

COLLEGE OF ENVIRONMENTAL SCIENCES & ENGINEERING (CoESE)

STAFF & STUDENT HEALTH & SAFETY HANDBOOK

General health and safety guidance
for CoESE staff and students



PRIFYSGOL
BANGOR
UNIVERSITY

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USEFUL CONTACTS AND LINKS

All telephones have a direct dialling facility for the Emergency Services. Inform the Main Arts Security Lodge if the Emergency Services requested.

Fire, Ambulance or Police (internal phone) 333 (or 9-999)

NOTE: If no internal phone add '01248 38' before the following 4 digit numbers:

Security Lodge (Main Arts Hub) 2795

College Health and Safety Manager 2524
John Latchford

Safety Co-ordinator 2512
Alan Jones

Safety Co-ordinator 2503
Helen Simpson

Safety Co-ordinator 3741
Chris Gwenin

Safety Co-ordinator 3098
Paul Sayers

Safety Co-ordinator 3750
Ian Pritchard

Safety Co-ordinator 3213
Simon Curling

Health and Safety 3847 / 3854 / 2779

- [CoESE Website](#)
- [Health & Safety - HSS Website](#)
- [Finance Office](#)
- [Property and Campus Services](#)



INTRODUCTION

The College of Environmental Sciences & Engineering (CoESE) consists of the following Schools.

- **School of Natural Sciences (SNS)**
- **School of Ocean Sciences (SOS)**
- **School of Electronic Engineering & Computer Sciences (SEECs)**
- **The Biocomposites Centre**

CoESE is the most diverse College at the University with regards to the activities it undertakes. The College has boats, a farm, lasers, workshops, laboratories (with associated chemical, radiological and biological hazards), dangerous animals and aquaria and undertakes fieldwork in often remote locations. Staff and students therefore have the potential for exposure to a wide range of hazards during their work and study.

This Health & Safety Handbook contains both general health and safety advice and some guidance for some specific hazards you may encounter whilst working within CoESE. Perhaps the most important advice that can be offered is that if you have any doubts that you are doing things correctly and safely then stop and seek advice.

USEFUL HEALTH AND SAFETY RESOURCES

This Health & Safety Handbook only provides a general overview of health and safety risk management across the areas covered. Staff and students must also familiarize themselves with the following key health and safety documents / resources:

- CoESE Health, Safety and Environmental Policy.
- Bangor University Staff / Student Health and Safety Handbook (day to day health and safety information whilst working at the University).
- CoESE Health and Safety Website.
- University Health and Safety (HSS) Website (covers a wide range of useful health and safety information, policies, procedures etc).

USEFUL HEALTH AND SAFETY CONTACTS

The College has its own Health and Safety Manager who is accountable to the Dean for general health, safety and environmental (HS&E) arrangements across all Schools.

In addition, the H&S Manager acts as the University's Radiation Protection Officer (RPO), University Biological Safety Officer (BSO) and the University Named Animal Care Welfare Officer (NACWO).

On a day to day basis, the H&S Manager is supported by a number of local Safety Coordinators all of whom have specialist knowledge of the hazards and associated safety management systems in their areas. The University's central Health and Safety Service also provides support as necessary.



EMERGENCY ARRANGEMENTS

FIRST AID

Trained First Aiders and First Aid provisions are available in all buildings occupied by CoESE with, dependent on risks, eye-wash facilities and emergency showers also provided. Others may receive First Aid Training dependent on the activities they undertake, for example, academics supervising student fieldwork, those carrying out higher risk research or those working out of hours.



In the event local First Aid is not available or an Ambulance is needed call Security on **333** and state the precise location and nature of the emergency.

FIRE PREVENTION

A few simple measures can significantly reduce fire risks such as good housekeeping (e.g. emptying bins regularly, storing materials appropriately), switching off and unplugging all unused electrical equipment and keeping fire doors closed. Never leave or store combustible materials on emergency exit routes or block access to fire alarms, fire equipment or electrical switchgear.

In addition, Risk Assessments and COSHH Assessments must consider any fire risks associated with an activity to ensure suitable arrangements are in place with those affected informed so they know what action to take in the event something does go wrong.

Any concerns should be reported to a Safety Coordinator or the College H&S Manager immediately.



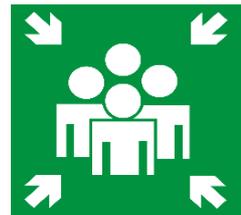
Call Point



Fire Action Notices



Fire Exit Signs



Assembly Points usually have this symbol

FIRE - GENERAL ARRANGEMENTS

It is essential all staff and students know the emergency procedures, escape routes, extinguisher positions and any special hazards in each building they use with these arrangements covered during the Local H&S Induction.

Staff and students must familiarise themselves with the location of fire exits and escape routes in the building/s they occupy or visit, and for the buildings routinely occupied, the nearest fire extinguishers and fire alarm call points to their area of work. Safety Coordinators can advise on local arrangements.



FIRE ALARM TESTS AND FIRE EVACUATION DRILLS

Safety Co-ordinators will arrange weekly fire alarm tests in all buildings with staff and students informed when this will occur. In addition, Safety Co-ordinators will carry out at least one Fire Evacuation Drill per Semester for each building under their control, coordinating this with other building occupiers where necessary.

Please note, with the exception of the fire alarm test **always evacuate if the fire alarm sounds.**

EMERGENCY FIRE ACTION PROCEDURES FOR DISABLED PEOPLE

During an emergency, some people may require additional arrangements to be put in place so they can evacuate safely.

To help the College look after you, please let the College H&S Manager, Safety Coordinator or Personal Tutor know if you have an impairment that would restrict your ability to evacuate quickly during an emergency evacuation so that provisions can be put in place. Disability Services can offer and arrange support for students. Staff are expected to inform their visitors of arrangements as required.

General advice can be found on the [HSS Website](#). The link includes the *'Getting Around Bangor'* document which contains information on Refuge Point systems for use by those who cannot evacuate via the stairs. An [Information Sheet](#) is also available to give to visitors unable to evacuate via the stairs.

Please note never use a lift if the fire alarm is sounding

In some cases, a documented Personal Emergency Egress Plan (PEEP) may be required which the College H&S Manager will coordinate for staff. Disability Services oversee this process for students.

REFUGE POINTS

Refuge Points (see below for types and signage) are designated areas that offer protection from smoke and fire and which are fitted with an intercom or phone system to allow (most systems), communication with University Security. Clear user instructions are displayed at each Refuge Point.





RHIFAU FFÔN DEFNYDDIOL /
USEFUL PHONE NUMBERS:

Argyfwng / Security - 2795 / 333
HSS – 3847
P&CS – 2775 / 2783

FIRE EVACUATION PROCEDURE

If you discover a fire:

- **Immediately** raise the alarm by activating a manual Call Point
- **Contact** University Security (ext **333 / 2795** on internal phone or **01248 38 2795**)
- **If safe**, turn off equipment and close doors
- **Leave** by the nearest, safest exit and go to the Assembly Point

On hearing the fire alarm:



DO

- Stop work immediately
- If safe to do so, turn off equipment, close open doors
- Go directly to the designated Assembly Point
- Report missing colleagues or those who have chosen to go to a Refuge Point to Security staff or Emergency Services
- Only return to the building when instructed by Security staff or Emergency Services



DO NOT

- Use lifts
- Take personal belongings, carry hot drinks etc
- Stand too close to the building or obstruct emergency routes
- Leave the Assembly Point
- Re-enter the building (even if the fire alarm has stopped sounding) without Security staff or Emergency Services permission

If you smell gas or suspect a gas leak:

- Turn off all gas appliances. Extinguish naked flames, high heat sources and cigarettes
- **DO NOT** turn electric switches ON or OFF
- **If safe**, open external windows and doors but close doors leading onto stairs
- If gas smell is very strong or in the whole building evacuate the entire building
- Inform Security on **333** (internal phone) or 01248 382795. If unavailable, call **WALES & WEST UTILITIES** on **0800 111 999**
- If gas smell is outside a building call Property and Campus Services (PACS) on **2775** or **01248 38 2775** or University Security on **01248 38 2795**



GENERAL ARRANGEMENTS

INDUCTION

All new staff must attend a University Induction that includes basic health and safety information. The College (via the relevant School) must then provide a local H&S Induction that covers relevant health and safety information (including emergency arrangements) for the work to be undertaken.

All registered students will receive a College H&S Induction. All new PhD and MRes students must successfully complete the formal H&S Course within their first year of registration. Other courses may also include H&S Modules as necessary.

Records should be maintained of any Induction given.

TRAINING, INFORMATION AND INSTRUCTION

Health and safety training is essential to achieve competence and convey important information regarding health and safety risks and associated controls and safe working practices.

Staff and students may need to attend additional training due to the nature of their role or studies. If staff identify training needs, they should contact their Line Manager or College H&S Manager; students should speak with their Academic Supervisor. In addition, Line Managers should give staff the opportunity to discuss training needs during their annual Performance Development Review.

Please note that records should be kept of any training and instruction provided.

ACCIDENT / INCIDENT REPORTING PROCEDURE

Please report all accidents and incidents, including near misses so they can be investigated to an appropriate level to ensure lessons are learned and to prevent a recurrence.

The first priority following an accident or incident is to deal with immediate health and safety issues, such as providing First Aid and clearing chemical spillages.

If you are involved in, or witness an incident:

- Obtain an Accident & Incident Report Form from your Safety Co-ordinator or the [HSS Website](#). Complete the Form whilst details are clear and witnesses are available. If possible, get a colleague, the College H&S Manager or a Safety Coordinator to help.
- Return the completed Form to the Safety Co-ordinator who will forward a copy of the Form to the College H&S Manager and Health & Safety.

Report death, major injury, disease and dangerous occurrences immediately to the College H&S Manager on 01248 382524.



RISK / COSHH / BIOLOGICAL AGENTS RISK ASSESSMENTS

A risk assessment is nothing more than a careful examination of what, in your work, could cause harm (to persons, the environment or other assets), so that you can weigh up whether you are doing enough to control the associated risk or should do more to prevent harm from occurring.

Do not undertake any activity involving significant hazards until **an assessment of the risks and a written [Risk Assessment](#)** is in place. The Risk Assessment should be reviewed regularly (i.e. periodically and in the event of change, complaint, incident etc) to ensure they remain suitable.

Remember to **communicate** the Risk Assessment to all persons affected by the hazards, ensuring that, in the process, they understand the risks and controls identified. If the Risk Assessment is changed it will need to be **re-communicated**. As part of the review process, it is essential old versions are removed from use but kept on record.

If substances hazardous to health are used or created during an activity, a specific COSHH / Biological Agents Risk Assessment must be carried out, which considers the process from cradle to the grave ie preparation through to disposal.

Further advice and guidance on Risk Assessments is available on the [CoESE](#) and [HSS Website](#).

COMPUTERS / DISPLAY SCREEN EQUIPMENT (DSE)

The College considers all members of staff to be 'DSE Users' as defined by the University's Safe Use of Computers (DSE) Policy. All staff must complete the on-line DSE Training and associated DSE Self-Assessment Form and forward to the relevant DSE Assessor. The DSE Assessor will then review the DSE Self-Assessment and take action as required.

In addition, the University reimburses the cost of [eye tests](#) for staff working with DSE and, where required, an agreed amount towards the cost of [glasses](#) if needed to work safely with DSE.

A range of information about looking after yourself when using computers is available on the [HSS Website](#). If concerns still exist, please contact the College H&S Manager.

HOME WORKING

Although some staff may decide to work from home, the College does not officially deem its staff 'home workers'. If staff do work from home, they must inform their Line Manager.

DISABLED PERSONS (see Emergency Arrangements above regarding PEEPs)

Staff should inform the College H&S Manager immediately if they require adjustments to be made to support them whilst at work.

Students should contact [Disability Services](#), who will then liaise with the College and others to support the student.



NEW AND EXPECTANT MOTHERS

Due to the nature of some of the College's activities we ask that new and expectant mothers (both staff and students) contact, in confidence, their Line Manager, Personal Tutor or the College H&S Manager as soon as possible. This to ensure that appropriate provisions are in place to support the mother and unborn child.

Human Resources will advise staff regarding maternity pay / leave, paternity etc. Student Services offer support to students.

GENERAL HEALTH AND WELL-BEING

Staff should inform their Line Manager or the College H&S Manager immediately if they have concerns their work is affecting their health or due to individual circumstances (e.g. health) adjustments need to be made to support them. Students with similar concerns regarding their studies should in the first instance inform their Academic Supervisor / Personal Tutor before contacting the H&S Manager.

VISITORS

All visitors must be afforded the same degree of protection against risks to their health and safety as employees and students of the University.

Visiting Academics and study/work placements hosted at the College, must be authorised by the Head of School and must follow University and College health, safety and environmental procedures and arrangements. The person inviting the Visiting Academic or the person on placement, will be considered to be the Supervisor and therefore must ensure suitable health and safety arrangements are in place. This includes a H&S Induction, suitable supervision, instruction and training to enable them to undertake their work safely and in accordance with College and School Rules.

YOUNG WORKERS / WORK EXPERIENCE

Legislation and specific University policies exist to ensure the safety of any child (below 16 years) or young persons (between 16 and 18 years) undertaking placements at the University.

Before staff agree any work placement, they must inform Human Resources (HR) and the College H&S Manager (the nominated person to coordinate College child protection matters) with the relevant HR [Forms](#) completed and returned to HR **at least 8 weeks before** the placement starts.

A specific Risk Assessment, authorised by the College H&S Manager must then be prepared before the placement starts to ensure appropriate arrangements are in place eg Induction, Supervision, Disclosure and Barring Service (DBS) Checks, relevant information issued to the parent / guardian.

TRAVELLING ABROAD ON UNIVERSITY RELATED BUSINESS

The University's [Overseas Travel Policy](#) specifies that when travelling abroad on College business you must undertake a risk assessment. Where travel is to a low risk country for a low risk activity such as attending a conference, the requirement for risk assessment may be satisfied by simply completing the University's on-line Travel Insurance (free and available via the Finance Website) which staff and



students must complete if travelling overseas on University business. For higher risk visits a specific risk assessment will be required (see [Overseas Travel](#)). In addition, there are restrictions for travel to countries and regions for which the Foreign & Commonwealth Office (FCO) has issued the following travel advice:

- FCO advises against all travel to countries or regions unless on essential business.
- FCO advises against all travel to countries or regions.

Permission to travel to such areas may be granted if controls can be put in place to mitigate the associated risks to an acceptable level. Anyone wishing to travel to such areas must submit a formal application to the College H&S Manager with all the required documentation in place **at least three weeks in advance of the date of travel** or the request for travel **will not be considered**.

USE OF VEHICLES, MINIBUSES AND DRIVING SAFELY

Driving is often one of the most hazardous activities we undertake at work but is often overlooked because we do it regularly outside of work. The University has a duty to ensure the safety of any vehicles it provides and the safety of drivers and passengers driving on University related business. The following summarises key requirements from the [University's Driver & Vehicle Safety Policy](#) and [Minibus Safety Policy](#). Staff and students must comply with these requirements:

- **Vehicles:** College owned, hired or leased vehicles must be road worthy, road legal and be suitable for purpose. In addition, vehicles must be subject to a weekly, recorded safety check by a competent person.
- **The Driver:** Anyone driving a College owned, leased or hire vehicle on College business must present, on an annual basis, a current summary of their driving licence (available from the DVLA Website - <https://www.gov.uk/view-driving-licence>) to the College. As part of this process, the Summary will be checked to ensure the Driving Licence Categories cover the driver for the vehicles driven at work and drivers must sign a Driver Authorisation Form that will approve them to drive and detail the vehicles that may be driven.
- **Claiming Business Mileage:** Any person using their own vehicle and claiming business mileage must have 'business use' on their vehicle insurance.
- **Minibuses:** Specific requirements apply to staff and students wishing to drive minibuses on College business, for example, age restrictions (differ to Students' Union age limits), MIDAS Training (and refresher training), displaying Section 19 Bus Permits in each minibus driven.

MANUAL HANDLING

UK wide, manual handling injuries are one of the most common types of workplace accidents. The College has a number of trained manual handling assessors to help undertake manual handling risk assessments where required. Some simple tips to avoid manual handling risks are;

- Avoid handling large or heavy objects. If unavoidable plan the task with the help of others.



- If available, use mechanical aids such as 'sack' trucks.
- Ensure deliveries arrive as close to point of use as possible.
- Remember how you create manual handling for others, for example do not overfill bins.
- Inform the College H&S Manager of concerns which could affect you when carrying out tasks.

Further guidance on manual handling, including the Health and Safety Executive's MAC Tool (assessment software) is available on the [HSS Website](#).

NOISE AND VIBRATION



The College makes every effort to purchase equipment with the lowest noise and vibration levels. In addition, exposure to noise and vibration can often be controlled through task management such as limiting the time spent operating a machine or rotating tasks on a daily and weekly basis.

If this approach is not sufficient, suitable personal protective equipment (e.g. ear defenders) must be provided. In some instances Mandatory Hearing Protection Zones, which require the wearing of PPE will be established and warning notices displayed. Do not enter such areas unless you are authorised to do so and have the suitable PPE.

Please inform the College H&S Manager if you are concerned about exposure to noise or vibration.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Legislation states that PPE should only be used as a last resort when there is no other practical means available of controlling risks. The College must provide suitable PPE, free to its staff (the majority is also provided free to students).

Although general PPE requirements will be covered during the local H&S Induction, please be mindful that additional PPE may be identified by Risk Assessments. In some cases, you may also have to attend specific training to use PPE correctly.

Staff and students must follow all instructions and signage regarding the use of PPE. In addition, be mindful that PPE is personal, one size does not fit all so make sure the PPE is a correct fit and inform a suitable person (e.g. Academic Supervisor, Safety Coordinator) immediately if you feel your PPE is not suitable. Further information is available on the [HSS Website](#).



SAFETY SIGNS AND LABELS

You will encounter the following emergency signs at the University. Please familiarise yourself with these and other specific signs within your work area.

	<p>Fire signs (RED & BLUE) e.g. fire procedure signs</p>		<p>Fire signs (RED & BLUE) e.g. fire procedure signs</p>
	<p>Prohibition signs (RED) e.g. no smoking</p>		<p>Mandatory signs (BLUE) e.g. must wear personal protective equipment</p>
	<p>Warning signs (YELLOW) e.g. radiation, lasers, biological agents, optical radiation</p>		<p>Safe area signs (GREEN) e.g. location of fire exits</p>

ASBESTOS



Property and Campus Services (PACS) has undertaken a comprehensive Asbestos Survey of all buildings and implements robust procedures to ensure that no one is exposed to asbestos. Black and red labels are used to indicate the presence of asbestos.

Never remove an asbestos label or interfere with the material it is affixed to. Regardless of whether a material has an Asbestos Label DO NOT undertake any intrusive building works (even putting a nail in the wall). All such works must be managed by PACS.

In addition, be aware some older items of College equipment could contain asbestos. Although most has been identified and labelled, there is a chance items have been missed. Ask a Safety Co-ordinator before disturbing an item's integrity.



HIGHER RISK ACTIVITIES

FIELDWORK

Anyone undertaking field work must comply with the [College's Code of Practice for Fieldwork](#) as well as any additional controls imposed by individual Schools. Further practical information about what to consider when planning fieldwork, including the University's Fieldwork Policy is available on the [HSS Website](#).

STUDENT PLACEMENTS

The College has adopted the [UCEA Health and Safety Guidance for the Placement of Higher Education Students](#) into the College arrangements for this activity. Staff are reminded of the [Code of Practice on Placement Learning \(Quality\)](#) and the health and safety procedures listed therein. Additional arrangements will then also apply for overseas placements.

See the [HSS Website](#) for documents and further information on placements and overseas travel.

DRONES / SMALL UNMANNED AIRCRAFT

Please be aware **that no member of staff or student can operate drones on University related business or overfly their own personal drone on University premises without written permission.** Please contact the College H&S Manager to discuss the specific requirements that apply.

DIVING

The College Diving Officer (Professor John Turner) must be informed of, and **approve** any University related diving activity (including student projects), in the UK and abroad before it takes place. This to ensure compliance with the [University Diving Projects Policy](#) associated Regulations and Codes of Practice and specific legislation.

Please note that **recreational and work diving are strictly separate** and that the Policy does not cover recreational divers who are not at work. Therefore, staff or students cannot use data or samples intentionally collected during recreational dives for their University work.

SNORKELLING

Although the Regulations and University Diving Projects Policy does not cover snorkelling, the Diving Officer must be consulted before undertaking any snorkelling relating to College business. A specific Risk Assessment, **approved** by the Diving Officer, is also required for the activity and the [Snorkelling Code of Practice](#) must be followed.

RV PRINCE MADOG

P&O Maritime Ocean Sciences (POMOS) is responsible for all health and safety matters concerning the *RV Prince Madog*.



On a day to day basis, although supervision of the safety aspects of scientific work is the responsibility of the Senior Scientist / Academic nominated for each trip, the RV *Prince Madog's* Master has ultimate responsibility for the safety of the crew and scientists whilst on board and should provide training and instruction in relation to general ship safety as necessary.

All workers making trips on the boat must familiarise themselves with and adopt the vessel's safety procedures. Risk Assessments for general ship activities have been completed and are available on-board, but specific Risk Assessments must be completed for each cruise **with at least one month's lead time**. RAs should be discussed with the Ship's Safety Officer before submission. COSHH Forms must be submitted to Ian Pritchard or the College H&S Manager for approval, and when signed a copy given to the Ship's Master.

SMALL BOATS

CoESE has a number of small boats registered with the Maritime and Coastguard Agency (MCA), and operated in compliance with the MCA Code and associated CoESE Small Boat Handbook. Please contact the College H&S Manager for advice on use of boats that are not owned and operated by the College.

ANIMAL ALLERGIES

Health monitoring procedures have been introduced for those persons routinely handling animals. Most people who have allergies are affected by hairs and dander, animal faeces and feathers but a significant number of allergies can be developed from handling fish and shellfish proteins and fish food. Before embarking on a new piece of work involving routine contact with animals or fish/shellfish and / or if you find you are experiencing health issues when working with animals or fish / shellfish please contact the College H&S Manager or Safety Co-ordinator for advice.

RESTRICTED AREAS

The College has a number of areas that have restricted access due to the nature of the work that takes place within them. In many cases specific training is required before these areas may be entered. The table below summarises restricted areas and the health and safety procedures that apply therein.

Areas	Site / Building	Specific Authorisation	Specific Induction	Training
Solvent Store	Science Site	Chief Technician (Chemistry)	Yes by Chief Technician (Chemistry)	
Aquaria	Brambell, Craig Mair, SEACAMS, Nuffield Fish Lab	Aquarium Manager	Yes	
Radiation Laboratories	Brambell, Nuffield Fish Lab, ECW, Memorial	RPO	By RPS	By RPO and RPS



Areas	Site / Building	Specific Authorisation	Specific Induction	Training
CL2 Labs	Brambell, ECW, Alun Roberts, Thoday, MCW, Memorial	Lab Manager	Yes	Yes
Mechanical Workshops	Menai Bridge, Dean Street, Pontio Innovations	Relevant Workshop Supervisors	Yes	Specific Equipment
Laser Laboratory	Dean Street, Rm 301	Dr Paul Sayers	Dr Paul Sayers	By Dr Paul Sayers
Autoclave Rooms	Westbury Mount, Brambell	H&S Manager	Yes	Autoclaves
XRD Room	Alun Roberts	Nick Welsby/ Glynne Evans	Yes	Yes
Hydrofluoric Laboratory	Dean Street, Rm 143	Dr Paul Sayers	Dr Paul Sayers	By Dr Paul Sayers
Glove Box Room	Dean Street, Rm 447	Dr Paul Sayers	Dr Paul Sayers	By Dr Paul Sayers
Laser Micromachining Laboratory	Dean St, Rm 157	Dr Paul Sayers	Dr Paul Sayers	By Dr Paul Sayers
Environmental Chambers	Dean St, Rm 401	Dr Paul Sayers	Dr Paul Sayers	By Dr Paul Sayers
Clean Room	Dean Street, Rm 439	Dr Paul Sayers	Dr Paul Sayers	

BIOHAZARDS AND GENETICALLY MODIFIED ORGANISMS (GMOs)

The COSHH Regulations cover all micro-organisms which are hazardous to human health. As such, a [Biological Agents Risk Assessment](#) is required before any work with hazardous microbes is undertaken.

In addition, the Biological Safety Officer (currently Dr John Latchford), must be informed of and approve any work with micro-organisms in ADCP Hazard Group 2 (and above) **before** work. Once approved specific arrangements will need to be established with work only undertaken in designated laboratories.



All work involving the use or creation of genetically modified organisms must be approved by the Local Genetic Modification Committee (via the Biological Safety Officer) before commencing. Please visit [here](#) for details on how to apply for permission to undertake work involving GMOs.



Staff and students must also be aware that they may be exposed to biohazards when undertaking fieldwork (for example endemic diseases) and these must be assessed in the relevant Risk Assessment with hazards and controls communicated to all those affected.

IONISING RADIATION

The use of ionising radiation is controlled by the Ionising Radiation Regulations 2017 (IRR17). Anyone wishing to work with open sources of ionising radiation must be **‘Registered’** and all projects involving open sources of ionising radiation **approved** by the University Radiation Protection Officer (RPO) or University Radiation Protection Advisor (RPA).



All radiation work must be undertaken in designated areas, and workers must receive formal training by both the RPO and RPS prior to undertaking any work with radioactive materials. Specific Local Rules and procedures are established for all relevant areas with dosimetry arrangements put in place as advised by the RPA. Local Radiation Protection Supervisors (RPS) are appointed in all relevant areas.

Please visit the [HSS Website](#) for further information on University Policies and procedures, including how to apply to become a Registered Radiation Worker.

XRD / XRF X-RAY UNITS

The College operates a number of XRD / XRF x-ray units which are managed by a local Radiation Protection Supervisor (RPS). Staff and students must never operate equipment until specific training and authorisation is given by the relevant RPS.

HAZARDOUS SUBSTANCES / USE OF CHEMICALS

The College uses a range of hazardous chemicals in laboratories as well as hazardous substances such as bleach and herbicides in other locations. Always read the instructions / hazard labels on containers and understand what is written on them, follow the directions for use and use the correct personal protective equipment (PPE) as specified for the material (e.g. glove, goggles, lab coat) and which is also suitable for the individual (e.g. size). Further information is available on the [HSS Website](#).





In addition:

- PPE will be discussed during the local H&S Induction. Additional PPE information will then, dependent on the work / teaching / study be provided as required.
- A Risk / COSHH Assessment must be in place, appropriate for the substances used (including concentration, mixtures, form etc) and how they are to be used.
- Information for Assessments should be gathered via MSDS or similar informed sources.
- Undergraduates should be supervised during practicals by competent staff including Postgraduate Demonstrators.
- Only specific staff are authorised to purchase chemicals.
- Although not practicable to keep an inventory of all chemicals, an inventory of 'Scheduled Chemicals' is kept and which must be notified each year.
- Chemicals and waste chemicals must be stored correctly e.g. segregated, minimum quantities of flammables, vented Winchester, secured when required.
- Waste chemicals must be dealt with as per the COSHH Assessment with those that cannot be disposed of safely in-house disposed of via the Chemical Waste Collections arranged by HSS.
- The advice of the trained Carriage of Dangerous Goods Advisor must be sought before moving any chemicals across site.
- Fumehoods are available for use when directed by the COSHH Assessment.

SOLVENTS

Solvents **must not be used until a COSHH Assessment** is completed. When ordering solvents, keep the volumes as low as possible

Storage and use: To reduce risks of fire, quantities of flammable solvents greater than 500ml must be kept in fireproof cupboards below bench level except when actually in use. All containers of flammable materials must be kept stoppered at all times except during transfer of the material. They must be kept away from heaters and open flames. Remember that the vapour of some solvents (*e.g.* ether) is heavier than air and may flow along bench tops or the floor. This can greatly increase the risk of explosions.

All flammable liquids should be stored in the central Solvent Stores (for work undertaken on the Science Site). Winchester may only be transported in appropriate Winchester carriers. Normally no more than one Winchester of any one flammable solvent should be in a laboratory at one time. (Substantially larger quantities of solvents and flammables may be used where permission has been granted by the College H&S Manager). Flammable solvents should not be stored in refrigerators unless they are specifically designed for that purpose as there is a risk of explosion if flammable materials are



stored in non-spark proof fridges and freezers. If you need to store solvents at low temperature, consult the Departmental Safety Co-ordinator.

Disposal: Solvents must not be poured down the drains. All used solvents must be put in a suitable container, labelled and recycled or disposed of by licenced waste contractors.

ACIDS

Storage and use: To reduce risks of injury and corrosion, all inorganic acids must be stored in designated areas. When ordering acids, keep the volumes as low as possible. It is also essential that other (non-acid) materials are not stored in the same location as acids. Oils and solvents pose a particular danger.

When using acids, take the acid to the appropriate fume cupboard, decant only what is needed for the job and return the remainder to the store. Small volumes may be stored locally but these must be in appropriately labelled containers which do not allow fumes to escape. Ensure suitable spill kits and First Aid equipment is to hand when using acids.

HF (hydrofluoric acid) and Perchloric Acid must only be used in the specially designated fume cupboards after all Risk Assessments and COSHH Assessments have been completed.

Disposal: The disposal of used acids must be in accordance with the COSHH Form's recommendations.

VERY TOXIC CHEMICALS

Storage and use: Chemicals designated "very toxic" or "highly toxic" **must** be kept in a locked poison cupboard. The minimum necessary quantity will be issued by the person responsible for the storage and security of poisons. Poisons and poisonous solutions made up must be clearly labelled with 'Very Toxic' or 'POISON' labels, the name of the compound and concentration. They must be kept in a locked cupboard when not in use.

Disposal: All waste containing very toxic or poisonous materials must be taken to a senior member of the Technical staff who will supervise their disposal.

Use of Cyanide: All use of cyanides must be approved by the Departmental Safety Co-ordinator or the College H&S Manager.

Mercury spillage: Mercury is toxic. Spillage must be reported to a senior member of Technical staff.

Pesticides: Special rules apply for the storage and use of pesticides. Some biocides used in anti-fouling paints are classed as pesticides.

SOLVENT STILLS

No person may operate a still until AUTHORISATION is given by the College H&S Manager. Specific controls, Safe Operating Procedures etc will then be required which must be adhered to.



ELECTRICITY / PORTABLE ELECTRICAL APPLIANCES

Property and Campus Services (PACS) are responsible for the inspection, testing and maintenance of the fixed electrical system (i.e. up to the socket). The College has established the following procedures to ensure the safe use of electrical items beyond the socket.

- **Purchasing**
 - Equipment must be suitable for purpose and carry a [CE Mark](#). Staff must contact the College H&S Manager before purchasing any machinery or equipment outside of the EEA.
- **Equipment and Supplies:**
 - Portable electrical appliances are inspected and tested (PAT Tested) to a suitable Schedule (determined by what the item is used for and the environment it is used in e.g. aquaria requires more frequent checks) by competent staff and a label is affixed to the item to show it has been tested.
 - Circuit breakers, RCDs etc are fitted where necessary.
 - Only specific staff are permitted to repair electrical equipment and / or construct and test electrical equipment fabricated in house.
 - Regular tests of emergency isolation switches (fitted to larger electrical items) must be undertaken.
- **General Electrical Safety: All Staff, Students and Visitors:**
 - All electrical items 'brought in' from home must be PAT Tested by a competent person before use on University premises.
 - College electrical equipment may only be 'modified' by a competent electrician.
 - Only authorised, PACS appointed persons may interfere with any fuse box, circuit breaker, isolators etc. This includes investigating 'tripped' systems.
 - **Visual checks are essential.** Check portable electrical equipment regularly as described [here](#).
 - Never overload sockets and fully unwind coiled extension leads.
 - Keep combustible materials away from electric heaters and switch heaters off if left unattended for any period of time.
 - Always be mindful of trailing leads creating trip hazards.
 - Do not use an item if you are concerned about its safety, or if it has not been PAT Tested (indicated by the label) - report it immediately to a Technician or a Safety Co-ordinator.
 - Report concerns relating to the 'fixed' electrical system to the PACS Helpdesk **ext 2783** or out of hours Security **ext 2795 / 333**.



GAS – LABORATORIES

Gas points may still be found in some laboratories. Any person using gas powered equipment should receive instruction in how to do so safely. Gas taps must be turned off whenever a laboratory is left unattended. Although individuals are responsible for turning off burners they have been using, the last person leaving a laboratory at night should double check to make sure all gas taps are turned off.

COMPRESSED GAS CYLINDERS (see Pressure Systems)

Staff and students **must inform** a Technician before purchasing / setting up / using / moving any compressed gas cylinder, gas line or regulator; this to ensure suitable suppliers are used and only competent persons set up compressed gas systems.

Once set up, any person using a compressed gas system must be **instructed** on its safe use by an appropriate member of staff with experience of using such systems. Technicians must be informed immediately of any concerns and notified of empty cylinders so they can be removed or replaced promptly.

In general, **only competent trained persons may:**

- Set up and modify gas cylinders and associated gas lines to ensure the correct regulator is fitted to the cylinder and to ensure there are no gas leaks.
- If required, incorporate safety valves into the system and fit flashback arresters to flammable gas cylinders.
- Move gas cylinders using the correct cylinder trolley, with the regulator moved before moving and chain secured across the front of the cylinder to prevent it toppling.
- Undertake recorded, periodic gas leak tests.

The University Insurance Office must be notified of all purchases of relevant items (e.g. regulators) for inclusion on the Statutory Examinations Schedule (undertaken by Competent Engineer appointed by University's Insurers) as per Pressure Systems Safety Regulations requirements.

AUTOCLAVES

If operated incorrectly autoclaves, which use steam at high pressures, can be extremely dangerous to the operator. In addition, failure to use autoclaves properly can result in an incomplete kill of hazardous micro-organisms, putting at risk anyone coming into contact with the material. Training must be provided for all persons using any type of autoclave or steam steriliser.

Additional requirements also apply for the larger floor mounted [autoclaves](#); these include maintenance of Authorised User Lists and a User Log Book, provision of autoclave bags and suitable heat resistance gloves and on-going recorded efficacy checks.

See Pressure Systems regarding Maintenance, Inspections and Statutory Examinations.



CENTRIFUGES

The College operates a range of centrifuges which come with various training requirements. Small benchtop machines only capable of spinning small eppendorf type tubes are relatively robust and require only General Lab Safety Training.

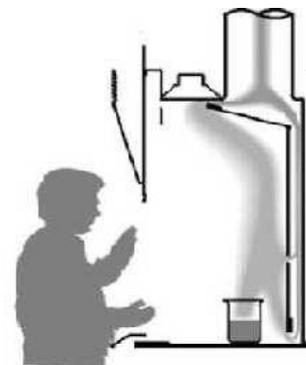
Larger benchtop machines and especially floor standing hi-speed and ultra centrifuges pose a much greater health and safety risk. Specific training and registration as an authorised user is needed before any person can operate these larger centrifuges. Further information is available on the [HSS Website](#)

FUME CUPBOARDS

When used properly, fume hoods offer good protection against fumes and vapours such as those given off by solvents.

Before using a fume cupboard always check it is working and that it is inside of 'Test Date' (label displayed on fume cupboard). Be mindful that fan noise is no guarantee the fume cupboard is working, most have a flow meter and alarm which you should check. If using an older cupboard hold a tissue in front of the opening; it should be sucked inwards, although **do not allow** the tissues to be sucked in completely as they could cause damage. Finally, no matter how awkward always work with the sash lowered to the correct height.

Further information can be found [here](#).



Best placement of materials in fumehood

LIFTING EQUIPMENT AND LIFTING ACCESSORIES

The College uses a diverse range of [lifting equipment and accessories](#). Such items fall under the remit of the Lifting Operations and Lifting Equipment (LOLER) Regulations and therefore require stringent controls to be put in place. This not only includes general controls such as training in their correct use but on-going inspections and maintenance as directed by the manufacturer.

In addition, most items will require an annual (sometimes 6-monthly) Statutory Examination by a Competent Person. This service is provided by the University Insurer's appointed Competent Engineer and can be arranged by the University Insurance Officer. **ALL** relevant items (including when the item is removed from use) must be notified to the Insurance Officer to ensure the Schedule is up to date.

NOTE: Statutory Examinations are **separate** and **in addition** to inspections and maintenance.

PRESSURE SYSTEMS

The College operates a range of [pressure systems](#), which includes items producing steam such as autoclaves. Such items fall under the remit of the Pressure Systems Safety Regulations (PSSR) Regulations and require robust controls to be put in place.

This not only includes the basics such as training and on-going inspections and maintenance as directed by the manufacturer but also Statutory Examinations by a Competent Person. This service is provided



by the University Insurer's appointed Competent Engineer and can be arranged by the University Insurance Officer. **ALL** relevant items (including when the item is removed from use) must be notified to the Insurance Officer to ensure the Schedule remains up to date.

NOTE: Statutory Examinations are **separate** and **in addition** to inspections and maintenance.

ELECTROMAGNETIC FIELDS (EMF)

The College operates equipment that produces higher levels of [electromagnetic fields](#) than that usually encountered at work. Please be assured that suitable arrangements are in place in relevant areas with warning signs displayed regarding the risks, especially to those defined as 'Persons at Particular Risk'(PPR)' e.g. persons with pacemakers. Never operate such equipment until trained. It is also essential that if you feel you fall within the 'PPR' category you do not work with the equipment until you have sought the advice of the College H&S Manager.



ULTRAVIOLET LIGHT (UV)

The College operates a range of equipment that produces UV light, identifiable by the adjacent symbol and which are covered by Generic Laboratory Risk Assessments. Operators should receive instruction in equipment use with appropriate PPE provided where required. In addition, regular checks are carried out of equipment to confirm controls e.g. safety interlocks remain operational. Further information, including the Safe Use of Artificial Optical Radiation Policy can be found on the [HSS Website](#).



LASERS

The College operates Class 1, 1M, 2, 2M, 3B, 3R and 4 lasers. The majority of lasers will have interlocked safety devices but some older machines may rely on procedural controls to prevent possible exposure. Before use, you will receive training and instruction from a competent member of staff on how to operate the machine safely. In addition, Technicians will carry out periodic checks of safety devices and arrange maintenance as required.

As the College operates high power Class 3 / 4 lasers it has an appointed Laser Safety Officer who ensures appropriate arrangements are in place. For example, Registration of Laser Works, Local Rules, specific Risk Assessments.

Follow the [link](#) for more information.



NOTE: Staff must contact the College H&S Manager before purchasing any lasers or other equipment that produces UV or higher levels of EMF.