



Unmanned Aerial Vehicles Policy

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Section / Dept:	Faculty Health & Safety
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Related policies:	Hazardous Working Policy
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Version History

Version	Author	Revisions Made	Date
D0.1	Kevin Joyce	First Draft	18 June 2015
D0.2	Kevin Joyce	Initial amendments & new format	Sept 2015
D0.3	Kevin Joyce	Clarifications to scope – includes visitors, indoor use, and Hobby/recreational use.	Nov. 2015

Approval History

Equality Analysis

Version	Reviewed by	Comments	Date
1	Equality & Diversity Jo McCarthy-Holland	Compliant – Low impact	29 September 2015

Committee Sign Off

Version	Committee Name	Date of Sign Off
1	Health and Safety Committee (reviewed)	22 nd October 2015
	Executive Board Committee (approved)	26 th November 2015

1	Introduction
1.1	Purpose
1.1.1	<p>Unmanned Aerial Vehicles (UAVs) have become far more common in recent years and they are beginning to feature in University activities, this falls broadly into three areas:</p> <ol style="list-style-type: none"> 1. Commercial use of UAVs (Aerial work) operations such as filming, building maintenance surveillance. 2. Academic use – e.g. Undergraduate DME projects, participation in the “University UAS Challenge”, as well as some interest from research groups such as CVSSP. Some of this work has involved developing autonomous/semi-autonomous systems; the CAA has specific policy regarding autonomous operation (see 2.2.9 below). <p>It is perhaps not immediately apparent whether our academic activities involving UAVs would constitute “Aerial work” however guidance in CAP 722 (see 1.4.4 below) would suggest it does not, and our current activities would come under the remit of non-commercial/recreational use – CAP 658. However; it is quite foreseeable that academic use could be made of UAVs which would fall under the Aerial work regulatory regime.</p> <ol style="list-style-type: none"> 3. Hobby/recreational use of UAVs on University property by staff, students and visitors. <p>The purpose of this policy is to ensure that Unmanned Aerial Vehicle operation, associated with the University of Surrey, is carried out safely and in accordance with regulatory requirements</p>
1.2	Scope
1.2.1	This policy applies to all University of Surrey staff (including visiting academics), students, visitors to the University, and contractors employed by the University who use Unmanned Aerial Vehicles (UAVs).
1.2.2	<p>This policy applies to the use of UAVs on all University of Surrey sites as well as any University related work with UAVs that is carried out off-site.</p> <p>Note: This includes both outdoor and indoor operation of UAVs. This includes hobby and recreational use of UAVs on University property.</p>
1.2.3	Supervisors and managers have a duty of care placed upon them to actively monitor the implementation of this policy. As persons directing the work or managing a site, supervisors and managers have a crucial role in ensuring that any operation of UAVs is carried out safely and in accordance with all relevant legislation.
1.3	Equality Analysis
1.3.1	<p>Consideration is given to the protected characteristics of all people groups identified in the Equality Act 2010. The protected characteristics are gender, age, race, disability, sexual orientation, religion/belief, pregnancy and maternity, and marriage/civil partnership.</p> <p>The University recognises the need for specific measures to ensure the health and safety of each of these groups. This policy and all other associated Health and Safety related policies take this into account.</p>

1.4	Definitions
1.4.1	<p>Also known as: UAV – Unmanned Aerial Vehicles UAS – Unmanned Aircraft Systems RPA – Remotely Piloted Aircraft SUA – Small Unmanned Aircraft SUSA – Small Unmanned Surveillance Aircraft ROV – Remotely Operated Vehicle Model Aircraft Drones Helicams Multirotors (tricopter, quadcopter, hexacopter, octocopter)</p>
1.4.2	<p>Small Unmanned Aircraft (SUA)</p> <p>A ‘small unmanned aircraft’ means ‘Any unmanned aircraft, other than a balloon or kite, having a mass of not more than 20 kg without its fuel but including any articles or equipment installed in or attached to the aircraft at the commencement of its flight’.</p> <p>NOTE: For electrically powered models the batteries must be included as part of the 20 kg limit. The batteries are in effect regarded as the fuel tank and electrons are regarded as the fuel.</p>
1.4.3	<p>Small Unmanned Surveillance Aircraft (SUSA)</p> <p>A ‘small unmanned surveillance aircraft’ means a small unmanned aircraft which is equipped to undertake any form of surveillance or data acquisition.</p>
1.4.4	<p>Aerial work/commercial operation</p> <p>Meaning of Aerial Work (CAP 722 chapter 3)</p> <p>ANO 2009 Article 259 'Meaning of Aerial Work' details that a flight is for the purpose of aerial work if valuable consideration is given or promised in respect of the flight or the purpose of the flight.</p> <p>Flying operations such as research or development flights conducted ‘in house’ are not normally considered as aerial work provided there is no valuable consideration given or promised in respect of that particular flight.</p> <p>The CAA has further clarified:</p> <p>“In most cases, self-funded or research drones developed by institutions such as Universities or private businesses can be regarded as non-commercial as long as they are not employed in providing a paid service to a third party. Despite this and depending on the application being considered, operators of such drones will still need to get the permission of the CAA if they cannot meet the limitations contained in ANO Articles 166 and 167.”</p>
1.4.5	<p>Persons under the control of the person in charge of the aircraft (CAA clarification):</p> <ul style="list-style-type: none"> • Persons solely present for the purpose of participating in the SUA flight operation. • Persons under the control of the event or site manager who can reasonably be expected to follow directions and safety precautions to avoid unplanned interactions with the SUA. Such persons could include building-site or other industrial workers, film and TV production staff and any other pre-briefed, nominated individuals with an essential task to perform in relation to the event.

	<p>Spectators or other persons gathered for sports or other mass public events that have not been specifically established for the purpose of the SUA operation are generally not regarded as being 'under the control of the person in charge of the aircraft'. In principle, persons under the control of the person in charge of the aircraft at a mass public event must be able to:</p> <ul style="list-style-type: none"> • elect to participate or not to participate with the SUA flight operations; • broadly understand the risk posed to them inherent in the SUA flight operations; • have reasonable safeguards instituted for them by the site manager and SUA operator during the period of SUA flight operations; and • not have restrictions placed on their engagement with the purpose of the event or activity for which they are present if they do not elect to participate with the SUA operation. <p>Note: As an example, it is not sufficient for persons at a public event to have been informed of the operations of the SUA via such means as public address systems, website publishing, e-mail, text and electronic or other means of ticketing, etc. without being also able to satisfy the points above. Permissions have, however, occasionally been granted for SUA flights at public events and these involved a segregated take-off site within the main event, with the SUA operating only vertically within strict lateral limits that keep it directly overhead the take-off site. Such flights were also limited by a height restriction and the tolerance of the SUA to wind effects and battery endurance.</p>
1.4.6	<p>Competence, Training and Briefing</p> <p>Competence is based upon training and is equipping all staff, students (and others where the University has a duty-of-care) with relevant skills and knowledge to deal appropriately with a given health and safety situation.</p> <p>Briefing is informing such persons of relevant knowledge in relation to health and safety.</p> <p>Training and briefing will be made available in a range of formats according to the needs of the trainee and different groups of personnel.</p> <p>University and departmental training matrices are used to assign the levels of training required for any individual. These matrices should be used to determine the competency of a particular individual as relates to a particular task.</p>
1.4.7	<p>Accessibility</p> <p>The duty to make reasonable adjustments, as far as possible, to ensure that all staff and students (and others where the University has a duty-of-care) with a disability have equal access to everything they need to do a job or studies as those persons without a disability.</p>
1.5	<p>Legislative context</p>
1.5.1	<p>Adherence to this policy will ensure compliance with all relevant statutory regulations, specifically The Health and Safety at Work Act 1974 and the Air Navigation Order 2009 (ANO).</p>
1.5.2	<p>Legislative Fundamentals</p> <p>All civil aircraft fly subject to the legislation of the Air Navigation Order 2009 (ANO) and the associated Rules of the Air Regulations. This includes both outdoor and indoor operation of aircraft. However, in accordance with its powers under Article 242 of the ANO, the CAA may exempt UAS operators from the provisions of the ANO and the Rules of the Air, depending on the UA's potential to inflict damage or injury and the</p>

	<p>proposed area of operation. Small Unmanned Aircraft (SUA) are exempted from most of the provisions of the ANO and Rules of the Air Regulations by the provisions of Article 253.</p> <p>The level of exemption and restriction is determined largely by the size and use of the aircraft, significant bandings being 0-7 kg, 7-20 kg, 20-150 kg, >150 kg, commercial use (aerial work), recreational use, surveillance (equipped to undertake any form of data acquisition or surveillance).</p> <p>Unmanned aircraft with an operating mass of 20 kg or less are defined as 'Small Unmanned Aircraft' and according to Article 253 of the ANO 2009 are exempt from the majority of the regulations that are normally applicable to manned aircraft.</p> <p>Unmanned aircraft with an operating mass of more than 20 kg are subject to regulation as though they are manned aircraft. However, it may be possible to obtain an exemption from certain regulations with which it is impossible for unmanned aircraft to comply.</p> <p>Note: Currently all University academic UAV activities have been below 7 kg. Going above 7 kg will require more stringent consideration of flight locations. If we were to consider going above 20 kg, a far more stringent regulatory system will apply. The legislative requirements affecting commercial UAS operations are set out in CAA guidance document CAP 722.</p> <p>The legislative requirements affecting recreational UAS operations are significantly lighter and are set out in CAA guidance document CAP 658. This document also contains very useful general guidance and safety considerations.</p>
1.5.3	<p>Specific Regulations</p> <p>For aircraft of 20 kg or less, these are referred to as a 'small unmanned aircraft', the requirements are covered within Articles 138, 166 and 167 of the ANO.</p>
1.6	Health & Safety Implications
1.6.1	This forms part of the range of Health and Safety Policies created to manage the health and safety of all relevant stakeholders.
2	Policy
2.1	Principles
2.1.1	A person must not recklessly or negligently cause or permit an aircraft to endanger any person or property.
2.1.2	A person shall not cause or permit any article or animal (whether or not attached to a parachute) to be dropped from a small aircraft so as to endanger persons or property.
2.1.3	The person in charge of a small unmanned aircraft may only fly the aircraft if reasonably satisfied that the flight can safely be made.
2.1.4	The person in charge of a small unmanned aircraft must maintain direct, unaided visual contact with the aircraft sufficient to monitor its flight path in relation to other aircraft, persons, vehicles, vessels and structures for the purpose of avoiding collisions.
2.1.5	Permission of the property owner/manager must be obtained before a UAV is operated on private land/property. This includes University land/property.

2.2	Procedures
2.2.1	<p>All UAV operations will be treated as hazardous work and subject to risk assessment and the University Hazardous Work Policy.</p> <ul style="list-style-type: none"> • In assessing the risks, restrictions and appropriate controls in relation to UAV activities, due consideration must be given to the competency and experience of the pilot.
2.2.2	<p>UAV operations involving vehicles in excess of 7 kg (including any payload) shall be considered High Hazard activities and the risk assessment subject to sign off by head of department/director (or equivalent) in consultation with a suitable safety advisor AND the University insurance officer.</p>
2.2.3	<p>All UAV operations that would constitute “Aerial Work” (commercial operations) shall be carried out by a CAA permitted pilot/organisation, in accordance with CAP 722.</p>
2.2.4	<p>All UAV operations which do not constitute “Aerial Work” (non-commercial/recreational) shall be carried out in accordance with CAP 658. This includes hobby and recreational use of UAVs on University property.</p>
2.2.5	<p>Where practicable, all University UAV operations will be conducted using aircraft with a mass of less than 7 kg (including any payload).</p>
2.2.6	<p>Any intensions to develop or operate aircraft in excess of 20 kg must be advised to the University safety office AND the University insurance officer at the earliest opportunity.</p>
2.2.7	<p>Any UAV operations that constitute “Aerial Surveillance” shall be conducted in accordance with the following limitations:</p> <ul style="list-style-type: none"> • Within direct, unaided visual line-of-sight (VLOS) of the pilot. • No higher than 120 metres (400 feet) above the surface and no further than 500 metres from the SUSAs operator. • 150 metres away from congested areas and not within 150 metres of an open-air assembly of 1,000 persons or more. • Not directly overhead (at any height) or within 50 metres of persons, vehicles, vessels and property, unless those persons are 'under the control of the person in charge of the SUSAs'. (see 1.4.5) <p>Unless permission has been granted by the CAA.</p>
2.2.8	<p>Where practicable all UAV operations, even if below 7 kg and non-surveillance, shall be conducted in accordance with the following limitations:</p> <ul style="list-style-type: none"> • Within direct, unaided visual line-of-sight (VLOS) of the pilot. • No higher than 120 metres (400 feet) above the surface and no further than 500 metres from the SUA operator. • 150 metres away from congested areas and not within 150 metres of an open-air assembly of 1,000 persons or more. • Not directly overhead (at any height) or within 50 metres of persons, vehicles, vessels and property, unless those persons are 'under the control of the person in charge of the SUA'.

2.2.9	Any autonomous/semi-autonomous UAV operations must be under the command of a Remote Pilot; who is able to intervene and take direct control within a few seconds at any stage. The pilot must be presented with enough information to have continuous situational awareness.
3	Governance Requirements
3.1	Responsibility
3.1.1	<p>The Director of Health & Safety is responsible for the following:</p> <ul style="list-style-type: none"> (a) Auditing compliance with this policy. (b) The provision of advice, training and guidance to all persons within the University, Faculties and Directorates regarding compliance with this policy. This advice may be given directly or through the appointment of competent persons. (c) Ensuring that this policy and accompanying guidance is current and correct. (d) Liaising with any relevant Regulatory authorities.
3.1.2	<p>Deans and Directors* are accountable for the provision of measures to ensure the following:</p> <ul style="list-style-type: none"> (a) Due consideration is given to the use of UAVs within their area of operation prior to their being put into use. (b) All UAVs used within their Faculty/Directorate are assessed prior to use and that hazards are managed. (c) All control measures which are deemed necessary are maintained and effective. (d) Staff and students have sufficient instruction and information and are adequately trained and supervised. (e) Adequate arrangements are in place where facilities are shared or where staff and students are working on premises managed by other employers. (f) Adequate emergency plans and procedures are in place to deal with foreseeable adverse events. (g) Rules and procedures are implemented to ensure that UAVs are used appropriately. (h) Sufficient resources are made available to enable compliance with this policy. (i) Any required permits are up to date and suitable for the intended work. <p><i>* A Director is defined for the purposes of this policy as those having UAVs used within or used by personnel controlled within their Directorate.</i></p>
3.1.3	<p>Managers and Supervisors (including academic) of staff and students are responsible for ensuring the following:</p> <ul style="list-style-type: none"> (a) Ensure that any regulatory permits necessary for the intended work are in place. (b) Permission has been obtained from the property owner/manager (where required) (c) Prior to using UAVs a suitable and sufficient risk assessment has been written, approved and documented. (d) Any control measures identified by the risk assessment have been fully implemented. (e) Work is only begun when a risk assessment has been undertaken. The Supervisor must ensure their 'reportee' has either carried out their own risk assessment or has read and fully understood any risk assessment that has been written for the particular activity. (f) That adequate information, instruction, training and supervision is provided.

	<p>(g) That the Dean/Director and Faculty/Unit Health & Safety Advisor has been informed of any activity where the risk assessment has indicated that there is a high residual risk associated with a particular activity, or ANY UAV operations involving vehicles in excess of 7 kg.</p> <p>(h) A copy of any risk assessments must be available and provided if requested.</p>
3.1.4	<p>Staff, Students and Visitors who work with UAVs must comply with the following requirements:</p> <p>(a) Ensure they hold any regulatory permits necessary for the intended work.</p> <p>(b) Permission has been obtained from the property owner/manager (where required)</p> <p>(c) A suitable and sufficient risk assessment must be carried out before working with UAVs. This risk assessment must be approved by an appropriate Supervisor/Manager.</p> <p>(d) Staff/Students must read and fully understand any risk assessment that has been completed by somebody else in relation to their use of UAVs.</p> <p>(e) Any measures identified by the risk assessment must be fully implemented and assessed prior to work beginning.</p> <p>(f) If a risk assessment identifies Personal Protective Equipment (PPE) as a control measure then staff/students must use it. Any required PPE must be used and maintained in an appropriate manner</p> <p>(g) To report any defects, errors or omissions in the procedure, PPE or equipment.</p> <p>(h) To report any accidents or near misses that occur whilst using UAVs to their Supervisor/Manager and via the University reporting procedure.</p> <p>(i) To undertake any training deemed necessary by the University.</p>
3.1.5	<p>Managers and Supervisors of contractors have the following responsibilities:</p> <p>(a) To make contractors aware of this policy and any other factors that may affect the contractors' risk assessment.</p> <p>(b) To ensure contractors hold any regulatory permits necessary for the intended work.</p> <p>(c) To ensure permission has been obtained from the property owner/manager (where required)</p> <p>(d) To ensure that a written risk assessment has been undertaken where UAVs are to be used.</p> <p>(e) To monitor and ensure that any control measures identified by the risk assessment have been implemented.</p> <p>(f) To advise contractors of any risks to them deriving from any University activities occurring in the areas they are working.</p> <p>(g) To ensure that any required Permit to Work is in place and is approved.</p>
3.1.6	<p>Contractors must comply with the requirements of this policy in the following ways:</p> <p>(a) Ensure they hold any regulatory permits necessary for the intended work.</p> <p>(b) Carrying out a risk assessment for any work that will require the use of UAVs prior to work commencing.</p> <p>(c) Implementing any control measures, including emergency procedures, identified by the risk assessment.</p> <p>(d) Providing adequate information, instruction, training and supervision to their staff and ensuring that they are competent to work with UAVs.</p> <p>(e) Providing any PPE that is required.</p>

3.1.7	<p>Health and Safety Advisers have the following responsibilities</p> <p>(a) To give competent and informed advice to all users regarding the safe use of UAVs.</p> <p>(b) To monitor adherence to safe working practices and procedures.</p> <p>(c) To investigate any adverse incidents arising during the use of UAVs in order to identify the root cause.</p> <p>(d) To remain up to date and informed regarding current best practice and legislation pertaining to the use of UAVs.</p>
3.2	Implementation / Communication Plan
3.2.1	<p>Leaders alert to managers.</p> <p>Policy will be placed on the University Policy Website and also be available on the Health and Safety pages.</p> <p>A copy of the Policy will be placed in lab safety folders (where appropriate).</p>
3.3	Exceptions to this Policy
3.3.1	None
3.4	Supporting documentation
3.4.1	Hazardous Working Policy
3.4.2	<p>Useful Links</p> <p>CAA - Unmanned Aircraft & Aircraft Systems http://www.caa.co.uk/default.aspx?catid=1995&pagetype=90</p> <p>CAA - Basic principles of unmanned aircraft systems http://www.caa.co.uk/default.aspx?catid=1995&pagetype=90&pageid=11185 CAA Basic</p> <p>CAP 722 http://www.caa.co.uk/application.aspx?catid=33&pagetype=65&appid=11&mode=detail&id=415</p> <p>CAP 658 http://www.caa.co.uk/application.aspx?catid=33&pagetype=65&appid=11&mode=detail&id=5631</p> <p>CAA - Model Aircraft http://www.caa.co.uk/default.aspx?catid=1416&pageid=8153</p> <p>British Model Flying Association https://www.bmfa.org/</p> <p>The following BBC link includes a very informative video clip: http://www.stage.bbc.co.uk/academy/technology/article/art20131106104624495</p>