Module Descriptor

Title	Collaborative Drone Project		
Session	2024/25	**Status**	Published
Code	COMP11133	**SCQF Level**	11
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	J Riordan		

Summary of Module

The 20-credit Collaborative Drone Project module is designed to foster collaboration, innovation, and practical experience among MSc Advanced Drone Technology students. Working in teams, students engage with real-world challenges proposed by industry partners, enhancing their problem-solving, technical, and project management skills. The projects are tailored to the research interests and practical needs of companies represented on the Industrial Advisory Board, providing students with invaluable exposure to potential employers and opportunities for professional growth. This module serves as a bridge between academic learning and industry practice, preparing students for careers in the rapidly evolving field of drone technology.

This module will work to develop a number of the key 'I am UWS' Graduate Attributes to make those who complete this module:

Universal

Critical Thinker: Students will demonstrate their ability to critically analyse and evaluate project outcomes, methodologies, and solutions in drone technology, ensuring that their decisions are well-informed and analytically sound.

Collaborative: The nature of the project emphasizes teamwork, requiring students to work effectively within multidisciplinary teams, sharing knowledge, and fostering an inclusive environment for innovation.

Work-Ready

Problem-Solver: The module challenges students to address complex, real-world problems proposed by industry partners, developing their capacity to identify issues and create effective solutions in the field of drone technology.

Effective Communicator: Students must effectively communicate their project plans, results, and technical details both in written reports and verbal presentations to both technical and non-technical audiences, including industry professionals.

Successful

Autonomous: Throughout the project, students will exercise significant autonomy in managing their roles, responsibilities, and tasks within the project, showcasing their ability to work independently while contributing to the group's success.

Resilient: Given the challenges of working on real-world projects with industry partners, students will develop resilience, learning to adapt to changes, overcome obstacles, and persist in achieving project goals.

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	Understand the principles and methodologies for collaborative drone projects
L2	Apply practical skills to plan, execute, and manage collaborative drone projects.
L3	Critically evaluate project outcomes and develop solutions for collaborative drone projects
L4	Communicate project plans and outcomes effectively in written and verbal formats.
L5	

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 11** Demonstrate an advanced understanding of core principles and recent developments in drone technologies, including systems, sensors, and software platforms.

[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

	Critically evaluate and synthesise knowledge from multidisciplinary fields to address complex challenges in drone technology, aligning with current industry standards and practices.
Practice: Applied Knowledge and Understanding	**SCQF 11** Apply a comprehensive range of advanced techniques and methodologies in the planning, execution, and management of drone technology projects, integrating theoretical knowledge with practical applications. Demonstrate technical proficiency by designing, developing, and optimising drone systems and solutions, addressing real-world problems posed by industry partners.
Generic Cognitive skills	**SCQF 11** Develop advanced problem-solving and analytical skills, utilising critical thinking to tackle complex, interdisciplinary challenges within the scope of drone technology projects. Critically assess project outcomes and processes, providing insights into improvements and innovations in drone applications.
Communication, ICT and Numeracy Skills	**SCQF 11** Effectively communicate complex ideas and project results to both technical and non-technical audiences, using appropriate communication strategies and technologies. Employ advanced numerical and analytical skills in data interpretation and presentation, ensuring accuracy and clarity in reporting project findings.
Autonomy, Accountability and Working with Others	**SCQF 11** Exhibit substantial autonomy in project management, including planning, resource allocation, and execution, while demonstrating accountability in team settings. Collaborate effectively within multidisciplinary teams, leveraging diverse expertise and fostering an inclusive environment for innovation and knowledge sharing.

Prerequisites	**Module Code**	**Module Title**
	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.

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)
Lecture / Core Content Delivery	12
Laboratory / Practical Demonstration / Workshop	36
Asynchronous Class Activity	24
Independent Study	128
Please select	
Please select	
TOTAL	200

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Selected Texts: Introduction to Unmanned Aircraft Systems, 3rd Edition. Edited By R. Kurt Barnhart, Douglas M. Marshall, Eric Shappee, 2021, ISBN 9780367366599 Project Management: A Systems Approach to Planning, Scheduling, and Controlling, 13th Edition, Harold Kerzner, 2022, ISBN: 978-1-119-80537-3
(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:** Attending all timetabled synchronous classes and engagement with asynchronous learning activities and resources.

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 overall commitment to equality and diversity stated in the Programme Specifications, the module supports equality of opportunity for students from all backgrounds and with different learning needs. Using our VLE, learning materials will be

presented electronically in formats that allow flexible access and manipulation of content (part-time and distant learning students should check with their programme leader for any queries). The module complies with University regulations and guidance on inclusive learning and teaching practice. Specialist assistive equipment, support provision and adjustments to assessment practice will be made in accordance with UWS policy 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	**Computing**
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	Business and Applied Computing
Moderator	tbc
External Examiner	tbc
Accreditation Details	
Module Appears in CPD catalogue	☐ **Yes** ☐ **No**
Changes / Version Number	1.0

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Assessment: Group Project Report and Technical Presentation (100%) Group Project Report (40%): Description: A comprehensive report detailing the project's objectives, methodology, implementation, results, and conclusions. Reflects the group's collaborative efforts, technical achievements, and adherence to project management principles. Learning Outcomes Assessed: LO1: Understand the principles and methodologies for collaborative drone projects. LO2: Apply practical skills to plan, execute, and manage collaborative drone projects. LO3: Critically evaluate project outcomes and develop solutions for collaborative drone projects. Technical Demonstration and Presentation (20%): Description: A practical demonstration of the developed drone solution, accompanied by a presentation to a panel of academics and industry representatives. Covers technical aspects, project management processes, and the impact of the solution on the real-world problem addressed. Learning Outcomes Assessed: LO2: Apply practical skills to plan, execute, and manage collaborative drone projects.

LO4: Communicate project plans and outcomes effectively in written and verbal formats.

Individual Reflective Essay (20%):

Description: A reflective essay where each student evaluates their contributions to the project, learning outcomes achieved, and development of technical and professional skills. It also discusses the challenges faced and how they were addressed.

Learning Outcomes Assessed:

LO3: Critically evaluate project outcomes and develop solutions for collaborative drone projects.

LO4: Communicate project plans and outcomes effectively in written and verbal formats.

Peer Assessment (20%):

Description: An assessment where students evaluate the contributions and teamwork of their peers, promoting accountability and recognising collaborative efforts within the group.

Learning Outcomes Assessed:

LO1: Understand the principles and methodologies for collaborative drone projects.

LO3: Critically evaluate project outcomes and develop solutions for collaborative drone projects.

LO4: Communicate project plans and outcomes effectively in written and verbal formats.

Assessment 2

Assessment 3

(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
Group Project Report and Technical Presentation	☒	☒	☒	☒	☐	100	2

Component 2

Assessment Type	LO1	LO2	LO3	LO4	LO5	Weighting of Assessment Element (%)	Timetabled Contact Hours
	☐	☐	☐	☐	☐		

Component 3

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

Change Control

What	When	Who