

# **Unmanned Aerial Vehicles Policy**

<b>Operational Owner:</b>	Clive Parkinson, Director of Health and Safety			
Executive Owner:	Paul Stephenson, Vice President Human Resources			
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Related documents:	Health and Safety Policy; Hazardous Working Policy;			

# **Approval History**

Version	Reviewed by	Amendment history	Approved by	Date
1.0	Kevin Joyce Health and Safety	First Draft (old format)	Health and Safety Committee Executive Board	22 October 2015 26 November 2015
2.0	Kevin Joyce Health and Safety	General Revisions (new format)  Updates to capture the regulatory changes of the Air Navigation Order 2016 and amendments 2018  Change to CAA position on indoor flying  Reference to GDPR policy	Health and Safety Committee	15 February 2019

1	Introduction		
1.1	Purpose		
1.1.1	Unmanned Aerial Vehicles (UAVs) have become far more common in recent years and they are now featuring in University activities, these fall broadly into three areas:		
	<ol> <li>Commercial operation of UAVs - operations such as filming, building maintenance surveillance, professional piloting services (any flight in return for remuneration or other valuable consideration).</li> </ol>		
	<ol> <li>Academic use – e.g. Undergraduate DME projects, participation in the "University UAS Challenge", as well as interest from research groups such as CVSSP, ICS, Computer Science, Civil and Environmental Engineering. Some of this work has involved developing autonomous/semi-autonomous systems; the CAA has specific requirements regarding autonomous operation (see 2.2.5.4 below).</li> </ol>		
	It is perhaps not immediately apparent whether our academic activities involving UAVs would constitute 'commercial operation' however Civil Aviation Authority (CAA) guidance (see 1.3.4 below) would suggest it does not, and the University's current activities would fall within the remit of CAA guidance CAP 658 - non-commercial/recreational use. However; it is quite foreseeable that academic use		
	could be made of UAVs which would fall under the 'commercial operation' regulatory regime.		
	3. Hobby/recreational use of UAVs on University property by staff, students and visitors.		
	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		
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	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. This includes hobby and recreational use of UAVs on University property.  Note:		
	This includes both outdoor and indoor operation of UAVs.  Outdoor operation is regulated under the remit of the CAA and the requirements of the Air Navigation Order (ANO).		
	Indoor operation is outside of the remit of the ANO but remains subject to standard Health and Safety regulation.		
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	Definitions		
1.3.1	Also known as:		
	UAV – Unmanned Aerial Vehicles		
	UAS – Unmanned Aircraft Systems		
	RPA – Remotely Piloted Aircraft SUA – Small Unmanned Aircraft		
	SUSA – Small Unmanned Aircraft SUSA – Small Unmanned Surveillance Aircraft		
	ROV – Remotely Operated Vehicle		

Model Aircraft **Drones** Helicams Multirotors (tricopter, quadcopter, hexacopter, octocopter) 1.3.2 Small Unmanned Aircraft (SUA) 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'. NOTE: For electrically powered vehicles 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. 1.3.3 Small Unmanned Surveillance Aircraft (SUSA) A 'small unmanned surveillance aircraft' means a small unmanned aircraft which is equipped to undertake any form of surveillance or data acquisition. 1.3.4 Commercial operation/ Aerial work Meaning of 'commercial operation' ANO 2016 article 7 /'Aerial Work' (CAP 722 chapter 3) Any operation of an aircraft which is available to the public; or is performed under a contract between an operator and a customer in return for remuneration or other valuable consideration. Flying operations such as research or development flights conducted 'in house' are not normally considered as 'commercial operation'/'aerial work' provided there is no valuable consideration given or promised in respect of that particular flight. The CAA has further clarified: "In most cases, self-funded or research drones developed by institutions such a 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 94 (previously 166) and 95 (previously 167)." "Example: A university research team wants to use a drone to gather survey data or imagery to help with their research project. This is legitimate as long as the research project was not directly funded by a business that intends to use the results of the data for its own business purposes (including any material or research into its products or services). Clearly university research is funded through a variety of means (grants, charitable and alumni donations, etc) and for varying purposes. The exact arrangements would need to be considered in each case. Where an academic organisation is openly advertising their capabilities to external organisations and a business relationship is entered into with an external organisation, the use of a drone for that purpose is likely to be construed as commercial operations." 1.3.5 Persons under the control of the remote pilot of the aircraft (CAA clarification): 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.

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 remote pilot of the aircraft'. In principle, persons under the control of the remote pilot of the aircraft at a mass public event must be able to:

- 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.

**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.

### 1.3.6 Congested area

A 'congested area' means, 'in relation to a city, town or settlement, any area which is substantially used for residential, commercial, industrial or recreational purposes'.

### 1.3.7 **SUA Operator**

The 'SUA operator', in relation to a small unmanned aircraft, is the person who has the management of the small unmanned aircraft.

## 1.3.8 Remote pilot

The 'remote pilot', in relation to a small unmanned aircraft, is an individual who:

- operates the flight controls of the small unmanned aircraft by manual use of remote controls, or
- when the small unmanned aircraft is flying automatically, monitors its course and is able to intervene and change its course by operating its flight controls,

### 1.3.9 Where practicable

**'Where practicable'** means where the cost of the added risk control measure is not grossly disproportionate to the level of risk reduction achieved.

1.3.10 **Occupational Health, Safety and Environment** is defined as "the measures and systems aimed at preventing harm and ill health to those at work, whilst protecting the environment from damage that could result from work practices."

# 1.3.11 | Competent person

A competent person has the skills, knowledge, attitude, training and experience to undertake the role effectively.

### 1.3.12 Training and Briefing

Training is equipping staff, students (and others where the University has a duty-of-care) with relevant skills to deal appropriately with a given Health and Safety situation.

Briefing is informing such persons of relevant knowledge in relation to Health and Safety.

	Training and briefing will be made available in a range of formats according to the needs of the trainee and different groups of staff, students and others.		
1.3.13	Accessibility		
	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.		
1.3.14	Safe System of Work		
	A formal procedure which results from the systematic examination of a task in order to identify all the hazards. It defines methods to ensure that hazards are eliminated or risks minimised.		
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 unmanned aircraft so as to endanger persons or property.		
2.1.3	The remote pilot of a small unmanned aircraft may only fly the aircraft if reasonably satisfie that the flight can safely be made.		
2.1.4	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	Policy Procedures		
2.2.1	All UAV operations will be treated as hazardous work and subject to risk assessment and the University Hazardous Work Policy, with a Safe System of Work implemented as required.		
	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	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.		
2.2.3	Where practicable, all University UAV operations will be conducted using aircraft with a mass of less than 7 kg (including any payload).		
2.2.4	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.		
2.2.5	Applicable to all outdoor UAV operations		
	<ul> <li>All outdoor UAV operations that would constitute 'commercial operation'/'Aerial Work' (see 1.3.4) shall be carried out by a CAA permitted pilot/organisation, in accordance with ANO regulations and CAA guidance document CAP 722.</li> </ul>		
	<ul> <li>All outdoor UAV operations which do not constitute 'commercial operation'/'Aerial Work' (i.e. non-commercial/recreational) shall be carried out in accordance with ANO regulations and CAA guidance document CAP 658.</li> </ul>		
	This includes hobby and recreational use of UAVs on University property.		

- 2.2.5.1 All outdoor UAV operations, even if below 7 kg and non-surveillance, shall be conducted in accordance with the following limitations:
  - 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 UAV operator.
  - Outside of restricted airspace and other restricted areas over or near aerodromes (within 1 km of an aerodrome boundary).

Unless permission has been granted by the CAA. Or other relevant controlling authority (The above are legal requirements of the Air Navigation Order (ANO) 2016 and amendments 2018)

- 2.2.5.2 In addition, the following limitations will be applied to all outdoor UAV operations where practicable (i.e. where the cost of these limitations is not grossly disproportionate to the risk reduction). Deviations from these limitations must be justified within the risk assessment.
  - 150 metres away from congested areas (see 1.3.6) 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 remote pilot of the
    SUA'. (see 1.4.5)

# 2.2.5.3 Outdoor operation of Small Unmanned Surveillance Aircraft (SUSA)- (Additional Requirements)

Any outdoor UAV operations that constitute "Aerial Surveillance" (See 1.3.3) **SHALL** be conducted in accordance with the following additional limitations:

- 150 metres away from congested areas (see 1.3.6) and not within 150 metres of an open-air assembly of 1,000 persons or more.
- Not within 50 metres of persons, vehicles, vessels and property, unless those persons are 'under the control of the remote pilot of the SUSA'. (see 1.4.5)

Unless permission has been granted by the CAA.

(The above are legal requirements of the Air Navigation Order (ANO) 2016 and amendments 2018)

Note: Images and data captured may be subject to the General Data Protection Regulations, and the University GDPR policy.

# 2.2.5.4 **Autonomous/semi-autonomous UAV operations**

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.

# 2.2.7 Requirement for registration as SUA operator

From 30 November 2019 all operators of SUA that have a mass of 250 grams or more will be required to register with the CAA:

- The registration requirements only apply to SUA operators
- SUA operators are only required to be registered if they are operating small unmanned aircraft that have a mass of 250 grams or more
- An SUA operator must have a valid registration when his/her small unmanned aircraft is flown, and the registration number must be displayed on the aircraft
- A remote pilot must not fly a small unmanned aircraft unless he/she is happy that the SUA operator has a valid registration and the registration number is displayed on the aircraft.

The CAA have not yet put in place the details and mechanisms for this registration requirement. When these systems are available, the University operation of UAVs must comply with these registration requirements.

### 2.2.8 Requirement for acknowledgement of pilot competency

From 30 November 2019 all remote pilots of SUA with a mass of 250 grams or more will be required to undertake competency testing:

- Remote pilots are only required to undertake a competency test if they are flying a small unmanned aircraft that has a mass of 250 grams or more.
- A remote pilot must not fly a small unmanned aircraft unless he/she can demonstrate that he/she is competent.
- An SUA operator must not allow his/her aircraft to be flown unless satisfied that the remote pilot has passed the appropriate competency test.

The CAA have not yet put in place the details and mechanisms for this pilot competency testing. When these systems are available, the University operation of UAVs must comply with these pilot competency requirements.

### 2.3 Roles and Responsibilities

# 2.3.1 The Director of Health & Safety is responsible for the following:

- (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.

### 2.3.2 Deans and Directors\* are accountable for the provision of measures to ensure the following.

- (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, registrations and pilot competencies are up to date and suitable for the intended work.
- \* A Director is defined for the purposes of this policy as those having UAVs used within or used by personnel controlled within their Directorate.

# 2.3.3 Managers and Supervisors (including academic) of staff and students are responsible for ensuring the following.

(a) Ensure that any regulatory permits, registrations and pilot competencies 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/Safe System of Work that has been written for the particular activity.
- (f) That adequate information, instruction, training and supervision is provided.
- (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.
- (h) A copy of any risk assessments must be available and provided if requested.

# 2.3.4 **Staff and Students who work with UAVs** must comply with the following requirements.

- (a) Ensure they hold any regulatory permits, registrations and pilot competencies necessary for the intended work.
- (b) Permission has been obtained from the property owner/manager (where required)
- (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.
- (d) Staff/Students must read and fully understand any risk assessment and Safe System of Work that has been completed by somebody else in relation to their use of UAVs.
- (e) Any measures identified by the risk assessment must be fully implemented and assessed prior to work beginning.
- (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
- (g) To report any defects, errors or omissions in the procedure, PPE or equipment.
- (h) To report any accidents or near misses that occur whilst using UAVs to their Supervisor/Manager and via the University incident reporting procedure.
- (i) To undertake any training deemed necessary by the University.

## 2.3.5 Managers and Supervisors of contractors have the following responsibilities.

- (a) To make contractors aware of this policy and any other factors that may affect the contractors' risk assessment.
- (b) To ensure contractors hold any regulatory permits, registrations and pilot competencies necessary for the intended work.
- (c) To ensure permission has been obtained from the property owner/manager (where required)
- (d) To ensure that a written risk assessment has been undertaken where UAVs are to be used.
- (e) To monitor and ensure that any control measures identified by the risk assessment have been implemented.
- (f) To advise contractors of any risks to them deriving from any University activities occurring in the areas they are working.
- (g) To ensure that any required Permit to Work is in place and is approved.

### 2.3.6 **Contractors** must comply with the requirements of this policy in the following ways.

(a) Ensure they hold any regulatory permits, registrations and pilot competencies necessary for the intended work.

- (b) Carrying out a risk assessment for any work that will require the use of UAVs prior to work commencing.
- (c) Implementing any control measures, including emergency procedures, identified by the risk assessment.
- (d) Providing adequate information, instruction, training and supervision to their staff and ensuring that they are competent to work with UAVs.
- (e) Providing any PPE that is required.

### 2.3.7 **Health and Safety Advisers/Managers** have the following responsibilities:

- (a) To give competent and informed advice to all users regarding the safe use of UAVs.
- (b) To monitor adherence to safe working practices and procedures.
- (c) To investigate any adverse incidents arising during the use of UAVs in order to identify the root cause.
- (d) To remain up to date and informed regarding current best practice and legislation pertaining to the use of UAVs.

# **3** Governance Requirements

# 3.1 Implementation / Communication Plan

3.1.1 The policy is communicated to all staff as part of the University Policy website – and through specific, relevant training including staff induction and risk assessment training.

Relevant Health and Safety Committees will be notified, and information disseminated through line management.

Relevant information is also published on the University Health and Safety intranet site and Health and Safety Handbook, as appropriate.

## 3.2 Exceptions to this Policy

## 3.2.1 There are no exceptions

## 3.3 Review and Change Requests

- 3.3.1 This Policy is regularly reviewed by the Director of Health and Safety; and assigned reviewer.
  - Minor changes will be reviewed and agreed through Health and Safety Committee;
  - ➤ Major changes will be reviewed through Health and Safety Committee and if required, submitted to Executive Board, for approval.

Review will generally be every three years or in line with any relevant changes to Legislation, if sooner. Health and Safety Consultative Committee will be consulted during the review process, as required.

# 3.5 Legislative context

3.5.1 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 2016 (ANO) and the Air Navigation (Amendment) Order 2018.

#### **Legislative Fundamentals**

The CAA have recently revised their opinion on the application of the Air Navigation Order 2016 to indoor flight:

"Under the CAA Act 1982, the Air Navigation Order is made for the purposes of regulating air navigation. Flights inside buildings have nothing to do with air navigation because they can have no effect on flights by aircraft in the open air. As a result, flights within buildings, or within areas where there is no possibility for the unmanned aircraft to 'escape' into the open air (such as a 'closed' netted structure) are not subject to air navigation legislation.

Persons intending to operate drones indoors should refer to the appropriate Health and Safety At Work regulations."

All civil aircraft, including UAVs flown outdoors, fly subject to the legislation of the Air Navigation Order 2016 (ANO) and the associated Rules of the Air Regulations. However, in accordance with its powers under Article 266 of the ANO 2016, the CAA may exempt UAS operators from some provisions of the ANO and the Rules of the Air, depending on the UA's potential to inflict damage or injury and the proposed area of operation.

The level of exemption and restriction is determined largely by the size and use of the aircraft, significant bandings being 0-250 g, 250 g-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).

Unmanned aircraft with an operating mass of 20 kg or less are defined as 'Small Unmanned Aircraft' and by application of Article 23 of the ANO 2016 are exempt from the majority of the regulations that are normally applicable to manned aircraft.

#### **Specific Regulations**

For aircraft of 20 kg or less, these are referred to as a 'small unmanned aircraft' (SUA), the requirements are covered within Articles 94, 95 and 241 of the ANO 2016 and ANO amendments 2018.

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.

**Note:** Currently all University academic UAV activities have been below 20 kg, and mostly below 7 kg. If the University were to consider operating above 20 kg, a far more stringent regulatory system will apply.

Guidance on the legislative requirements affecting commercial UAS operations can be found in CAA guidance document CAP 722.

Guidance on the legislative requirements affecting recreational UAS operations are significantly lighter and can be found in CAA guidance document CAP 658. This document also contains very useful general guidance and safety considerations.

### 3.5.2 <u>Standard Health and Safety Policy legal statement</u>

This Policy complies with the requirements of the Health and Safety at Work Act 1974.

This policy sets out to comply with the required 'duty of care' placed upon the University. Under Health and Safety Law a 'duty of care' is generated between organisations and individuals when carrying out activities that could foreseeably cause harm.

The primary duty of care is owed through the employer-employee relationship in which the employer owes a duty of care to ensure that work activities that could result in harm to the employee are assessed and controlled. That duty of care is put into practice by the line management responsibilities as set out in the hierarchy of the organisation.

This duty of care cannot be delegated away; instead the act of delegation must be accompanied by a realistic and workable system of monitoring or supervision to ensure that the delegated task has been adequately implemented (i.e. the responsibility is not met by giving directions; it is met when those directions have been confirmed as carried out). The result is a cascade of delegated accountability that runs through the organisation via the line management network, accompanied by a system of monitoring, supervision and feedback.

The duty of care extends to assurance that services provided by others (be they another department of the University or contractors) are undertaken safely. The level of assurance required should be commensurate with the risk of the activity.

	In addition, anyone carrying out an activity owes a duty of care to anyone who may be put at risk by the activity, such as students, staff and visitors.			
3.6	Stakeholder Statements			
3.6.1	<b>Equality:</b> 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.			
	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.			
3.6.2	<b>Health &amp; Safety:</b> This Policy forms part of the overarching statement on health and safety for the University.			
3.6.3	Executive Board, Health and Safety Committee, Health and Safety Consultative Committee Changes to this policy will be consulted, reviewed and approved at the appropriate level; in line with policy guidance.			