

**Health and Safety
Performance Standard HSPS 015**

Use of Drones

Safety, Health and Environment Unit

Title Use of Drones

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1. Introduction

Drones are becoming more popular as a teaching and research tool. The legal framework that regulates how they are operated is still developing and can be confusing. Drones do have the potential to cause serious harm to people and property, even causing deaths in rare cases. This policy aims to make sure that use of drones at the University is legal and safe.

Drones are called many different things in different documents. They may be referred to as Remote Piloted Aircraft Systems (RPA/RPAS), Unmanned Aerial Vehicles (UAV's), Unmanned Aircraft Systems (UAS's), Small Unmanned Aircraft (SUA's), Small Unmanned Surveillance Aircraft (SUSA's), multi-rotors, quadcopters, etc.; the list goes on. In this document we use the term drone to refer to remotely operated multi-rotor vehicles weighing less than 20 kg. This policy applies to all use of such drones on behalf of the University, whether in teaching, research or consulting activities.

Fixed wing vehicles and those weighing more than 20 kg are subject to more stringent legal, safety and insurance requirements. Any member of the University wishing to use such equipment should contact the Safety, Health and Environment Unit in the first instance.

2. Legal Framework

In legal terms within the United Kingdom drones of any size, even those that we may think of as toys, are considered aircraft and are subject to the rules contained within the Air Navigation Order (ANO) 2016, amended 2018, 2019. The ANO is enforced by the Civil Aviation Authority (CAA). Under the ANO there are two defined responsible people, the drone operator, i.e. the person responsible for the management of the drone's activities, and the remote pilot who actually flies the drone. Both hold legal responsibility for flight safety and will be deemed personally responsible, and potentially personally prosecuted, for any breaches of ANO rules. The CAA has also provided detailed guidance regarding drones in the document CAP 722, Unmanned Aircraft System Operations in UK Airspace: Guidance and Policy.

Aspects of Health and Safety legislation also apply. These include the general duties contained within the Health and Safety at Work Act, the need to carry out a risk assessment that comes from the Management of Health and Safety at Work Regulations, and the requirements of the Provision and Use of Work Equipment Regulations.

Use of drones is also restricted by limitations set by the University's Insurer.

If any drone operations collect data, operators should be aware of the requirements of the Data Protection Act. Guidance covering this is published on the Information Commissioners Office website (<https://ico.org.uk/your-data-matters/drones/>) as well as in section 7.3 of the CCTV code.

Anyone wishing to operate a drone abroad must check with the National Aviation Authority of the country they are visiting to see what rules apply. It is possible that a local permit will be required.

3. Use of Drones at the University

It is University policy that drones used on behalf of the University, in research, teaching, study, etc. must obey the relevant ANO rules. In addition, where insurance requirements place greater limitations on their use, the insurance restrictions must be followed.

Under Article 94 of the ANO, Small unmanned aircraft requirements

- **Nothing may be dropped from a drone that might endanger people or property.**
- **The remote pilot of a drone may only fly it if reasonably satisfied that the flight can be made safely.** The very general nature of this rule means that any accident involving a drone will, by default, imply that it has not been met. Advice on actions to consider to ensure this rule is met are given in the Flight Safety section.

- **The remote pilot of a drone must maintain direct, unaided visual contact with the drone sufficient to monitor its flight path in relation to other aircraft, persons, vehicles, vessels and structures for the purpose of avoiding collisions.** It is generally considered that this rule is met by setting a maximum operating distance of 500 metres from the remote pilot. This limit is re-enforced by the University's insurers.
- **The remote pilot of a small unmanned aircraft must not fly the aircraft for the purposes of aerial work except in accordance with a permission granted by the CAA.** Aerial work is defined as circumstances where 'valuable consideration' is given or promised in respect of a flight. At its simplest this is payment, but can refer to the provision of goods and services. With respect to research, data collected exclusively for the operator/pilot's own use, such as data collected as part of a research project and intended for publication or flights exclusively undertaken for research and development of drone technology, would not be aerial work.
- **Permission from the CAA is required for flying a drone at a height of more than 400 feet above the surface.**
- **Permission from the relevant authority (i.e. Air Traffic Control Unit, Flight Information Service, operator of a protected Aerodrome) is required for drone flights within the flight restriction zone of a protected Aerodrome.**
- **In order to undertake any outdoor flight by a drone weighing more than 250g (including the weight of the battery and any other equipment attached to the drone), the Division / School / Department must ensure that the individual managing the drone flights registers with the CAA as a Small Unmanned Aircraft Operator.** The certificate of registration must be valid at the time of the flight and the Operator's registration number must be displayed on the drone. Registration is via the CAA website (<https://register-drones.caa.co.uk/organisation/register>), must be renewed annually and attracts a fee of £9. The individual acting as the drone operator must ensure that during outdoor flights all remote pilots have valid flyer ID.
- **No outdoor flight may take place by a drone weighing more than 250g (including the weight of the battery and any other equipment attached to the drone) unless the remote pilot has a valid acknowledgement of competency known as a flyer ID issued by the CAA.** This requires the pilot to pass a short MCQ test. The competency test (<https://register-drones.caa.co.uk/individual>) is free and flyer IDs must be renewed every three years.

Under Article 95 of the ANO, Small unmanned surveillance aircraft

A drone equipped to undertake any form of surveillance or external data acquisition may not be flown in any of the following circumstances unless issued with a specific CAA permission.

- **Over or within 150 metres of any congested area.** The term 'over' is taken to mean directly overhead at any height. A congested area being defined as any area of a city, town or settlement substantially used for residential, industrial, commercial or recreational purposes. Note that a congested area does not have to be populated with people at the time of the flight to be defined as such.
- **Over or within 150 metres of an organised open-air assembly of more than 1,000 persons.** The term 'over' is taken to mean directly overhead at any height.
- **Within 50 metres of any vessel, vehicle or structure which is not under the control of the operator or remote pilot.** The phrase 'under the control of' means any people present, including those in buildings or vehicles, who are there either solely to participate in the operation of the drone flight or are essential site personnel. These individuals must be expected to follow the directions of the drone operator /remote pilot and any safety precautions so that no unplanned interaction with the drone occurs. Simply put, any flight will have a 'footprint' on the ground below the aircraft. No one unconnected to the drone operation or who are essential site personnel should, or should be able to enter this footprint during the flight.

- **Within 50 metres of any person other than the remote pilot or a person under their control except when the drone is taking-off or landing when that distance is reduced to 30 metres.**

3. Additional insurance requirements

The additional restrictions imposed by the University's current insurance arrangements are:

- 1) University owned and operated drones must not be flown in controlled airspace, i.e. class A, C, D or E airspace or within an aerodrome traffic zone. This is regardless of drone weight or whether permission from air traffic control has been obtained. In simplistic terms this means that no flights are allowed within several miles of most airports. If you unsure you should consult the relevant airspace map.
- 2) University owned and operated drones must not be flown at a height of more than 400 feet above the surface. Again this is regardless of drone weight or whether permission from the CAA has been obtained.
- 3) University owned and operated drones must not be flown over or within 150 metres of any congested area. This is regardless of whether or not they carry surveillance equipment or whether permission has been granted by the CAA.
- 4) University owned and operated drones must not be operated more than 500 metres from the point of operation.

Any member of the University wishing to carry out a drone operation that conflicts with the restrictions imposed by the current University insurance cover should discuss this with the Safety, Health and Environment Unit in the first instance.

Note that only drones owned and operated by the University are covered by the University's Public Liability Insurance. For this reason, it is preferable that drones used in teaching or research activities are University owned. Schools and Departments should register any drones that they may purchase with the Safety, Health and Environment Unit and the Insurance Office. Drones owned personally by staff or students are not covered by University insurance. For this reason, it is preferable that such drones are not used in teaching, research or study. If they are, they must be covered by appropriate third party liability insurance: the current minimum cover required being £750,000.

The University Public Liability Insurance covers drone operations carried out using University owned and operated equipment worldwide with the exception of USA and Canada. However, anyone using drones outside of the UK should make themselves aware of the local rules for drone use.

5. Use of Drones on the University's campuses

For any drone flight to be legal, the land owner must give permission for take-off and landing. The only circumstances for which permissions will be granted to fly on University property is where the drone is being used as part of the sanctioned research or teaching activities of an academic School or where a commercial drone operator has been contracted to undertake a specific activity such as a building survey or event filming. With respect to teaching and research, permissions will cover programmes of work and individual permissions will not be required for individual flights. Permissions should be sought through contacting Jim Bloor in the Safety, Health and Environment Unit in the first instance. In his absence contact Bernard Angus. Permissions will consist of a permit to operate on University property, specifying the area where the flight will take place. Where that area is managed by a specific Department, for example the Sports Fields, an additional permission must be obtained from that Department. It should be noted that to meet the requirement of the University Insurers, University owned and operated drones must not be flown over or within 150 metres of any congested area; there is very little of the main campus at Canterbury, including the Sports Fields and Southern Parklands, and none of the Medway campus, over which flights can be made.

To be clear, the University does not permit recreational use of drones on its property by any person, be they staff, student or visitor.

6. Drone Flight Safety

All drone flights must be subject to a suitable and sufficient risk assessment. Not only will this ensure that the drone operator and anybody potentially at risk from the flight operation will be safe, it will also ensure that the general ANO rule that operators must be reasonably satisfied that all drone flights are safe will be met. A good starting point for any risk assessment is the rules from article 95 of the ANO. Although they specifically only apply to surveillance drones, they represent good safety practice and it is recommended that they are followed for all drone flights. Those that are also insurance requirements must be followed. In addition, drone flights should never be carried out alone. A second person must always be present to enable the alarm to be raised in case of an accident.

The risk assessment should also consider the following:

1. **Training.** Do the remote pilot, flight supervisor (if different from the flight operator) and flight observers have an appropriate level of training? Has this been documented?
2. **Planning.** Where is the take-off/landing zone sited? Has a formal permission from the landowner / manager been obtained? Are there any site specific hazards or risks? What are the roles of the individuals present? Have they been briefed properly on their role? What is the weather going to be like? Will it cause any problems for the flight?
3. **Prior incidents.** Have the lessons learnt from previous accidents, near misses or deviation from a flight plan been considered?
4. **Equipment maintenance.** Has the drone been maintained properly? Have battery logs been consulted to ensure that there is no decline to battery performance?
5. **Fail-safes.** Are fail-safes in place to deal with loss of the control signal with and without GPS? Have they been tested recently? (When flying regularly, they should be tested monthly). Can any autonomous or semi-autonomous operations be overridden by a remote operator who is able to take direct control of the flight at any stage? Have operators practised flying without the aid of GPS?
6. **Emergency procedures.** Are there emergency procedures in place for accidents, drone fly away, operator incapacitation, etc.?

Checklists covering, for example, drone maintenance, pre-deployment operations, pre-flight operations and post-flight close out are a useful way of ensuring that all aspects of flight safety have been checked.