Liverpool John Moores University

Title:	Fixed Wing Flight
Status:	Definitive
Code:	**7303DRO** (125807)
Version Start Date:	01-08-2020
Owning School/Faculty:	Engineering
Teaching School/Faculty:	Engineering

Team	Leader
Linghai Lu	Y
Frederic Bezombes	

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
Tutorial	11

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Prepare a report reviewing the state-of the-art in fixed wing or hybrid drone technology	50	
Portfolio	AS2	A set of tests on the flight dynamics of fixed wing UAVs	50	

Aims

To provide an understanding of the technology deployed in fixed wing UAV systems and to comprehend the boundaries and limitations of such systems.

Learning Outcomes

After completing the module the student should be able to:

1 Make informed decisions regarding the selection and specification of airframe and propulsion systems based on a sound knowledge of the inertial and aerodynamic forces experienced by those systems.
2 Model the flight dynamics and operational capabilities of fixed wing UAVs.
3 Define the operational relationship between basic aerodynamic, propulsion, control and data systems in a fixed wing UAV.

Learning Outcomes of Assessments

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

State-of-the-art Review	1	3
Flight Dynamics Portfolio	2	

Outline Syllabus

Structural considerations of fixed wing UAV design.
Aerodynamics of fixed wings and control surfaces.
Aerodynamics of propellers and criteria of propeller selection.
Flight stability of fixed wing aircraft.
Payload stability and security.
Vertical take-off and landing UAVs.

Learning Activities

The module will be taught by a series of lectures and tutorials.

Notes

This course provides students with knowledge and skills required to select, specify a fixed wing UAV to match a specific set of payload and mission range requirements.