Undergraduate Programme Specification

Session	2026/27	**Last Modified**	20/03/2025
Named Award Title	BSc (Hons) Mechanical Engineering (Sandwich Available)		
Award Title for Each Award	BSc (Hons) Mechanical Engineering (Sandwich Available) BSc Mechanical Engineering (Sandwich Available) Dip HE Engineering Cert HE Engineering Science		
Date of Approval	February 2025		
Details of Cohort Applies to	All students from session 2025-2026		
Awarding Institution	University of the West of Scotland	**Teaching Institution(s)**	University of the West of Scotland
Language of Instruction & Examination		English	
Award Accredited by		N/A	
Maximum Period of Registration		Full-Time - 6 Years	
Duration of Study			
Full-time	4 years- Full-time 5 years- Sandwich	**Part-time**	8 years- Full-time 9 years- Sandwich
Placement (compulsory)	For Sandwich Award only-Yes		
Mode of Study	☒ Full-time ☒ Part-time		
Campus	☐ Ayr ☐ Dumfries	☐ Lanarkshire ☐ London ☒ Paisley	☐ Online / Distance Learning ☐ Other (specify)
School	**Computing, Engineering and Physical Sciences**		
Divisional Programme Board	**Engineering Physical Sciences**		
Programme Leader	Md A Uzzaman		

Admissions Criteria

Candidates must be able to satisfy the general admission requirements of the University of the West of Scotland as specified in Chapter 2 of the University Regulatory Framework together with the following programme requirements:

SQA National Qualifications:

This programme will not be offered to external applicants and will only be available as a programme which students on the MEng/BEng (Hons) Mechanical Engineering may be able to transfer onto if they are unable to progress in their current programme.

Or GCE
N/A

Or SQA National Qualifications / Edexcel Foundation
N/A

Other Required Qualifications/Experience
N/A

Further desirable skills pre-application
N/A

General Overview
This programme has been developed to provide a continuation to honours degree path for those students who may be unable to progress on their current BEng (Hons) Mechanical Engineering degree due to a 'No further attempt' on a 20 Credit core module in each of the SCQF Levels 7-10.

This programme is not accredited. The flexibility required in the programme to allow for students with a 'No further attempt' in any 20 Credit core module in each SCQF Level means this programme is not accreditable under the Engineering Councils AHEP4 conditions. This will be explained clearly in writing to the student at the point the transfer to the BSc programme is offered. However, this will not prevent students who graduate from the BSc (Hons) programme from seeking IEng/CEng status in the future, subject to the student meeting the appropriate Engineering Council/Accrediting Body policies on this.

Graduates from the BSc (Hons) Mechanical Engineering programme will have an ability to develop solutions for a wide range of engineering problems using new or existing technologies, through innovation, creativity and change.

Graduates will possess the following defining characteristics. A coherent body of knowledge including mathematics, natural science and engineering principles, and a proven ability to apply that knowledge to analyse and solve complex engineering problems. Some of the knowledge will be at the forefront mechanical engineering. Graduates will be able to select and apply quantitative and computational analysis techniques, recognising the limitations of the methods employed. They will have an appreciation of professional engineering practice and ethics; graduates will be commercially aware and be able to apply their knowledge and skills to design and deliver new products or services to meet defined needs using new or existing technologies.

The teaching and learning methods employed by staff in the delivery of the module portfolio covers a wide range of established as well as some novel approaches. Much of this is left to

the professionalism of the staff delivering the material with traditional lectures and tutorials still forming the basis for much of the teaching and learning within the School but also flipped classroom and online, video recording of sessions is now found in all modules. Extensive use is also made of laboratories, seminars, group work, independent learning and demonstrations. More use is now being made of problem-based learning materials in the teaching environment. One of the main objectives in this area is to keep teaching materials as interesting and as relevant as possible to ensure student enthusiasm for the subjects being presented. Staff make full use of all technologies when delivering materials to students including use of multi-media presentations and extensive use of the internet/electronic technology or other appropriate e-learning strategies. The School has a policy of using small tutorial groups in the key subject areas and either sub-divides cohorts into small groups or increases staff numbers in classroom or laboratory environments. All modules are taught by subject experts and for final year students staff make use of materials and topics raised through their professional activities whether research or consultancy based. Many case studies and examples of applications are taken from live industrial situations. The School has always taken a lead in the use of IT to either deliver material or to supplement and reinforce the traditional teaching and learning approaches. Students currently have access to high specification workstations in state-of-the-art air-conditioned laboratories. Students and staff have personal accounts for the School facilities and students are able to gain 24 hour access to the IT facilities seven days per week.

All modules are now supported electronically, providing notes, copies of lectures models, videos etc. Students can also contact staff via e-mail or vice-versa. Students are supplied with staff contact details (including e-mail addresses) in the Programme Handbooks. There are examples within the School where staff make use of the VLE to perform additional teaching and learning activities such as on-line tests and assessments. A variety of assessment methods are used throughout the programmes. These range from class tests, laboratory reports, design assessments, individual and group presentations and formal examinations. In first year, assessment is by class test and coursework. This aims to build confidence in the student's ability to pass modules. Both group project work and individual project work are incorporated into the curriculum so that students develop their learning skills associated with group and independent working as well as giving presentation on their work. Formative feedback and constructive comments are given to the student on their work. Anonymous marking is undertaken, where possible. Honours projects and group projects are double marked. Mixtures of formative and summative methods are used in the assessment of student performance within the School. It is recognised that while most assessments are summative in nature, demands from students have indicated a desire for more assessment which delivers regular feedback. Where possible, this has been attempted but it is noted that this puts extreme demands on the available time that academics have for marking. There are a number of modules with PDP elements that are integrated within the module content (e.g. Project Management). However, there are additional hours and a number of PDP activities that will be scheduled and presented out with the selected modules in accordance with School PDP guidelines. These will be presented, where possible, on the normal days of student attendance or during induction.

The programme and programme specification has been reviewed and updated taking cognisance of the University's Curriculum Framework principles as discussed below.

Student Centred
Reflection on learning is inherent and credit bearing in all years of the programme.

Advanced entry to the programme is available where RPL/CPD/informal learning is evidenced.

Access to student support (programme team, peers and wider University student services) is promoted at induction, through personal tutoring/year/programme leader, group activity in all levels of the programme, SCQF Level appropriate employability and careers sessions and within modules evident in entry level of the programme.

Engagement and progress is monitored by module coordinators, this takes the form of VLE analytics, assessment engagement, on-campus activity engagement and formative and summative assessment engagement. Monthly meetings with year leads and programme leads allows the programme teams to respond appropriately and quickly both from a student and programme learning, teaching and assessment perspective.

Co-creation of curriculum is challenging due to the need to demonstrate that Engineering Council learning outcomes are met by all students. However, within a number of modules students can determine the direction of their learning with boundaries set to ensure the assessment is fit for purpose. [1]

Delivery of the programme is on-campus lectures, tutorial, laboratory or group work activity. The timetables are produced to ensure on-campus learning time is efficiently maximised.

Simple and Coherent The programme has multiple exit award points as demonstrated in the programme specification and students are supported/counselled appropriately by the programme leader after examiners' panels.

Programme teams are aware of the programme learning outcomes through ongoing programme development meetings. The importance of the modular outcomes and assessment approaches on the overall programme outcomes and Engineering Council's learning outcomes, student feedback and sustainability are core to the discussions at these meetings. Students are made aware of the programme learning outcomes at induction, module introductions and programme development workshops. A capstone module is present at L10- Final Year Project. Assessment, wherever possible, follows real-world activities examination is required as part of the accreditation requirements however this follows an open-book approach providing time-bound, individually assessed, unfamiliar problems- assessing content and developing a number of important meta-skills. All modules have inherent tutorial activity with formative assessment providing concurrent feedback allowing implementable feed-forward.

Meta-skills are embedded in the programme as is required by the Engineering Council and these include digital skills, creativity, critical thinking, innovation, and entrepreneurship and social enterprise. Students are assessed in a variety of ways and settings including, practical, written, oral, time-bound, group, real-world environment, creative, critical thinking and this broad approach to assessment provides a number of transferrable skills to be developed whilst assessing. Inclusivity The programme team have reviewed the content of the Advance HE Anti-Racist Curriculum Project [2] and are aware that in this regard 'curricular reform is a continual process rather than a final destination'. With this in mind further institutional guidance is welcomed to ensure that every effort has been made to ensure the curriculum is and continues to be antiracist and inclusive for all. Sustainability Wherever possible modules are shared with other engineering programmes to maximise efficiency with specific programme contextualised components of learning, teaching and assessment. All modules have been reviewed to ensure they meet the norms around contact hours.

[1] https://www.uws.ac.uk/media/6564/assessment-handbook-2023-24.pdf
[2] https://www.advance-he.ac.uk/anti-racist-curriculum-project

Typical Delivery Method
On-campus lectures, tutorials and laboratories (practical and computer) with additional independent activity.

Any additional costs
None

Graduate Attributes, Employability & Personal Development Planning
UWS' Graduate Attributes focus on academic, personal and professional skills and throughout the programmes that these skills develop graduates who are universally prepared, work-ready and successful. The Mechanical Engineering programme provides opportunities throughout the levels to enable these skills to be developed and focussed appropriately. Mechanical Engineering knowledge is assembled throughout the programme and wherever possible digital literacy skills and ability to provide effective solutions is enhanced utilising industry standard appropriate technologies such as MATLAB, MATHCAD, CAD, FEA and CFD software. Particularly, but not exclusively, in later years of the programme, critical analytical and inquiry skills are developed and used to solve industry related problems in modules such as Design, Prototyping and Testing and Design and Applications. Structural and Fluids design and analysis exercises are utilised where incisive and innovative solutions are required to be effectively presented as part of collaborative groups or as individual autonomous learning activities. The programme promotes cultural awareness and emotional intelligence with a variety of group exercises developing resilient, ambitious and enterprising leadership qualities whilst ensuring that group members are emotionally and culturally aware and respectful communication and behaviours are the norm. Commercial awareness is linked to mechanical design activities during the programme ensuring that costs associated with staff, materials, manufacture, in-service and decommissioning are considered when developing transformational/innovative solutions with commercial potential. Ethical awareness and social responsibility are developed throughout and is formalised in final year project studies where School/University ethical approval is sought if required. Links to current University and programme research are promoted through the programme with opportunities for students to become involved in aspects of the research from the earliest opportunity either discretely or as part of an assessment.

UWS Graduate Attributes -https://www.uws.ac.uk/current-students/your-graduate-attributes/

PDP and Employability
The University's Mechanical Engineering graduates gain employment throughout the UK and overseas in engineering and manufacturing companies, consulting engineers, engineering contractors and also research activities. The program is also organised to allow part time entry allowing those in employment to undertake degree award on a day release manner and thereby supporting employers to increase qualification levels of their employees manageably. Across the programme of study, the Personal Development Planning (PDP) process gives the opportunity for engagement of students with a set of core activities, which include:
• reflection on prior experience, personal attributes and goals.
• audits of skills and feedback on their development.
• opportunities and guidance on the recording of achievements.
• the identification/development of learning goals.
• opportunities to reflect on this material and to gain feedback.
• opportunities (and guidance) on presentation of evidence for different audiences and planning of future.

• learning and career development (such as CVs).
• maintaining an effective PDP record.

Work Based Learning/Placement Details

The programme includes an optional year placement between second and third years or third and fourth years. If a student completes at least 36 weeks of this work placed learning the student is eligible for the 'Sandwich' award title.
The requirements for Workplace Learning are described in the Module Descriptor ENGG00001 Sandwich Placement:Engineering. Please refer to this module descriptor for further details. It is the students' responsibility to secure these placements and therefore it is not guaranteed. However, acadamic staff will provide help and support in this regard.

Attendance and Engagement

In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time.

For the purposes of this programme, academic engagement equates to the following:

Students are expected to attend all timetabled sessions and to engage with all formative and summative assessment elements of all the modules that are included in the programme specification as core modules as well as any optional module when applicable.

Equality and Diversity

The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code.

Aligned with the University's commitment to equality and diversity, this programme supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content. The programme modules comply with University regulations and guidance on inclusive learning and teaching practice. Specialist assistive equipment, support provision and adjustment to assessment practice in accordance with the University's policies and regulations. (N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School).

Programme structures and requirements, SCQF level, term, module name and code, credits and awards (Chapter 1, Regulatory Framework)

Learning Outcomes

SCQF LEVEL 7 Learning Outcomes	
Knowledge and Understanding	
A1	Demonstrate a knowledge and understanding of the key areas of mechanical and design engineering, and its underpinning science and mathematics. Some of the knowledge will be at the forefront of the particular subject area.
A2	Demonstrate a basic knowledge and understanding of introductory principles and contexts with respect to multi-disciplinary aspects of engineering.
A3	Knowledge and understanding of the relevant materials, equipment and processes and technologies underpinning product design.
A4	Demonstrate an understanding of the commercial context and sustainability of engineering activities.
A5	Apply knowledge of engineering management principles, commercial context, project and change management and relevant legal matters including intellectual property rights.
Practice - Applied Knowledge and Understanding	
B1	Be able to apply appropriate quantitative science and engineering tools to the analysis of complex problems to reach substantiated conclusions, recognising the limitations of the techniques employed.
B2	Apply acquired knowledge and understanding and practical engineering skills in appropriate laboratories, workshops and individual and group projects to investigate complex problems.
B3	Use and apply technical literature and other information sources to address complex problems.
B4	Demonstrate and apply an awareness of quality issues and their application to continuous improvement.
B5	Evaluate the environmental and societal impact of solutions to complex problems and minimise adverse impacts.
Communication, ICT and Numeracy Skills	
C1	Develop an appropriate range of transferable skills in communication, the use of IT facilities and information retrieval.
C2	Use computer software relevant to mechanical and design engineering.
C3	Adopt a holistic and proportionate approach to the mitigation of security risks.
C4	Communicate effectively on complex engineering matters with technical and non-technical audiences.
C5	N/A
Generic Cognitive Skills - Problem Solving, Analysis, Evaluation	
D1	Apply appropriate quantitative science and engineering tools to basic problems.

D2	Develop an appropriate range of transferable skills and apply these in problem solving.
D3	Apply an integrated or systems approach to the solution of complex problems.
D4	N/A
D5	N/A
Autonomy, Accountability and Working with Others	
E1	Adopt an inclusive approach to engineering practise the responsibilities, benefits and importance of supporting equality, diversity and inclusion.
E2	Develop transferable skills that will be of value in working with others
E3	Develop skills in planning self-learning and improving performance, as the foundation for PDP, lifelong learning and CPD.
E4	Demonstrate an understanding of the need for a high level of professional and ethical conduct in engineering.
E5	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.

Level 7 Modules

CORE

SCQF Level	**Module Code**	**Module Title**	**Credit**	**Term**			**Footnotes**
				1	**2**	**3**	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
Footnotes for Core Modules							

Level 7 Modules

OPTION

SCQF Level	**Module Code**	**Module Title**	**Credit**	**Term**			**Footnotes**
				1	**2**	**3**	
7	APPD07001	ASPIRE	20	☒	☐	☐	1,2
7	ENGG07001	Engineering Mechanics	20	☒	☐	☐	1,2
7	MATH07011	Applied Mathematics 1	20	☒	☐	☐	1,2
7	ENGG07007	Stress Strain Structural Design	20	☐	☒	☐	1,2
7	ENGG07023	Introduction to Engineering	20	☐	☒	☐	1,2
7	ENGG07016	Programming for Engineers	20	☐	☒	☐	1,2
Footnotes for Option Modules 1. The list of optional modules above is the same as the SCQF Level 7 BEng (Hons) Mechanical Engineering programme and students are only offered to transfer to this							

programme if one of the 20 Credit modules listed above has not been able to be passed due to a 'No further attempts' decision on that module.

2. Students are expected to undertake the modules as listed above. If a student fails one 20 credit module, there is the option, with the agreement of the Programme Leader, to take another module from the School's module portfolio, which will make up the credit deficit and ensure Programme Learning Outcomes are met.

Level 7
Criteria for Progression and Award
Please refer to UWS Regulatory Framework for related regulations

Progression

1. To progress from SCQF Level 7 to SCQF Level 8 on the BSc (Hons) Mechanical Engineering, students are required to obtain 100 credits at SCQF Level 7 from the programme of modules above and one further SCQF Level 7 or above, 20 Credit optional module as explained in Footnotes 1 and 2 above.

2. Refer to Regulatory Framework 3.13 regarding progression with credit deficit.

Award

1. Students obtaining 120 credits at SCQF 7, with a minimum of 100 credits from the above programme, are eligible for the exit award of the Certificate of Higher Education in Engineering Science.

2. Distinction will be awarded in line with University Regulations 3.25 and 3.26, no imported credit can be used.

SCQF LEVEL 8 Learning Outcomes	
Knowledge and Understanding	
A1	Demonstrate and apply knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems. Some of the knowledge will be at the forefront of the particular subject of study.
A2	Demonstrate an extended knowledge of the different types and characteristics of engineering materials and manufacturing processes.
A3	Demonstrate the role of quality management systems and continuous improvement in the context of complex problems.
A4	Demonstrate a knowledge and understanding of basic management theory and relevant issues.
A5	Demonstrate an understanding of the environmental and societal impact of solutions to complex problems and minimise adverse impacts.
Practice - Applied Knowledge and Understanding	
B1	Demonstrate the analysis of complex engineering problems to reach substantiated conclusions using first principles of mathematics, statistics, natural science and engineering principles. Select and apply appropriate computational and analytical techniques to model complex problems, recognising the limitations of the techniques employed. Select appropriate materials and manufacturing methods for a range of consumer products.
B2	Evaluate the environmental and societal impact of solutions to complex problems and minimise adverse impacts. Select and evaluate technical literature and other sources of information to address complex problems.
B3	Design solutions for complex problems that meet a combination of societal, user, business and customer needs as appropriate. This will include the consideration of applicable H&S, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practices and industry standards.
B4	Apply an integrated or systems approach to the solution of complex problems. Undertake appropriate design calculations for different aspects of engineering artefacts.
B5	Demonstrate skills in the application and use of computer aided design software and use practical laboratory and workshop skills to investigate complex problems.
Communication, ICT and Numeracy Skills	
C1	Communicate design ideas through the use of 3D modelling software.
C2	Demonstrate the ability to communicate engineering ideas and concepts through the use of presentation software to various audiences.
C3	Adopt a holistic and proportionate approach to the mitigation of security risks.
C4	Demonstrate the use of web technology to communicate product information to a selected audience.
C5	Demonstrate an understanding of the computer techniques available to enhance the communication of engineering ideas and concepts.
Generic Cognitive Skills - Problem Solving, Analysis, Evaluation	

D1	Use appropriate quantitative science and engineering tools to the analysis of basic engineering problems.
D2	Demonstrate the ability to monitor, interpret and apply the results of analysis and modelling.
D3	Demonstrate the ability to apply basic quantitative methods relevant to mechanical engineering design problems.
D4	Demonstrate the ability to define a problem and identify constraints.
D5	Demonstrate the ability to use appropriate codes of practice and industry standards
Autonomy, Accountability and Working with Others	
E1	Develop an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.
E2	Develop an enhanced level of transferable skills that will be of value in working with others in more complex situations.
E3	Recognise the role and contribution of team members when carrying out and evaluating tasks. Function effectively as an individual, and as a member or leader of a team.
E4	Understand the need for the consideration of Sustainability at the initial stage of product design.
E5	Plan and record self-learning and development as the foundation of lifelong learning/ CPD.

Level 8 Modules

CORE

SCQF Level	**Module Code**	**Module Title**	**Credit**	**Term**			**Footnotes**
				1	**2**	**3**	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	

Footnotes for Core Modules

Level 8 Modules

OPTION

SCQF Level	Module Code	Module Title	Credit	Term			Footnotes
				1	2	3	
8	ENGG08030	Introductory Management for Engineers	20	☒	☐	☐	1,2
8	APPD08001	ASPIRE	20	☒	☐	☐	1,2
8	MATH08001	Applied Mathematics 2	20	☒	☐	☐	1,2
8	ENGG08001	Materials, Manufacturing and CAD	20	☐	☒	☐	1,2
8	ENGG08017	Design Analysis 1	20	☐	☒	☐	1,2
8	ENGG08021	Introduction to Thermo-Fluids	20	☐	☒	☐	1,2
9	ENGG00001	Sandwich Placement: Engineering	40	☒	☒	☒	3

Footnotes for Option Modules

1. The list of optional modules above is the same as the SCQF Level 8 BEng (Hons) Mechanical Engineering programme and students are only offered to transfer to this programme if one of the 20 Credit modules listed above has not been able to be passed due to a 'No further attempts' decision on that module.

2. Students are expected to undertake the modules as listed above. If a student fails one 20 credit module, there is the option, with the agreement of the Programme Leader, to take another module from the School's module portfolio, which will make up the credit deficit and ensure Programme Learning Outcomes are met.

3. All students undertaking the optional Industrial Placement (Sandwich) year need to enrol on the module ENGG00001 (Sandwich Placement: Engineering).

Level 8
Criteria for Progression and Award
Please refer to UWS Regulatory Framework for related regulations

Progression

1. To progress from SCQF Level 8 to SCQF Level 9 on the BSc (Hons) Mechanical Engineering programme, students are required to obtain 120 credits from the programme of modules listed at SCQF Level 8 above, or 100 credits from the SCQF Level 8 programme of modules listed above and one further 20 Credit module as explained in Footnotes 1 and 2 above.

2. Refer to Regulation 3.13 regarding progression with credit deficit.

Award

1. Students wishing to exit after SCQF Level 8 and who have achieved 240 credits, of

which a minimum of 100 credits are at SCQF Level 8 or above, will be awarded a Diploma of Higher Education in Engineering.

2. Distinction will be awarded in line with University Regulations 3.25 and 3.26, no imported credit can be used.

SCQF LEVEL 9 Learning Outcomes (Maximum of 5 per heading)	
Knowledge and Understanding	
A1	Demonstrate and apply knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems. Some of the knowledge will be at the forefront of the particular subject of study.
A2	Demonstrate an understanding of the concepts and limitation of the Finite Element Analysis technique when applied as a design tool.
A3	Demonstrate an integrated knowledge and understanding of computer aided engineering tools in reverse and conventional modes in engineering product design.
A4	Demonstrate a comprehensive knowledge of advanced testing techniques and their application.
A5	Demonstrate an integrated knowledge and understanding of project organisation, management and execution
Practice - Applied Knowledge and Understanding	
B1	Demonstrate the analysis of complex engineering problems to reach substantiated conclusions using first principles of mathematics, statistics, natural science and engineering principles. Select and apply appropriate materials, equipment, engineering technologies and processes, recognising their limitations.
B2	Select and apply appropriate computational and analytical techniques to model complex problems, recognising the limitations of the techniques employed. Apply an integrated or systems approach to the solution of complex problems.
B3	Evaluate the environmental and societal impact of solutions to complex problems and minimise adverse impacts. Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity
B4	Design solutions for complex problems that meet a combination of societal, user, business and customer needs, as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards.
B5	Select and evaluate technical literature and other sources of information to address complex problems. Use practical laboratory and workshop skills to investigate complex problems. Discuss the role of quality management systems and continuous improvement in the context of complex problems. Apply knowledge of engineering management principles, commercial context, project and change management, and relevant legal matters including intellectual property rights.
Communication, ICT and Numeracy Skills	
C1	Apply appropriate mathematical and analytical techniques in the solution of engineering and design problems.
C2	Demonstrate the ability to use relevant test, modelling, and measurement equipment in the laboratory.
C3	Adopt a holistic and proportionate approach to the mitigation of risks.
C4	Ability to apply a systems approach to engineering problems through know-how of the application of relevant technologies.
C5	Communicate effectively on complex engineering matters with technical and nontechnical audiences.

Generic Cognitive Skills - Problem Solving, Analysis, Evaluation	
D1	Undertake a critical analyses of mechanical engineering designs and propose alterations to improve performance.
D2	Analyse design data as the basis of optimising product or component geometry
D3	Undertake a comparison between traditional and reverse engineering approaches to component or product design.
D4	N/A
D5	N/A
Autonomy, Accountability and Working with Others	
E1	Further develop the ability to work independently or as part of a team. Communicate effectively on complex engineering matters with technical and non-technical audiences
E2	Prepare, under supervision a risk assessment in line with current industry practice
E3	Recognise the need for professional and ethical conduct in engineering and awareness of environmental issues.
E4	Plan and record self-learning and development as the foundation of lifelong learning/CPD.
E5	Adopt an inclusive approach to engineering practice and recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion.

Level 9 Modules

CORE

SCQF Level	Module Code	Module Title	Credit	Term			Footnotes
				1	2	3	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
Footnotes for Core Modules							

Level 9 Modules

OPTION

SCQF Level	Module Code	Module Title	Credit	Term			Footnotes
				1	2	3	
9	ENGG09004	Project Management	20	☒	☐	☐	1,2
9	ENGG09020	Design Analysis 2	20	☒	☐	☐	1,2
9	ENGG09021	Design & Applications	20	☒	☐	☐	1,2
9	ENGG09001	Design Prototyping & Testing	20	☐	☒	☐	1,2

9	ENGG09011	Analysis & Simulation 1	20	☐	☒	☐	1,2
9	ENGG09057	Advanced Computer Aided Design	20	☐	☒	☐	1,2
9	ENGG00001	Sandwich Placement: Engineering	40	☒	☒	☒	3

Footnotes for Option Modules

1. The list of optional modules above is the same as the SCQF Level 9 BEng (Hons) Mechanical Engineering programme and students are only offered to transfer to this programme if one of the 20 Credit modules listed above has not been able to be passed due to a 'No further attempts' decision on that module.

2. Students are expected to undertake the modules as listed above. If a student fails one 20 credit module, there is the option, with the agreement of the Programme Leader, to take another module from the School's module portfolio, which will make up the credit deficit and ensure Programme Learning Outcomes are met.

3. All students undertaking the optional Industrial Placement (Sandwich) year need to enrol on the module ENGG00001 (Sandwich Placement: Engineering).

Level 9
Criteria for Progression and Award
Please refer to UWS Regulatory Framework for related regulations

Progression

1. To progress from SCQF Level 9 to SCQF Level 10 on the BSc (Hons) Mechanical Engineering programme, students are required to obtain 120 credits from the programme of modules listed at SCQF Level 9 or 100 credits from the SCQF Level 9 programme of modules listed above and one further module as explained in Footnote 1 and 2 above.

2. Refer to Regulatory Framework 3.13 regarding progression with credit deficit.

Award

1. Students wishing to exit after SCQF Level 9 and who have achieved 360 credits, of which a minimum of 100 credits are at SCQF Level 9 or above, will be awarded a BSc Mechanical Engineering.

2. Students who have satisfied the requirements for a Sandwich award will graduate with the addition of 'Sandwich' to their named award.

3. Distinction will be awarded in line with University Regulations 3.25 and 3.26 and no imported credit can be used.

SCQF LEVEL 10

Learning Outcomes (Maximum of 5 per heading)

Knowledge and Understanding

A1	Demonstrate and apply knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems. Some of the knowledge will be at the forefront of the particular subject of study.
A2	Demonstrate a detailed knowledge and understanding of design principles and apply them to the development of an engineering design.
A3	Demonstrate a detailed knowledge and understanding of advanced engineering principles including creep, plasticity, fracture mechanic, vibrations and the key elements of sustainability and renewable energy systems.
A4	Demonstrate a detailed knowledge and understanding of the design, manufacture and testing of composite materials.
A5	Demonstrate a clear understanding of the scope, application and limitations of computational fluid dynamics and FEA.
Practice - Applied Knowledge and Understanding	
B1	Demonstrate the analysis of complex mechanical engineering problems to reach substantiated conclusions using first principles of mathematics, statistics, natural science and engineering principles. Select and apply appropriate materials, equipment, engineering technologies and processes, recognising their limitations.
B2	Select and apply appropriate computational and analytical techniques to model complex problems, recognising the limitations of the techniques employed. Apply an integrated or systems approach to the solution of complex problems. Select and valuate technical literature and other sources of information to address complex problems.
B3	Design solutions for complex problems that meet a combination of societal, user, business and customer need as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards.
B4	Evaluate the environmental and societal impact of solutions to complex problems and minimise adverse impacts. Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity. Apply knowledge of engineering management principles, commercial context, project and change management, and relevant legal matters including intellectual property rights.
B5	Undertake research into a number of mechanical engineering related areas Undertake static and dynamic assessments of a range of engineering components or equipment. Use practical laboratory and workshop skills to investigate complex problems. Select and apply appropriate materials, equipment, engineering technologies and processes, recognising their 20 limitations. Discuss the role of quality management systems and continuous improvement in the context of complex problems.
Communication, ICT and Numeracy Skills	
C1	Use computer simulation to communicate design solutions
C2	Analyse and evaluate engineering data as a means of optimising a component or system
C3	Use computer software to present project results to a variety of audiences which could include peers, academics and industrialists
C4	Apply project management techniques and tools to an engineering problem
C5	Adopt a holistic and proportionate approach to the mitigation of security risks
Generic Cognitive Skills - Problem Solving, Analysis, Evaluation	

D1	Demonstrate creative skills in preparing engineering design solutions.
D2	Demonstrate the ability to investigate and solve engineering problems through the use of computer simulation.
D3	Assess the requirements of international standards and how they impact mechanical engineering design
D4	Carry out individual and group projects in a professional manner
D5	N/A
Autonomy, Accountability and Working with Others	
E1	Communicate effectively on complex engineering matters with technical and non-technical audiences.
E2	Working with peers demonstrate a high level of ability to function effectively as a team member, demonstrating leadership when required.
E3	Plan and record self-learning and development as the foundation for lifelong learning and CPD.
E4	Adopt an inclusive approach to engineering practice and recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion.
E5	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.

Level 10 Modules

CORE

SCQF Level	Module Code	Module Title	Credit	Term			Footnotes
				1	2	3	
10	ENGG10001	Final Year Project	40	☒	☒	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
				☐	☐	☐	
Footnotes for Core Modules							

Level 10 Modules

OPTION

SCQF Level	Module Code	Module Title	Credit	Term			Footnotes
				1	2	3	
10	ENGG10019	Analysis & Simulation 2	20	☒	☐	☐	1,2
10	NEW	Mechanical Design Group Project	20	☒	☐	☐	1,2
10	ENGG10021	Composite Structures	20	☐	☒	☐	1,2

10	ENGG10084	Energy Systems Analysis and Design	20	☐	☒	☐	1,2
N/A				☐	☐	☐	
N/A				☐	☐	☐	

Footnotes for Option Modules

1. The list of optional modules above is the same as the SCQF Level 10 BEng (Hons) Mechanical Engineering programme and students are only offered to transfer to this programme if one of the 20 Credit modules listed above has not been able to be passed due to a 'No further attempts' decision on that module.

2. Students are expected to undertake the modules as listed above. If a student fails one 20 credit module, there is the option, with the agreement of the Programme Leader, to take another module from the School's module portfolio, which will make up the credit deficit and ensure Programme Learning Outcomes are met.

Level 10
Criteria for Award
Please refer to UWS Regulatory Framework for related regulations

Award

1. For the award of BSc (Hons) Mechanical Engineering, 480 credit points must be achieved as outlined above, of which a minimum of 100 credits are at SCQF Level 10 or above.

2. Students who have satisfied the requirements for a Sandwich award will graduate with the addition of 'Sandwich' to their named award.

3. The Classification of Honours will be determined by University Regulation 3.20-3.24.

Regulations of Assessment

Candidates will be bound by the general assessment regulations of the University as specified in the University Regulatory Framework.

An overview of the assessment details is provided in the Student Handbook and the assessment criteria for each module is provided in the module descriptor which forms part of the module pack issued to students. For further details on assessment please refer to Chapter 3 of the Regulatory Framework.

To qualify for an award of the University, students must complete all the programme requirements and must meet the credit minima detailed in Chapter 1 of the Regulatory Framework.

Combined Studies

There may be instances where a student has been unsuccessful in meeting the award criteria for the named award and for other more generic named awards existing within the School. Provided that they have met the credit requirements in line with the SCQF credit minima

(please see Regulation 1.21), they will be eligible for a Combined Studies award (please see Regulation 1.61). For students studying BA, BAcc, or BD awards the award will be BA Combined Studies. For students studying BEng or BSc awards, the award will be BSc Combined Studies.

Version no: 1

Change/Version Control

What	When	Who
PL changed to Md A Uzzaman. L7 Modules Update; a) (MATH07011) applied mathematics title changed to applied mathematics 1. b) (MATH07008) python fundamentals changed to programming for engineers (ENGG07016). L8 Modules Update; a) new module ASPIRE (APPD08001) added b) (MATH08001) mathematics for design title changed to applied mathematics 2 c) (ENGG09056) computer aided design 1 removed d) new module materials, manufacturing and CAD (ENGG08001) added L9 Modules Update; a) (ENGG09057) computer aided design 2 title changed to advanced computer aided design	2026	PL