligent system design & control (e.g., artificial intelligence, augmented reality, IoT)	In addition to the core skills, students are expected to develop an expertise in specialist subjects, based on one optional module. The breadth of knowledge range, from composite design, renewable energy supply profiles and energy storage systems, and intelligent system design & control (e.g., artificial intelligence, augmented reality, IoT)
A7	Understanding in depth knowledge to managing quality throughout the product life cycle and evaluating concepts of reliability, process improvement and industry 4.0.	Understanding in depth knowledge to managing quality throughout the product life cycle and evaluating concepts of reliability, process improvement and industry 4.0.
A8	Critically analyse current trends in engineering innovation management and reflecting on methods for systems and transition engineering.	Critically analyse current trends in engineering innovation management and reflecting on methods for systems and transition engineering.

In addition to the common Learning Outcomes listed above, the following Learning Outcomes are specific to MSc Innovative Design

	Post Graduate Diploma	Masters
A6	Critically evaluate processes to create designs showing imagination and innovation and reflect upon the variety and diversity of immersive experience	Critically evaluate processes to create designs showing imagination and innovation and reflect upon the variety and diversity of immersive experience
A7	Develop a deep understanding of the human-centred design and the human factors related to the products and services	Develop a deep understanding of the human-centred design and the human factors related to the products and services
A8	Critically analysis and evaluate the application of human factors in products and services supported by the appropriate field research	Critically analysis and evaluate the application of human factors in products and services supported by the appropriate field research

In addition to the common Learning Outcomes listed above, the following Learning Outcomes are specific to MSc Composite Materials Engineering

Knowledge and Understanding

	Post Graduate Diploma	Masters
A6	Evaluate and understand in depth knowledge of current composite manufacturing methods, environmental aspects, and sustainability.	Evaluate and understand in depth knowledge of current composite manufacturing methods, environmental aspects, and sustainability.
A7	Critically evaluate advanced composite structures and analyse stresses/deformations under various loading conditions.	Critically evaluate advanced composite structures and analyse stresses/deformations under various loading conditions.
A8	Understanding in depth knowledge and analyses of composite assembly and repair techniques.	Understanding in depth knowledge and analyses of composite assembly and repair techniques.

In addition to the common Learning Outcomes listed above, the following Learning Outcomes are specific to MSc Unmanned Aircraft System (UAS) Technology

Knowledge and Understanding

	Post Graduate Diploma	Masters
A6	Explore current unmanned aircraft system (UAS) technology problems, being treated in a critical and evaluative manner	Explore current unmanned aircraft system (UAS) technology problems, being treated in a critical and evaluative manner
A7	Understand in depth knowledge and critical awareness unmanned aircraft system (UAS) application, operations, and law	Understand in depth knowledge and critical awareness unmanned aircraft system (UAS) application, operations, and law
A8	Critically evaluate the complex issues associated with the specification and selection of suitable sensor technologies for unmanned aircraft vehicle (UAV) missions.	Critically evaluate the complex issues associated with the specification and selection of suitable sensor technologies for unmanned aircraft vehicle (UAV) missions.

10. Learning and teaching strategy

The programme is informed and guided by the Active Learning Framework (ALF), which incorporates a blended learning approach. This approach is a key part of the delivery and involves teaching, learning support, and the delivery of online sessions. The embedding of ALF provides students with a more flexible approach to their learning and is fundamental in giving all students equal opportunity to succeed. This is embedded in the University's Strategy for Supporting Student Learning and Achievement (SSSLA), which aims to 'drive the development of the pedagogic approaches required to enable flexible, accessible and inclusive curriculum delivery. It seeks to assist the student to become an independent learner, delivering subject skills alongside the embedding of skills for employment. The curriculum is designed to encourage an appreciation for learning. Learning is enriched by appropriate underpinnings, current research, industrial applications, and the development of transferable skills. 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 practise.
2. To ensure that group discussions, case study / problem solving activity relate to and reflect the different 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 accommodates this.
4. Students will be supported by tutorial discussions between the tutor and student to ensure that the proposed learning reflects the practice needs of the student.
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 Master's degree characteristics descriptors in the following ways:

a) 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.

b) 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.

c) 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.

d) 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 and critically evaluative 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.

Learning and Teaching are activities which operate at different levels simultaneously. To the student the immediate activity relates to the explicit topics being studied. However, transferable skills are also inherent in order for the student to both carry out the tasks and to develop. These elements are built into the modules comprising the programme as what might be called embedded issues. Other embedded issues, such as awareness of environmental impact, sustainability and commercial implications are also integrated in modules throughout the programme.

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), a methodology or by calculation. Reflective self-evaluation forms part of this. Critical evaluation is encouraged via debate and discussion in the tutorials.

Key Skills

Key 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.

VLE (Virtual Learning Environment)

Extensive use is made of Glyndŵr University's VLE, Moodle, to enhance the learning experience. Moodle is used by staff to provide information about the programmes and individual modules. In addition to lecture notes, it is used to provide students with additional information such as embedded content (e.g., videos), Moodle quizzes, discussion boards, activities, and links to other sources of information.

The programme leader will be responsible for gathering progress and behaviour information from the academic team and feeding this information into the progress update process. The notes from these meetings will be shared with relevant academic staff if they impact on any aspect of the teaching or learning required.

11. The Wrexham Graduate

At Glyndŵr 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 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 Glyndŵr Graduate 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

For programmes without the Advanced Practice option, students are encouraged to use their current or previous work experience to reflect on during the programme. Where practical, students may apply relevant learning to their workplace through applied projects and utilising real-world examples within their assessments

Programmes on the Advanced Practice route offer substantive work-based learning via the advanced practice module. While advice can be sought from the Work-related Learning Unit (WRLU) during the process, students are ultimately responsible for securing a placement using the protocol described in the Advanced Practice module handbook. Alternatively, they might opt to undertake a group entrepreneurial project to produce a product or service.

Students opt to undertake Advanced Practice Work Based Learning are required to submit a Placement Proposal and a Placement Specification form to the WRLU before the placement can be approved. The Placement Specification should be signed by WRLU, Placement Provider and student. Placement hours are to be recorded by students in a log and signed off by a manager at their workplace at the end of the placement. Any cause of concerns, either from students or from placement providers shall be referred to the Work-related Learning Unit who will follow the procedures outlined in the Advanced Practice handbook for remedy actions.

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.

Currently there are no Welsh speaking staff members on the postgraduate delivery team, and therefore unable to integrate Welsh elements within the delivery. However, we can support students who wish to complete assessments or conduct their projects in Welsh and will acquire guest speakers who can provide career and industrial talks in Welsh context.

14. Assessment strategy

The programme provides opportunities for formative, diagnostic and summative feedback. 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.

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.

Assessment Methods

Formal Written Examinations

These have been defined as being at a maximum length of 3 hours for a module which has no assignment element. The examinations are formally defined and centrally conducted via Wrexham University's Assessment Office.

Coursework

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 perhaps 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.

Continuous Assessment

Some modules use continuous assessment whereby a set of progressive exercises are used to build up to the achievement of a major task. Each exercise is given a mark (called summative assessment) and feedback given, usually during class, to help with the next stage. The final mark is a combination of these marks. It is also the preferred method of assessment for the project, as the student project develops there are interim points for assessment which are inclusive of VLE quizzes, presentations, logbooks, and staged formal reports. The feedback to the student is thus also continuous and assists the students to achieve their potential.

Case Study

For some modules, a 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.

Feedback to students

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.

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 Journals or Learning Logs; 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.

The following table provides an overview of module assessments and indicative submission dates.

Module Code	Module Title	Assessment type and weighting	Indicative submission date
ENG740	Engineering Research Methods & PG Studies	50% Written Assignment 50% Written Assignment	SEM-1 Wk.16 SEM-1 Wk. 26
ENG765	Engineering Design & Innovation	80% Presentation 20% Written Assignment	SEM-1 Wk. 24 SEM-1 Wk. 26
ENG777	Mechanical Engineering Systems Modelling & Simulation	100% Coursework	SEM-1 Wk. 26
ENG778	Electrical & Electronic Engineering Systems Modelling & Simulation	100% Coursework	SEM-1 Wk. 26
ENG781	Renewable Technology & Storage Integration Engineering	100% Coursework	SEM-2 Wk. 35
ENG782	Intelligent System Design & Control	100% Portfolio	SEM-2 Wk. 35
ENG783	Design with Composites-Theory & Practice	100% Coursework	SEM-2 Wk. 35
ENG791	Innovation Management & Transition Engineering	100% Portfolio	SEM-2 Wk. 35
ENG792	Process Improvement & Industry 4.0	100% Examination	SEM-2 Wk. 42-43
ENG779	Applied Aerodynamics	100% Coursework	SEM-2 Wk. 35
ENG780	Advanced Flight Mechanics & Control	100% Examination	SEM-2 Wk. 42-43
ENG766	Structural Integrity & Optimisation	100% Coursework	SEM-2 Wk. 35
ENG786	Digital Manufacture	100% Examination	SEM-2 Wk. 42-43
ENG785	Advanced Automotive Chassis Design	100% Coursework	SEM-2 Wk. 35
ENG784	Modern & Innovative Powertrains	100% Coursework	SEM-2 Wk. 35
ENG787	Energy Reduction & Sustainability	100% Examination	SEM-2 Wk. 35
ENG788	Climate Change, Consequences, Solution & Policies	100% Examination	SEM-2 Wk. 42-43
ENG789	Converters, Drives and Energy Systems	100% Examination	SEM-2 Wk. 42-43
ENG790	Circuit Design Analysis & Testing	100% Examination	SEM-2 Wk. 42-43
ENG793	Design Thinking and Strategic Innovation	80% Presentation 20% Written Assignment	SEM-1 Wk. 24 SEM-1 Wk. 26
ENG794	CAD & Digital Production	100% Portfolio	SEM-1 Wk. 25

Module Code	Module Title	Assessment type and weighting	Indicative submission date
ENG795	Project Management, Innovation & Intellectual Property	100% Portfolio	SEM-2 Wk. 42
ENG796	Generative Design & Immersive Realities	100% Portfolio	SEM-2 Wk. 43
ENG797	Human Centred Design	100% Portfolio	SEM-2 Wk. 40
ENG772	UAS Technology & Applications	100% Portfolio	SEM-1 Wk. 26
ENG763	UAV Construction	100% Portfolio	SEM-2 Wk. 40
ENG762	UAS Operations & The Law	100% Portfolio	SEM-2 Wk. 41
ENG764	UAS Sensor Technology	100% Examination	SEM-2 Wk. 42-43
ENG798	Composite Manufacture, Assembly & Repair	100% Written Assignment	SEM-1 Wk.26
ENG799	Analysis, Testing & QA of Composites	100% Coursework	SEM-1 Wk. 26
ENG7A1	Environmental & Sustainable Aspects of Composites	100% Examination	SEM-2 Wk. 42-43
ENGM66	Dissertation	80% Dissertation/Project 20% Oral Assessment	*Dependant on mode of study*
ENG7A2	Innovative Design Project	80% Oral Assessment 20% Dissertation/Project	*Dependant on mode of study*
ADP701	Advanced Practice: Work-based Learning	20% Report (pass/refer) 30% Report (pass/refer) 50% Portfolio (pass/refer)	*Dependant on mode of study*

15. Assessment and award regulations

The regulations for Taught Masters programmes apply to these programmes.

For students on the Advanced Practice route, please note that the Advanced Practice module will not be used towards the degree classification and will show as pass/fail only on the transcript. Please consult the Taught Masters Regulations available on the Student Administration web pages.

Derogations

(Excluding MSc Innovative Design)

For Engineering master's degrees, credits shall be awarded by an assessment board for those Level 7 modules in which an overall mark of at least 50% has been achieved with a minimum mark of 40% in each assessment element. No compensation is permitted for the MSc programmes.

16. Accreditation

Individual accreditation bodies are invited annually to present all avenues for chartership in engineering. All students are encouraged to attend and apply for membership to respective accreditation bodies.

The following programmes (including Advanced Practice route) are accredited.

Programme Name	Accreditation Bodies	Accreditation Type	Intakes
MSc Engineering (Aeronautical)	IET, IMechE, RAeS	Partial CEng (FL)	Sept 22- Sept 25
MSc Engineering (Automotive)	IET, IMechE	Partial CEng (FL)	Sept 22- Sept 25
MSc Engineering (Mechanical Manufacture)	IET, IMechE	Partial CEng (FL)	Sept 22- Sept 25
MSc Engineering (Renewable & Sustainable Energy)	EI. IET	Partial CEng (FL)	Sept 22- Sept 25
MSc Engineering (Electrical & Electronic)	IET	Partial CEng (FL)	Sept 22- Sept 25
MSc Composite Materials Engineering	IET, IMechE, RAeS	Partial CEng (FL)	Sept 22- Sept 25
MSc Unmanned Aircraft System (UAS) Technology	IMechE, IET & RAeS	Partial CEng (FL)	Sept 22 only

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.

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

All students at Wrexham 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

Wrexham 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):
MSc Engineering (Electrical & Electronics)
MSc Engineering (Mechanical Manufacturing)

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**
	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)

Wrexham University Programme Academic Calendar (2023 - 2024)

Part A - Programme Information

General Programme Information

Programme Name	Cohort	Teaching Start Date
MSc Engineering (Electrical & Electronic) *MSc Engineering (Mechanical Manufacturing)*	*MEEE 01* *MEMM 01*	*2 Oct 2023*
Admissions Cut Off Date		
20 Oct 2023		

Term Information

Semester	Dates	Modules taught during the semester	
		Msc Engineering (Electrical & Electronic) MEEE	**Msc Engineering (Mechanical Manufacturing) MEMM**
Sem I	2-Oct-23 to 23-Dec-23	ENG765 Engineering Design & Innovation	
		ENG789 Converters, Drives and Energy Systems	ENG786 Digital Manufacture
Sem II	8-Jan-24 to 30-Mar-24	ENG790 Circuit Design Analysis and Testing	ENG766 Structural Integrity & Optimisation
		ENG778 Electrical and Electronic Engineering Systems Modelling and Simulations	ENG777 Mechanical Engineering Systems Modelling and Simulations
Sem III	1-Apr-24 to 21-Jun-24	ENG740 Engineering Research Methods and Postgraduate Studies & ENG781 Renewable Technology & Storage Integration Engineering	
Sem IV	1-Jul-24 to 28-Sep-24	ENGM66 Dissertation	

Programme Assessment Information

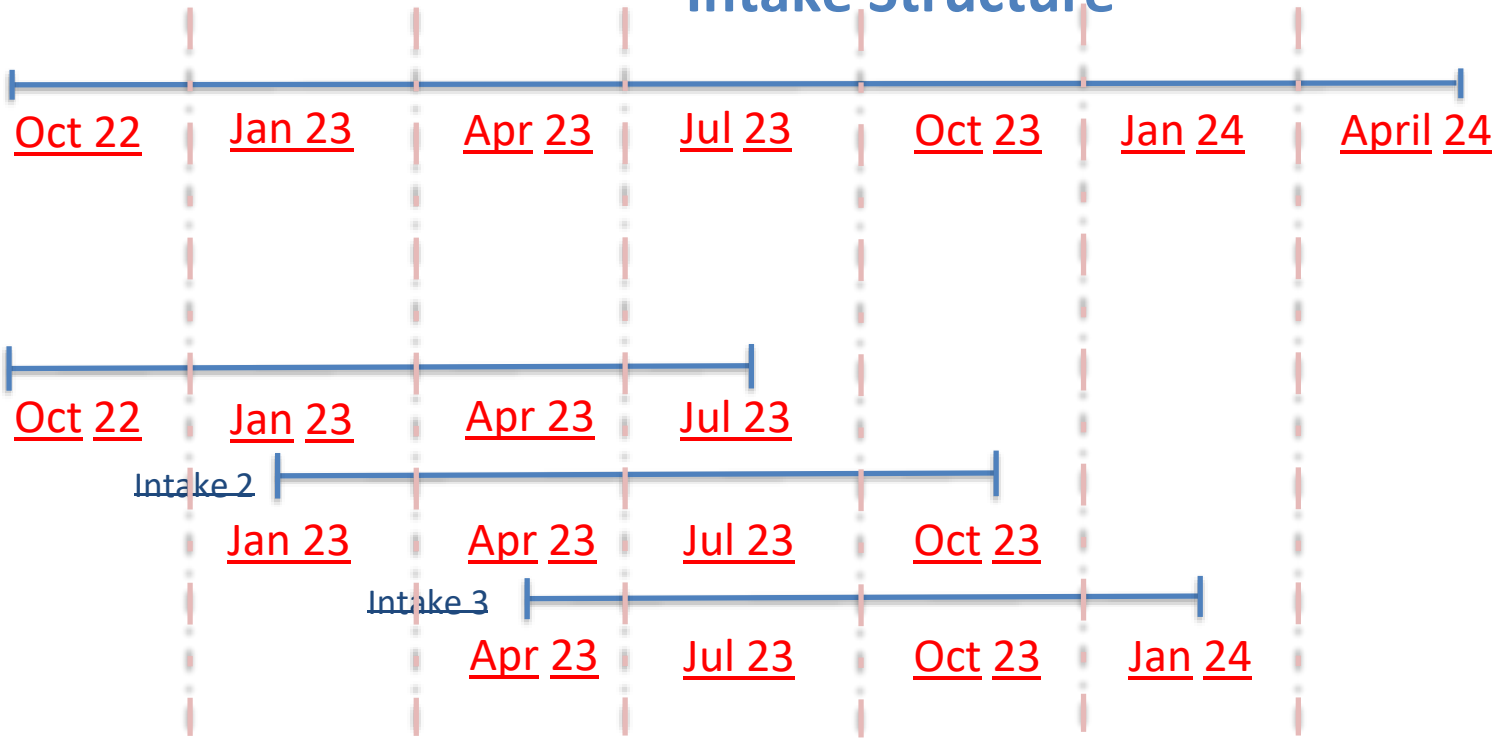
Module Codes / Title	Credit Value	Assessment Method	Weighting (%)	Deadline for assignment submission / Exam Date	Deadline for feedback to students	Exam Board Date
ENG765 Engineering Design & Innovation	20 (Core)	Presentation	80	16 Dec 2023	22 Jan 2024	Feb 2024

		Written Assignment	20	23 Dec 2023		
ENG789 Converters, Drives and Energy Systems (for MEEE only)	20 (Core)	Examination	100	28 Dec 2023		
ENG786 Digital Manufacture (for MEMM Only)	20 (Core)	Examination	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**
ENG790 Circuit Design Analysis and Testing (for MEEE only)	20 (Core)	Examination	100	26 Mar 2024	20 Apr 2024	Jun 2024
ENG778 Electrical and Electronic Engineering Systems Modelling and Simulations (for MEEE only)	20 (Core)	Coursework	100	23 Mar 2024		
ENG766 Structural Integrity & Optimisation (for MEMM only)	20 (Core)	Coursework	100	23 Mar 2024		
ENG777 Mechanical Engineering Systems Modelling and Simulations (for MEMM only)	20 (Core)	Coursework	100	26 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**
ENG740 Engineering Research Methods and Postraduate Studies	20 (Core)	Written Assignment 1	50	1 Jun 2024	20 Jul 2024	Sep 2024

		Written Assignment 2	50	22 Jun 2024		
ENG781 Renewable Technology & Storage Integration Engineering	20 (Option)	Coursework	100	29 Jun 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**
ENGM66 Dissertation	40 (Core)	Dissertation / Project	80	21 Sep 2024	19 Oct 2024	Feb 2025
		Oral Assessment	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.