Liverpool John Moores University

Title:	Drone Applications
Status:	Definitive
Code:	**7304DRO** (125808)
Version Start Date:	01-08-2020

Owning School/Faculty: Engineering
Teaching School/Faculty: Engineering

Team	Leader
Mohamed Kara-Mohamed	Y
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Academic Level:	FHEQ7	**Credit Value:**	20	**Total Delivered Hours:**	33
Total Learning Hours:	200	**Private Study:**	167		

Delivery Options
Course typically offered: Semester 2

Component	Contact Hours
Lecture	22
Seminar	11

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	AS1	Prepare a state-of-the-art review of drone applications in an emerging civil, industrial or scientific application.	50	
Report	AS2	Prepare an application proposal for the use of Drones in a specific civil, industrial or scientific application.	50	

Aims

This module aims to provide students with a state-of-the-art understanding of how

Drones are operated in civil, industrial and scientific applications.

Learning Outcomes

After completing the module the student should be able to:

1   Demonstrate detailed knowledge regarding the current roles in which drones are deployed for civil, industrial or scientific applications.
2   Critically evaluate the potential for using drones in a specific application, including an analysis of the costs, risks and benefits of doing so.
3   Identify the technical and operational requirements which would be necessary to safely and efficiently deploy a drone in a specific civil, industrial or scientific application.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

State-of-the-art Review   1

Application Proposal   2   3

Outline Syllabus

Current and future Civil, Industrial and Scientific Applications of Drones (such as):
• *Survey and mapping*
• *Imaging*
• *Search and Rescue (SAR)*
• *Coverage for monitoring, surveillance or policing*
• *Security*
• *Wildlife Conservation*
• *Building and Monument Conservation*
• *Environmental monitoring*
• *Condition Monitoring and Asset Management*
• *Sensor and communication networks*
• *Construction*
• *Delivery*
• *Agriculture*
Evaluation of drone usage in specific applications; cost and resources required for deployment; risk of deployment in terms of the quality of outcomes, loss of aircraft and payload, external factors and permissions; Potential cost and safety benefits of use in inaccessible, hostile or hazardous environments; Limitations and restrictions of use in specific geographical locations; Privacy and data protection laws when operating drones with camera equipment;

Learning Activities

The module will be taught through lectures by the programme team, complemented with guest lectures and seminars delivered by external speakers who operate drones in civil, scientific or industrial applications. Students will be encouraged to identify an application area which is of special interest for them, and will be supported to develop their knowledge and skills to create a properly developed proposal for deploying a drone/drones in their chosen field.

Notes

This module will build upon knowledge developed in the Drone Operations module which is delivered in Semester 1.