Module Descriptor

Title	Model Aircraft Design Group Project		
Session	2025/26	**Status**	Published
Code	ENGG10038	**SCQF Level**	10
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	T Leslie		

Summary of Module

The design of a model aircraft captures many of the initial considerations of actual aircraft design and this approach will provide students with the opportunity to assemble a variety of the learning from several of the modules previously undertaken in a manageable group activity.

Working in small groups the students will analyse a provided design brief, determine a project plan and resource usage, utilising an appropriate design process model throughout the activity will result in the preparation of conceptual and final designs and detailed calculations relating to sizing, lift and drag, power and endurance/range. An appropriate design verification strategy will be employed as part of the chosen design process model resulting in detailed drawings and 3D models of the final design.

Outcome 1 is intended to allow students to demonstrate their ability to analyse a complex model aircraft design brief and determine a suitable approach to the design solution.

Outcome 2 is intended to further develop student's project management skills with multiple resources and numerous complex tasks some asynchronous some concurrent.

Outcome 3 is intended, whilst following a design process model, to demonstrate the students' ability to develop detailed conceptual and final designs to fulfil the design brief.

Outcome 4 is intended to allow students to demonstrate their ability to analyse, using a verification strategy the suitability of the final design and project.

During the course of this module students will develop their UWS Graduate Attributes (https://www.uws.ac.uk/current- students/your-graduate-attributes/) in the following areas-

Universal: Academic - Critical thinking, analytical & inquiring mind; Personal- Emotionally Intelligent Ethical; Professional- Collaborative, Research Minded

Work-Ready: Academic - Knowledgeable, Digitally Literate, Problem Solver; Personal - Effective Communicator; Professional - Ambitious, Potential Leader

Successful : Academic - Autonomous, Innovative; Personal - Creative, Imaginative, Resilient; Professional- Driven

This module has been reviewed and updated, taking cognisance of the University's Curriculum Framework principles. Examples of this are found within the module such as active and engaging, module assessment which reflects industry design activities, development of digital intelligence meta-skills, learning synergies across modules and levels of study, self-direction of curriculum, small group supervision providing concurrent weekly

feedback on progress and the use of real-world practical student generated data. In the context of Curriculum Framework this module may be viewed as a capstone module.

Module Delivery Method	**On-Campus[1]** ☒	**Hybrid[2]** ☐	**Online[3]** ☐	**Work -Based Learning[4]** ☐
Campuses for Module Delivery	☐ Ayr ☐ Dumfries	☐ Lanarkshire ☐ London ☒ Paisley	☐ Online / Distance Learning ☐ Other (specify)	

Terms for Module Delivery	Term 1	☐	Term 2	☐	Term 3	☐
Long-thin Delivery over more than one Term	Term 1 – Term 2	☒	Term 2 – Term 3	☐	Term 3 – Term 1	☐

Learning Outcomes	
L1	Analyse a model aircraft design brief and select an appropriate design process model.
L2	Construct an appropriately detailed project plan.
L3	Develop appropriately detailed conceptual and final designs.
L4	Analyse, using a verification strategy the suitability of the final design and project.
L5	N/A

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	**During completion of this module, there will be an opportunity to achieve core skills in:**
Knowledge and Understanding (K and U)	**SCQF 10** A broad knowledge and understanding of aircraft wing design, aircraft weight and balance, stability and control, structures and conceptual design. Specific and detailed knowledge and understanding of the application, techniques and practices associated with aircraft wing design, aircraft weight and balance, structures and conceptual design.

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

Practice: Applied Knowledge and Understanding	**SCQF 10** Applying knowledge and understanding to analyse and produce a suitable design solution to a project brief. Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed. Select and critically evaluate technical literature and other sources of information to solve complex problems. Design solutions for complex problems that evidence some originality and meet a combination of societal, user, business and customer needs as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards. Apply an integrated or systems approach to the solution of complex problems. Evaluate the environmental and societal impact of solutions to complex problems (to include the entire life-cycle of a product or process) and minimise adverse impacts. Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity. Select and apply appropriate materials, equipment, engineering technologies and processes, recognising their limitations.
Generic Cognitive skills	**SCQF 10** Evaluating and analysing aerodynamic, performance and structural data and the impact that the results have on the design and operation of the aircraft. Assembling information together from a variety of sources during problem solving and being able to explain potential problems with methods and strategies.
Communication, ICT and Numeracy Skills	**SCQF 10** Ability to perform, interpret and evaluate complex numerical, geometrical and graphical data and using it to solve problems associated with aerodynamic concepts. Using communications skills to prepare and deliver technical reports, including text and illustration and deliver oral poster presentation.
Autonomy, Accountability and Working with Others	**SCQF 10** Identifying and addressing their own learning needs both during and out with class time. Identifying solution routes and strategies using their own initiative and informed judgements. Adopt an inclusive approach to engineering practice and recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion. Function effectively as an individual, and as a member or leader of a team. Evaluate effectiveness of own and team performance. Communicate effectively on complex engineering matters with technical and non- technical audiences, evaluating the effectiveness of the methods used.

Prerequisites	**Module Code** ENGG09027	**Module Title** Aircraft Design and Performance
	Other	
Co-requisites	**Module Code**	**Module Title**

Learning and Teaching	
In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours. The learning and teaching for this module will be delivered via a series of tutorials in the form of group discussions.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Note: Learning hours include both contact hours and hours spent on other learning activities)
Tutorial / Synchronous Support Activity	36
Independent Study	164
n/a	0
n/a	0
n/a	0
n/a	0
TOTAL	200

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Pressnell, M. (2015) Model Planes: Aerofoils and Wings. Ramsbury: Robert Hale Ltd. Raymer, D, P. (2012) Aircraft Design a Conceptual Approach. Reston: American Institute of Aeronautics & Astronautics. Simmons, M. (2015) Model Aircraft Aerodynamics. Dorset: Special Interest Model Books.
(N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Attendance and Engagement Requirements
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 module, academic engagement equates to the following:**

The School of Computing, Engineering and Physical Sciences considers attendance and engagement to mean a commitment to attending, and engaging in, timetabled sessions. Students will scan their attendance, via the attendance scanners, each time they are on-campus, they will have their attendance recorded in class and they will be expected to login to the VLE several times per week. Students who are unable to attend a timetabled session, due to illness or other circumstance, should notify their Programme Leader. Across the School an 80% attendance threshold is set. Students who fall below this, will be referred to the Student Success Team to see how they can be best supported in their studies.

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 module 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. This module complies 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)

Supplemental Information

Divisional Programme Board	**Engineering Physical Sciences**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☐ **Yes** ☒ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.**
School Assessment Board	Design
Moderator	B Rakhshani
External Examiner	E Tingas
Accreditation Details	This module is part of the IMechE accredited programmes BEng/MEng (Hons) Aircraft Engineering.
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	2.15 Module Descriptor copied to 2025/26 template, resources list updated to reflect ILR feedback, Attendance and Engagement and EDI statements updated.

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1

Assessment Category 1: Group Written Coursework Submission, Weight – 70% (Individually Assessed)
Assessment 2
Assessment Category 2: Group Presentations, Weight - 30% (Two presentations, one in T1 and one in T2, both Individually Assessed and equally weighted)
Assessment 3
N/A
(N.B. (i) Assessment Outcomes Grids for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

Component 1							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Dissertation/ Project report/ Thesis	☒	☒	☒	☒	☐	70	0

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Presentation	☒	☒	☒	☒	☐	30	2

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
N/A	☐	☐	☐	☐	☐		
Combined total for all components						100%	2 hours

Change Control

What	**When**	**Who**
Module Descriptor copied to 2025/26 template, resources list updated to reflect ILR feedback, Attendance and Engagement and EDI statements updated.	March 2025	T.Leslie