

**School of Biological Sciences**

**SAFETY STATEMENT**

**2017**



| Version | Date                            | Name      |
|---------|---------------------------------|-----------|
| 2       | 25 <sup>th</sup> September 2017 | Mary Hunt |

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### SCHOOL OF BIOLOGICAL SCIENCES CONTACT DETAILS

| Role                             | Name           | Location  | Email               | Telephone   |
|----------------------------------|----------------|-----------|---------------------|-------------|
| Head of School                   | Mary Hunt      | Room 207  | Mary.Hunt@dit.ie    | 01 402 4753 |
| Assistant Head of School         | Frank Clarke   | Room 201A | Frank.clarke@dit.ie | 01 402 2573 |
| Assistant Head of School         | Jan Guerin     | Room 201A | Jan.Guerin@dit.ie   | 01 402 4563 |
| School Secretary                 | Ide Cussen     | Room 207  | Ide.Cussen@dit.ie   | 01 402 4562 |
| School Secretary                 | Kathy Keogh    | Room 207  | Kathy.Keogh@dit.ie  | 01 402 4562 |
| Nominees to Health & Safety Team | Mary Hunt      | Room 202  | Mary.Hunt@dit.ie    | 01 402 4753 |
|                                  |                |           |                     |             |
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|                                  |                |           |                     |             |
|                                  | Awaiting names |           |                     |             |
|                                  | Awaiting names |           |                     |             |
|                                  | Awaiting names |           |                     |             |
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Please see [School Contacts](#) for full listing

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### **EMERGENCY CONTACT NUMBERS**

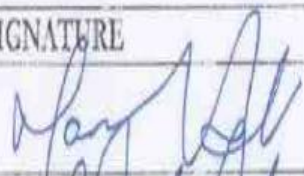

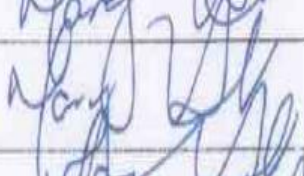
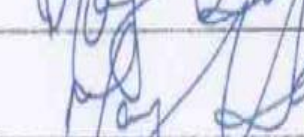
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|----------------------------------|--|
| Emergency Services               | 112/999 (You may need to dial “0” for an outside line) |
| Hospital                         | 01 410 3000 St. James Switchboard                      |
| Dublin City Council              | 01 222 22 22   |
| Garda Síochána, Kevin Street     | 01 666 9400  |
| Bord Gáis 24 hour emergency line | 1850 20 50 50  |
| ESB 24 hour emergency line       | 1850 372 999   |
| Health and Safety Authority      | 1890 289 389   |
| Samaritans                       | 1850 60 90 90  |
| Environmental Protection Agency  | 1890 33 55 99  |

### **COLLEGE & CAMPUS CONTACT DETAILS**

|  |                         |  |
|--|-------------------------|--|
| Front Desk/Reception                           | Kevin St. Main building | 01 402 4625  |
|  | Annexe                  | 01 402 4612  |
|  | FOCAS                   | 01 402 7900 / 01 402 7902 / 01 402 7903                                |
| Incident Controller                            | Porter on Duty          | 01 402 4625  |
| Building Service Supervisor                    | Jimmy Kane              | 01 402 4797  |
| Building Maintenance Manager                   | Colm Gillen             | 01 402 4646 / 087 2888 294   |
| Occupational Health Officer                    | Yvonne McArdle          | 01 402 4603 / 087 9809 135   |
| Health and Safety Officer                      | Edel Niland             | 01 402 4192 / 086 3891 080   |
| Student Health Centre                          | Reception               | 01 402 3051  |
| Chaplain                                       | Fionnuala Walsh         | 01 402 4568 /086 8754 422  |
| Employee Assistance Programme (EAP)<br>Contact | VHI Corporate Solutions | Freephone 1800 995 955<br>(24 hours / 7 days a week / 365 days a year) |
| Student Counsellors                            | Nita Whelan             | 01 402 3052  |
|  | John Broderick          | 01 402 3155  |
| Staff Safety Representative                    | Dr. Patricia Ennis      | 01 4024780   |

Safety Statement, DIT School of Biological Sciences

LIST OF PERSONS IDENTIFIED AS BEING RESPONSIBLE FOR HEALTH AND SAFETY TASKS

| TASKS  | RESPONSIBLE PERSON | SIGNATURE   |
|--|--------------------|---|
| Coordinating and ensuring records are maintained for training and provision of Personal Protective Equipment | Mary Hunt          |   |
| Ensuring Safety Statement, risk assessments are carried out, updated and communicated                        | Mary Hunt          |  |
| Ensuring the upkeep of first-aid box and ordering first-aid supplies from Occupational Health Officer        | Mary Hunt          |  |
| Co-ordinating contractors activities and dealing with Buildings Office for Work Permits                      | Mary Hunt          |  |
| Updating the statutory registers and Safety Data Sheets  | Mary Hunt          |   |
| Ensuring adequate personnel designated as evacuation marshals and first-aiders                               | Mary Hunt          |   |

*Safety Statement, DIT School of Biological Sciences*

## INTRODUCTION

Dublin Institute of Technology (DIT) is required under the provisions of the *Safety, Health and Welfare at Work Act 2005*, to have and bring to the attention of all employees, a statement of its policy, organisation and arrangements with respect to health, safety and welfare at work. The Act also embraces all of the activities at DIT and staff, students, visitors, contractors/service providers.

The fundamental aim of the *Safety, Health and Welfare at Work Act* is the prevention of accidents and illnesses at the place of work. Safety consultation procedures and the preparation of a Safety Statement and written risk assessment are the key provisions of the Act.

This Safety Statement has been prepared in compliance with the Act and provides details of the specific hazards relevant to the School of Biological Sciences and the controls that have been implemented to adequately safeguard the activities.

This Safety Statement should be read in conjunction with the DIT Parent Safety Statement which is available on the health and safety website.

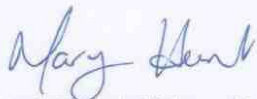
This document applies to all staff, students, visitors, contractors/service providers and campus users. It will be updated as necessary in the light of new legislation, staff feedback, changes and practical experience. In addition it will be reviewed annually.

## SAFETY POLICY & OBJECTIVE FOR THE SCHOOL OF BIOLOGICAL SCIENCES

The School of Biological Sciences will ensure that:

- Work activities are managed and conducted in a manner that ensures the safety, health and welfare of our employees, students, visitors and contractors/service providers
- Our Safety Statement is maintained and updated and written risk assessments are carried out and reviewed as required and brought to the attention of all employees at least annually
- Identified protective and preventative measures are implemented and maintained
- Improper conduct likely to put an employee, student, visitor or contractor/service provider's safety and health at risk is prevented
- A safe place of work is provided that is adequately designed and maintained
- A safe means of access and egress is provided
- Safe plant and equipment are provided
- Safe systems of work are provided
- Risks to health from any article or substance are prevented
- Appropriate information, instruction, training and supervision are provided
- Where hazards cannot be eliminated suitable protective clothing and equipment are provided
- Emergency plans are prepared and revised
- Welfare facilities are provided and adequately maintained
- Competent personnel who can advise and assist in securing the safety, health and welfare of employees are employed when required

Signed:



Head of School of Biological Sciences, Mary Hunt:

Date:

25/9/17

## **SCOPE OF SAFETY STATEMENT & HISTORY OF LOCATION**

The School of Biological Sciences is part of the College of Sciences & Health and is based in DIT, Kevin Street mainly. The School has a total of 51 staff members. There are 36 academic staff members (1 Senior Lecturer III, 2 Senior Lecturer II, 5 Senior Lecturer I, 25 lecturers and 3 assistant lecturers). The work of the School is supported by the technical staff members (7 Technicians), laboratory aides (3 aides) and the administration staff (2 part-time). Normally the School also engages up to 30 part-time academic staff, some of whom are postgraduate students on higher degrees such as MPhil/PhD programmes by research, and others are industry experienced professionals, who lecture on the undergraduate and Masters programmes. Staff members from the School work throughout the DIT campuses and on occasion off-site within other academic institutions and companies.

There is a long tradition of research in the School of Biological Sciences. Collaborative projects with industry, state scientific bodies, research organisations, hospitals and other universities are an important part of the School's research activities. Research topics cover many aspects of cell and molecular biology, biochemistry, biotechnology, immunology, microbiology, human nutrition and range from fundamental to applied and industrially motivated research. The School has many active areas of research which include Molecular Diagnostics, Biotechnology and Food, Nutrition and Health. Laboratories are on the DIT Kevin Street site.

The programmes offered comprise of Ordinary degree, Honours degree, MSc. and taught postgraduate programmes and short training courses in all areas of Biological Sciences. Opportunities to pursue higher degrees (MPhil, PhD) through research are also offered by the School.

### **Undergraduate Full Time Programmes**

#### ***Honours Degree Programmes***

|        |                                      |
|--------|--------------------------------------|
| DT204  | B.Sc. in Biomedical Science          |
| DT223  | B.Sc. in Human Nutrition & Dietetics |
| DT225  | B.Sc. in Public Health Nutrition     |
| DT226A | B.Sc. in BioMolecular Sciences       |

#### ***Ordinary Degree Programme***

|       |             |
|-------|-------------|
| DT259 | Biosciences |
| DT212 | Science     |

### **Taught Postgraduate Programmes**

#### ***Full Time***

|       |   |
|-------|---|
| DT236 | M.Sc. in Clinical Laboratory Science (Part time course)                   |
| DT218 | European M.Sc. in Food Science, Technology & Nutrition (Full time course) |

#### **Part Time CPD Courses**

##### **DT204 P Part-time CPD in Biomedical Science**

|                 |                                  |
|-----------------|----------------------------------|
| CPD Certificate | Clinical Chemistry               |
| CPD Certificate | Cellular Pathology               |
| CPD Certificate | Haematology                      |
| CPD Certificate | Medical Microbiology             |
| CPD Certificate | Transfusion Science              |
| CPD Certificate | Clinical Immunology              |
| CPD Certificate | Diet, Nutrition & Health (DT239) |
| CPD Certificate | Diet, Nutrition & Health         |

### **Undergraduate Service Teaching**



Mainly first year Biology, Cell Biology, Microbiology, Physiology modules, second year Biochemistry, Ocular Biochemistry, Microbiology, Physiology modules and MSc Biotechnology, Biopharmaceutical Analysis modules.

## **SAFETY RESPONSIBILITIES**

In accordance with the DIT Parent Safety Statement, the Head of School of Biological Sciences, Mary Hunt, as part of her management function, is responsible for ensuring, so far as is reasonably practicable, the health and safety of persons working, studying or visiting her area of responsibility. In particular she is responsible for the following:

1. To ensure a Safety Statement relevant to operations is prepared which complies with Section 20 of the Safety, Health and Welfare at Work Act
2. To ensure that the Safety Statement is reviewed at least annually and that the DIT Senior Leadership Team (SLT) Health and Safety Sub-committee is notified that the review has been completed and is provided with any updated document which may result from such a review
3. To ensure that all hazards are identified and risks controlled
4. To ensure that regular safety inspections/audits are carried out to monitor compliance with the Safety Statement and legal requirements and to ensure appropriate follow-up action is taken
5. To investigate all accidents to staff/students/visitors in their area of responsibility and to complete the Incident Report Form as appropriate
6. To ensure that local emergency plans and first-aid procedures are implemented and that sufficient evacuation marshals/first-aid personnel are available
7. To ensure that staff are appropriately trained to carry out their duties safely and to ensure the attendance of staff at designated training courses as appropriate
8. To ensure that all contractors/service providers carrying out work in the area operate under the Buildings Office Permit to Work system
9. Based on risk assessment, to arrange for the provision of adequate and appropriate personal protective equipment for employees

### **All Institute Staff**

All employees/staff have a duty to take responsibility for their own safety, health & welfare and for that of visitors and any other person who may be affected by their acts or omissions while at work.

### **Statutory Requirement**

*Chapter 2, Sections 13 & 14 of the Safety Health and Welfare at Work Act 2005 places a number of obligations on employees whilst at work as outlined in this section:*

**13.—(1)** An employee shall, while at work—

- (a) comply with the relevant statutory provisions, as appropriate, and take reasonable care to protect his or her safety, health and welfare and the safety, health and welfare of any other person who may be affected by the employee's acts or omissions at work,
- (b) ensure that he or she is not under the influence of an intoxicant to the extent that he or she is in such a state as to endanger his or her own safety, health or welfare at work or that of any other person,
- (c) if reasonably required by his or her employer, submit to any appropriate, reasonable and proportionate tests for intoxicants by, or under the supervision of, a registered medical practitioner who is a competent person, as may be prescribed,
- (d) co-operate with his or her employer or any other person so far as is necessary to enable his or her employer or the other person to comply with the relevant statutory provisions, as appropriate,
- (e) not engage in improper conduct or other behaviour that is likely to endanger his or her own safety, health and welfare at work or that of any other person,

(f) attend such training and, as appropriate, undergo such assessment as may reasonably be required by his or her employer or as may be prescribed relating to safety, health and welfare at work or relating to the work carried out by the employee,

(g) having regard to his or her training and the instructions given by his or her employer, make correct use of any article or substance provided for use by the employee at work or for the protection of his or her safety, health and welfare at work, including protective clothing or equipment,

(h) report to his or her employer or to any other appropriate person, as soon as practicable—

(i) any work being carried on, or likely to be carried on, in a manner which may endanger the safety, health or welfare at work of the employee or that of any other person,

(ii) any defect in the place of work, the systems of work, any article or substance which might endanger the safety, health or welfare at work of the employee or that of any other person, or

(iii) any contravention of the relevant statutory provisions which may endanger the safety, health and welfare at work of the employee or that of any other person, of which he or she is aware.

(2) An employee shall not, on entering into a contract of employment, misrepresent himself or herself to an employer with regard to the level of training as may be prescribed under *subsection (1)(f)*.

**14.**—A person shall not intentionally, recklessly or without reasonable cause—

(a) interfere with, misuse or damage anything provided under the relevant statutory provisions or otherwise for securing the safety, health and welfare of persons at work, or

(b) place at risk the safety, health or welfare of persons in connection with work activities

*In addition, staff have the following responsibilities:*

- To participate in and put into practice all training provided by DIT, to ensure compliance with safety, health & welfare legislation
- To co-operate with those responsible for health and safety
- To familiarise themselves with the contents of the Health and Safety Statement, safety policies and procedures and Codes of Practice
- To assist in the preparation and updating of the School of Biological Sciences Safety Statements
- To assist and co-operate with periodic safety inspections/audits
- To assist in the completion of standard hazard identification control sheets and co-operate with the reporting and investigation of incidents
- To ensure that equipment is operated in a safe manner and good housekeeping standards are maintained at all times
- To promote safe work practices
- To ensure that all safety rules are communicated to students, contractors and visitors, other campus users
- To use equipment only if authorised and trained
- To ensure that any safety measures associated with new equipment/machinery is brought to the attention of the Head of School of Biological Sciences, Mary Hunt, implemented, documented in the Health and Safety Statement and communicated effectively
- To ensure that they do not carry out repairs or servicing on plant/equipment/machinery unless they are trained to do so, it is isolated and they should ensure that any guards removed to carry out repairs are properly replaced
- To wear appropriate personal protective equipment where required
- To report to the Head of School of Biological Sciences, Mary Hunt any person abusing facilities or equipment
- To select and appoint a Safety Representative

- To notify the Health & Safety Officer of any perceived shortcomings in the safety arrangements

### **Undergraduate/Postgraduate Students**

Students have a legal responsibility not to endanger themselves or others by their acts or omissions. Thus they must:

- Take reasonable care of their own safety and the safety of others
- Co-operate fully with all safety rules and regulations issued by DIT e.g. smoking etc.
- Co-operate with those with responsibility for health and safety
- Not interfere or misuse any specified items of safety equipment or any safety device
- Ensure that equipment is operated in a safe manner and good housekeeping standards are maintained
- Use personal protective equipment (PPE) as necessary. (Students are required to provide their own PPE – laboratory coat, safety glasses etc.)
- Not access or use laboratory facilities and equipment without the permission of their academic supervisor and where necessary the staff member in charge of these facilities
- Use equipment only if authorised and properly trained
- Report any incident, dangerous occurrence, defective equipment or potential safety hazard to the Head of School of Biological Sciences
- To participate in any safety training programmes facilitated by the Health & Safety Office
- Adhere to policies and procedures in the case of lone working or out of hours access

### **Contractors/Service Providers**

*The following responsibilities are allocated to contractors/service providers:*

- All contractors/service providers will be expected to comply with the Institute's Policy for safety health and welfare and must ensure that their own Safety Statement is made available whilst work is being carried out. It is the Institutes policy that all contractor/service providers have a Safety Statement in accordance with the *Safety, Health and Welfare at Work Act 2005*
- All work must be carried out in accordance with relevant statutory provisions and taking into account the safety of others on the site. The contractor/service provider must have adequate insurance cover
- Contractors/service providers must not commence with any work on the premises or project site until the Contractor Safety Guidelines and other relevant safety procedures are read, understood and accepted (available from Buildings Office). They must complete the e-learning programme for contractors/service providers
- Contractors/service providers will take reasonable care of themselves and others who may be affected by their acts or omissions and will co-operate as appropriate with DIT employees as necessary
- Contractors/service providers must supply at tender stage a Safety Statement, relevant method statements, copies of their public and employers liability insurance and complete the Contractors Compliance Form CCF1 before a contract is awarded
- They will liaise with the local Building Maintenance Manager and obtain work permits as required
- Scaffolding and other access equipment used by contractor's/service provider's employees must be erected and maintained in accordance with current legislation and Codes of Practice

- All plant and equipment brought onto the site by contractors/service providers must be safe and in good working order, fitted with any necessary guards and safety devices and have all necessary certificates available for inspection
- All transformers, generators, extension leads, plugs and sockets must be suitable for industrial use and in good condition. No power tools or electrical equipment of greater than 110 volts should be used outdoors. If it is necessary to use equipment operating from a 220-volt supply, a residual current device with a rated tripping current of 30mA and operation of 30m sec must be used
- Any injury sustained by a contractor's/service provider's employee must be reported immediately to the local Building Maintenance Manager
- Contractors/service providers must comply with any safety instructions given by DIT
- DIT may carry out safety inspections. Contractors/service providers informed of any hazards or defects identified during these inspections will be expected to take immediate action
- DIT must be notified of any material or substance brought onto the site which has health, fire or explosive risks. Such materials must be stored and used in accordance with current recommendations
- Contractors/service providers will be accountable for the maintenance of good housekeeping practices at all times within their respective areas of work
- Contractors/service providers are not allowed to use equipment owned by the Institute unless written permission is received from the Head of School and a competent person passes it as being safe

#### **Visitors (a person other than an employee or contractor/service provider)**

- Visitors may not be aware of the potential hazards associated with DIT and also may lack familiarity with the Institute's premises/facilities and are therefore a potential risk to themselves and others. All visitors must identify themselves to the relevant DIT personnel and follow all DIT's safety procedures and policies
- Visitors must not enter any area where they do not have the authority to do so. Hazardous areas will be restricted
- They must not interfere with any of the Institutes property, equipment, materials or substances unless they have permission to do so from the person in charge
- They must not remain on the premises any longer than necessary and should return PPE on leaving
- In the event of an evacuation, they will be led to the Assembly Point by their DIT host
- A safety booklet and wallet card is available at Front desk/Reception area and on request
- The DIT Parent Safety Statement is available on the safety website [www.dit.ie/safework](http://www.dit.ie/safework)
- DIT has a [Child Protection Policy](#) available on the DIT website

#### **DISCIPLINARY ACTION**

Any member of staff/student who contravenes or fails to manage to work in accordance with current safety health and welfare legislation, the DIT Parent Safety Statement and codes of practice may be subject to the Institute's disciplinary procedures. The Buildings Officer will address any contraventions by contractors/service providers.

#### **HEALTH AND SAFETY CONSULTATION**

Employers are obliged under *The Safety, Health and Welfare at Work Act 2005*, to consult with and take account of any representations made by employees regarding health, safety and welfare. The School of Biological Sciences ensures that health and safety is an agenda item at all meetings and ensures that working groups are appointed to deal with certain health and safety items if required.

A nominee from the School of Biological Sciences sits on the College of Sciences & Health, Health and Safety Team. This team meets periodically throughout the year, usually every two months.

Consultation takes place when there is a change, update or modification to a particular work process, when new machines or processes are introduced or when new substances or materials are introduced.

The College of Sciences & Health, Health and Safety Team has selected and appointed Safety Representatives. Details of current Safety Representatives may be found on the health and safety website ([www.dit.ie/safework](http://www.dit.ie/safework))

## PROVISION OF INFORMATION

**Staff, students and others are made aware of safety matters by the following means:**

- Agenda item at Team/School meeting
- Desktop Emergency Response Flip charts
- Health & Safety notice boards
- Health & Safety Newsletters
- Toolbox talks
- Health & Safety Induction
- Health & Safety Training courses
- Signage:
  - Safety notice points
  - Emergency first-aid procedure signs
  - Emergency floor plans
  - Assembly point maps
  - Fire actions notices
- Emergency Response posters
- Safety booklets
- Safety wallet cards
- Website [www.dit.ie/safework](http://www.dit.ie/safework)
- Posters
- Inductions are prepared and delivered by Occupational Health Officers where requested
- School Secretaries have an email listing to communicate safety matters to staff members

## HEALTH AND SAFETY RESOURCES

The School of Biological Sciences codes all budgetary spend on activities/spend pertaining to safety, health and welfare. Considerable resources are expended by the School of Biological Sciences in securing the health, safety and welfare of employees in terms of personnel, time, materials, equipment and the purchase of goods and services.

Where additional equipment, training etc. is required whether as a result of ongoing risk assessment or legislative change, resources will be allocated on a prioritised basis to meet the identified requirements.

The health and safety website hosts a reference library of videos, texts, literature and other publications on health and safety matters.

## **SAFE SYSTEMS OF WORK**

It is the policy of DIT to ensure that employees are not asked to perform tasks outside their competence and capacity. Safe systems of work have been designed with this objective in mind.

As some work activities give rise to risks which can only be controlled by adherence to proper procedures, employees are issued with written safe working procedures which should be adhered to at all times.

### **Standard Operation Procedures/Safety manuals include:**

- SOP in obtaining blood samples
- SOP in operation of autoclaves
- SOP in operation of fume hoods
- SOP in operation of laminar flow hoods
- SOP in operation of bench centrifuge
- SOP in operation of high speed centrifuge
- SOP in operation of microtome
- SOP in operation of stomacher
- SOP in operation of -80°C freezers
- SOP in operation of hot plates and heat stirrers
- SOP in laboratory cleaning and decontamination
- SOP in spillages
- SOP in handling and disposal of sharps
- SOP in gas cylinder handling and use
- SOP in handling, storage, transport of GMOs and GMMs
- SOP in handling, storage, transport of biological agents
- SOP in handling, Storage, transport of chemical agents
- SOP in disposal of GMOs and GMMs
- SOP in disposal of biological & clinical waste
- SOP in disposal of chemical waste
- SOP in disposal of carcass waste

Management shall keep a watching brief on safety matters and where necessary adjust or alter systems of work to make them as safe as is reasonably practicable.

## **PROCUREMENT CONTROL**

The purchasing of equipment, plant and substances is subject to the provisions of the *Safety, Health and Welfare at Work Act 2005* and associated regulations, thus all equipment, plant or substances will undergo risk assessment prior to acceptance into the Institute. The School of Biological Sciences follows all the guidelines as per the Parent Safety Statement and ensures that a risk assessment is carried out before any equipment/machinery or contractor/service provider is engaged by the School of Biological Sciences. Details of equipment/machinery/tools and associated risk assessment is available in the Physical Hazards section of the risk assessment.

### **Chemicals**

Before any new chemical is purchased by the School of Biological Sciences it must first receive specialist chemical approval from the Senior Technical Officer (STO). Any employee requiring a new

chemical, both for process activity or as a sample, must first obtain a safety data sheet (SDS) for it and submit this with the written risk assessment for use, storage and operation to the School committee. The committee will then examine the safety data sheet in conjunction with the risk assessment and complete a chemical approval form stating that the chemical is either safe or unsafe to use.

### **Equipment Purchase**

For all new equipment purchased, the purchaser is to ensure that the equipment complies with all ergonomic and safety standards. Machinery suppliers shall be requested to supply all relevant information including specifications for machine guarding, maintenance, noise, fumes, dust, special training needs etc. which will assist in the risk assessment process.

## **INSPECTION PROCEDURES**

All locations of work will be periodically inspected by a representative from the Health & Safety Office accompanied by local management and the Safety Representative. The Head of School of Biological Sciences will ensure non-conformances identified are rectified and a log maintained.

Where in the opinion of the Health & Safety Officer or other competent officer, there is a risk of serious injury and immediate risk to individuals, he/she will have the authority to advise that the activity is stopped until adequate steps have been taken to eliminate risk or if possible reduced to an acceptable level. Where the risk cannot be reduced to an acceptable level and finance is not available, the Head of School of Biological Sciences shall ensure the activity is ceased.

In accordance with statutory requirements, certain examinations, testing and inspections are carried out on specific items. A list of those items, the frequency of inspection and the testing body is presented below:

| <b>Item</b>                  | <b>Location</b>                               | <b>Test Frequency</b>                                     | <b>Test Company Details</b>                           |
|------------------------------|---|---|---|
| <b>Rodwell Autoclave</b>     | <b>2043</b>                                   | <b>2 full services per year; Emergency call outs also</b> | <b>Biosciences</b>                                    |
| <b>Coldroom</b>              | <b>Microbiology Lab, 2<sup>nd</sup> Floor</b> | <b>2 full services per year; Emergency call outs also</b> | <b>Cross Refrigeration</b>                            |
| <b>Fumehoods</b>             | <b>All labs</b>                               | <b>1 service per year</b>                                 | <b>Davison &amp; Hardy</b>                            |
| <b>Laminar Flow Cabinets</b> | <b>2033/2014</b>                              | <b>1 service per year</b>                                 | <b>Davison &amp; Hardy</b>                            |
| <b>Fermenters</b>            | <b>G29</b>                                    | <b>1 service per year</b>                                 | <b>In-house by Technical Officer, Patricia Taylor</b> |
| <b>Microscopes</b>           | <b>All labs</b>                               | <b>1 service per year</b>                                 | <b>Cruinn</b>   |
| <b>Autoclave</b>             | <b>G29</b>                                    | <b>1 service per year</b>                                 | <b>Biosciences</b>                                    |
| <b>Spectrophotometers</b>    | <b>G29, 317, 318, 2033 and 2014</b>           | <b>1 service per year</b>                                 | <b>Brennans</b>                                       |

## **TRAINING**

Health and Safety training is a legal requirement specified by the Safety, Health and Welfare at Work Act, 2005. It is also Institute Policy that all employees attend such health and safety training and assessment. Please see Health and [Safety Training Policy for Staff](#).

Each employee will be made aware of emergency action plans and arrangements pertinent to their workplace as per section 11 of the 2005 Act at induction by completing the online Emergency Response Training (ERT) programme.

In addition to our statutory duty to employees, DIT seeks to provide such training as is necessary to enable the students to undertake their studies in a manner which, in so far as it is reasonably practicable, is safe and does not give rise to risks to health or expose the individual student or other persons to unacceptable levels of risk. The provision and extent of any necessary training is dependent upon the nature of the academic discipline being pursued, the experience and disposition of the students involved, their familiarity with any equipment/substances to be utilised, the environment/conditions where the activities may be discharged, and the extent to which supervision is necessary and available. Risk assessments will highlight where additional student training is required.

### **Training required for the School of Biological Sciences includes:**

#### **Mandatory Training:**

- Emergency Response Training (ERT)
- Manual Handling
- Emergency First-aid for all staff working in the laboratories
- Health & Safety Responsibilities: Management Briefings
- Health & Safety Responsibilities: Management Workshops

#### **Specialist Training:**

- Gas Safety (where required)
- Chemical Safety (where required)
- Occupational First-aid
- Dangerous Goods Safety Advisor (DGSA): Please note this is in progress by DIT

## **EMERGENCY PLANNING AND RESPONSE**

### **SERIOUS INCIDENT/EMERGENCY**

- Dial 112/999 (You may need to dial “0” for an outside line)
- Contact DIT Health & Safety Officer - 086 3891080

### **REQUIRES FIRST-AID**

- Seek School of Biological Sciences first-aider – see Contacts page.
- Injured unwell staff/students:

#### Occupational Health Officers

Yvonne McArdle                      087 9809135

- Injured/Unwell Students:

#### Student Health Centres

Southside                              01 402 3051  
Northside                              01 402 3614

**If serious/after 5pm/in doubt, go directly to local A & E/local GP**

### **REQUIRES FURTHER ATTENTION**



- Staff members should attend their local GP
- Students should attend the Student Health Centre
- Structural safety matters - Should be referred to the local Buildings Maintenance Manager
- Operational safety matters – Should be documented on a Hazard Report Form and sent to the Health & Safety Office (www.dit.ie/safework)

## **FIRE & EVACUATION** **SCHOOL OF BIOLOGICAL SCIENCES STAFF**

### **INSTRUCTIONS ON DISCOVERING A FIRE (all staff, students, visitors, contractors/service providers etc.)**

- Activate the nearest fire alarm point
- Leave the building using the nearest exit route
- Disperse from the building and move away to place of safety
- Do not use the lift
- Do not re-enter the building until the “all clear” has been given

### **INSTRUCTIONS ON HEARING THE EVACUATION ALARM OR OTHER WARNING (all staff, students, visitors, contractors/service providers, first-aiders etc.)**

#### **Objectives:**

To outline actions taken by School of Biological Sciences staff in the event of an Alarm Activation

#### **Duties:**

##### **On hearing an alarm activation or other warning:**

- Instruct students and staff to leave DIT, Kevin Street (Biological Sciences are mainly 2<sup>nd</sup> floor, main building)
- All students in classrooms should be led by lecturers/technicians
- All visitors should be escorted to safety by the person they are visiting
- Anyone in common areas or moving between areas, should immediately join the lines of people exiting
- Shut down equipment if safe to do so and time permits
- Close windows and doors to confine smoke/fire
- “Sweep search” the area specify area (laboratories, offices, classrooms, lecture theatres, sanitary facilities, storage areas etc.), evacuate the building\* immediately by the nearest available exit. Marshals should then leave immediately via the nearest escape route
- If required, assist any individuals to evacuate the area
- Form a single file on both sides of the corridor or stairway, leaving the centre passageway clear
- Do not delay or stop to collect personal belongings
- Do not use the lift
- If heavy smoke present, try to find another exit or crouch low to the floor
- All doors should be closed (not locked) by the last person in the line
- Report to your Assembly Points: **Bishop Street Flats (opposite main entrance) and Camden Row**

- All evacuation marshals/sweepers, Building Maintenance personnel, Heads of School of Biological Sciences, first-aiders should assemble at the assembly points to check in, reporting to the Incident Controller details of any casualties or people needing assistance with evacuation. This information is then given by the Incident Controller to the Emergency Services.
- Confirm to the Incident Controller that the area has been cleared and report details of any casualties or people needing assistance with evacuation to the Incident Controller
- Do not return to the building until instructed to do so by the Incident Controller



\* Separate personal emergency egress plans (PEEP) have been prepared for people with disabilities

**YOU SHOULD FAMILIARISE YOURSELF WITH THE LOCATIONS OF THE FOLLOWING:**

- Escape routes
- Fire alarm call points
- Fire extinguishers and blankets
- Fire assembly points

The Assembly points for DIT, Kevin Street are:

- 1. Bishop Street Flats (opposite Main entrance)**
- 2. Camden Row**

|  |   |
|--|---|
| <p><b>Bishop Street Flats (opposite main entrance)</b></p> |   |
| <p><b>Camden Row</b></p>                                   |  |

Your Incident Controller is: **Porter on Duty**

**Evacuation marshals include:**

- Mary Hunt
- Jan Guerin
- Daireen Caffrey
- Dolores Spain
- Paddy Power
- Beth McCluskey
- Patricia Taylor
- Karen Harney
- Kathleen Flynn

**The School of Biological Sciences** will ensure that sufficient marshals are appointed on an ongoing basis to provide an effective service.

Your Incident Controller is: **Porter on Duty**

General Rule of Thumb – all staff should act as “sweepers” in the event of an emergency, checking laboratories, offices, classrooms, lecture theatres, sanitary facilities, storage areas etc. as they exit to ensure that as they exit everywhere has been cleared.

## **YOU SHOULD NOT PUT YOURSELF IN DANGER AT ANY TIME**

### **FIRST-AID**

- An emergency first-aid kit and automatic external defibrillator (AED) is available at the front desk/reception area.
- A list of Institute Staff who have completed training in first-aid/AED is available on the [health and safety website](#)

#### **Trained First-aiders include:**

- Awaiting confirmation of listing of first-aiders

#### **First-aid kits are located:**

- Laboratory 210
- Laboratory 212
- Laboratory 213
- Laboratory 214
- Laboratory 317
- Laboratory 318
- Laboratory 232
- Laboratory 233
- Laboratory 243
- Laboratory 244
- G29

Please report any used items to the designated person in charge who is responsible for monitoring the contents and ensuring their replacement.

#### **Further Treatment / Incident Report Forms**

- Staff may refer students to the Student Health Centre in DIT, Aungier Street at 01 402 3051 or contact the Emergency Services on 112 / 0999 if an incident is urgent
- Incident Report forms are available from the Front desk. When completed and signed the top white copy should be sent the DIT Health & Safety Officer
- An Occupational Health Officer (Yvonne McArdle) is available at 087 9809135 weekdays 9:00am – 5:00 pm to deal with the occupational health, safety and welfare needs of all staff and students and to provide a back up first-aid service

### **INCIDENT REPORTING AND INVESTIGATION**

The Institute has a statutory duty to record all incidents and report certain types of incidents and dangerous occurrences to the Health and Safety Authority (HSA). Therefore all incidents resulting in

personal injury, damage to property, dangerous occurrences or near miss e.g. must be reported immediately to your Manager/Supervisor.

The incident report form must be forwarded to the Health & Safety Officer within 24 hours of the incident occurring or as soon as possible. Incident report forms are available at the front desk/reception area.

## **HAZARD REPORTING**

DIT recognises the part that its staff/students/visitors and contractors/service providers have to play in the reporting of hazards in the workplace. There is a report form to formally identify and report hazards. If the hazard is a structural issue, it should be reported immediately to the local Building Maintenance Manager and if it is an operational safety issue, it should be reported to local management using the Institute's Hazard Report Form available on the [health and safety website](#).

## **MANAGEMENT OF CONTRACTORS/SERVICE PROVIDERS**

All work undertaken by outside contractors/service providers on behalf of the School of Biological Sciences must be carried out under a Buildings Office Permit to Work.

## **PERSONAL PROTECTIVE EQUIPMENT (PPE)**

It is the policy of DIT to eliminate all hazards where reasonably practicable. DIT will assess what PPE appropriate to the task/work environment is required only as a last resort when further risk reduction is not feasible.

All PPE and safety equipment purchased by the School of Biological Sciences must be of approved standards and comply with relevant EC Directives regarding design and manufacture. Defects shall be reported to Managers/Supervisors.

The various areas where PPE must be worn are outlined in the departmental risk assessments. This is further complemented with signage. PPE shall be provided and worn in designated areas and whilst carrying out specific tasks, based on the risk assessments.

All PPE must be appropriate for the risks involved without it leading to increased risk. It should be chosen based on assessment and in consultation with staff members. The PPE should be used only for the purpose specified and where it is necessary to wear simultaneously more than one item of PPE, they must be compatible with each other and continue to be effective against the risks involved. Staff should report immediately when the PPE is faulty or defective or if they have any medical condition that may affect the correct use of the PPE.

PPE should be of a type suitable for the conditions in the workplace and take account of the user's state of health. It is in principle intended for one's personal use only, however if it is necessary for an item of PPE to be worn or used by more than one person, measures should be taken to ensure that it does not create any health or hygiene problems for the users. The supply, issue and record of all PPE is the responsibility of Supervisors. Employees and students must be informed of all risks they are being protected from, instructed on the use of the PPE and given adequate information, training and demonstration in the wearing of such equipment and the level of protection afforded by its use. Every person provided with PPE must take reasonable care of such equipment and must make proper use of it where there is a foreseeable risk of injury and where they have been instructed to do so. They

must also ensure that it is returned to storage subsequent to use. Supervision and monitoring are required to ensure PPE is used/worn.

Staff shall inform any person in the area including contractors/service providers, students and visitors of the statutory and local policies in place with regard to PPE.

**PPE for the School includes:**

- Laboratory coat
- Safety glasses
- Gloves
- Facemasks

It is the responsibility of individual staff members to select appropriate PPE and ensure that students wear it. Contaminated PPE should remain in the work area and not be worn into any "clean" areas such as offices or canteen. PPE that is contaminated must be discarded as infectious waste or disinfected prior to routine laundering.

**Gloves**

The hazards of the materials to be used are evaluated prior to selecting gloves. Latex or nitrile examination gloves are appropriate for most routine work with biohazards. These gloves are single-use only; they cannot be washed and reused. Gloves must be checked for holes or tears.

**Latex Allergy Minimization**

Latex allergy can result from repeated exposure to proteins in natural rubber latex. Exposure can be due to skin contact with a latex-containing item or inhalation of the proteins. Reactions can range from skin rash to anaphylaxis and shock. Non-latex gloves should be used for activities that are not likely to involve contact with infectious materials. Powder-free gloves with reduced protein content should be used for other activities.

**Respiratory Protection**

Respiratory protection may be necessary if aerosol generation cannot be prevented or contained by other means.

**Eye and Face Protection**

Safety glasses must have side shields. Chemical splash goggles may be necessary if the work involves chemicals. A face shield may be necessary in addition to the safety glasses or goggles if the potential for splashing, spraying, or aerosol generation exists.

**Laboratory Clothing**

Shorts, sandals, and open-toed shoes should not be worn in the laboratory. Laboratory coats must be worn, buttoned up, to protect street clothing from potential contamination. Lab coat sleeves should be long enough to enable the wearer to overlap the glove cuffs with the sleeves. Staff coats are laundered weekly by Spring Grove.

**ERGONOMICS**

All new equipment and machines, tools, work methods, work procedures and work stations should be assessed for ergonomic hazards prior to being brought into use. The Health & Safety Officer should be informed of the risk assessment process and will advise of competent people to assist with the risk assessment.

Staff should consider ergonomic standards when designing new workstations and layout of new offices.

It is the responsibility of the Head of School of Biological Sciences to ensure that all information on ergonomic controls is communicated to employees and students via circulars, team briefings or other means. She should also ensure that all problems identified are addressed and brought to the attention of the Health & Safety Officer.

## **WELFARE PROVISIONS**

In accordance with legislation, Dublin Institute of Technology is committed to providing welfare facilities which are available to all staff which include the following:

- ✓ Adequate and suitable sanitary and washing and drying facilities with hot and cold running water maintained in a clean and hygienic condition
  - ✓ Adequate number of lavatories and washbasins with hot and cold running water
  - ✓ Adequate and suitable showers for employees if required by the nature of the work
  - ✓ An adequate supply of potable drinking water at suitable points conveniently accessible to all employees, tested by the Buildings Office
  - ✓ Suitable facilities for sitting/other ergonomic support, in the case where work can be done in a seated position
  - ✓ Suitable and adequate facilities for boiling water and taking meals or reasonable access to other suitable and adequate facilities are available in the main canteen (Annexe), the staffroom (4<sup>th</sup> floor, main building) or in the small staffroom (2<sup>nd</sup> floor) when the canteen/staffroom are closed
  - ✓ Easily accessible rest rooms/areas with seats with backs
  - ✓ Adequate ventilation, temperature and lighting
  - ✓ Fire detection and fire fighting equipment
  - ✓ Emergency routes and exits
  - ✓ Pedestrian and traffic management systems
  - ✓ Clean and well maintained interior walls, floors and traffic routes
  - ✓ Rest facilities for pregnant ladies or breastfeeding mothers are available in Room 225, Kevin Street
- 
- Everyone is obliged to care for these facilities and must not misuse them. All welfare provisions should be maintained in a clean safe condition
  - Arrangements for regular cleaning of premises and removal of waste should be made by the local Building Maintenance Manager. Cleaning and waste disposal are managed by Noonan Cleaners. Arrangements for cleaning and waste disposal is outlined in the risk assessments below
  - Drinking water is available to all staff via in the main canteen (Annexe) and the staffroom (4<sup>th</sup> floor, main building)

## **SENSITIVE WORK GROUPS**

### **Protection of Children and Young Persons**

In cases where children must be present on Institute premises and therefore affected by our acts/omissions, sufficient notification must be given to the Health & Safety Office by the DIT host representative, of the situation, so that an appropriate risk assessment may be carried out. When on

DIT property, the parents/guardians/host representative charged with responsibility for bringing the child onsite, must be responsible for that child and ensure that at all times they are supervised and protected from activities, processes, equipment, machinery, agents etc.

**Circumstances where children and young persons are on site include:**

- Transition Year Students
- Science Week (secondary school students)

**Please ensure that all staff are familiar with the [DIT Child Protection Policy](#).**

**Pregnant Post-Natal and Breastfeeding Employees/Students**

The *Safety, Health and Welfare at Work (General Application) Regulations 2007*, places a duty on employers to assess the risks to determine any possible effects on new/expectant mothers resulting from any activity at the place of work.

- Each risk assessment will identify hazards in the workplace that could pose a health and safety risk to new and expectant mothers
- Where the assessment reveals a risk, then preventive or protective measures will be taken.
- Pregnant employees/students should advise the Health & Safety Office of their condition as soon as they are aware they are pregnant so that a confidential pregnancy risk assessment may be carried out
- On returning to work/college any new mothers who are breastfeeding and require facilities should contact the Health & Safety Office

**LONE AND OUT OF HOURS ACCESS**

**No lone working/out of hours access takes place in the School of Biological Sciences.**

**WORK PLACEMENT**

**Work placement takes place in the following locations/areas:**

- Hospitals
- Industry
- Research
- Overseas
- Erasmus
- International exchange

The following control measures are in place for work placement

- Erasmus partnership agreements
- DIT insurance
- Rules governing placement
- Guidelines from the School of Biological Sciences
- Academic supervisors and Year Coordinators
- Support from the School of Biological Sciences and site visits to meet with students

Work placement fact sheets are available for all host employers/organisations, DIT students and DIT mentors, and must be studied before arranging and undertaking any work placement.



## **TRIPS/TRAVEL**

Trips include visits to:

- Hospitals
- Industry

Trips are day trips only and are not overnight.

Staff must complete a risk assessment prior to trips. All trips and travel proposals must have a risk assessment completed prior to the event.

## **STAFF/STUDENTS WITH DISABILITIES**

Specific risk assessments will be completed to ensure that the health and safety needs of staff and students with permanent/temporary disabilities are taken into account. Preventative and proactive measures will be put in place following the risk assessment if specific hazards are identified. Personal emergency egress plans (PEEPs) will also be prepared if required. The Disability Liaison Officer will provide specialist and competent advice and liaise with the Health & Safety Officer, Occupational Health Officers, College Manager and Building Maintenance Manager. The onus is on visitors with a disability to notify staff at the front desk, who will assist in evacuation if required.

Please ensure all staff and students are familiar with the procedure and are referred to relevant services where necessary.

## **HEALTH SURVEILLANCE**

Risk assessments will determine if health surveillance is required. Health Surveillance is made available to all staff appropriate to the health and safety risks present and facilitated by the Health & Safety Office. In certain circumstances, staff and students may be referred to our external Occupational Health Physician for a health assessment in relation to their work/studies to ensure that we can put in place any additional corrective action if required.

Eye tests are available for regular visual display unit users at the National Optometry Centre. Please familiarise yourself with the eye test policy which is available on the [health and safety website](#).

## **WORKPLACE DRUGS, INTOXICANTS AND ALCOHOL**

An employee/student must ensure that he or she is not under the influence of an intoxicant to the extent that he or she is in such a state as to endanger his or her own safety, health or welfare or that of any other person. Contraventions will be dealt with as per DIT disciplinary procedures.

## **DIGNITY AT WORK ANTI BULLYING & HARASSMENT POLICY AND PROCEDURES**

The Institute's Dignity at Work Anti Bullying & Harassment Policy and Procedures deals with complaints against members of staff in the workplace which also includes work associated events such as meetings, conferences and work related social events, whether on the premises or off site. Bullying or harassment of staff/students will not be tolerated. Please ensure that all staff are familiar with the relevant [policy/procedure](#).

## **STRESS**

The risk assessment will identify any areas where stress is a hazard and controls will be implemented to eliminate this hazard. The HR department should be consulted immediately if an issue regarding stress is highlighted. An Employee Assistance Programme (EAP) is available to all staff. Students should liaise with their tutors in relation to issues regarding stress. Tutors are appointed for groups of students. Students may also seek assistance from the Student Health Centre and Student Counselling Service.

## **AUDIT, REVIEW AND COMMUNICATION**

The School of Biological Sciences ensures that periodic health and safety audits are completed and a review of all Safety Statements and documentation takes place. This will be approved by DIT SLT Health and Safety Sub-Committee. All changes will be communicated to all staff, students, visitors and contractors/service providers. The most recent revision of all Safety Statements will be available on the DIT safety website and from the School of Biological Sciences Administrator.

## **DOCUMENT CONTROL**

This document is a controlled document and as such any updates, review and distribution will be in accordance with DIT's standards for such documents. Only controlled copies will be updated when required.

The Head of School of Biological Sciences will issue new documents after appropriate consultation and agreement with relevant parties.

## **HAZARD IDENTIFICATION, RISK ASSESSMENT AND CONTROL MEASURES**

It is the policy of the Institute to identify hazards in the workplace, assess the risk to safety and health and control these risks as far as is reasonably practicable.

The Parent Safety Statement outlines the generic hazards, which have been identified and the control measures that are in place.

**It is incumbent on those responsible for managing their areas of work, at all levels, not merely to observe the arrangements described in the Parent Safety Statement, but to assess their applicability within their area of authority and where necessary to refine and extend them to deal with particular local situations. The management of the Dublin Institute of Technology is committed to ongoing identification of hazards, assessment of the appropriate risks and the introduction of controls to deal with them. Management at all levels have a responsibility to apply this principle within their area of authority.**

Staff are encouraged to become involved and participate in safety, health & welfare issues. In particular, they are encouraged to identify any potential hazards, which may exist, and to ensure that a risk assessment is carried out.

Ongoing hazard inspections will be carried out periodically to ensure that the information is updated, controls are adequate and where necessary the risks are reassessed.

A **“hazard”** is taken to mean “any substance, article, material or practice which has the potential to cause harm to the safety, health or welfare of staff, students, visitors, contractors/service providers in DIT”. Hazards may be classified as:

- Physical
- Chemical
- Biological
- Operational
- Human Factors

**“Risk”** is a measure of the probability of the event occurring and the severity and extent of the injury, ill health or damage it may cause if it did occur.

Risks may be classified as:

- High
- Medium
- Low

|        |   |
|--------|---|
| High   | Occurrence is probable, and could cause a fatality, serious injury or serious ill health to an individual or group of people. |
| Medium | Occurrence is possible and could cause injury or ill health to an individual or a small group of people.                      |
| Low    | Occurrence is possible but unlikely, only minor injury would be caused and would probably be limited to a single individual.  |

The classification of hazards should be used to develop the priority of control measures, remedial actions, and the allocation of resources. As a general rule, the control measures will seek to eliminate any risk classified as high and reduce the potential of risks classified as medium or low.

Risk control measures are a combination of:

|                            |   |
|----------------------------|---|
| <b>Elimination</b>         | Where the risk is removed   |
| <b>Substitution</b>        | Where the risk is exchanged for one of lesser classification  |
| <b>Isolation</b>           | Where the risk is contained (e.g. Enclosures, guards etc.)  |
| <b>Engineering</b>         | Where common systems are used to protect all exposed to risk (e.g. Fire alarms, ventilation systems etc.)   |
| <b>Personal Protection</b> | Whereby the above means, the risk cannot be reasonably be reduced further, but an unacceptable level of risk remains, the team members are individually protected from the risk.                            |
| <b>Procedure</b>           | Where procedural controls are used. This will include procedures such as Standard Operating Procedures and training and the provision of information may apply to any and all of the above control measures |

**Risk Assessments for School of Biological Sciences**

| PHYSICAL |   |  |   |  |   |  |                |
|----------|---|--|---|--|---|--|----------------|
|          |   |  | Control Measures  |  |   |  |                |
|          |   |  | Current Controls  | Further Actions Required   |   |  |                |
|          | <b>Fire Emergency Response &amp; Evacuation</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Staff unfamiliar with evacuation procedure</li> <li>• Lack of evacuation drills</li> <li>• Use of naked flames</li> <li>• Improper storage of flammable or combustible materials</li> <li>• Smoking in undesignated areas</li> <li>• Faulty electrics</li> <li>• Inadequate emergency equipment</li> <li>• Misuse of equipment</li> </ul> | <ul style="list-style-type: none"> <li>• Staff trained in ERT</li> <li>• Sufficient firefighting equipment available (break glass units, extinguishers, fire blanket)</li> <li>• Sufficient fire extinguishers in place</li> <li>• Firefighting equipment and detection systems maintained and tested</li> <li>• Evacuation signage in place</li> <li>• Emergency and first-aid procedures posted</li> <li>• Good housekeeping standards maintained</li> <li>• Several means of escape present and known to occupants</li> <li>• Evacuation procedure practiced each semester</li> <li>• Assembly point known to occupants</li> </ul> | <ul style="list-style-type: none"> <li>• Remove any material that blocks vision panels on doors including laboratories</li> <li>• Maintain current controls</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Buildings Office</b> | <b>Ongoing</b> |

|  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
|  |  |  | <ul style="list-style-type: none"> <li>• Occupants escort visitors out</li> <li>• All exits are clear and free from obstructions</li> <li>• Staff members act as evacuation marshals</li> <li>• No smoking policy in place</li> <li>• Scheduled maintenance of buildings services (heating, electricity, ventilation etc.) takes place</li> <li>• Hot work permit system in place where needed</li> <li>• Compliance with building regulations</li> <li>• Site-specific <a href="#">Emergency Manuals</a> available</li> <li>• Vision panels on doors where required</li> <li>• Fire blankets available in each lab</li> </ul> |  |  |  |  |
|--|--|--|--|--|--|--|--|

| PHYSICAL |  |  |  |  |  |  |                       |
|----------|--|--|--|--|--|--|-----------------------|
|          |  |  | Control Measures   |  |  |  |                       |
|          |  |  | Current Controls   | Further Actions Required   |  |  |                       |
|          | <p><b>Manual Handling</b><br/> <b>Examples:</b><br/> <b>Moving hazardous materials, substances, apparatus etc.</b></p> <p><b>Please see Transport of GMO's, GMM's and Biological Agents also</b></p> <p><b>Who is harmed:</b></p> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Manual Handling-related injuries, e.g. back injury</li> <li>• Slips, trips, falls</li> <li>• Contact with hazardous materials, substances etc.</li> </ul> | <ul style="list-style-type: none"> <li>• All staff compliant with and adhere to mandatory manual handling training</li> <li>• Mechanical aids in use</li> <li>• Trolleys, stools and step ladders available for staff where required</li> <li>• Manual handling risk assessments available to all staff, contact local Occupational Health Officer</li> <li>• PPE used/worn</li> <li>• Good housekeeping</li> <li>• Suitable environment</li> <li>• Implement team lifting where required</li> <li>• Adequate lighting maintained</li> <li>• Assistance from colleagues - team lifting</li> <li>• Report issues to Line manager</li> <li>• Items not stored above shoulder height</li> </ul> | <ul style="list-style-type: none"> <li>• Refresher training to be carried out where necessary</li> <li>• Implement manual handling training</li> </ul> | <p><b>With current controls:</b><br/> <b>L</b></p> <p><b>With Actions applied:</b><br/> <b>L</b></p> | <p><b>School of Biological Sciences Staff and Students</b></p> | <p><b>Ongoing</b></p> |

| PHYSICAL |   |   |  |  |  |  |         |
|----------|---|---|--|--|--|--|---------|
|          |   |   | Control Measures   |  |  |  |         |
|          |   |   | Current Controls   | Further Actions Required   |  |  |         |
|          | <b>Work Equipment, Machinery &amp; Tools</b><br><br><a href="#">See Specific Equipment Risk Assessments</a> | <ul style="list-style-type: none"> <li>• See <b>SPEICIFC EQUIPMENT RISK ASSESSMENTS</b></li> <li>• Noise</li> <li>• Vibration</li> <li>• Entanglement/ crushing</li> <li>• Electrics</li> <li>• Fumes/ dust</li> <li>• Contact with moving parts</li> </ul> | <ul style="list-style-type: none"> <li>• Guards</li> <li>• SOP; use and maintenance</li> <li>• Training / training records</li> <li>• Service and maintenance</li> <li>• Signage</li> <li>• Supervision</li> <li>• Visual check before use</li> <li>• Report defects to line manager</li> <li>• Emergency stop</li> <li>• PPE</li> <li>• Follow manufacturer's instructions</li> <li>• Shut down after use and end of day</li> <li>• CE mark</li> <li>• Damaged equipment marked and taken out of service</li> </ul> | <ul style="list-style-type: none"> <li>• See <b>SPECIFIC EQUIPMENT RISK ASSESSMENTS</b></li> </ul> | <p>With current controls:<br/><b>L</b></p> <p>With Actions applied:<br/><b>L</b></p> | School of Biological Sciences Staff and Students | Ongoing |

| PHYSICAL |  |   |  |   |   |   |                |
|----------|--|---|--|---|---|---|----------------|
|          |  |   | Control Measures   |   |   |   |                |
|          |  |   | Current Controls   | Further Actions Required  |   |   |                |
|          | <b>Portable Appliances &amp; Handheld Equipment</b><br><br><b>e.g. Laptops</b> | <ul style="list-style-type: none"> <li>• Entanglement/ crushing</li> <li>• Electrics</li> <li>• Fumes/dust</li> </ul> | <ul style="list-style-type: none"> <li>• Service and maintenance (PAT) where required</li> <li>• Visual check before use</li> <li>• Report defects to Line Manager</li> <li>• CE mark</li> <li>• Shut down after use and end of day</li> <li>• Follow manufacturer's instructions</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain current controls</li> </ul> | <b>With current controls: L</b><br><br><b>With Actions applied: L</b> | <b>School of Biological Sciences Staff and Students</b> | <b>Ongoing</b> |



| PHYSICAL |  |   |  |  |   |  |                |
|----------|--|---|--|--|---|--|----------------|
|          |  |   | Control Measures   |  |   |  |                |
|          |  |   | Current Controls   | Further Actions Required   |   |  |                |
|          | <b>Noise</b><br><br><b>Examples:</b> <ul style="list-style-type: none"> <li>• Centrifugal Fan</li> <li>• Autoclave</li> </ul> <b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Hearing loss / damage</li> <li>• Disruption/ distraction</li> <li>• Interference with communications and warning signals</li> <li>• Fatigue</li> <li>• Tinnitus</li> </ul> | <ul style="list-style-type: none"> <li>• Exposure times very short</li> <li>• Noise &lt;80dB</li> <li>• Monitoring can be carried out by the DIT Health &amp; Safety Office where need arises</li> <li>• Signage in place where required</li> <li>• Health surveillance carried out where required</li> <li>• Engineering controls</li> <li>• Information and training provided to staff and students</li> <li>• Follow manufacturer's instructions</li> <li>• Service and maintenance of machinery and equipment is constant</li> </ul> | <ul style="list-style-type: none"> <li>• Contact DIT Health &amp; Safety Office where circumstances change / monitoring is required</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>Contractor for service and maintenance</b> | <b>Ongoing</b> |

| PHYSICAL |   |   |  |  |   |  |                |
|----------|---|---|--|--|---|--|----------------|
|          |   |   | Control Measures   |  |   |  |                |
|          |   |   | Current Controls   | Further Actions Required   |   |  |                |
|          | <b>Structural:</b><br><b>Floors</b><br><b>Walls</b><br><b>Ceilings</b><br><b>Doors</b><br><b>Fixed Shelving</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Personal Injury</li> <li>• Slips, Trips and Falls</li> <li>• Collapse</li> <li>• Trapping</li> </ul> | <ul style="list-style-type: none"> <li>• Building appears to be structurally sound</li> <li>• Defects and hazards are reported to the Buildings Office through online hazard reporting</li> <li>• Doors open and close safely</li> <li>• Vision panels in place on doors where required</li> </ul> | <ul style="list-style-type: none"> <li>• Remove any material that blocks vision panels on doors</li> <li>• Contact Buildings Office if problems arise</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Buildings Office</b> | <b>Ongoing</b> |

| PHYSICAL |  |   |  |   |   |  |         |
|----------|--|---|--|---|---|--|---------|
|          |  |   | Control Measures   |   |   |  |         |
|          |  |   | Current Controls   | Further Actions Required  |   |  |         |
|          | <b>Slips, Trips &amp; Falls</b><br><br>Most flooring is non-slip except 2010 which is parquet. Offices are mainly carpeted.<br><br>Who is harmed: <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Slips, trips and falls</li> <li>• Uneven surfaces</li> <li>• Wet floor conditions</li> <li>• Raised obstacles</li> </ul> | <ul style="list-style-type: none"> <li>• All routes kept clear and unobstructed</li> <li>• SOP for cleaning – floors generally cleaned early morning when most personnel are off site. See Noonan risk assessment</li> <li>• Use of warning signage where appropriate</li> <li>• Report hazards</li> <li>• Good cable management</li> <li>• Changes in floor levels identified and marked</li> <li>• Door mats provided at entrance (main entrance)</li> <li>• SOP for spillages</li> <li>• Handrail on steps/stairs</li> <li>• Stair nosing fitted with anti slip finish</li> <li>• Adequate lighting</li> <li>• Good housekeeping</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain current controls</li> <li>• Buildings Office to ensure upkeep and maintenance of internal and external access and egress routes e.g. walkways, paths, driveways, floors, corridors, steps and stairs</li> </ul> | With current controls:<br><b>L</b><br><br>With Actions applied:<br><b>L</b> | School of Biological Sciences Staff and Students<br><br>DIT Buildings Office | Ongoing |

| PHYSICAL |  |   |  |   |   |  |                |
|----------|--|---|--|---|---|--|----------------|
|          |  |   | Control Measures   |   |   |  |                |
|          |  |   | Current Controls   | Further Actions Required  |   |  |                |
|          | <b>Access and Egress</b><br><br><b>Opening Times:</b><br>See DIT website<br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Security threats</li> <li>• Threats from public</li> <li>• Violence / Assault</li> <li>• Unwanted visitors</li> <li>• Unauthorised access</li> </ul> | <ul style="list-style-type: none"> <li>• Front desk/Reception is manned at all times by a Porter</li> <li>• CCTV in place</li> <li>• Suspicious activity reported to Porters</li> <li>• ERT covers procedure in the event of suspicious activity</li> </ul> <b>Laboratories</b> <ul style="list-style-type: none"> <li>• Students are not permitted to enter labs without a staff member</li> <li>• Signage present on lab doors regarding unauthorised access</li> <li>• 'Biohazard' signage on lab doors where biohazardous substances are in use/stored</li> <li>• Hazardous substances are locked away after use</li> <li>• Please see controls for Biological Agents</li> </ul> | <ul style="list-style-type: none"> <li>• Report suspicious activity to Porters or Gardaí immediately</li> <li>• Ensure all substances are put away immediately after use in labs</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Buildings Office</b> | <b>Ongoing</b> |

| PHYSICAL |  |   |   |   |   |  |                |
|----------|--|---|---|---|---|--|----------------|
|          |  |   | Control Measures  |   |   |  |                |
|          |  |   | Current Controls  | Further Actions Required  |   |  |                |
|          | <b>Photocopiers &amp; Printers</b><br><br><b>Shared staff printers and photocopiers are available in the School Administration Office and various locations</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Changing toner etc.: chemical contact</li> <li>• Clearing jams: burns</li> <li>• Not wearing gloves</li> <li>• Not turning off electrical supply</li> <li>• Incorrect disposal</li> <li>• Personal injury</li> <li>• Lack of information / training</li> </ul> | <ul style="list-style-type: none"> <li>• Toner / print cartridges changed by staff members who wash hands after use</li> <li>• Gloves worn while changing toner</li> <li>• Power turned off before clearing jams</li> <li>• Disposal as per manufacturer's directions</li> <li>• Scheduled maintenance by DIT IS</li> <li>• Correct disposal of waste cartridges</li> <li>• Follow manufacturer's instructions</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> <li>• Ensure gloves are supplied and worn</li> </ul> | <b>With current controls: L</b><br><br><b>With Actions applied: L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT IS</b> | <b>Ongoing</b> |

| PHYSICAL |  |   |   |  |   |  |                |
|----------|--|---|---|--|---|--|----------------|
|          |  |   | Control Measures  |  |   |  |                |
|          |  |   | Current Controls  | Further Actions Required   |   |  |                |
|          | <b>Ergonomics:</b><br><b>Office / Workstation</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• MSD's</li> <li>• Upper limb disorders</li> <li>• Poor posture</li> <li>• Back problems</li> <li>• Fatigue</li> <li>• Slips, trips and falls</li> </ul> | <ul style="list-style-type: none"> <li>• Online eLearning programme available</li> <li>• Workstation risk assessments and information and training available from the Health &amp; Safety Office on request</li> <li>• Contact OHO if risk assessments are required</li> <li>• Eye tests available to staff</li> <li>• Good housekeeping</li> <li>• Good cable management</li> <li>• Adequate services (heating, lighting ventilation) in place</li> <li>• Follow manufacturer's instructions when using equipment</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Health &amp; Safety Office</b> | <b>Ongoing</b> |

| PHYSICAL |                                   |       |                  |                          |       |       |       |
|----------|-----------------------------------|-------|------------------|--------------------------|-------|-------|-------|
|          |                                   |       | Control Measures |                          |       |       |       |
|          |                                   |       | Current Controls | Further Actions Required |       |       |       |
|          | <b>Mechanical Lifting Systems</b> | • N/A | • N/A            | • N/A                    | • N/A | • N/A | • N/A |
|          | <b>None present</b>               |       |                  |                          |       |       |       |

| PHYSICAL |   |  |  |   |   |  |                |
|----------|---|--|--|---|---|--|----------------|
|          |   |  | Control Measures   |   |   |  |                |
|          |   |  | Current Controls   | Further Actions Required  |   |  |                |
|          | <b>Vehicles/<br/>deliveries on site</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Injury to person/struck by vehicle</li> <li>• Poor access and egress</li> </ul> | <ul style="list-style-type: none"> <li>• Deliveries handled by Goods Inwards</li> <li>• Separate pedestrian access to car park available from Kevin St.</li> <li>• Car park is authorised access only</li> <li>• CCTV in place in car park</li> <li>• Safe access and egress maintained</li> <li>• Car park spaces marked out clearly</li> <li>• Speed limit in place</li> <li>• Designated walk ways</li> <li>• Designated area for loading and unloading goods present</li> <li>• Defects reported to DIT Buildings Office</li> <li>• Adequate lighting in place</li> <li>• Hi Vis clothing worn where required</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> <li>• Staff and students to use pedestrian walkways</li> </ul> | <b>With current controls:</b><br>L<br><br><b>With Actions applied:</b><br>L | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Buildings Office</b> | <b>Ongoing</b> |



| PHYSICAL |  |   |  |  |  |  |         |
|----------|--|---|--|--|--|--|---------|
|          |  |   | Control Measures   |  |  |  |         |
|          |  |   | Current Controls   | Further Actions Required   |  |  |         |
|          | <p><b>Hot Surfaces / Liquids / Solids</b></p> <p>E.g. Hot plates; Cups of hot beverages</p> <p>Please see SPECIFIC EQUIPMENT RISK ASSESSMENTS</p> <p>Who is harmed:</p> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Contact burns</li> <li>• Scalds</li> <li>• Spillage</li> <li>• Exposure to hazardous chemicals and substances</li> </ul> | <ul style="list-style-type: none"> <li>• Lids available for cups</li> <li>• Notify Front desk/Reception of spillages</li> <li>• Spillages cleaned up immediately</li> <li>• SOP in place for spillages: Noonan</li> <li>• Wet floor signage available for spillages</li> <li>• School SOP available for Spillages</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <p>With current controls: L</p> <p>With Actions applied: L</p> | <p>School of Biological Sciences Staff and Students</p> <p>Noonan Cleaners</p> | Ongoing |

| PHYSICAL |  |   |  |  |   |  |                |
|----------|--|---|--|--|---|--|----------------|
|          |  |   | Control Measures   |  |   |  |                |
|          |  |   | Current Controls   | Further Actions Required   |   |  |                |
|          | <b>Pressure Systems</b><br><br><b>Examples</b> <ul style="list-style-type: none"> <li>Autoclaves</li> </ul><br><b>Please see SPECIFIC EQUIPMENT RISK ASSESSMENTS</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>Staff members</li> <li>Students</li> <li>Visitors</li> <li>Contractors</li> <li>Young persons</li> <li>Pregnant</li> <li>Postgraduates</li> <li>People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>Contact burn</li> <li>Personal injury</li> <li>Explosion</li> <li>Spillage</li> <li>Release of steam/ fluid / air</li> </ul> | <ul style="list-style-type: none"> <li>Please see Specific Hazard Risk Assessments</li> <li>SOP in place</li> <li>Service and maintenance</li> <li>Training provided to staff</li> <li>Defects are reported</li> <li>PPE worn/used</li> <li>First-aid kit available</li> <li>Signage in place where required</li> <li>Follow manufacturer's instructions</li> <li>Certificate of test examination</li> </ul> | <ul style="list-style-type: none"> <li>Maintain standards</li> </ul> | <b>With current controls: L</b><br><br><b>With Actions applied: L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Buildings Office</b> | <b>Ongoing</b> |

| PHYSICAL |   |       |                  |                          |       |       |       |
|----------|---|-------|------------------|--------------------------|-------|-------|-------|
|          |   |       | Control Measures |                          |       |       |       |
|          |   |       | Current Controls | Further Actions Required |       |       |       |
|          | <b>Radiation</b><br><br><b>Ionizing/<br/>Non-ionizing:</b><br><br><b>None present</b> | • N/A | • N/A            | • N/A                    | • N/A | • N/A | • N/A |

| PHYSICAL |  |       |                  |                          |       |       |       |
|----------|--|-------|------------------|--------------------------|-------|-------|-------|
|          |  |       | Control Measures |                          |       |       |       |
|          |  |       | Current Controls | Further Actions Required |       |       |       |
|          | <b>Vibration</b><br><br><b>No sources of<br/>vibration</b> | • N/A | • N/A            | • N/A                    | • N/A | • N/A | • N/A |

| PHYSICAL |  |  |   |  |  |   |                |
|----------|--|--|---|--|--|---|----------------|
|          |  |  | Control Measures  |  |  |   |                |
|          |  |  | Current Controls  | Further Actions Required   |  |   |                |
|          | <p><b>Services:</b><br/><b>Heating</b></p> <p><b>Gas-fired central heating in place throughout DIT, Kevin Street</b></p> <p><b>Who is harmed:</b></p> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Environment too hot or cold</li> <li>• Electrical hazards</li> <li>• Misuse of portable heaters</li> <li>• Leaks</li> <li>• Fire</li> <li>• Burns</li> <li>• Carbon monoxide poisoning</li> </ul> | <ul style="list-style-type: none"> <li>• Electrics appear to be up to standard</li> <li>• Cables neatly positioned</li> <li>• Contact Buildings Office if problems or defects arise</li> <li>• Service and maintenance carried out by competent person</li> <li>• Combustible materials kept away from heat source</li> <li>• Heat source kept clear and free from obstruction</li> <li>• Environmental monitoring from the Health &amp; Safety Office on request</li> <li>• Adequate ventilation by openable windows and AC system</li> <li>• Fire detection systems in place</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <p><b>With current controls:</b><br/><b>L</b></p> <p><b>With Actions applied:</b><br/><b>L</b></p> | <p><b>School of Biological Sciences Staff and Students</b></p> <p><b>DIT Buildings Office</b></p> | <b>Ongoing</b> |

| PHYSICAL |   |  |   |  |   |  |                |
|----------|---|--|---|--|---|--|----------------|
|          |   |  | Control Measures  |  |   |  |                |
|          |   |  | Current Controls  | Further Actions Required   |   |  |                |
|          | <b>Lighting</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Inadequate lighting</li> <li>• Glare</li> <li>• Slips, trips , falls</li> </ul> | <ul style="list-style-type: none"> <li>• Light switches easily accessible (height)</li> <li>• Adequate lighting in place</li> <li>• Defects are reported to the Buildings Office</li> <li>• Protective coverings in place where required</li> <li>• Environmental monitoring available from the Health &amp; Safety Office on request</li> <li>• Service and maintenance carried out by competent person</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Buildings Office</b> | <b>Ongoing</b> |

| PHYSICAL |  |  |   |  |   |  |                |
|----------|--|--|---|--|---|--|----------------|
|          |  |  | Control Measures  |  |   |  |                |
|          |  |  | Current Controls  | Further Actions Required   |   |  |                |
|          | <b>Ventilation and temperature</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Environment too hot or cold</li> <li>• Inadequate ventilation</li> <li>• Falls from heights from windows</li> </ul> | <ul style="list-style-type: none"> <li>• All windows openable</li> <li>• Safety catches in place where required</li> <li>• Blinds in place and in working order where required</li> <li>• Suitable equipment available for the opening and closing of windows</li> <li>• Defects are reported to the Buildings Office</li> <li>• Step ladder available for access where required</li> <li>• Service and maintenance of ventilation system carried out by competent person</li> <li>• Office temperature of at least 17.5°C (after one hour of work)</li> <li>• Environmental monitoring from the Health &amp; Safety Office on request</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Buildings Office</b> | <b>Ongoing</b> |

| PHYSICAL |  |  |   |  |   |  |                |
|----------|--|--|---|--|---|--|----------------|
|          |  |  | Control Measures  |  |   |  |                |
|          |  |  | Current Controls  | Further Actions Required   |   |  |                |
|          | <b>Electricity</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Electric shock</li> <li>• Electrocution</li> <li>• Ignition source</li> <li>• Fire</li> <li>• Explosion</li> <li>• Death</li> <li>• Electrical arcing</li> <li>• Damaged electrical equipment</li> <li>• Use of faulty equipment</li> <li>• Contact with live parts</li> <li>• Unmarked distribution boards</li> <li>• Inadequate electrical installations</li> </ul> | <ul style="list-style-type: none"> <li>• Sufficient numbers of electrical sockets</li> <li>• Electric leads not trailing and good cable management</li> <li>• Sockets are not overloaded</li> <li>• Competent person to carry out repairs / works</li> <li>• All works servicing and testing is carried out as per regulations</li> <li>• Shut down when not in use and end of day</li> <li>• Contact Buildings Office if problems arise</li> <li>• Adequate protection for circuit boards, distribution boards etc.</li> <li>• Report defects, take equipment out of use</li> <li>• Good housekeeping</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Buildings Office</b> | <b>Ongoing</b> |

| PHYSICAL |   |  |   |  |   |                             |                |
|----------|---|--|---|--|---|-----------------------------|----------------|
|          |   |  | Control Measures  |  |   |                             |                |
|          |   |  | Current Controls  | Further Actions Required   |   |                             |                |
|          | <b>Asbestos</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Exposure to airborne fibres and subsequent illnesses</li> </ul> | <ul style="list-style-type: none"> <li>• Buildings Office take advice from appropriate consultants to ensure asbestos is made safe if suspected</li> <li>• Asbestos register available from the DIT Buildings Office</li> <li>• DIT will review locations where there is asbestos insitu</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>DIT Buildings Office</b> | <b>Ongoing</b> |



| PHYSICAL |                 |       |                  |                          |       |       |       |
|----------|-----------------|-------|------------------|--------------------------|-------|-------|-------|
|          |                 |       | Control Measures |                          |       |       |       |
|          |                 |       | Current Controls | Further Actions Required |       |       |       |
|          | Confined Spaces | • N/A | • N/A            | • N/A                    | • N/A | • N/A | • N/A |

| PHYSICAL |                     |       |                  |                          |       |       |       |
|----------|---------------------|-------|------------------|--------------------------|-------|-------|-------|
|          |                     |       | Control Measures |                          |       |       |       |
|          |                     |       | Current Controls | Further Actions Required |       |       |       |
|          | <b>Lasers</b>       | • N/A | • N/A            | • N/A                    | • N/A | • N/A | • N/A |
|          | <b>None present</b> |       |                  |                          |       |       |       |

| PHYSICAL |   |  |  |  |  |  |         |
|----------|---|--|--|--|--|--|---------|
|          |   |  | Control Measures   |  |  |  |         |
|          |   |  | Current Controls   | Further Actions Required   |  |  |         |
|          | <b>Construction / Maintenance Work</b><br><br><b>Examples:</b> <ul style="list-style-type: none"> <li>Noonan Cleaners</li> <li>Building contractors</li> <li>Various specialist contractors</li> </ul> <b>Who is harmed:</b> <ul style="list-style-type: none"> <li>Staff members</li> <li>Students</li> <li>Visitors</li> <li>Contractors</li> <li>Young persons</li> <li>Pregnant women</li> <li>Postgraduates</li> <li>People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>Unfamiliar with DIT buildings and safety procedures</li> <li>Injury to contractors, staff, students, members of the public</li> </ul> | <ul style="list-style-type: none"> <li>Buildings Office control all contractors who also send communication to staff regarding works</li> <li>Front desk/Reception is manned at all times by a Porter</li> <li>Sign in required</li> <li>Compliance with DIT code of practice for contractors</li> <li>Signage in place</li> <li>eLearning completed before contractors arrive on DIT premises</li> <li>DIT Contractor safety badge issued and worn</li> <li>Risk assessment and method statements completed and submitted to the Buildings Office</li> <li>Good housekeeping standards maintained</li> <li>Areas of works cordoned off</li> </ul> | <ul style="list-style-type: none"> <li>Maintain standards</li> </ul> | <p><b>With current controls: L</b></p> <p><b>With Actions applied: L</b></p> | School of Biological Sciences Staff and Students | Ongoing |

| OPERATIONAL |  |  |                  |                          |  |  |  |
|-------------|--|--|------------------|--------------------------|--|--|--|
|             |  |  | Control Measures |                          |  |  |  |
|             |  |  | Current Controls | Further Actions Required |  |  |  |
|             | <b>Work Activities / Processes</b><br><br>Please see Specific Equipment Risk Assessments |  |                  |                          |  |  |  |

| OPERATIONAL |   |   |  |  |   |   |                |
|-------------|---|---|--|--|---|---|----------------|
|             |   |   | Control Measures   |  |   |   |                |
|             |   |   | Current Controls   | Further Actions Required   |   |   |                |
|             | <b>Housekeeping</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Slips, trips and falls</li> <li>• Increased fire load</li> <li>• Falling objects</li> <li>• Collisions</li> <li>• Spillages</li> </ul> | <ul style="list-style-type: none"> <li>• Retort stands not stored on floor</li> <li>• Equipment stored on suitable shelving/in suitable cabinets / containers etc.</li> <li>• Fire load kept to a minimum</li> <li>• All routes kept clear and unobstructed</li> <li>• Wet floor signs in place when required</li> <li>• Spillages cleaned up immediately with spill kit</li> <li>• Adequate lighting in place</li> <li>• Adequate waste disposal</li> <li>• Designated chemical stores and equipment stores in place</li> <li>• See controls for slips, trips &amp; falls also</li> <li>• Spillages SOP in place</li> <li>• See Spillages also</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b> | <b>Ongoing</b> |

| OPERATIONAL |   |  |   |  |   |   |                |
|-------------|---|--|---|--|---|---|----------------|
|             |   |  | Control Measures  |  |   |   |                |
|             |   |  | Current Controls  | Further Actions Required   |   |   |                |
|             | <b>Cleaning</b><br><br><b>Cleaning takes place in general before opening of building by Noonan Cleaners (generally finished by 8am)</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Lack of cleanliness or hygiene</li> <li>• Manual handling injury</li> <li>• Exposure to hazardous substances</li> <li>• Spillages: slips, trips and falls</li> <li>• Lack of/inappropriate PPE</li> </ul> | <ul style="list-style-type: none"> <li>• Labs are cleaned after each session</li> <li>• Deep cleaning takes place twice per year (after semesters 1&amp;2 by lab aides)</li> <li>• Floors are cleaned by Noonan Cleaners</li> <li>• Daily cleaning schedule</li> <li>• SOPs in place</li> <li>• Most cleaning takes place when building is unoccupied: See Noonan risk assessment</li> <li>• PPE used/worn where required</li> <li>• Materials and containers adequately labelled</li> <li>• Training and information (chemicals)</li> <li>• Wet floor signage in place when required</li> <li>• Adequate and designated storage area for cleaning materials and equipment</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>Noonan Cleaners</b> | <b>Ongoing</b> |

|  |  |  |   |  |  |  |  |
|--|--|--|---|--|--|--|--|
|  |  |  | <ul style="list-style-type: none"><li>• Use of appropriate cleaning equipment</li><li>• Report defects and hazards</li><li>• Manual handling training completed and implemented</li></ul> |  |  |  |  |
|--|--|--|---|--|--|--|--|

| OPERATIONAL |  |  |  |  |   |   |                |
|-------------|--|--|--|--|---|---|----------------|
|             |  |  | Control Measures   |  |   |   |                |
|             |  |  | Current Controls   | Further Actions Required   |   |   |                |
|             | <b>Waste Disposal &amp; Removal</b><br><br><b>Carried out by Noonan Cleaners usually during cleaning routine</b><br><br><b>Please see Biological, Biohazard and Clinical Waste</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Waste accumulation</li> <li>• Fire</li> <li>• Sharps injuries</li> <li>• Exposure to bodily fluids</li> <li>• Manual handling injury</li> <li>• Exposure to hazardous substances</li> <li>• Spillages: slips, trips and falls</li> <li>• Lack of/inappropriate PPE</li> </ul> | <ul style="list-style-type: none"> <li>• Recycling bins available: paper, shredding etc.</li> <li>• See Noonan SOP &amp; risk assessment</li> <li>• Regular waste segregated by Thorntons</li> <li>• Waste removed on a regular basis</li> <li>• PPE worn/used by Noonan Cleaners</li> <li>• Instruction and training given to operators</li> <li>• Labelling of waste where necessary</li> <li>• Designated waste storage area present</li> <li>• Manual handling training completed/implemented</li> <li>• Equipment for transport of waste e.g. trolleys</li> <li>• Safety Handling of Sharps &amp; Needle sticks policy</li> <li>• Hepatitis B vaccinations available for Biological Sciences staff</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls: L</b><br><br><b>With Actions applied: L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>Noonan Cleaners</b> | <b>Ongoing</b> |



| OPERATIONAL |  |   |  |  |   |  |                |
|-------------|--|---|--|--|---|--|----------------|
|             |  |   | Control Measures   |  |   |  |                |
|             |  |   | Current Controls   | Further Actions Required   |   |  |                |
|             | <b>Signage and Documentation</b><br><br><b>Particular Hazards include:</b><br>Hot plates, Autoclave, Centrifuge etc.<br><br>Please see Specific Equipment Risk Assessments<br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Lack of knowledge regarding safety procedures</li> </ul> | <ul style="list-style-type: none"> <li>• Relevant hazard signage in place on lab doors: e.g. 'No entry' 'Biohazard'</li> <li>• Gas signage in place: CO, Nitrogen, Liquid Nitrogen</li> <li>• Emergency contact numbers at Front desk/Reception</li> <li>• Safety booklets and safety wallet cards available</li> <li>• Defects reported to Buildings Office / Health &amp; Safety Office</li> </ul> <b>Signage in place includes:</b> <ul style="list-style-type: none"> <li>• Emergency Exit</li> <li>• Emergency First-aid</li> <li>• Evacuation plan</li> <li>• Safety Notice points</li> <li>• Fire Action Notice Points</li> <li>• No Smoking</li> </ul> | <ul style="list-style-type: none"> <li>• Refuge area signage to be put in place</li> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br>L<br><br><b>With Actions applied:</b><br>L | <b>DIT Buildings Office</b><br><br><b>School of Biological Sciences Staff and Students</b> | <b>Ongoing</b> |

| OPERATIONAL |   |  |   |  |   |   |                |
|-------------|---|--|---|--|---|---|----------------|
|             |   |  | Control Measures  |  |   |   |                |
|             |   |  | Current Controls  | Further Actions Required   |   |   |                |
|             | <b>Incidents</b><br><br><b>Hazard Reporting</b><br><br><b>First-aid</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Lack of first-aid supplies</li> <li>• Lack of trained first-aiders</li> <li>• Lack of knowledge of procedure in the event of an incident</li> <li>• No reporting of incident(s)</li> <li>• No reporting of hazards</li> </ul> | <b>Each lab has:</b> <ul style="list-style-type: none"> <li>• First-aid kit</li> <li>• Staff trained in first-aid</li> <li>• Emergency numbers</li> <li>• Emergency first-aid procedure posted</li> </ul> <b>Front desk/Reception has:</b> <ul style="list-style-type: none"> <li>• Incident report book</li> <li>• AED &amp; first-aid kit</li> <li>• Emergency numbers</li> </ul> <b>General:</b> <ul style="list-style-type: none"> <li>• All incidents are reported immediately and an incident report form completed</li> <li>• Additional supplies available from Health &amp; Safety Office on request</li> <li>• List of trained first-aiders &amp; AED users available on the DIT website</li> <li>• Online hazard reporting facility available</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b> | <b>Ongoing</b> |

| OPERATIONAL |  |   |   |   |   |   |   |
|-------------|--|---|---|---|---|---|---|
|             |  |   | Control Measures                                      |   |   |   |   |
|             |  |   | Current Controls                                      | Further Actions Required                              |   |   |   |
|             | <b>Use of Ladders / Working at Height</b><br><br>Staff are not permitted to use ladders/work at height | <ul style="list-style-type: none"> <li>N/A</li> </ul> | <ul style="list-style-type: none"> <li>N/A</li> </ul> | <ul style="list-style-type: none"> <li>N/A</li> </ul> | <ul style="list-style-type: none"> <li>N/A</li> </ul> | <ul style="list-style-type: none"> <li>N/A</li> </ul> | <ul style="list-style-type: none"> <li>N/A</li> </ul> |

| OPERATIONAL |  |   |   |   |   |   |   |
|-------------|--|---|---|---|---|---|---|
|             |  |   | Control Measures                                      |   |   |   |   |
|             |  |   | Current Controls                                      | Further Actions Required                              |   |   |   |
|             | <b>Lone Working/ Out of Hours Access</b> | <ul style="list-style-type: none"> <li>N/A</li> </ul> | <ul style="list-style-type: none"> <li>N/A</li> </ul> | <ul style="list-style-type: none"> <li>N/A</li> </ul> | <ul style="list-style-type: none"> <li>N/A</li> </ul> | <ul style="list-style-type: none"> <li>N/A</li> </ul> | <ul style="list-style-type: none"> <li>N/A</li> </ul> |

| OPERATIONAL |  |  |  |   |   |  |                |
|-------------|--|--|--|---|---|--|----------------|
|             |  |  | Control Measures   |   |   |  |                |
|             |  |  | Current Controls   | Further Actions Required  |   |  |                |
|             | <b>Trips</b><br><br><b>Examples:</b> <ul style="list-style-type: none"> <li>• Hospitals</li> <li>• Industry</li> </ul> <b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Injuries</li> <li>• Medical emergencies</li> <li>• Accidents and incidents</li> <li>• Missing persons</li> <li>• Substance abuse</li> <li>• Road traffic accidents</li> <li>• Inclement weather</li> <li>• Site terrain</li> <li>• Chemical hazards</li> <li>• Biological hazards</li> <li>• Human Factors</li> </ul> | <ul style="list-style-type: none"> <li>• DIT Trip Guidelines in place</li> <li>• Separate trip risk assessment template completed for each trip and control measures implemented</li> <li>• Information provided to trip participants</li> <li>• Elearning programme available to participants on request</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> <li>• Ensure risk assessments are carried out for each trip</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Health &amp; Safety Office</b> | <b>Ongoing</b> |

| OPERATIONAL |   |   |   |   |   |  |                |
|-------------|---|---|---|---|---|--|----------------|
|             |   |   | Control Measures  |   |   |  |                |
|             |   |   | Current Controls  | Further Actions Required  |   |  |                |
|             | <b>Work Placement</b><br><br><b>Examples</b> <ul style="list-style-type: none"> <li>• Hospitals</li> <li>• Industry</li> <li>• Reserach</li> <li>• Overseas</li> <li>• Erasmus</li> <li>• International Exchange</li> </ul> <b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Injuries</li> <li>• Accidents and incidents</li> <li>• Lack of familiarity with work environment and work practices</li> </ul> | <ul style="list-style-type: none"> <li>• Erasmus partnership agreements in place</li> <li>• DIT insurance in place</li> <li>• Rules governing placement in place</li> <li>• Guidelines from the School of Biological Sciences in place</li> <li>• Academic supervisors and Year Coordinators available</li> <li>• Support from the School and site visits/meetings with students provided</li> <li>• Students receive training on arrival to work placement</li> <li>• Risk assessment carried out and control measures implemented</li> <li>• Work placement factsheets provided to participants</li> <li>• Pre-placement induction safety talks available from</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> <li>• Ensure risk assessments are carried out for all work placements</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Health &amp; Safety Office</b> | <b>Ongoing</b> |

|  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
|  |  |  | <p>the Health &amp; Safety Office</p> <ul style="list-style-type: none"><li>• DIT Placement Mentor available</li><li>• Guidance notes available to students</li><li>• All incidents are reported to DIT</li><li>• Insurance cover provided</li><li>• Training and supervision given to students where required</li></ul> |  |  |  |  |
|--|--|--|--|--|--|--|--|

| OPERATIONAL |   |   |  |   |   |  |                |
|-------------|---|---|--|---|---|--|----------------|
|             |   |   | Control Measures   |   |   |  |                |
|             |   |   | Current Controls   | Further Actions Required  |   |  |                |
|             | <b>Events Hosting</b><br><br><b>Examples:</b> <ul style="list-style-type: none"> <li>• Science Week</li> <li>• Awards Ceremonies</li> </ul><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Injuries</li> <li>• Accidents and incidents</li> <li>• Unfamiliar with DIT premises and emergency plans</li> </ul> | <ul style="list-style-type: none"> <li>• Risk assessment carried out and control measures implemented</li> <li>• Emergency plans in place as per risk assessment</li> <li>• Report all incidents and accidents to DIT</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> <li>• Ensure risk assessments are carried out for all work placements</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Buildings Office</b> | <b>Ongoing</b> |

| OPERATIONAL |  |   |  |  |   |   |                |
|-------------|--|---|--|--|---|---|----------------|
|             |  |   | Control Measures   |  |   |   |                |
|             |  |   | Current Controls   | Further Actions Required   |   |   |                |
|             | <b>Conferences / Seminars / Travel</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Travel to and from</li> <li>• Road traffic accidents</li> <li>• Unfamiliar with venue</li> <li>• Medical emergency</li> <li>• Missing persons</li> </ul> | <ul style="list-style-type: none"> <li>• Taxi vouchers available to staff</li> <li>• Staff obey rules of the road if driving or cycling</li> <li>• Adequate insurance, tax and NCT on vehicles used for transport</li> <li>• Familiarise yourself with local emergency procedures and first-aid arrangements</li> <li>• Report defects and incidents to venue management or Gardaí where necessary</li> <li>• Approval sought from Line Manager as per DIT procedures</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b> | <b>Ongoing</b> |



| OPERATIONAL |  |   |  |  |  |  |         |
|-------------|--|---|--|--|--|--|---------|
|             |  |   | Control Measures   |  |  |  |         |
|             |  |   | Current Controls   | Further Actions Required   |  |  |         |
|             | <b>Storage</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Explosion, fire, various reactions as a result of improper/incorrect storage of chemicals</li> <li>• Inadequate storage</li> <li>• Improper storage</li> <li>• Inadequate space for safe manual handling</li> <li>• Poor housekeeping</li> <li>• Slips, trips and falls</li> <li>• Unsafe access and egress</li> <li>• Inadequate lighting and/or ventilation</li> </ul> | <ul style="list-style-type: none"> <li>• See Chemical Incompatibilities</li> <li>• Only competent staff enter laboratories</li> <li>• Chemicals stored in locked cabinets</li> <li>• Safe access and egress</li> <li>• Storage avoided above shoulder height where possible</li> <li>• Items stored appropriately and segregated where required</li> <li>• Storage cabinets/units secure and fit for purpose</li> <li>• Locking system in place for storage cabinets/units</li> <li>• Staff trained in manual handling and apply training: see 'Manual Handling' also</li> <li>• Appropriate signage in place</li> <li>• Defects reported immediately</li> <li>• Adequate lighting and ventilation in place</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <p><b>With current controls:</b><br/>L</p> <p><b>With Actions applied:</b><br/>L</p> | School of Biological Sciences Staff and Students | Ongoing |

| HUMAN FACTORS |  |  |   |   |  |   |         |
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|               |  |  | Control Measures  |   |  |   |         |
|               |  |  | Current Controls  | Further Actions Required  |  |   |         |
|               | <b>Food Allergens</b><br><br>Examples;<br>nuts, milk,<br>crustaceans,<br>molluscs, eggs,<br>fish, celery,<br>mustard etc.<br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors/ service providers</li> <li>• Sensitive risk groups</li> <li>• young persons</li> <li>• pregnant women</li> <li>• people with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Allergic reaction</li> <li>• Itching</li> <li>• Hives</li> <li>• Abdominal cramps, nausea or vomiting</li> <li>• Swelling of the throat and tongue</li> <li>• Flushing of the skin</li> <li>• Anaphylaxis</li> </ul> <p>Also see risk assessment on:</p> <ul style="list-style-type: none"> <li>• Incidents</li> <li>• Hazard Reporting</li> <li>• First-Aid</li> </ul> | <ul style="list-style-type: none"> <li>• School SOP on food information for consumers for Health (Provision of food allergen information to consumers in respect of non-pre packed food) Regulations 2014 (SI 489/2014)</li> <li>• Students are required to complete DIT online food allergy questionnaire during the registration process</li> <li>• Students are responsible for informing DIT of any food allergy during the registration process</li> <li>• Students identifying allergies must submit to the DIT Health &amp; Safety Office medical supporting documentation completed by their treating Medical Practitioner</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain current controls</li> <li>• Provide food allergen awareness training (include in course programme) to students working and serving in the School restaurants, kitchens bakeries and training bar</li> <li>• School website to include information for all students and potential students - advising that participants on School courses maybe exposed to allergens and restriction may apply</li> <li>• School to implement the recommended controls/ actions outlined by the students Medical Practitioner(s) as necessary</li> </ul> | <p><b>With current controls: M</b></p> <p><b>With Actions applied: L</b></p> | <p><b>Head of School, Asst. Head of School; all staff and students; Health &amp; Safety Office; Allergen Working Group; Members of the public</b></p> | Ongoing |

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|  | <ul style="list-style-type: none"> <li>members of public attending teaching restaurant(s)</li> </ul> |  | <ul style="list-style-type: none"> <li>School Induction programme in place for new students</li> <li>Students are advised and encouraged to disclose any allergies or medical conditions to the School at induction and again at commencement of each semester. Staff advised at pre-employment medical by Doctor and at staff induction by line manager</li> <li>Allergen sheets provided to all students for all modules</li> <li>Notices posted in all kitchens, bakeries and areas used by the School which may have food/ food products containing food allergens</li> <li>All lecturing staff are instructed to notify the students of the food used in the class that are listed on the allergen sheets. Lecturers are instructed to email the Kitman food orders to all students two</li> </ul> | <ul style="list-style-type: none"> <li>Student must follow and implement the recommended controls/ actions outlined by their Medical Practitioner(s) as necessary</li> <li>Student must avoid contact or consumption of food(s) that cause an allergic reaction</li> <li>Draft Programme for Managing Food Allergens in DIT is being developed</li> <li>Kitchens, bakeries, training bar and all equipment used in these areas must be cleaned before and after all practical classes as per opening and closing down procedures</li> <li>Ensure all products used in practical classes are labelled as food management system</li> <li>Students are required to observe the labelling on products</li> <li>Provide gloves (PPE) where contact with</li> </ul> |  |  |  |
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|  |  |  | <p>weeks in advance of practical classes</p> <ul style="list-style-type: none"> <li>• Students are required to carry any medication necessary during college to treat an allergy e.g. epipen</li> <li>• Emergency first-aid procedures posted</li> <li>• AED's located at all the front desks</li> <li>• First-aid kits located in each kitchen, bakery and at each front desk</li> <li>• Staff working in kitchens trained in 1 day emergency first-aid</li> <li>• Student Health Centres – Doctor and nurses available to students 9am- 5pm (located at DIT Linenhall &amp; DIT Aungier)</li> <li>• Induction available from the Health &amp; Safety Office on request by the School</li> <li>• Student and staff advised to wear medic-alert bracelet/ necklace</li> </ul> | <p>specific foods causes an allergic reaction</p> <ul style="list-style-type: none"> <li>• Meeting of OHO and Health &amp; Safety Officer to review each case submitted</li> <li>• Students must inform School staff of their food allergies</li> <li>• Student going on work placement during their studies must also inform their employer of their food allergy</li> <li>• Members of the public attending teaching restaurant(s) must observe food allergen signage and carry on their person any medication necessary to treat an allergy e.g. epipen</li> </ul> |  |  |  |
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|  |  |  | <ul style="list-style-type: none"> <li>Staff encouraged to inform line manager of any allergies</li> </ul> |  |  |  |  |
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| HUMAN FACTORS |  |  |  |  |   |  |                |
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|               |  |  | Control Measures   |  |   |  |                |
|               |  |  | Current Controls   | Further Actions Required   |   |  |                |
|               | <b>Sensitive Work Groups:</b><br><br><b>Pregnant Employees /Students &amp; Nursing Mothers</b> | <ul style="list-style-type: none"> <li>Harm to Mother, unborn child or breastfeeding baby</li> <li>Physical risks</li> <li>Chemical risks</li> </ul> | <ul style="list-style-type: none"> <li>Risk assessment carried out for pregnant employees/students and control measures implemented as identified and necessary by Health &amp; Safety Office</li> <li>Room available (Room 225, DIT, Kevin Street) available for resting, breastfeeding and expressing milk</li> <li>Follow medical advice</li> </ul> | <ul style="list-style-type: none"> <li>Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Health &amp; Safety Office</b> | <b>Ongoing</b> |

| HUMAN FACTORS |  |  |   |  |   |  |                |
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|               | <b>Sensitive Work Groups:</b><br><br><b>Young Persons</b><br><br><b>Circumstances / events where young people are present include:</b> <ul style="list-style-type: none"> <li>• Transition Year Students on work experience</li> <li>• Events</li> </ul> | <ul style="list-style-type: none"> <li>• Injuries</li> <li>• Accidents and incidents</li> <li>• Lack of training and experience</li> <li>• Lack of familiarity with DIT work environment, work practices and emergency plans</li> <li>• Physical risks</li> <li>• Chemical risks</li> <li>• Biological risks</li> <li>• Hours of work</li> </ul> | <ul style="list-style-type: none"> <li>• Induction process completed by School</li> <li>• Induction available from the Health &amp; Safety Office on request</li> <li>• Elearning available from Health &amp; Safety Office</li> <li>• Training and supervision given</li> <li>• DIT Child Protection Policy in place</li> <li>• DIT emergency plans in place</li> <li>• All incidents are reported to DIT</li> <li>• Student support services available</li> <li>• Garda vetting in place</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Health &amp; Safety Office</b> | <b>Ongoing</b> |

| HUMAN FACTORS |  |  |   |  |   |   |                |
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|               |  |  | Current Controls  | Further Actions Required   |   |   |                |
|               | <b>Sensitive Work Groups:</b><br><br><b>People with Disabilities</b> | <ul style="list-style-type: none"> <li>• Lack of access/egress</li> <li>• Difficulty with evacuation</li> <li>• No risk assessment (RA) completed</li> </ul> | <ul style="list-style-type: none"> <li>• DIT Disability Office send information to DIT Health &amp; Safety Office</li> <li>• Risk Assessment carried out by the Health &amp; Safety Office</li> <li>• Personal Emergency Egress Plan (PEEP) completed where necessary</li> <li>• Reasonable accommodation identified in risk assessment</li> <li>• Lift present and in working order</li> <li>• Disability Support Service available</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls: L</b><br><br><b>With Actions applied: L</b> | <b>School of Biological Sciences Staff and Students</b> | <b>Ongoing</b> |

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|  |  |  | <ul style="list-style-type: none"> <li>• Disabled toilet: ground floor Annex: location marked on building maps</li> <li>• Induction/Elearning available from Health &amp; Safety Office on request</li> </ul> |  |  |  |  |
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|               | <b>Sensitive Work Groups:</b><br><br><b>New Recruits</b> | <ul style="list-style-type: none"> <li>• Lack of experience</li> <li>• Lack of training</li> <li>• Injuries</li> <li>• Accidents and incidents</li> <li>• Lack of training and experience</li> <li>• Lack of familiarity with DIT work environment, work practices and emergency plans</li> </ul> | <ul style="list-style-type: none"> <li>• Induction available (in person or online) from Staff Training &amp; Development, including a Health &amp; Safety section</li> <li>• Health &amp; Safety Elearning available from the Health &amp; Safety Office</li> <li>• Line Manager gives induction for School</li> <li>• Mandatory training to be completed as soon as possible after recruitment</li> <li>• School SOPs in progress</li> <li>• Training and supervision in place by management</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b> | <b>Ongoing</b> |



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|               | <b>Sensitive Work Groups:</b><br><br><b>Undergraduates</b> | <ul style="list-style-type: none"> <li>• Lack of experience</li> <li>• Lack of training</li> <li>• Injuries</li> <li>• Accidents and incidents</li> <li>• Lack of familiarity with DIT work environment, work practices and emergency plans</li> </ul> | <ul style="list-style-type: none"> <li>• Induction available from the Health &amp; Safety Office on request</li> <li>• Elearning available from Health &amp; Safety Office</li> <li>• Emergency procedures in place for Kevin Street</li> <li>• First-aid facilities available</li> <li>• Safety induction given by lecturers where required</li> <li>• Task-specific instructions/ demonstrations provided by staff where required</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b> | <b>Ongoing</b> |

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|  |  |  | <ul style="list-style-type: none"> <li>Student support services available</li> </ul> |  |  |  |  |
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|               | <b>Sensitive Work Groups:</b><br><br><b>Postgraduates</b> | <ul style="list-style-type: none"> <li>Lack of experience</li> <li>Lack of training</li> <li>Injuries</li> <li>Accidents and incidents</li> <li>Lack of familiarity with DIT work environment, work practices and emergency plans</li> <li>Remote working</li> </ul> | <ul style="list-style-type: none"> <li>Induction available (in person or online) from Staff Training &amp; Development, including a Health &amp; Safety section</li> <li>Health &amp; Safety Elearning available from the Health &amp; Safety Office</li> <li>Line Manager gives induction for School</li> <li>Mandatory training to be completed as soon as possible after recruitment</li> <li>School SOPs in place and communicated to new recruits</li> </ul> | <ul style="list-style-type: none"> <li>Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Postgraduate Students</b><br><br><b>DIT Staff Training &amp; Development</b><br><br><b>DIT Health &amp; Safety Office</b> | <b>Ongoing</b> |

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|  |  |  | <ul style="list-style-type: none"> <li>• Training and supervision in place by management</li> <li>• Ensure plans in place with School where remote working takes place</li> </ul> |  |  |  |  |
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|               |   |  | Current Controls   | Further Actions Required   |   |  |                |
|               | <b>Stress</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Physical health effects</li> <li>• Mental health effects</li> <li>• Behavioural effects</li> <li>• Cognitive effects</li> <li>• Workload</li> </ul> | <ul style="list-style-type: none"> <li>• Communication between staff and management</li> <li>• Employee Assistance Programme (EAP) in place (provided free to all staff by the VHI)</li> <li>• Occupational Stress Management Policy &amp; Procedures in place</li> <li>• Risk Assessment carried out by management</li> <li>• Training courses available on Stress Management, personal skills etc. to staff</li> <li>• Student services and Student Counselling available</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls: L</b><br><br><b>With Actions applied: L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Staff Training &amp; Development</b> | <b>Ongoing</b> |

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|               | <b>Violence (including Cash)</b><br><br><b>No cash</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> </ul> | <ul style="list-style-type: none"> <li>• Theft</li> <li>• Attacks/assault</li> </ul> | <ul style="list-style-type: none"> <li>• Emergency Response Training (ERT) mandatory for staff</li> <li>• CCTV in place</li> <li>• Porters on duty at Front desk/Reception</li> <li>• DIT staff and students report suspect individuals to DIT Buildings Office</li> <li>• Adequate lighting in place</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls: L</b><br><br><b>With Actions applied: L</b> | <b>School of Biological Sciences Staff and Students</b> | <b>Ongoing</b> |

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|  | <ul style="list-style-type: none"> <li>• People with disabilities</li> </ul> |  |  |  |  |  |  |
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|               |  |   | Current Controls  | Further Actions Required   |   |   |                |
|               | <b>Bullying &amp; Harassment</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Effects on physical and mental well-being</li> </ul> | <ul style="list-style-type: none"> <li>• DIT Dignity at Work: Anti Bullying &amp; Harassment Policy in place</li> <li>• Dignity at Work contact persons available</li> <li>• Employee Assistance Programme (EAP) in place</li> <li>• DIT Procedure for complaints and investigations</li> <li>• Student support services available</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b> | <b>Ongoing</b> |

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|               |   |   | Current Controls  | Further Actions Required   |  |   |                       |
|               | <p><b>Welfare Facilities;</b><br/> <b>Sanitary Facilities;</b><br/> <b>Staffroom / Canteen</b></p> <p><b>Note local arrangements</b></p> <p><b>Who is harmed:</b></p> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> </ul> | <ul style="list-style-type: none"> <li>• Inadequate facilities</li> <li>• No potable water</li> <li>• No means for boiling water/heating food</li> <li>• No seating/resting area</li> <li>• No hand-washing facilities</li> </ul> | <ul style="list-style-type: none"> <li>• Hot/cold water available in sanitary facilities</li> <li>• Disabled toilet available on ground floor Annexe and marked on maps</li> <li>• Adequate sanitary and hand-washing facilities available</li> <li>• Defects reported to the Buildings Office</li> </ul> <p><i>Facilities for seating and taking meals available at:</i></p> <ul style="list-style-type: none"> <li>• Canteen: Ground floor: Annexe</li> <li>• Staff room: 4<sup>th</sup> floor</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <p><b>With current controls:</b><br/> <b>L</b></p> <p><b>With Actions applied:</b><br/> <b>L</b></p> | <p><b>School of Biological Sciences Staff and Students</b></p> <p><b>DIT Buildings Office</b></p> | <p><b>Ongoing</b></p> |

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|  | <ul style="list-style-type: none"> <li>• <b>Pregnant</b></li> <li>• <b>Postgraduates</b></li> <li>• <b>People with disabilities</b></li> </ul> |  | <b>Drinking water available:</b> <ul style="list-style-type: none"> <li>• Water dispensers in School office (serviced by: Tipperary Water)</li> <li>• Water fountains in corridors</li> <li>• Canteen and staffroom</li> </ul> |  |  |  |  |
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|               | <b>Visitors</b><br><b>Visitors include:</b> <ul style="list-style-type: none"> <li>• Event/award ceremony participants</li> <li>• Science week</li> <li>• Transition year students</li> <li>• Erasmus students</li> <li>• Guest lecturers</li> <li>• External examiners</li> </ul> <b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• <b>Staff members</b></li> </ul> | <ul style="list-style-type: none"> <li>• Lack of experience</li> <li>• Lack of training</li> <li>• Injuries</li> <li>• Accidents and incidents</li> <li>• Lack of familiarity with DIT work environment, work practices and emergency plans</li> </ul> | <ul style="list-style-type: none"> <li>• Front Desk/Reception is manned at all times</li> <li>• Porters on duty</li> <li>• Visitors report to Front desk/Reception</li> <li>• Safety booklets and safety wallet cards available</li> <li>• Emergency and informational signage in place</li> <li>• Risk assessments completed for specific events where groups of visitors are expected</li> <li>• CCTV in place</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b> | <b>Ongoing</b> |

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| <ul style="list-style-type: none"> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> |  | <ul style="list-style-type: none"> <li>• Deliveries handled by Goods Inwards</li> <li>• Visitors briefed on emergency procedures by the person they are visiting</li> </ul> |  |  |  |  |
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|               |   |   | Control Measures  |  |   |  |                |
|               |   |   | Current Controls  | Further Actions Required   |   |  |                |
|               | <b>Contractors / Service Providers</b><br><br><b>Examples:</b> <ul style="list-style-type: none"><li>• Biosciences</li><li>• Cross Refrigeration</li><li>• Davison &amp; Hardy</li><li>• Cruinn</li><li>• Brennans</li></ul><br><b>Who is harmed:</b> <ul style="list-style-type: none"><li>• Staff members</li></ul> | <ul style="list-style-type: none"><li>• Unfamiliar with DIT buildings and safety procedures</li><li>• Injury to contractors, staff, students, members of the public</li></ul> | <ul style="list-style-type: none"><li>• School notify Buildings Office where contractors are coming onsite under their remit</li><li>• Buildings Office control all contractors who also send communication to staff regarding works</li><li>• Front desk/Reception is manned at all times by a Porter</li><li>• Sign in required</li><li>• Compliance with DIT code of practice for contractors</li><li>• Signage in place</li></ul> | <ul style="list-style-type: none"><li>• Maintain standards</li></ul> | <b>With current controls: L</b><br><br><b>With Actions applied: L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Buildings Office</b> | <b>Ongoing</b> |



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|  | <ul style="list-style-type: none"> <li>• <b>Students</b></li> <li>• <b>Visitors</b></li> <li>• <b>Contractors</b></li> <li>• <b>Young persons</b></li> <li>• <b>Pregnant women</b></li> <li>• <b>Postgraduates</b></li> <li>• <b>People with disabilities</b></li> </ul> |  | <ul style="list-style-type: none"> <li>• eLearning completed before contractors arrive on DIT premises</li> <li>• DIT Contractor safety badge issued and worn</li> <li>• Risk assessment and method statements completed and submitted to the Buildings Office</li> <li>• Good housekeeping standards maintained</li> <li>• Areas of works cordoned off</li> </ul> |  |  |  |  |
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| HUMAN FACTORS |  |   |  |  |   |   |                |
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|               |  |   | Control Measures   |  |   |   |                |
|               |  |   | Current Controls   | Further Actions Required   |   |   |                |
|               | <b>Behaviour</b><br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant women</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Aggression</li> <li>• Violence</li> <li>• Stress</li> <li>• Bullying</li> <li>• Harassment</li> <li>• Voice injury including voice trauma, chronic hoarseness, laryngitis etc. due to shouting / straining by lecturers</li> </ul> | <ul style="list-style-type: none"> <li>• DIT Dignity at Work: Anti Bullying &amp; Harassment Policy in place</li> <li>• Employee Assistance Programme (EAP) in place</li> <li>• Occupational Stress Management Policy &amp; Procedures in place</li> <li>• All incidents are reported immediately</li> <li>• DIT Disciplinary procedures in place</li> </ul> | <ul style="list-style-type: none"> <li>• Follow procedures in DIT's Dignity at Work: Anti Bullying &amp; Harassment Policy</li> <li>• DIT IS and DIT Buildings Office to maintain multimedia systems</li> <li>• Contact IS and Buildings Office if problems arise with multimedia systems</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT IS</b><br><b>DIT Buildings Office</b> | <b>Ongoing</b> |

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|  |  |  | <ul style="list-style-type: none"> <li>• DIT Procedure in place for the Resolution of Disputes/Grievances</li> <li>• DIT training available on voice use, personal skills, stress management etc.</li> <li>• Lecturers to use correct techniques in voice amplification</li> <li>• Microphones available in bigger labs</li> </ul> |  |  |  |  |
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| HUMAN FACTORS |   |  |   |  |   |  |                |
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|               |   |  | Control Measures  |  |   |  |                |
|               |   |  | Current Controls  | Further Actions Required   |   |  |                |
|               | <b>Personal Protective Equipment (PPE)</b><br><br><b>PPE used:</b><br><b>Students:</b> <ul style="list-style-type: none"> <li>• Lab coat</li> <li>• Safety glasses</li> <li>• Gloves</li> <li>• Facemasks</li> </ul> <b>Staff Members:</b> <ul style="list-style-type: none"> <li>• Lab coat</li> </ul> | <ul style="list-style-type: none"> <li>• Improper fit and use</li> <li>• Incorrect type</li> <li>• Poor maintenance</li> <li>• Lack of training</li> <li>• Exposure to physical or hazardous substances</li> <li>• Slips, trips and falls</li> <li>• Lack of awareness of PPE requirements</li> <li>• Contamination</li> </ul> | <ul style="list-style-type: none"> <li>• Appropriate selection of PPE</li> <li>• Consultation with staff</li> <li>• Inspection and maintenance of PPE</li> <li>• Students are responsible for laundering their own lab coat</li> <li>• Staff lab coats are laundered weekly by Spring Grove. Each staff member has 3 lab coats which are collected on a cyclical basis</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>Contractor:</b><br><b>Spring Grove</b> | <b>Ongoing</b> |

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|  | <ul style="list-style-type: none"> <li>• Safety glasses</li> <li>• Gloves</li> <li>• Faceshield/mask</li> </ul> <p><b>Who is harmed:</b></p> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> |  | <ul style="list-style-type: none"> <li>• Spare lab coats and relevant other PPE is available for visitors</li> <li>• Spare PPE is available for students</li> <li>• Defects reported and supplier contacted</li> <li>• Storage provided for staff i.e. lockers</li> <li>• Training, information and supervision</li> <li>• Signage in place where PPE is required e.g. on lab doors</li> <li>• Students are not permitted into the lab without the relevant PPE</li> <li>• Follow manufacturer's instructions</li> <li>• PPE: personal use only</li> </ul> |  |  |  |  |
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| CHEMICAL |   |   |  |  |   |  |                |
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|          |   |   | Control Measures   |  |   |  |                |
|          |   |   | Current Controls   | Further Actions Required   |   |  |                |
|          | <b>Gas</b><br><br><b>Gas Cylinders in use include:</b> <ul style="list-style-type: none"> <li>• CO2: Lab 2033 (Laminar Flow Room)</li> <li>• Nitrogen G29</li> </ul> <b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> </ul> | <ul style="list-style-type: none"> <li>• Gas leak</li> <li>• Fire</li> <li>• Explosion</li> <li>• Suffocation</li> <li>• Carbon monoxide poisoning</li> <li>• Asphyxiation</li> </ul> | <ul style="list-style-type: none"> <li>• Gas signage in place: CO, Nitrogen, Liquid Nitrogen</li> <li>• Technical staff have completed BOC training</li> <li>• Inspection, Testing and Maintenance/Serviceing</li> <li>• SOP in cylinder use and handling</li> <li>• Detection and monitoring systems in place</li> <li>• Adequate ventilation</li> <li>• Staff are competent</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff and Students</b><br><br><b>DIT Buildings Office</b> | <b>Ongoing</b> |

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|  | <ul style="list-style-type: none"> <li>• <b>Young persons</b></li> <li>• <b>Pregnant</b></li> <li>• <b>Postgraduates</b></li> <li>• <b>People with disabilities</b></li> </ul> |  | <ul style="list-style-type: none"> <li>• Strict procurement procedures in place</li> <li>• Registered installer used for all installations, maintenance etc.</li> <li>• Training, information and supervision</li> <li>• Restricted access</li> <li>• Minimum quantities stored on site; gas piped in from outside</li> <li>• Cylinders are stored in an upright manner and chained to the bench or trolley</li> <li>• Cylinders, regulators and associated equipment are kept clean and free from grease, oil and other contaminants</li> <li>• A regulator is used when connecting to a lower pressure system</li> <li>• Cylinders are never rolled along the floor/ground. Trolleys which are suitable are used</li> <li>• Leaking or damaged cylinders or those which cannot be properly identified must not be used</li> </ul> |  |  |  |  |
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|  |  |  | <ul style="list-style-type: none"><li>• Damaged or unidentified cylinders must be returned to the supplier</li><li>• Members of staff required to move cylinders are trained in manual handling</li><li>• Risk assessment completed by BOC and further control measures actioned</li></ul> |  |  |  |  |
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## SCHOOL OF BIOLOGICAL SCIENCES SPECIFIC HAZARDS RISK ASSESSMENT

### Hazard: Biological Agents

**Groups of Biological Agents used by the School of Biological Sciences include:**

**GROUP 1 BIOLOGICAL AGENT:** One which is unlikely to cause human disease.

Group 1 biological agents rely on standard microbiological practices with no special primary or secondary barriers, other than a sink for hand washing.

**GROUP 2 BIOLOGICAL AGENT:** One which can cause human disease and might be a hazard to employees.

Group 2 biological agents rely on standard microbiological practices and access restricted to nominated workers only. Design of laboratories and containment level is according to Safety, Health and Welfare at Work (Biological Agents) Regulations, 1994 & amendment regulations, 1998.

A range of potentially infectious agents are isolated in the laboratories of the School of Biological Sciences. A list of frozen cultures used is set out in the appendices.

Serum and equine blood samples supplied by commercial manufacturers are screened for infectious agents at time of issue. Blood samples that are collected from Hospital Pathology Departments are also screened at time of issue. Hospitals screen for Hepatitis B and HIV. Screening does not mean he sample is truly negative. It is just negative at time of issue. Precautions are in place in laboratories.

### Modes of Transmission

There are several routes of transmission for infectious agents. Staff and students should be aware of the routes as prevention of transmission is critical to good control.

- **Inhalation**

A variety of agents infect by the respiratory route. This can be caused by aerosolisation of the agent. An aerosol may be generated during a lab procedure.

- **Ingestion**

Some organisms are enteric pathogens and can infect by being eaten or drunk. Hand-to-mouth contamination may occur. Inanimate objects such as the telephone, pens, and pencils, may also become contaminated. When an individual touches these items they may pick up the agent and it may gain entry through the mouth or the mucous membranes if touched.

- **Penetration**

Some agents may gain entry into the body through accidental penetration. This could be by needle sticks, cuts with contaminated sharp objects, broken glass, scalpels, razor blades, or animal bites or scratches. Agents may also enter the body through previous penetrations or openings in the skin, such as open wounds, chapped skin, or skin conditions such as dermatitis and eczema. Certain agents may also enter the body through the mucous membranes of the eyes, nose, or mouth.

### Risks:

Infection, disease, food poisoning etc resulting from exposure by:

- Ingestion
- Skin contact
- Eye contact
- Inhalation
- Inoculation



**Control Measures:**

- The Health & Safety Authority (HSA) is notified 30 days prior to commencement (for the first time) of Groups 2 Biological Agents
- Specific biological risk assessments carried out at local level per experiment and before use
- Commercial reagents are handled and stored according to manufacturer's instructions. All cell, serum or plasma samples of commercial origin have been screened for Hepatitis B & C, HIV & II and were found to be negative (see package insert)
- Blood samples are taken from hospitals: SOP for Preparation & Transport of Blood in place
- SOP/Protocol in place for the Handling of Biological Specimens
- Great care has to be taken when collecting samples from hospitals as they are not routinely screened. They are handled in accordance with safety protocols used in the hospital service. Samples are placed in a plastic bag and sealed. Samples are logged in a book under Name: Hospital No: DIT identification no., date. When samples are discarded into the bin this is logged in the book. Students are made aware that these are hospital samples.
- For designated lab practicals, freshly taken blood samples are required from both students and staff. One member of staff will undertake training for phlebotomy procedures. One part-time staff member is trained to undertake phlebotomy. Refer to the SOP for obtaining blood samples
- Biohazard signage is in place on doors of labs containing Group 2 Biological Agents
- Hepatitis B vaccinations available to exposed staff
- SOPs in place for use, handling, storage and disposal
- PPE used/worn: lab coat, safety glasses, gloves
- Designated lockers for personal belongings
- Lab safety rules communicated by each lecturer and strictly adhered to
- Signage in place
- Spill kits available
- Use of fumehood/BSC where required
- Emergency plans in place
- All lab staff trained in first-aid, first-aid kit in each lab
- All incidents are reported to lecturer/technician
- Adequate ventilation and storage of chemicals
- Training, information and supervision given to students
- Restricted access: students only permitted when staff are present
- Minimum quantities of substances on site
- Adequate handling and disposal of sharps: sharps container present and students instructed in use of same
- Disposal containers located close to each bench to reduce travelling/spillages
- Adequate cleaning of trays used for dissection
- Disinfection materials available on each bench at all times
- Surfaces disinfected after each lab session
- Labs cleaned after each session to reduce contamination
- Sterilisation of equipment
- Hand-washing facilities available in all labs
- Students instructed and supervised in correct techniques, hygiene, PPE, use of substances, hand-washing etiquette (washing and drying before and after labs) equipment etc.
- Eyewash station & emergency shower available in relevant labs
- No eating and drinks permitted
- Correct labelling of all materials, specimens and substances
- SDS available for chemicals in each lab

**Hazard: Biological Agents: Groups 1 & 2 and Chemical Agents**

- i. Risk Assessment Labs 210, 212, 213 (now one large laboratory)
- ii. Risk Assessment Lab 214
- iii. Risk Assessment Lab 233
- iv. Risk Assessment Labs 243, 244
- v. Risk Assessment Labs 317, 318

| BIOLOGICAL & CHEMICAL |  |   |   |  |   |   |                |
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|                       |  |   | Control Measures  |  |   |   |                |
|                       |  |   | Current Controls  | Further Actions Required   |   |   |                |
|                       | <b>LAB 210:</b><br><b>Microbiology &amp; Medical Microbiology</b><br><br><b>LABS 212/213:</b><br><b>Physiology Cell Biology</b><br><br><b>Substances / Materials Used</b> <ul style="list-style-type: none"> <li>➤ Multiple acids</li> <li>➤ Stains</li> <li>➤ Oxidising agents</li> <li>➤ Biohazardous chemicals</li> <li>➤ Whole blood</li> <li>➤ Plasma</li> <li>➤ Serum</li> <li>➤ Bacteria e.g. (Staphylococcus aureus)</li> <li>➤ Screened and unscreened materials</li> </ul> | <b>General:</b> <ul style="list-style-type: none"> <li>• Skin contact</li> <li>• Ingestion</li> <li>• Inhalation</li> <li>• Burns</li> <li>• Contact with chemicals</li> <li>• Contact with blood, plasma, serum, bacteria, esp. unscreened: associated diseased and infections e.g. Hepatitis</li> <li>• Cuts/sharps injuries</li> <li>• Infection as a result of splashes to the eyes, mouth etc.</li> <li>• Food poisoning</li> <li>• Spillages</li> <li>• Slips, trips and falls</li> <li>• Poor housekeeping</li> <li>• Inadequate ventilation</li> <li>• Hepatitis</li> </ul> | <ul style="list-style-type: none"> <li>• Group B biological agents notified to the HSA</li> <li>• Specific biological risk assessments carried out at local level per experiment</li> <li>• Hepatitis B vaccinations available to exposed staff</li> <li>• Technicians prepare the lab and remove any excess chemicals etc.</li> <li>• Lab aides clear benches after each lab session and wash glassware</li> <li>• SOP for use, handling, storage and disposal</li> <li>• PPE used/worn: lab coat, safety glasses, gloves</li> <li>• Designated lockers for personal belongings</li> <li>• Lab safety rules communicated by each lecturer and strictly adhered to</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff Members and Students</b> | <b>Ongoing</b> |

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|  | <ul style="list-style-type: none"> <li>➤ Sets of methylated spirits</li> <li>➤ Animal cells</li> <li>➤ Pigs hearts</li> <li>➤ Rats</li> </ul> <p><b>Who is harmed:</b></p> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <p><b>Methylated spirits:</b></p> <ul style="list-style-type: none"> <li>• 99% proof</li> <li>• Explosive (if stored where sun is shining (kept under lock). If not cleaned off</li> <li>• Fire</li> <li>• Theft (by lab users/public)</li> </ul> | <ul style="list-style-type: none"> <li>• Eyewash station &amp; emergency shower available in relevant labs</li> <li>• No eating and drinks permitted</li> <li>• Correct labelling of all materials, specimens and substances</li> <li>• SDS available for chemicals in each lab</li> <li>• Signage in place</li> <li>• Spill kits available</li> <li>• Use of fumehood/BSC where required</li> <li>• Emergency plans in place</li> <li>• All lab staff trained in first-aid, first-aid kit in each lab</li> <li>• All incidents are reported to lecturer/technician</li> <li>• Adequate ventilation and storage of chemicals</li> <li>• Training, information and supervision given to students</li> <li>• Restricted access: students only permitted when staff are present</li> <li>• Minimum quantities of substances on site</li> </ul> |  |  |  |  |
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|  |  |  | <ul style="list-style-type: none"> <li>• Methylated spirits stored under lock and cleared away straight after use</li> <li>• Adequate handling and disposal of sharps: sharps container present and students instructed in use of same: SOP</li> <li>• Disposal containers located close to each bench to reduce travelling/spillages</li> <li>• Adequate cleaning of trays used for dissection</li> <li>• Disinfection materials available on each bench at all times</li> <li>• Surfaces disinfected after each lab session</li> <li>• Lab cleaned after each session to reduce contamination</li> <li>• Sterilisation of equipment: SOP</li> <li>• Hand-washing facilities available</li> <li>• Students instructed and supervised in correct techniques, hygiene, PPE, use of substances, equipment etc.</li> </ul> |  |  |  |  |
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|  |  |  | <ul style="list-style-type: none"> <li>• Correct hand washing etiquette i.e. washing and drying before &amp; after lab</li> </ul> |  |  |  |  |
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| BIOLOGICAL & CHEMICAL |   |   |  |  |   |   |                |
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|                       |   |   | Control Measures   |  |   |   |                |
|                       |   |   | Current Controls   | Further Actions Required   |   |   |                |
|                       | <b>LABS 214:</b><br><b>Haematology;</b><br><b>Blood Transfusion;</b><br><b>Clinical Immunology</b><br><br><b>Substances / Materials Used</b><br>➤ Blood and blood products: screened and unscreened<br><br><b>Who is harmed:</b> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> </ul> | <ul style="list-style-type: none"> <li>• Skin contact</li> <li>• Ingestion</li> <li>• Inhalation</li> <li>• Contact with chemicals</li> <li>• Contact with blood, plasma, serum, bacteria, esp. unscreened: associated diseases and infections e.g. Hepatitis</li> <li>• Cuts/sharps injuries</li> <li>• Infection as a result of splashes to the eyes, mouth etc.</li> <li>• Food poisoning</li> <li>• Spillages</li> <li>• Slips, trips and falls</li> <li>• Poor housekeeping</li> <li>• Inadequate ventilation</li> </ul> | <ul style="list-style-type: none"> <li>• Group B biological agents notified to the HSA</li> <li>• Specific biological risk assessments carried out at local level per experiment</li> <li>• Hepatitis B vaccinations available to exposed staff</li> <li>• Technicians prepare the lab and remove any excess chemicals etc.</li> <li>• Lab aides clear benches after each lab session and wash glassware</li> <li>• SOPs for use, handling, storage and disposal</li> <li>• PPE used/worn: lab coat, safety glasses, gloves</li> <li>• Designated lockers for personal belongings</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff Members and Students</b> | <b>Ongoing</b> |

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|  | <ul style="list-style-type: none"> <li>• <b>Young persons</b></li> <li>• <b>Pregnant</b></li> <li>• <b>Postgraduates</b></li> <li>• <b>People with disabilities</b></li> </ul> |  | <ul style="list-style-type: none"> <li>• Lab safety rules communicated by each lecturer and strictly adhered to</li> <li>• Eyewash station &amp; emergency shower available in relevant labs</li> <li>• No eating and drinks permitted</li> <li>• Correct labelling of all materials, specimens and substances</li> <li>• SDS available for chemicals in each lab</li> <li>• Signage in place</li> <li>• Spill kits available</li> <li>• Use of fumehood/BSC where required</li> <li>• Emergency plans in place</li> <li>• All lab staff trained in first-aid, first-aid kit in each lab</li> <li>• All incidents are reported to lecturer/technician</li> <li>• Adequate ventilation and storage of chemicals</li> <li>• Training, information and supervision given to students</li> <li>• Restricted access: students only permitted when staff are present</li> </ul> |  |  |  |  |
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|  |  |  | <ul style="list-style-type: none"> <li>• Minimum quantities of substances on site</li> <li>• Adequate handling and disposal of sharps: sharps container present and students instructed in use of same: SOP</li> <li>• Disposal containers located close to each bench to reduce travelling/spillages</li> <li>• Adequate cleaning of trays used for dissection</li> <li>• Disinfection materials available on each bench at all times</li> <li>• Surfaces disinfected after each lab session</li> <li>• Lab cleaned after each session to reduce contamination</li> <li>• Sterilisation of equipment: SOP</li> <li>• Hand-washing facilities available</li> <li>• Students instructed and supervised in correct techniques, hygiene, PPE, use of substances, equipment etc.</li> <li>• Correct hand washing etiquette i.e. washing and drying before &amp; after lab</li> </ul> |  |  |  |  |
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| BIOLOGICAL & CHEMICAL |   |   |  |  |   |   |                |
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|                       |   |   | Control Measures   |  |   |   |                |
|                       |   |   | Current Controls   | Further Actions Required   |   |   |                |
|                       | <b>LABS 233:</b><br><b>Molecular Cell Biology</b><br><br><b>Biological Materials Used:</b> <ul style="list-style-type: none"> <li>➤ Whole blood unscreened</li> <li>➤ E.coli and ampicillin-resistant E.coli</li> <li>➤ Tissue culture cell lines</li> </ul> <b>Chemical Agents Used:</b> <ul style="list-style-type: none"> <li>➤ Acrylamide</li> <li>➤ Temed</li> <li>➤ Phenol</li> </ul> | <b>General:</b> <ul style="list-style-type: none"> <li>• Skin contact</li> <li>• Ingestion</li> <li>• Inhalation</li> <li>• Contact with blood, plasma, serum, bacteria, esp. unscreened: associated diseases and infections e.g. Hepatitis</li> <li>• Cuts/sharps injuries</li> <li>• Infection as a result of splashes to the eyes, mouth etc.</li> <li>• Food poisoning</li> <li>• Spillages</li> <li>• Slips, trips and falls</li> <li>• Poor housekeeping</li> </ul> | <ul style="list-style-type: none"> <li>• Group B biological agents notified to the HSA</li> <li>• Specific biological risk assessments carried out at local level per experiment</li> <li>• Hepatitis B vaccinations available to exposed staff</li> <li>• Technicians prepare the lab and remove any excess chemicals etc.</li> <li>• Lab aides clear benches after each lab session and wash glassware</li> <li>• SOPs for use, handling, storage and disposal</li> <li>• PPE used/worn: lab coat, safety glasses, gloves</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff Members and Students</b> | <b>Ongoing</b> |

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|  | <ul style="list-style-type: none"> <li>➤ Chloroform</li> <li>➤ Isoamyl alcohol</li> <li>➤ Isopropanol</li> <li>➤ Bromo chloro propane</li> <li>➤ Glutaraldehyde</li> <li>➤ SDS</li> <li>➤ 5 bromo 4 chloro 3 indolyl B-D galacto-pyranoside</li> </ul> <p><b>Who is harmed:</b></p> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Inadequate ventilation</li> </ul> <p><b>Contact with chemicals listed as:</b></p> <ul style="list-style-type: none"> <li>✓ Sk (Substances with the capacity to penetrate intact skin during contact with subsequent absorption into the body)</li> <li>✓ C2 (Substances to be regarded as carcinogenic)</li> <li>✓ Mut 2 (Substances to be regarded as carcinogenic)</li> <li>✓ Harmful</li> <li>✓ Flammable</li> <li>✓ Corrosive</li> <li>✓ Causes burns</li> <li>✓ Easily absorbed through skin</li> <li>✓ Mutagenic</li> <li>✓ Reproductive hazard</li> <li>✓ Irritant</li> </ul> | <ul style="list-style-type: none"> <li>• Designated lockers for personal belongings</li> <li>• Lab safety rules communicated by each lecturer and strictly adhered to</li> <li>• Eyewash station &amp; emergency shower available in relevant labs</li> <li>• No eating and drinks permitted</li> <li>• Correct labelling of all materials, specimens and substances</li> <li>• SDS available for chemicals in each lab</li> <li>• Signage in place</li> <li>• Spill kits available</li> <li>• Use of fumehood/BSC where required</li> <li>• Emergency plans in place</li> <li>• All lab staff trained in first-aid, first-aid kit in each lab</li> <li>• All incidents are reported to lecturer/technician</li> <li>• Adequate ventilation and storage of chemicals</li> <li>• Training, information and supervision given to students</li> </ul> |  |  |  |  |
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|  |  |  | <ul style="list-style-type: none"> <li>• Restricted access: students only permitted when staff are present</li> <li>• Minimum quantities of substances on site</li> <li>• Adequate handling and disposal of sharps: sharps container present and students instructed in use of same: SOP</li> <li>• Disposal containers located close to each bench to reduce travelling/spillages</li> <li>• Adequate cleaning of trays used for dissection</li> <li>• Disinfection materials available on each bench at all times</li> <li>• Surfaces disinfected after each lab session</li> <li>• Lab cleaned after each session to reduce contamination</li> <li>• Sterilisation of equipment: SOP</li> <li>• Hand-washing facilities available</li> <li>• Students instructed and supervised in correct techniques, hygiene, PPE, use of substances, equipment etc.</li> </ul> |  |  |  |  |
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|  |  |  | <ul style="list-style-type: none"> <li>• Correct hand washing etiquette i.e. washing and drying before &amp; after lab</li> </ul> |  |  |  |  |
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| BIOLOGICAL & CHEMICAL |  |   |   |  |   |   |                |
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|                       |  |   | Control Measures  |  |   |   |                |
|                       |  |   | Current Controls  | Further Actions Required   |   |   |                |
|                       | <b>LABS 243/244:</b><br><b>Cellular Pathology;</b><br><b>Histopathology</b><br><br><b>Biological Materials Used:</b> <ul style="list-style-type: none"> <li>➤ Whole blood unscreened</li> <li>➤ E.coli and ampicillin-resistant E.coli</li> <li>➤ Tissue culture cell lines</li> </ul> | <b>General:</b> <ul style="list-style-type: none"> <li>• Skin contact</li> <li>• Ingestion</li> <li>• Inhalation</li> <li>• Cuts/sharps injuries</li> <li>• Contact with blood, plasma, serum, bacteria, esp. unscreened: associated diseases and infections e.g. Hepatitis</li> <li>• Infection as a result of splashes to the eyes, mouth etc.</li> <li>• Food poisoning</li> </ul> | <ul style="list-style-type: none"> <li>• Group B biological agents notified to the HSA</li> <li>• Specific biological risk assessments carried out at local level per experiment</li> <li>• Hepatitis B vaccinations available to exposed staff</li> <li>• Technicians prepare the lab and remove any excess chemicals etc.</li> <li>• Lab aides clear benches after each lab session and wash glassware</li> <li>• SOPs for use, handling, storage and disposal</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff Members and Students</b> | <b>Ongoing</b> |

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|  | <p><b>Chemical Agents Used:</b></p> <ul style="list-style-type: none"> <li>➤ Acrylamide</li> <li>➤ Temed</li> <li>➤ Phenol</li> <li>➤ Chloroform</li> <li>➤ Isoamyl alcohol</li> <li>➤ Isopropanol</li> <li>➤ Bromo chloro propane</li> <li>➤ Glutaraldehyde</li> <li>➤ SDS</li> <li>➤ 5 bromo 4 chloro 3 indolyl B-D galacto-pyranoside</li> </ul> <p><b>Who is harmed:</b></p> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Spillages</li> <li>• Slips, trips and falls</li> <li>• Poor housekeeping</li> <li>• Inadequate ventilation</li> </ul> <p><b>Contact with chemicals listed as:</b></p> <ul style="list-style-type: none"> <li>✓ Toxic</li> <li>✓ Hazardous</li> </ul> <p><b>Contact with Group 1 &amp; 2 Biological Agents:</b></p> <ul style="list-style-type: none"> <li>○ E.coli</li> <li>○ Pseudomonas aeruginosa</li> <li>○ Enterococcus faecalis</li> <li>○ Salmonella</li> <li>○ Proteus</li> <li>○ Clostridium perfringens</li> <li>○ Streptococci</li> <li>○ Bacillus spp.</li> </ul> <p><b>Contact with Fungi:</b></p> <ul style="list-style-type: none"> <li>○ Penicillin</li> <li>○ Aspergillus</li> <li>○ Saccharomyces</li> </ul> <p><b>Contact with Blood Products:</b></p> <ul style="list-style-type: none"> <li>○ Unscreened blood via Lab 214</li> <li>○ Unscreened horse blood</li> </ul> | <ul style="list-style-type: none"> <li>• PPE used/worn: lab coat, safety glasses, gloves</li> <li>• Designated lockers for personal belongings</li> <li>• Lab safety rules communicated by each lecturer and strictly adhered to</li> <li>• Eyewash station &amp; emergency shower available in relevant labs</li> <li>• No eating and drinks permitted</li> <li>• Correct labelling of all materials, specimens and substances</li> <li>• SDS available for chemicals in each lab</li> <li>• Signage in place</li> <li>• Spill kits available</li> <li>• Use of fumehood/BSC where required</li> <li>• Emergency plans in place</li> <li>• All lab staff trained in first-aid, first-aid kit in each lab</li> <li>• All incidents are reported to lecturer/technician</li> <li>• Adequate ventilation and storage of chemicals</li> <li>• Training, information and supervision given to students</li> </ul> |  |  |  |  |
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|  |  |  | <ul style="list-style-type: none"> <li>• Restricted access: students only permitted when staff are present</li> <li>• Minimum quantities of substances on site</li> <li>• Adequate handling and disposal of sharps: sharps container present and students instructed in use of same: SOP</li> <li>• Disposal containers located close to each bench to reduce travelling/spillages</li> <li>• Adequate cleaning of trays used for dissection</li> <li>• Disinfection materials available on each bench at all times</li> <li>• Surfaces disinfected after each lab session</li> <li>• Lab cleaned after each session to reduce contamination</li> <li>• Sterilisation of equipment: SOP</li> <li>• Hand-washing facilities available</li> <li>• Students instructed and supervised in correct techniques, hygiene, PPE, use of substances, equipment etc.</li> </ul> |  |  |  |  |
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|  |  |  | <ul style="list-style-type: none"> <li>• Correct hand washing etiquette i.e. washing and drying before &amp; after lab</li> </ul> |  |  |  |  |
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| BIOLOGICAL & CHEMICAL |  |   |   |  |   |   |                |
|-----------------------|--|---|---|--|---|---|----------------|
|                       |  |   | Control Measures  |  |   |   |                |
|                       |  |   | Current Controls  | Further Actions Required   |   |   |                |
|                       | <b>LABS 317/318</b><br><b>Biochemistry</b><br><b>Cell Biology</b><br><b>Molecular Biology</b><br><b>Immunology</b><br><b>Clinical Chemistry</b><br><br><b>Substances / Materials Used</b> <ul style="list-style-type: none"> <li>➤ Multiple acids</li> <li>➤ Stains</li> <li>➤ Oxidising agents</li> </ul> | <b>General:</b> <ul style="list-style-type: none"> <li>• Skin contact</li> <li>• Ingestion</li> <li>• Inhalation</li> <li>• Cuts/sharps injuries</li> <li>• Contact with blood, plasma, serum, bacteria, esp. unscreened: associated diseased and infections e.g. Hepatitis</li> <li>• Infection as a result of splashes to the eyes, mouth etc.</li> <li>• Food poisoning</li> </ul> | <ul style="list-style-type: none"> <li>• Group B biological agents notified to the HSA</li> <li>• Specific biological risk assessments carried out at local level per experiment</li> <li>• Hepatitis B vaccinations available to exposed staff</li> <li>• Technicians prepare the lab and remove any excess chemicals etc.</li> <li>• Lab aides clear benches after each lab session and wash glassware</li> </ul> | <ul style="list-style-type: none"> <li>• Maintain standards</li> </ul> | <b>With current controls:</b><br><b>L</b><br><br><b>With Actions applied:</b><br><b>L</b> | <b>School of Biological Sciences Staff Members and Students</b> | <b>Ongoing</b> |

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|  | <ul style="list-style-type: none"> <li>➤ Biohazardous chemicals</li> <li>➤ Whole blood</li> <li>➤ Plasma</li> <li>➤ Serum</li> <li>➤ Bacteria e.g. (Staphylococcus aureus)</li> <li>➤ Screened and unscreened materials</li> <li>➤ Animal cells</li> <li>➤ Rats</li> </ul> <p><b>Who is harmed:</b></p> <ul style="list-style-type: none"> <li>• Staff members</li> <li>• Students</li> <li>• Visitors</li> <li>• Contractors</li> <li>• Young persons</li> <li>• Pregnant</li> <li>• Postgraduates</li> <li>• People with disabilities</li> </ul> | <ul style="list-style-type: none"> <li>• Spillages</li> <li>• Slips, trips and falls</li> <li>• Poor housekeeping</li> <li>• Inadequate ventilation</li> </ul> <p><b>Contact with chemicals listed as:</b></p> <ul style="list-style-type: none"> <li>✓ Toxic</li> <li>✓ Hazardous</li> </ul> <p><b>Contact with Group 1 &amp; 2 Biological Agents:</b></p> <ul style="list-style-type: none"> <li>○ E.coli</li> <li>○ Bacillus spp.</li> </ul> <p><b>Contact with Blood Products:</b></p> <ul style="list-style-type: none"> <li>○ Unscreened horse blood</li> <li>○ Screened serum from commercial suppliers</li> </ul> | <ul style="list-style-type: none"> <li>• SOPs for use, handling, storage and disposal</li> <li>• PPE used/worn: lab coat, safety glasses, gloves</li> <li>• Designated lockers for personal belongings</li> <li>• Lab safety rules communicated by each lecturer and strictly adhered to</li> <li>• Eyewash station &amp; emergency shower available in relevant labs</li> <li>• No eating and drinks permitted</li> <li>• Correct labelling of all materials, specimens and substances</li> <li>• SDS available for chemicals in each lab</li> <li>• Signage in place</li> <li>• Spill kits available</li> <li>• Use of fumehood/BSC where required</li> <li>• Emergency plans in place</li> <li>• All lab staff trained in first-aid, first-aid kit in each lab</li> <li>• All incidents are reported to lecturer/technician</li> <li>• All incidents are reported to lecturer/technician</li> </ul> |  |  |  |  |
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|  |  |  | <ul style="list-style-type: none"> <li>• Adequate ventilation and storage of chemicals</li> <li>• Training, information and supervision given to students</li> <li>• Restricted access: students only permitted when staff are present</li> <li>• Minimum quantities of substances on site</li> <li>• Adequate handling and disposal of sharps: sharps container present and students instructed in use of same: SOP</li> <li>• Disposal containers located close to each bench to reduce travelling/spillages</li> <li>• Adequate cleaning of trays used for dissection</li> <li>• Disinfection materials available on each bench at all times</li> <li>• Surfaces disinfected after each lab session</li> <li>• Lab cleaned after each session to reduce contamination</li> <li>• Hand-washing facilities available</li> <li>• Sterilisation of equipment: SOP</li> </ul> |  |  |  |  |
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|  |  |  | <ul style="list-style-type: none"><li>• Students instructed and supervised in correct techniques, hygiene, PPE, use of substances, equipment etc.</li><li>• Correct hand washing etiquette i.e. washing and drying before &amp; after lab</li></ul> |  |  |  |  |
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- **Hazard: Genetically Modified Organisms (GMO's)**
- **Hazard: Transport of GMO's and Biological Agents**
- **Hazard: Biological, Biohazard and Clinical Waste**
- **Hazard: Sharps, Surgical Blades, Syringes etc.**
- **Hazard: Microtomes & Microtome Knives**
- **Hazard: Biological Safety Cabinets (BSC's) (Class 1, 2 & 3) or Laminar Flow**
- **Hazard: Rubber and Plastic Tubing**
- **Hazard: Bunsen Burners**
- **Hazard: Centrifuges**
- **Hazard: Fumehoods**
- **Hazard: Coldrooms**
- **Hazard: Autoclaves**
- **Hazard: Laboratory Refrigerators, Freezers & Fridge-Freezers**
- **Hazard: Spillages**
- **Hazard: Microscopes**
- **Hazard: Water Baths**
- **Hazard: Glassware**
- **Hazard: Hot Plates & Heat Stirrers**
- **Ultra Violet Light Sources (UV Light Box) & Trans-Illuminator**
- **Electrophoresis**
- **Blood Sampling**
- **Stomacher**
- **Chemical Agents/Substances**

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| <b>Hazard: Genetically Modified Organisms (GMO's) &amp; Microorganisms (GMM's)</b> |
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**Risks:**

- Damage to health from exposure
- Harm to the natural environment if released

**Control Measures:**

- Licence obtained from the Environmental Protection Agency (EPA) which is available from the School
- Licence obtained from the Environmental Protection Agency (EPA) 30 days prior to commencing work with GMO's/GMM's and a report sent to the EPA once a year
- Risk assessment completed for GMO's/GMM's and made available to the EPA and HSA prior to use
- Organisms must be contained as specified in the Genetically Modified Organisms (Contained Use) Regulations, 2001
- Students are trained in the use of GMO's/GMM's, associated equipment and laboratory techniques
- Records are kept of all training and instruction
- Maintenance of all equipment associated with GMO's/GMM's e.g. Biological Safety Cabinets, autoclaves, ventilation systems etc.
- SOP and COP in place for use of GMO's/GMM's before commencement of work
- GMO's/GMM's stored in a secure environment

- All the same control measures listed for Biological Agents Groups 1 & 2
- Students receive training in handling and use of GMO's
- Risk assessments are carried out
- Logbook in place for GMO's

**Risk: H/M/L:**

**With current controls: L**

**With actions applied: L**

**Person(s) Responsible: School of Biological Sciences Staff and Students**

**Target Date/Status: Ongoing**

### Hazard: Transport of GMO's, GMM's and Biological Agents

**Risks:**

- Effects to the individual and the natural environment

**Control Measures:**

- PPE such as white lab coat, safety glasses and gloves are worn
- Hazardous materials such as microorganisms are transported in a non-hazardous tightly sealed container
- Trolleys are used for moving agents
- Training in place
- Gloves are only worn in situ i.e. when handling of the contaminated item is required
- All surfaces which come into contact with the hazardous agent are thoroughly cleaned

**Risk: H/M/L:**

**With current controls: L**

**With actions applied: L**

**Person(s) Responsible: School of Biological Sciences Staff and Students**

**Target Date/Status: Ongoing**

### Hazard: Biological, Biohazard and Clinical Waste/Disposal

**Wastes in the School of Biological Sciences**

- **Solid waste** e.g. contaminated gloves, paper towels, cotton wool, disposable loops, tissue culture bottles, petri-dishes, flasks and disposable pipettes etc.
- **Liquid waste** e.g. tissue culture medium, microbiological media, microbiological cultures, broths, media from fermentors etc.
- **Clinical waste** e.g. blood, blood products and body fluids
- **Sharps** e.g. broken glass, needles, pipettes, scalpel blades, small glass vials, tips and ampoules, sharp pieces of metal
- **Carcasses** etc. come in fresh and are frozen after use. These include organs and tissues, rats, hearts, liver etc.
- **Mixed wastes** e.g. Biohazard waste containing solvents

**The following bags/containers are used in the School of Biological Sciences:**

**Yellow** Contaminated (hazardous) waste

**Black** Uncontaminated waste

- **Yellow Bags**

Heavy gauge (500g) yellow bags must be used for all contaminated waste. This includes anything which has come into contact with blood. Yellow bags must be sealed by laboratory staff using tie clips and left at the inside of the door. They are then taken for incineration by a general operative. No glass or sharps may be placed in yellow bags. The bags must not be overfilled – empty when  $\frac{3}{4}$  full. Bins are labelled accordingly and are taken away for disposal by Healthcare Waste Management

- **Black Bags**

Black bags are used for uncontaminated waste such as instrument printouts and paper which has not come into contact with blood. No glass or sharps must be placed in these.

- **Sharps Container**

All sharps (including broken glass, needles) must be placed in the ‘Sharpak’ containers provided. Do not overfill the containers as this makes it impossible to close them in a safe manner. They are taken away for disposal by Healthcare Waste Management

- **Glass**

Large items of used uncontaminated glass are placed in the skip by a General Operative

**Risks:**

- Cuts from sharps e.g. pipettes, slides etc.
- Incorrect storage of waste materials
- Contamination
- Infection
- Spillages, slips, trips and falls
- Accumulation of materials on benches, floors etc. leading to slips, trips and falls

**Control Measures:**

**General**

- Contaminated waste is placed in an approved UN biohazard bag or sharps bin
- Hazardous waste is tracked by DIT Building Office. All waste is tagged and labelled
- Waste is stored in labelled bins in a designated area until removal
- Biohazard waste containers are suitable and have a biohazard sign
- Individual containers, bags etc. are labelled with a tag with tracing information from the School. The company will only take items that are tagged
- Biohazard waste is kept separate to general waste
- When purchasing chemicals regard should be paid to how waste will be disposed of. Volumes purchased should be kept to a minimum to prevent the build up of surplus chemical for disposal.
- Waste chemicals must be labelled with the chemical name(s), concentration and hazard warning label as well as the name of the person responsible for production/disposal of the waste.
- Flammable wastes should be stored in a flammables cabinet
- Do not dispose of hazardous waste down the drains
- Avoid mixing heavy metal waste and used oil with waste solvents
- Do not mix aqueous waste with organic solvent- based waste
- Paper, gloves, cardboard, and other solid materials must not be mixed in with liquid wastes

- Hazardous waste must not be allowed to accumulate in labs. Arrange for disposal with the School of Chemical & Pharmaceutical Science on a regular basis
- Non hazardous chemicals such as buffers may be washed down the drain
- Chemical waste can be mixed only if the chemicals are compatible and will not result in a hazardous reaction

### **Segregation of Wastes**

Wastes for disposal should be divided into the following categories:

- Acids
- Caustics
- Chlorinated Solvents
- Non-chlorinated Solvents

The proper segregation of waste chemicals is essential to promote safe storage of those chemicals as well as to facilitate the economical disposal of the chemicals. The list in **Appendix 3** sets out potentially incompatible wastes, waste components, and material along with the harmful consequences of mixing those materials together. This list does not include every possible hazardous chemical reaction, but should be used as a guide. The list indicates the potential consequences of the mixing of a **Group A** material with a **Group B** material. The lists of chemicals in Groups A therefore should be kept separate from those chemicals in Groups B.

### **Avoiding smells from drains:**

- Much distress can be caused by smells from drains due to volatile solvents and smelly substances entering the drains.
- Please think about what is going down your drain - especially drains in fume-hoods as you may be unaware of the smell that is escaping.
- Technical staff should make sure that sink and drain traps are refilled regularly with water to prevent drain odours escaping

### **Autoclaving**

- An SOP is in place for autoclaving
- All relevant staff are trained in the use of the autoclave
- Autoclave bags are not filled more than two-thirds, are double bagged with the neck tied loosely with autoclave tape with a 5cm gap left at the top to ensure correct autoclaving. Each bag should have an identification tag.
- Liquid waste and sharps are not placed in autoclave bags
- Schedule for autoclaving is efficient to ensure no accumulation or backlog
- Designated trolleys in a designated area is used for storage of materials to be autoclaved
- Spore strips are used to ensure complete sterilization
- Agar (waste), non GMO waste, Petri dishes etc. should be placed in a yellow UN biohazard bag, placed in the wheelie bins in the waste store for disposal; ensure all relevant details are completed in the log book. The tagged system is in place.
- Sterilized waste should be placed in the plastic bag within the wheelie bin for collection.
- Sterilized liquid media from Group 1 biological agents (with the exception of GMO's) can be washed down the drain with plenty of water
- Chemical indicators are used within a batch to be sterilized

### **Class 2 GMO's**

- Sterilization of Class 2 GMO's is done using an autoclave capable of reaching 121°C at 15psi for 30 minutes, higher temperatures can be used if necessary

- Class 2 GMO waste is autoclaved on site prior to disposal.
- A licensed waste disposal company carries out disposal; as per an EPA approved procedure

#### **Liquid Waste**

- Liquid waste is put into Pyrex and Duran bottles, and only filled two thirds full
- Bottles are marked with autoclave tape
- Bottle lids are loosened at least a half turn before autoclaving and resealed when removed from the autoclave

#### **Solid Biohazard or Clinical Waste (e.g. petri-dishes, gloves etc.)**

- Waste is should be stored in yellow UN approved Biohazard bags, suitably marked with a biohazard symbol and kept secure/locked and stored for only a short period of time, ideally in a yellow bin or wheelie bin with a biohazard symbol
- Biohazard waste is kept segregated from general waste
- Waste is removed regularly from laboratories and no build-up allowed
- Waste stored to ensure cleaning staff cannot access or remove it

#### **Carcass Waste e.g. rats, pig hearts etc.**

- Carcass waste is stored in a freezer until disposal
- Waste is labelled with the date, laboratory number and if chemicals were added
- Waste is placed in suitable bins with a lid
- Waste is logged in a logbook and tagged

#### **Sharps e.g. hypodermic needles, lancets, scalpel blades, broken glass, tips, pipettes**

- Sharps are disposed of in the sharps container, not an autoclave or yellow biohazard bag. Sharps containers are sealed when three-quarters full and discarded as solid hazardous waste by Healthcare Waste Management
- Sharps containers are fully sealed and a General Operative takes the containers away which are removed by Healthcare Waste Management
- Sharps are segregated from other waste and placed in clearly identifiable containers (yellow and sae sharps on them with a UN number)
- Two sharps containers in use include:
  - Cytotoxic sharps (purple lid) i.e. sharps contaminated with cytotoxic drugs and chemicals including carcinogens, cytostatic, cytotoxic, mutagens, and teratogens
  - Sharps contaminated with cell culture or microbiological reagents (blue lid)
- Sharps containers should only be filled to the mark and the container sealed shut. Sharps containers do not need to be autoclaved. Please inform the attendant in charge of biohazard waste, when waste is left for disposal: See SOP
- Levels of sharps used and disposed of is kept to a minimum
- Needles are never re-sheathed. Glass is never broken into smaller pieces
- Hepatitis B vaccinations are available to all staff working in laboratories in the School

#### **Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

## Hazard: Chemical Storage

### Risks:

- Fire
- Explosion
- Reactions due to incompatible chemicals/solvents etc.
- Slips, trips and falls
- Incorrect use of substances due to incorrect labelling

### Control Measures:

#### Chemical Storage

- Restricted access to all chemicals in laboratories
- Segregated storage of chemicals classified as Oxidising/Reducing/Toxic/Corrosive/
- Flammable
- Fumehoods in place
- Chemicals stored in sealed containers
- Prohibition of naked flames/ignition sources
- Refrigerator, freezers and fridge-freezers are spark proof (IEC standard) where required
- Signage in place on chemicals where required e.g. flammable chemicals
- Fire retardant cabinets in place for chemicals
- Stock take carried out regularly
- New stock is dated when received
- Redundant chemicals to be listed for phased disposal
- Chemicals are not to be stored on floors or window sills
- General supplies e.g. paper towels etc. are not stored in chemical stores
- Good housekeeping ensured to enable safe manual handling and reduce slips, trips and falls

#### Chemical stores

- Chemicals are stored to a prescribed segregation protocol based on the UN system
- Toxics are kept in a locked cupboard in chemical storage area
- Flammable materials are stored in flame-proof cabinets in chemical stores
- Small volumes of Solvents are kept in metal cabinets in storage areas in labs
- Incompatible chemicals are stored separate from each other
- Flammable gases are stored outside and piped into building

#### Cleaning Chemicals

- Toilet cleaners etc are stored in designated areas
- Employees are instructed to read labels and adhere to the safety precautions prescribed

### Risk: H/M/L:

With current controls: L

With actions applied: L

Person(s) Responsible: School of Biological Sciences Staff and Students

Target Date/Status: Ongoing



|   |
|---|
| <b>Hazard: Sharps, Surgical Blades, Syringes etc.</b> |
|---|

**Risks**

- Cuts, lacerations and punctures of the skin from careless handling, usage or disposal
- Infection from hazardous chemicals or organisms entering the body

**Control Measures**

- All incidents (cuts, lacerations, punctures etc. of the skin) are reported to the laboratory technician or lecturer (who are trained in first-aid) and an incident report form completed.
- Trained first aiders and a first-aid kit are available in the laboratory
- Students and users are instructed and supervised in the use of sharps/instruments e.g. razor blades, scalpel blades, scissors etc.
- Students receive safety induction from lecturers and a safety laboratory manual
- Surgical scalpels are held only by the handle and stored in a safe place
- Pliers are used to remove corroded scalpel blades or tight fitting hypodermic needles from a holder or syringe. (Eye protection shall be worn when doing this as scalpel blades are very brittle and easily fragment under force)
- Surgical scalpels are held only by the handle and kept in a safe place
- Scalpel blades are held in forceps/pliers when being inserted into the handle or removed from it. New blades are pushed or pulled away from the body, not towards it.
- New needles and sharps are handled with the protective covering in place. Caps are not replaced on used needles. Users dispose of needles directly to the sharps container.
- Syringes and syringes without a needle attached must all go into a sharps container. Razor blades, lancets, scalpels, broken contaminated glassware and any other contaminated items that could cut or pierce the skin must also be placed in a sharps container
- Sharps containers for disposal of these items should be conveniently located and easily accessible in all work places in which sharps are used
- Needle caps are left in place until use
- Scissors are used instead of blades where possible when cutting
- Hands are not used to retrieve needles from vessels, instead the container is emptied onto a flat surface, and forceps are used to transfer needles
- Sharpness of a blade is never tested with a finger. Knives are held by the handle away from the edge of the bench and attempts to catch a falling blade are not permitted.
- A designated storage area for all sharp instruments is available
- Suitable storage is available for safety pins
- Blades are wrapped/sheathed and stored appropriately
- Designated puncture-resistant sharps containers are used for the disposal of all needles, blades and other sharps
- Sharps are never disposed of with regular waste or in regular rubbish bags
- Needles and syringes are rendered unusable by destroying them with pliers, and placing them into the sharps container.
- Sharps containers comply with the latest BS EN Specification for Sharps Containers.
- Sufficient sharps containers are available in relevant areas/laboratories.
- Sharps containers are sealed when three-quarters full and disposal is arranged by the School.
- Hepatitis B vaccinations are offered to all staff working in laboratories in the School.
- Broken glassware and sharps that may be contaminated with infectious materials should be cleaned up using mechanical means, such as brush and dust pan, tongs, or forceps. Broken glass should not be picked up by hand
- Contaminated needles must not be bent, recapped, or removed unless there is no feasible alternative

### **Prevention of Needle Stick Injury**

- SOP in place

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

### **Hazard: Microtomes & Microtome Knives**

#### **Risks**

- Cuts, lacerations and punctures of the skin from careless handling, usage or disposal
- Infection from hazardous chemicals or organisms entering the body

#### **Control Measures**

- All incidents (cuts, lacerations, punctures etc. of the skin) are reported to the laboratory technician or lecturer (who are trained in first-aid) and an incident report form completed.
- Trained first aiders and a first-aid kit are available in the laboratory
- Students and users are instructed and supervised in the use of microtomes and microtome knives
- Students receive safety induction from lecturers and a safety laboratory manual
- Knives are carried in their cases to the microtome
- Knives are never manipulated unless it has a handle securely fastened to it. If the handle has been removed during sectioning, it is replaced before removing the knife from the microtome.
- Knives are never left on the microtome. After use, knives are returned to their cases. If possible, microtome knives should be sharpened by machine; if a knife has to be honed manually, the following points should be observed:
  1. Slide the "back" on to the knife before removing it from the case.
  2. Secure the hone well away from the bench edge and position your body against the bench edge.
  3. Hone the knife using slow careful strokes. Never try to increase the speed of the strokes.
  4. Take great care when wiping honing lubricant from the knife.
  5. Put the knife in its case then remove the "back"
- Guards are provided to protect the operator from any part of the knife which may project from the microtome. In addition, electrical interlocks are fitted to prevent unexpected operation of any automatic microtome.
- Blood from specimens is never allowed to make immediate contact with the surface of the skin, through the use of latex gloves. Serum shall always be considered to be potentially dangerous.

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

|   |
|---|
| <b>Hazard: Biological Safety Cabinets (BSC's) (Class 1 &amp; 2) or Laminar Flow</b> |
|---|

**Biological Safety Cabinets (NOTE: Not currently in use but may be used in the future)**

**Class I Cabinets**

- Partial containment cabinets designed for general research operations with low to moderate risk etiologic agents.
- Useful for the containment of mixers, blenders or other equipment.
- Similar in design to a chemical fumehood offering operator protection from aerosols but little or no product protection. This type will not prevent contact exposure.
- Room air flows through a fixed opening in the face of the cabinet and the entrained aerosols or particles are removed by the exhaust fan. The HEPA exhaust filter is optional, depending on cabinet usage. They should not be used for highly infectious agents.

**Class II Cabinets**

- Used extensively in biological laboratories providing significant protection to personnel, product and the environment.
- Entire working area is swept by a supply of HEPA filtered air which removes all contaminants within the cabinet.
- Offers protection to the materials used and also protects the operator by an inflowing air stream at the opening (when used properly).

**Class II Type A** model is designed to recirculate 70% of the air flowing in the cabinet and exhaust 30% into the room through a HEPA filter. Because of this, it should not be used with toxic, explosive, flammable or radioactive chemicals. It is suitable for work with agents meeting Bio-safety level 2 criteria.

**Class II Type B1** exhausts approximately 70% of the air flowing through the work area to the outdoors after passing through a HEPA filter. This unit may be used with biological agents treated with limited quantities of toxic chemicals and trace quantities of radionuclides, provided the work is done in the direct exhausted area of the cabinets. It is suitable for work with agents meeting Bio-Safety level 3.

**Class II Type B2** (referred to as Total Exhaust) cabinet requires that the cabinet is entirely exhausted via a HEPA filter to an exhaust system from the buildings to the open air. This exhaust should be through a dedicated duct and fan. It may be used for the same level of work as *Type B1* with the added advantage that it permits the use of toxic chemicals and radionuclides as adjuncts to microbiological studies.

**Class II Type B3** (convertible cabinets) are essentially the same as *Type B1* in performance and use.

**Risks**

- Occupational illness due to exposure of potentially hazardous biological agents (e.g. infectious organisms), toxic chemicals, including carcinogens or radioactive materials
- Fire: build-up of vapours from volatile or toxic chemicals inside unducted cabinet
- Damage to eyes due to UV light
- Exposure of a user to infectious agents, Fire and/or Explosion

**Control Measures**

- Trained first aiders and a first-aid kit are available in the laboratory
- Suitable type of cabinet is purchased taking into account its use, risk level of the agent to be used, degree of protection required, whether volatile chemicals or radioisotopes will be used, type of procedure to be carried out etc.
- BSC's are tested and certified after installation, after relocation and annually by an approved company insert name and details
- SOP in place and implemented?
- Users are trained in the correct use and operation of the BSC, in addition to hazards associated with it.
- Users adopt good aseptic procedures and personal habits.
- Users wear and use appropriate specified PPE
- Students receive safety induction from lecturers and a safety laboratory manual
- Laboratory rules in place, communicated to users and adhered to
- BSC's comply with the latest BS-EN standard for same
- BSC's are certified on installation, movement, on change of HEPA filter, annually and as necessary. Written records are kept
- BSC's are only used when the fan is on and the airflow indicator is in the safe position.
- Airflow is measured regularly (at least annually) and recorded
- If the cabinet has a glass-viewing panel that may be opened, this should not be raised when work is in progress
- On completion of a work session, the working surfaces are wiped with an approved disinfectant. The wire grids protecting the pre-filters shall be examined regularly and cleaned with a disinfectant soaked cloth
- Ultra-violet (UV) lamps are not effective for disinfecting cabinets. If fitted, they must not be switched on during use of the cabinet, as they may be a safety risk to operators
- Class II Type A cabinets shall not be used with explosive flammable or toxic substances
- Class II Type B1 cabinets shall not be used with explosive flammable substances
- Nothing should be placed on top of Class II type A exhaust grilles
- Safety cabinets are never used as storage areas or overloaded with materials, as this will disrupt the airflow pattern
- Bunsen burners or other equipment that would cause air turbulence and loss of containment are not used in a BSC
- Cabinets are installed out of traffic areas, away from air movements and doors so as to maximise containment.
- A strict maintenance system covering airflow measurements, HEPA filter replacement, leaks, noise, vibration, lighting etc. is in place at School level.

### **Laminar Air Flow Cabinet**

A Laminar Air Flow cabinet is unlike a BSC in that there is no operator protection, there is only protection for the product/sample. Therefore, this type of cabinet should not be used for microbiological work as the contaminated air is being constantly blown onto the operator (WHO, 2004a).

The School of Biological Sciences has:

- 5 laminar flow cabinets

Laminar flow clean cabinets are not BSCs. They protect the product or research from contamination, but they do not protect personnel or the environment. The clean cabinet discharges HEPA filtered air across the work surface and toward the user. The airflow can be directed either horizontally or vertically. For this reason, biohazardous, radioactive, chemical, toxic, mutagenic, and carcinogenic agents must not be used in a laminar flow cabinet.

When planning work staff are reminded to consider the equipment available to them and the risks associated with working with potentially infectious materials.

### **Certification of Laminar Flow Equipment**

The Laminar flow cabinet is serviced and certified on an annual basis by Davison & Hardy.

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

### **Hazard: Bunsen Burners (Laboratories 2043/2044)**

#### **Risks**

- Burns from contact with hot Bunsen Burner and/or hot tubing
- Gas leak from gas left on, damage to tubing etc.
- Fire from naked flame

#### **Control Measures**

- All incidents (burns, defects etc.) are reported to the laboratory technician or lecturer (who is trained in first-aid) and an incident report form completed
- Trained first-aiders and a first-aid kit are available in the laboratory
- Students receive safety induction from lecturers and a safety laboratory manual
- Bunsen Burner user wears a laboratory coat, and long hair is tied back etc.
- Prior to using Bunsen Burners the gas tubing is checked for damage and the ends are securely fixed onto the gas tap and the burner inlet. Damaged tubing is removed from use immediately
- Flammable materials in containers on work benches near Bunsen Burners must not exceed 50ml, and must be in covered containers at a distance at least 30cm from a lit Bunsen Burner or gas burner.
- Lit Bunsen Burners are never left unattended. They are turned off before leaving the laboratory or moving to another area of the laboratory
- When the Bunsen Burner is being used to sterilize equipment that has been dipped in alcohol, the excess alcohol must be allowed to run off the equipment prior to inserting it into the flame
- Because as flames may not be visible in strong sunlight, lights can be dimmed or blinds pulled in order to see the flame more readily
- Bunsen Burners are turned off or turned to the pilot (yellow) flame setting when not in use
- Vessels to be heated over gas burners are securely positioned on tripods or similar apparatus
- Heating of liquids is permitted in glass or Pyrex vessels only. The procedure is carried out in the fumehood where vapours/fumes are likely to be released. Flammable liquids are not heated to a temperature greater than their flashpoints
- Heated containers are not handled until they have cooled down
- Bunsen Burners can remain hot for a period of time. As a result, they must be stored safely so that others are aware they are still hot. Bunsen Burners should always be handled by the base and not the neck
- Bunsen Burners must be at a sufficient distance from the gas supply point and line that they do not pose a risk of melting or igniting same

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

|  |
|--|
| <b>Hazard: Rubber and Plastic Tubing</b> |
|--|

**Risks**

- Sudden release of gas or liquid resulting from defective tubing or incorrect securing of tubing to nipples/taps, which can lead to fire or explosion
- Release of hot liquids or mains water under pressure
- Various personal injuries
- Damage to property and structures
- Fire
- Aerosols

**Control Measures**

- All incidents (burns, defects etc.) are reported to the laboratory technician or lecturer (who is trained in first-aid) and an incident report form completed
- Trained first-aiders and a first-aid kit are available in the laboratory
- Students and users are instructed, trained and supervised in the use of Bunsen Burners, rubber and/or plastic tubing
- All rubber and plastic tubing is checked periodically for cracks or other damage, prior to use. Replacement is made promptly where necessary
- Checks are made to ensure gas is completely turned off even if no flame is visible as fire can still be present in a Bunsen Burner and the rubber tubing hot
- Rubber tubing is not used on permanent installations connected to laboratory services. Clear Neoprene plastic tubing is used instead
- Excessive lengths of tubing which may lose their identity or which may trail and pose tripping hazards or which may trail into hot/corrosive areas are not used/permitted
- Tubing for use with organic solvents is chosen carefully. The suitability of material is checked for each solvent.
- Tubes to filter pumps and cooling circuits are secured by a jubilee clip fitting. The tube carrying the outflow is firmly anchored in the drain and free from danger of 'kinking'
- Where aerosols could be created, the Bunsen Burner must be used in the fumehood
- Students receive safety induction from lecturers and a safety laboratory manual
- Fire blanket available in lab
- Running water and first-aid kit available for burns
- Appropriate PPE used/worn: lab coat, safety glasses, gloves
- Designated lockers for personal belongings to reduce clutter
- Lab safety rules communicated by each lecturer and strictly adhered to
- Signage in place re unauthorised access to lab
- Emergency plans in place
- Restricted access: students only permitted when staff are present

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

|                            |
|----------------------------|
| <b>Hazard: Centrifuges</b> |
|----------------------------|

**Risks**

- Burns as a result of physical contact with the moving head/revolving parts
- Disintegration of machine parts/ejection of broken glass tubing/materials as a result of mechanical breakage of the rotors caused by overloading or corrosion
- Severe vibration caused by unbalanced rotors
- Fire and/or explosion as a result of generation of flammable or explosive vapours
- Personal exposure to vapours produced over the OELV as aerosols may be produced
- Various personal injuries
- Damage to property and structures
- Spillages inside centrifuge

**Control Measures**

- All incidents (burns, defects etc.) are reported to the laboratory technician or lecturer (who is trained in first-aid) and an incident report form completed
- Trained first-aiders and a first-aid kit are available in the laboratory
- Students and users are instructed and supervised in the use of rubber and/or plastic tubing
- Special attention is given to prevent the generation of hazardous aerosols when microbiological samples are centrifuged. Controls are appropriate to the biological risk levels present in the samples
- Staff are adequately trained and are competent in the use of centrifuges, particularly in relation to biological samples
- Staff are trained in rotor balancing and safe operating techniques
- Students receive safety induction from lecturers and a safety laboratory manual
- All centrifuges conform to the latest EN BS specifications and are maintained to such standards. This necessitates the provision of centrifuges with interlocked time delay opening mechanism to prevent access to moving parts
- Centrifuges present are appropriate to the work being performed
- Access to the rotor is prevented when the power is switched on via the interlocked door/cover i.e. the rotor cannot operate when the cover is up
- Speed, sample tube size, and the number of tubes is selected prior to centrifuge use
- Centrifuges are enclosed and securely fixed to a workbench to prevent movement and sited where the vibration will not cause any items to fall from shelves
- Only accessories e.g. rotors, buckets etc. recommended by the manufacturer are used
- Loaded rotors are carefully balanced and kept within the stipulated weight limits
- Flammable liquids are not used in or near a centrifuge unless the rotor is intrinsically safe
- Centrifuges are kept clean (using non-corrosive materials), regularly inspected and maintained to manufacturers recommendations
- Speed is always increased slowly when starting the centrifuge
- Details of all centrifuge use is entered in a logbook located in the laboratory
- When used in fumehoods precautions are taken to ensure air turbulence does not allow outflow of fumes e.g. loss of fumehood containment

- When it is necessary to centrifuge explosive/flammable mixtures, a purging and diluting system using inert gas is incorporated
- When used with biological samples, sealed centrifuge buckets are necessary, in case a tube breaks releasing hazardous aerosols. All handling, filling and removal of cultures from buckets is carried out in the biological safety cabinet
- High speed rotors are prone to metal fatigue due to the higher forces exerted on them, so a log book of their time in usage is kept, otherwise rotor failure may occur with disastrous results. This record shall be in addition to the instrument usage logbook.
- Special safety procedures shall be put in place when centrifuging biological fluids due to the variety of devices employed like high speed centrifuges, continuous flow centrifuges, zonal centrifuge rotors etc. used in pilot plants or large scale experiments. Assessing the risk from the generation of hazardous aerosols, lack of containment or poor sterilising and cleaning methods is carried out in advance, in all cases.
- All users adhere to the centrifuge schedule where booked. This is managed at local level
- The centrifuge logbook logs relevant information such as time of runs, total rotor use (hours), maintenance, de-rating information and other information as suggested by the manufacturer
- Centrifuges used in biological research are thoroughly cleaned after use using this procedure:
  - Clean and remove any spilled material from the buckets or rotor using a soft brush by rinsing and brushing
  - Rinse each bucket and tube cavity thoroughly with deionised water at least 3 times
  - Wash the buckets and the rotor with a non-detergent soap solution (Conc. < 1%)
  - Remove all traces of the soap solution by rinsing the buckets and/or rotor with deionised water
  - Allow draining thoroughly by inverting and allowing drying. Ensure that no residual water is on the rotor or in buckets prior to placing in storage
  - Follow manufacturer's instructions regarding cleaning solutions and cleaning procedure to avoid corrosion or damage to the buckets and rotor
  - Frequent examination of all centrifuge parts shall be carried out after cleaning and drying. The rotor shall be closely examined for evidence of early corrosion and "O" seals shall be examined for signs of deterioration. The rubber "O" seals fitted on sealed buckets shall be coated with the manufacturer's recommended lubricant.
- A copy of the operational manual should be made and kept by the technician
- Rotors are rated for certain maximum speeds: these must be known by staff
- Before operating:
  - a. Ensure centrifuge bowl and tubes are dry.
  - b. Ensure the centrifuge spindle clean.
  - c. Avoid overfilling of tubes and bottles.
  - d. Ensure rotor is properly seated on drive hub.
  - e. Make sure tubes are properly balanced in rotor
  - f. Ensure O-rings properly attached to the rotor.
  - g. Ensure the rotor has been properly secured to drive
  - h. Make sure the run is proceeding normally before you leave the area.
  - i. If infectious material was placed in the centrifuge, WAIT 10 minutes before opening the centrifuge lid.
  - j. If leak or damage has occurred, close the lid and plan proper decontamination and cleanup.

### **Maintenance/Cleaning**

- Keep rotors clean and dry
- If spills occur, make sure rotor has been cleaned/decontaminated
- If salts or corrosive materials were used, ensure they have been removed from the rotor.
- Avoid mechanical scratches. The smallest, scarcely visible scratch allows etching to enlarge the fracture, which is subject to enormous rupturing forces at high g's, leading to rotor explosion



- Avoid bottle brushes with sharp metal ends and harsh detergents when cleaning rotor heads.
- After proper clean-up, rinse the rotor with de-ionized water

### Inspections

- Technical staff are responsible for carrying out regular checks on the centrifuge
- Check the rotor for rough spots, pitting, and discoloration. If discovered, check with the manufacturer before using
- During servicing request that the engineer examines the rotors for damage
- Consult the centrifuge manufacturer and centrifuge log for the schedule for the rotor. Remember this is why a log of centrifuge use is kept

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

### Hazard: Fumehoods

#### Risks

- Exposure of staff/students/users to hazardous substances as a result of incorrect use, fan failure, filter blockage, spillages, accumulation of materials in the fumehood, etc.

#### Control Measures

- Staff (and students where it is deemed appropriate) are trained in the use of the fumehood
- Students receive safety induction from lecturers and a safety laboratory manual
- Risk Assessments are completed for hazardous tasks carried out in the fumehood
- All incidents, including defects, are reported to the laboratory technician or lecturer (who is trained in first-aid) and an incident report form completed
- Trained first-aiders and a first-aid kit are available in the laboratory
- Fumehoods are classified and given a hazard use rating in accordance with this table:

| FUMEHOOD HAZARD RATING SCHEME |   |                                |
|-------------------------------|---|--------------------------------|
| HAZARD RATING*                | Exposure Limit (ppm or g/m <sup>3</sup> ) | Minimum Face Velocity (m/sec.) |
| Class 1 - Slight              | Over 100                                  | 0.4 - 0.6                      |
| Class 2 - Moderate            | 5 – 100                                   | 0.5 - 0.75                     |
| Class 3- High                 | Under 5                                   | 0.7 - 1.0                      |

*\* Note: This rating may be revised with the issue of the new British Standard for Fumehoods*

- For many substances, exposure limits are not available and in such cases it shall be assumed that a fumehood of at least Class 2 or Class 3 shall be required. Most laboratory manipulations should however only require the use of Class 1 fumehood. Fumehoods may only be used for work in or below the category for which it has been approved
- For the above classification scheme to work, it is necessary to know the face velocity of a particular fumehood, in order that its classification can be assessed. (This is measured with an anemometer, which should be available in the School). Once this has been done, a notice can be affixed to the

front and side of the fumehood, indicating its average face velocity at various sash heights, together with an indication of some of the substances which can be used therein to give a general indication to staff of its suitability for different categories of hazardous substances.

- For experimental purposes, each fumehood or unit should be allocated to the control of one person/research team only as cross mixing of chemicals may lead to explosions in exhaust ducts).
- It must be possible to close the sash quickly without any risk of disturbing the apparatus within the fumehood.
- The sash opening is not set above that at which the face velocity has been measured
- Air flow meters and fan failure warning devices are incorporated into each fumehood
- The sash shall be kept closed at all times except during set up procedures
- Hazard warning signs are posted in the laboratory when hazardous operations are in progress
- The rate of release of toxic or flammable vapours is minimised by experimental design or by the use of reduced amounts of reagents
- All fumehoods conform to latest BS-EN specification and are maintained to the same standard
- Face velocities at the fumehood entrance, at maximum opening, shall be tested regularly, recorded and should be no less than 0.5m/sec averaged out over the opening. (Ensure that the supply of air to the room is also in excess of the total exhaust of all hoods plus the general room exhaust)
- A preventative maintenance programme is carried out by the School in conjunction with the DIT Buildings Office. The programme covers e.g. fan face velocity testing, containment testing, electrical supply, and motor and filter conditions (where appropriate). Replacements/repair is carried out as soon as possible.
- Microbiological work is not carried out a fumehood
- No explosive or potentially explosive materials are used in fumehoods unless specifically designed or modified for this purpose. Impact grade screens and other safety protective devices must be in place where there is any doubt
- No work is carried out in a fumehood that is used or rated as a ventilated storage cabinet (i.e. airflow <0.4mls) or has unnecessary equipment stored within
- Fumehoods are not used as a store for chemicals and no accumulation of chemicals occurs therein
- The laboratory technician or researcher involved ensures the fumehood is suitable for the chemicals being used e.g. volatile oxidants, Perchloric acid or perchlorates. Hoods designated for these chemicals shall be clearly marked
- Spillages in the fumehood are cleaned up immediately using the correct procedure by a competent staff member
- Fume cupboards are never used as ventilated storage areas for chemicals. The proper functioning of fume hoods depends on a free flow of air through the unit and bottles, boxes, and equipment prevent this from occurring. (If chemicals *must* be stored, install ventilated shelves beneath the fumehood)
- Do not block the area at the back or the front airfoil with bench liner material or other objects
- Apparatus located within the fumehood shall be raised to allow free air passage under it e.g. via legs or using blocks.
- Factors that may adversely reduce the efficiency of the cupboard e.g. location near a door, passing traffic, incorrect sash position, storage of materials and equipment inside, use of centrifuge, hot plate or heat sources etc. must be considered
- After use:
  - Correct shutdown is carried out
  - The fan is run with the sash closed for a suitable period before switching off fumehood
  - All services are turned off and all substances/reagents returned to their designated storage area
  - All apparatus is removed and cleaned before replacement in designated area
- If energy conservation is necessary to areas where fumehoods are working, it may be necessary to retrofit them with HOPEC (Hand Operated Positive Energy Control) sashes which ensures

- optimum hood efficiency
- Staff are trained in manual handling and apply their training
- Fumehoods are serviced annually by Davison & Hardy

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

### **Hazard: Coldrooms**

#### **Risks**

- Contact with materials due to space constraints if backlog occurs
- Slips, trips and falls as a result of incorrect storage and accumulation of materials

#### **Control Measures**

- Trained first-aiders and a first-aid kit are available in the laboratory
- Materials are correctly stored and accumulation is not allowed to occur
- Materials are stored on designated shelves and racks and not on the floor
- There is adequate space in the coldroom for manual handling tasks
- Coldroom is cleaned as necessary
- Only staff are permitted access to the fumehood
- Good housekeeping standards are maintained
- Work in coldrooms is restricted to as short a period as possible. If a longer period e.g. >5-10mins is required suitable clothing e.g. jumper/fleece, hat etc. must be worn
- The door is openable from the inside of the coldroom, this is checked regularly to ensure operation
- A light is available inside the coldroom
- The door is kept open while a staff member is inside the coldroom
- Out of hours work is not allowed in the coldroom in case trapping occurs. Another staff member must be present in the vicinity before a staff member can access the coldroom
- Liquid nitrogen is never stored in the coldroom
- Pregnant employees do no work in the coldroom for any period of time
- Staff are trained in manual handling and apply their training
- Trained first aiders and a first-aid kit are available in the laboratory

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

### **Hazard: Autoclaves**

#### **Risks**

- Burns or scalding as a result of careless handling of contents e.g. boiling liquids and hot materials, or contact with steam
- Cuts, lacerations etc. as a result of broken vessels on loading, opening of autoclave or unloading
- Contact with materials due to space constraints if backlog/incorrect storage occurs in storage area before autoclaving
- Exposure to vapours or fumes as a result of chemicals in the vessels in the autoclave
- Slips, trips and falls, and increased risk of exposure as a result of items stored incorrectly/insecurely on the floor before autoclaving
- Slips, trips and falls, and burns as a result of spillage of materials
- Various accidents during pressure testing or explosion where the door is not adequately secured
- Blockage of drains as a result of debris left in the autoclave

#### **Control Measures**

- **SOP?**
- Materials are correctly stored and accumulation is not allowed to occur in the area designated for storage of materials before autoclaving
- Materials are stored on designated shelves, racks, trolleys and other suitable surfaces, and not on the floor
- Good housekeeping is maintained in the autoclave area
- An efficient schedule is in place for the autoclave to ensure no accumulation or backlog of materials to be autoclaved
- Staff using the autoclave are trained and are competent in the operation of the autoclave
- A visual inspection is carried out before the autoclave is used. Defects are reported to management immediately and the autoclave is not allowed to be used until inspected by a competent person
- Autoclaves are serviced twice per year by Cross Refrigeration. The new autoclave is serviced once per year.
- Instructions for use are displayed clearly on/adjacent to the autoclave
- If the autoclave is non self-filling staff check the water level before use and ensure it is topped up to the correct level
- Appropriate PPE i.e. lab coat, safety glasses and gloves are worn when loading the autoclave
- After autoclaving and before opening the door of the autoclave, staff ensure the unit pressure gauge is at zero and don their PPE such as heatproof gloves. This PPE is worn during unloading, as the contents can remain hot for a period of time. Materials are removed with care from the autoclave
- Trolleys, racks etc., are not overloaded with the contents of the autoclave
- Staff are trained in manual handling and apply their training
- Spillages are cleaned up immediately using appropriate cleaning materials and PPE
- An interlock is present preventing the opening of the autoclave during operation
- Signage regarding the 'hot surface' of the autoclave is posted adjacent to the autoclave
- Bottles with screw caps are loosened before autoclaving, and care is taken with bottles after autoclaving as the contents may flow out
- Sharps are protected before autoclaving with adequate coverings
- Glassware is checked prior to placement in the autoclave to ensure there are no breakages/cracks. Broken/cracked glassware is not placed in the autoclave unless necessary and adequately protected
- All autoclave shall have the following fittings:
  - A suitable safety valve with a discharge system that is visible and/or audible and located

- where it will not cause harm
  - A suitable reducing valve to prevent the safe working pressure from being exceeded
  - A suitable isolating or stop valve on the inlet line in addition to any door interlocked safety valve
  - A well located suitable pressure indicating gauge
  - Suitable drain system where sediment or liquid is likely to accumulate
- Autoclaves are clearly and permanently marked with an identification number and maximum permissible working pressure. In addition, where the process liquid is a fluid at elevated temperature, it shall be marked with the maximum operation temperature, clearly shown on the temperature gauge
- Autoclaves are operated in accordance with manufacturer's instructions. Doors must be interlocked with a time delay device to ensure they cannot be opened until all residual energy has been dissipated
- The water level is maintained above the level of heating elements
- For front-loading autoclaves, staff stand in a position so that the door shields their body from the autoclave
- Where autoclaves are used for sterilising liquids in sealed glass containers a safety system must be in place to prevent the door from being opened until the temperature in all the containers have fallen to below 80° C. This could consist of sensing probes or a time-activated door interlock
- Hazardous materials like phenolic disinfectants or cellulose nitrate must not be autoclaved
- Staff are trained in manual handling and apply their training e.g. team lifting when moving the autoclave
- Trained first-aiders and a first-aid kit are available in the laboratory
- Autoclaves are turned off when not in use and are never overloaded
- Autoclaves comply with relevant CE; EN or BS standards
- Autoclaves are inspected, serviced and maintained in accordance with the manufacturer's instructions by the School in conjunction with the DIT Buildings Office

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

#### **Hazard: Laboratory Refrigerators, Freezers & Fridge-Freezers**

##### **Risks**

- Reactions between chemicals/substances/materials where they are incompatible and stored together
- Release of vapours/fumes from chemicals/substances/materials
- Contact with materials due to overloading, inadequate labelling, incorrect storage/sealing of chemicals/substances/materials
- Ingestion of substances due to personal food and drink storage

##### **Control Measures**

- Refrigerators, freezers and fridge-freezers are 'Lec' or X-rated laboratory refrigerators where necessary, which are spark-free, lockable, have a temperature display, an alarm and automatic

defrost

- Chemicals/substances/materials are stored correctly and refrigerators, freezers and fridge-freezers are not overloaded
- Chemicals/substances/materials stored are adequately labelled with labels stating the name, date of preparation/acquisition and person responsible with a water-resistant marker/pen
- Food and drink is not permitted in laboratory refrigerators, freezers and fridge-freezers, and signage is displayed on the outside of the units to this effect
- Defects are reported to management in the School immediately
- When power is due to be turned off, the DIT Buildings Office send a communication and back-up generators are used to power laboratory refrigerators, freezers and fridge-freezers
- Trained first-aiders and a first-aid kit are available in the laboratory
- Other refrigerators which are not 'Lec' hold sample only i.e. nothing flammable
- Signage placed on two -80°C freezers

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

### **Hazard: Spillages**

#### **Risks**

- Contact with materials
- Slips, trips and falls, and increased risk of exposure as a result
- Environmental damage

#### **Control Measures**

- Biohazard or chemical spill kits (whichever is suitable) available in laboratories
- SOP in place
- Materials are correctly stored and accumulation is not allowed to occur in the area designated for storage of materials before autoclaving
- Trained first-aiders and a first-aid kit are available in the laboratory

#### **Spillages procedure and spill kits**

- Spill procedure and SOP in place and posted
- Appropriate spill kit(s) in place: biohazard and chemical
- Staff competent in spill procedure

#### **Contents of a Biohazard Spill Kit:**

1. PPE: A disposable white coat, apron, if required, appropriate gloves, safety glasses, shoe coverings, face mask for aerosols
2. A roll of paper towel
3. Fresh 10% bleach solution or other appropriate disinfectant
4. Spray bottle with disinfectant
5. Yellow biohazard bags or autoclave bags
6. Sharps container
7. Forceps

8. Lidded container
9. Tape to restrict access
10. Incident report form (available from Front Desk/Reception)

**NOTE:** Bleach/sodium hypochlorite loses its effectiveness upon storage, even in concentrated forms and is inactivated in the presence of organic materials. Bleach is also toxic; it denatures rubber and plastic materials, corrodes metal and bleaches fabrics. Materials containing bleach cannot be autoclaved.

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

### Hazard: Microscopes

#### Risks

- Eye infection, eye strain from use
- Cuts from broken slides
- Infection, allergies from multiple users/shared use
- Manual handling injuries as a result of moving microscopes
- Musculoskeletal disorders from prolonged use with poor posture

#### Control Measures

- Glasses, contact lenses worn where necessary, slide image can be magnified as much as required. Eye pieces can be adjusted separately. When viewing slides at high magnification, students are instructed to start with the lens close to the slide and focus by moving the slide away from it
- Adequate lighting provided in the laboratory
- Spillages are cleaned up immediately
- Surfaces are wiped down regularly and area disinfected with disinfectant
- Good posture adopted and stool etc. adjusted to achieve a comfortable seating position. Elbows and wrists placed close to microscope
- Regular breaks taken and adequate time is given to students so no rushing is required
- All incidents (cuts, defects etc.) are reported to the laboratory technician or lecturer (who is trained in first-aid) and an incident report form completed
- Trained first-aiders and a first-aid kit are available in the laboratory
- Students and users are instructed and supervised in the use of microscopes
- Students receive safety induction from lecturers and a safety laboratory manual
- Staff are adequately trained and are competent in the use of microscopes
- Hand-washing facilities available in the laboratory
- Sterile wipes are available for cleaning the eyepiece of the microscope

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:**                      **Ongoing**

|   |
|---|
| <b>Hazard: Water Baths (generally 37°C or 90°C)</b> |
|---|

**Risks**

- Burns and scalding from hot water and steam

**Control Measures**

- Water in baths is generally at 37°C
- Where water in water baths is heated to 90°C the water bath is kept inside the fumehood
- Baths are not left unattended and users must stand and no sit in the vicinity of same
- Water in baths is heated slowly to the desired temperature
- Baths are visually inspected prior to use. Damaged water baths are taken out of use immediately
- Spillages are cleaned up immediately
- Baths are allowed to cool before emptying
- All incidents (cuts, defects etc.) are reported to the laboratory technician or lecturer (who is trained in first-aid) and an incident report form completed
- Trained first-aiders and a first-aid kit are available in the laboratory
- Students and users are instructed and supervised in the use of water baths, and do not interfere with or lean over baths
- Materials added to the bath are removed using tongs
- Racks within the bath are not lifted/removed from the bath
- Baths are not overloaded
- Students receive safety induction from lecturers and a safety laboratory manual
- Staff are adequately trained and are competent in the use of water baths
- Hand-washing facilities available in the laboratory

**Risk: H/M/L:**

**With current controls:**                      **L**

**With actions applied:**                      **L**

**Person(s) Responsible:**                      **School of Biological Sciences Staff and Students**

**Target Date/Status:**                      **Ongoing**

|                          |
|--------------------------|
| <b>Hazard: Glassware</b> |
|--------------------------|

**Risks**

- Cuts, from damaged or broken glassware e.g. from forcing tubing, teats or bungs into glass tubing, pipettes or condensers which break
- Cuts for flying or ejected pieces of glassware
- Exposure to hazardous substances on contact with them
- Burns from contact with heated glassware

**Control Measures**

- All incidents (cuts, burns, defects etc.) are reported to the laboratory technician or lecturer (who is trained in first-aid) and an incident report form completed
- Trained first-aiders and a first-aid kit are available in the laboratory



- Students and users are instructed and supervised in the use of water baths, and do not interfere with or lean over baths
- Materials added to the bath are removed using tongs
- Students receive safety induction from lecturers and a safety laboratory manual
- Staff are adequately trained and are competent in the use of glassware
- Care is taken in the storage and washing of glassware and specific glassware racks are available in the wash-up area in laboratories
- Hand-washing facilities available in the laboratory
- Use plastic as an alternative to glassware whenever possible
- Glassware is visually inspected before use, glassware with cracks, breakages, scratches, chipped etc. is reported to the laboratory technician or lecturer immediately and the glassware is not used
- Glassware is not stored near the edge of work benches in the laboratory
- Great care is taken when using/handling glassware including:
  - Inserting pipettes into pipetting aids or Pasteur pipettes into teats
  - Attaching glass to or removing glass from rubber or plastic tubing
  - Removing "frozen" stoppers from glass bottles
  - Breaking glass tubing
  - Washing up glassware
  - Handling broken glassware
- When handling glassware force or excessive pressure should not be applied
- When inserting pipettes into pipetting aids or Pasteur pipettes into teats; attaching glass to rubber or plastic tubing; or removing "frozen" stoppers from glass bottles, glassware should be held in a cloth to help prevent slipping and hands kept as close together as possible
- When fitting glassware to tubing, water or glycerol may be used and the plastic tubing softened by brief immersion in hot water
- Glass vessels under vacuum should be enclosed in plastic or wire mesh to prevent fragments being scattered if implosion occurs
- Hot glassware is treated with care and put in a place of safety so that no individual can access it until it has cooled
- Ground glass connections are lubricated before assembling and disassembled immediately after use
- Flasks or containers are never stoppered when hot
- Where a glass stopper seizes, the container is never heated
- Running is not allowed while carrying glassware
- Broken glassware is carried in suitable cages/trays and placed in the sharps container and never the general waste bin
- Dishwasher available on each floor for cleaning glassware
- Broken glassware that is uncontaminated is placed into the skip. Contaminated glassware is placed into the Sharps container

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

### **Hazard: Hot Plates & Heat Stirrers**

#### **Risks**

- Burns as a result of contact with hot surfaces
- Eye or skin damage as a result of splashing liquid
- Fire as a result of heating materials to high temperatures

#### **Control Measures**

- Any experiment involving boiling water is carried out in the fumehood
- Spillages are cleaned up immediately
- All incidents (burns, defects etc.) are reported to the laboratory technician or lecturer (who is trained in first-aid) and an incident report form completed
- Trained first-aiders and a first-aid kit are available in the laboratory
- Students and users are instructed and supervised in the use of hot plates and heat stirrers
- Students receive safety induction from lecturers and a safety laboratory manual
- Staff are adequately trained and are competent in the use of hot plates and heat stirrers
- Hand-washing facilities available in the laboratory
- Hot plates and heat stirrers are visually inspected before each use and damaged units reported to management and taken out of use immediately
- PPE worn includes laboratory coat and safety glasses
- Liquids are heated or stirred in glass or Pyrex vessels only
- Stirrers are turned on only after the container to be heated has been placed onto the plate
- Temperature and rotation speed should be increased gradually to prevent over-heating or splashing
- Flammable liquids must not be heated to a temperature greater than their flashpoints
- If the heating of liquids is likely to release hazardous vapours then the process must be carried out in a fumehood
- Hot plates and heater stirrers are not left unattended when in use
- Ensure that the electrical cable to the unit is not touching the hot plate during use
- Units must be switched off when not in use
- Hot plates must be serviced and maintained in accordance with the manufacturer's instructions
- Hot plates are not handled until they have cooled down. They can remain hot for a period of time. As a result, they must be stored safely so that others are aware they are still hot
- Bunsen Burners must be at a sufficient distance from the gas supply point and line that they do not pose a risk of melting or igniting same

**Risk: H/M/L:**

**With current controls: L**

**With actions applied: L**

**Person(s) Responsible: School of Biological Sciences Staff and Students**

**Target Date/Status: Ongoing**

### **Hazard: Ultra Violet Light Sources (UV light box) & Trans-illuminator**

#### **Risks**

- Burns to skin
- Eye damage: burns to cornea resulting in temporary blindness

#### **Control Measures**

- Spillages are cleaned up immediately

#### **Control**

- The light box has a fixed eye shield as part of the apparatus
- Long sleeves and gloves are worn
- Risk is reduced because exposure times are low/short

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

### **Hazard: Electrophoresis**

#### **Risks**

- Electric shock (possibly fatal) due to very high voltages

#### **Control Measures**

- Electrophoresis units are operated by competent staff only
- Academic staff are responsible for providing instruction on the safe use of electrophoresis units to students or new staff. Instruction covers operating procedures written by the manufacturer and/or laboratory, as well as the associated hazards, the correct PPE, and applicable emergency procedures.
- Electrophoresis units and their power supplies are located so that the on/off switch is easy to reach and the power-indicator lights are easily seen
- Equipment is placed where it will not be easily knocked over/tripped over
- Because electrophoresis work involves handling conductive liquids around electricity, power supplies should be protected by circuit breakers which in the event of a short circuit, will stop the power before it can cause injury
- Electrophoresis units and their power supplies are regularly inspected
- Power supplies should be inspected to ensure that all switches and lights are in proper working condition, that power cords and leads are undamaged and properly insulated, and that "Danger--High Voltage" warning signs are in place on the power supply and buffer tanks
- Buffer tanks are inspected for cracks or leaks, exposed connectors, or missing covers
- Power is turned off before opening the lid or reaching inside chamber
- The user turns off the main power supply switch and wait 15 seconds (the voltage may not be completely discharged from internal capacitors) before making any disconnection (or connections). After use, the power supply is turned off before disconnecting both leads from the power supply
- Both supply leads are connected at the same time (to prevent one lead from being live in your hand) to the power supply just before turning on the power supply, or one lead is connected at a time using one hand only
- Hands must be dry while connecting the leads or touching any electrical apparatus

- Units are serviced on annual basis
- SOP in place

**Risk: H/M/L:**

**With current controls:** L - M

**With actions applied:** L - M

**Person(s) Responsible:** School of Biological Sciences Staff and Students  
DIT Buildings Office

**Target Date/Status:** Ongoing

#### **Hazard: Blood Sampling**

**Note: Blood sampling does not currently take place within the School of Biological Sciences**

#### **Risks**

- Infection of both subject and researcher
- Spillage of blood and subsequent contamination of surfaces

#### **Control Measures**

- The School has an SOP in place for obtaining blood samples. Please see SOP
- Only staff and postgraduate researchers trained in phlebotomy techniques are authorised to carry out this procedure
- Latex and vinyl gloves are provided for staff and postgraduates
- Syringes, needles, swabs etc are disposed of in a designated sharps container which is disposed of by a specialist contractor
- All spillages are cleaned up using a bleach solution
- All needle stick injuries are referred to the Student Health Centre, DIT, Aungier Street for appropriate follow up treatment

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

#### **Hazard: Stomacher**

#### **Risks**

- Creation of aerosols
- Burst bag
- Overloaded bags: explosion

#### **Control Measures**

- Used by technical staff only

- Students do not use the stomacher

**Risk: H/M/L:**

**With current controls:** L

**With actions applied:** L

**Person(s) Responsible:** School of Biological Sciences Staff and Students

**Target Date/Status:** Ongoing

### **Hazard: Chemical Agents/Substances**

#### **Risks**

- Illness, injuries from exposure

#### **Control Measures**

##### **General**

- Chemical agents risk assessments will be carried out for activities which are of such a duration or so frequently performed or involving such hazardous chemicals as to pose a risk of exposure to staff or students. Following the risk assessment measures may be specified to ensure that the risk is reduced to the lowest possible level. Measures may include substitution of one chemical for a less hazardous one, restricting the number of persons using or in contact with the chemical, engineering controls such as the use of a fume hood, training or the use of personal protective equipment.
- Each laboratory must keep an up to date printed copy of all material safety data sheets (MSDS) for chemicals stored or used in that laboratory. When new chemicals are ordered the relevant MSDS will be requested from the supplier. The MSDS must be readily available to all lab users.
- Before new chemicals are ordered staff must ensure that safety alternatives have been investigated. A safety alternative could be purchasing a solution rather than making up a stock from a hazardous dust forming powdered.
- Staff must be familiar with the contents of the MSDS and bring to the attention of students the hazards associated with the chemicals.
- Staff must be aware of the spillage clean up procedures for the chemicals they use on a regular basis. Spillage clean up kits are supplied in each laboratory.
- Toxic chemicals should be kept in a locked cupboard.

##### **Storage of chemicals**

- Ensure that all containers are in good condition, properly capped, and properly labeled.
- There should be no unlabeled container, and NO container should ever be labeled using the word WASTE or SPENT.
- Solutions or chemicals stored in containers other than their original container or waste must be labeled with the name of the chemical, the concentration if relevant, the hazard warning (e.g. toxic, corrosive, flammable etc), the name of the person responsible for making up the solution, the date the solution was made up and expiry date.
- Store incompatible chemicals separately (Appendix 3 list of incompatible chemicals). Material Safety Data Sheets also provide information on incompatibility.

- Do not store chemicals in alphabetical order without consideration for chemical compatibilities. An alphabetical system may cause incompatible materials being stored next to one another (e.g. butadiene next to bromine or chlorine).
- Do not store hazardous chemicals above eye level.

### **Flammables**

Flammable and combustible chemicals are materials which, under standard laboratory conditions, can generate sufficient vapors to cause a fire in the presence of an ignition source. Materials which generate sufficient vapors to ignite at temperatures below 38 ° C are "flammables," whereas materials that require temperatures above 38 ° C to provide sufficient vapors for ignition are "combustibles."

The following precautions should be observed when using these materials:

- Flammable materials must be stored in a flammables cabinet. The door of the cabinet should be kept closed when not in use.
- Segregate flammables from oxidizing acids and oxidizers.
- Volumes of flammables stored should be kept to a minimum. No more than 50 litres of flammable liquids should be stored in any laboratory and then only when there are suitable flammables cabinets.
- Consideration should be given to letting the supplier deliver flammables 'just in time'.
- Flammables in glass Winchesters should not be left on the bench in sunlight as they are likely to reach their flash point and cause an explosion and fire.
- Flammables must not be stored in fume hoods where there is a bunsen burner or other heat source.
- Secure screw caps on containers immediately following dispensing.
- Do not dispense into beakers and allow to remain at bench top level. Flammable and combustibles should be placed in a fume hood as soon as possible and used
- Do not allow flammable liquids to evaporate in a fume hood as a means of disposal.
- Eliminate ignition sources such as open flames, hot surfaces, operation of electrical equipment, and static electricity from areas in which flammable or combustible materials are used or stored.
- Refrigerators and freezers used for the storage of flammable and combustible liquids must be non sparking
- Ensure that there is proper bonding and grounding when transferring between metal containers or dispensing a flammable liquid from a large container or drum.

### **Personal Protective Equipment**

- Laboratory coats must be worn at all times when using hazardous chemicals.
- Where there is a risk of a hazardous chemical splashing into the eyes, safety glasses must be worn with side protection. Ordinary corrective spectacles do not provide sufficient protection. Staff who wear spectacle will be provided with safety glasses that fit over their own glasses or prescription safety glasses.
- Staff must ensure that students wear appropriate eye protection.
- Contact lens wearers should alert staff to that fact so that appropriate first-aid can be provided in the event of an eye injury.
- Staff should ensure that the correct types of gloves are selected for work with hazardous chemicals. Latex gloves do not provide sufficient protection.

### **Safety Equipment**

- Where emergency showers or eyewash basins are installed, these must be tested at least once per term.
- It is good practice to operate the eye wash station at least once per week.

- Eye wash bottles must be checked regularly to ensure they are in date. If the seal is broken the bottle must be replaced.
- Fume hood efficiency will be tested on an annual basis by technical staff.
- The filter on the Astecair 5000 (Lab KE-2043) should be tested and changed as required at a minimum once per year.

**Risk: H/M/L:**

**With current controls: M**

**With actions applied: M**

**Person(s) Responsible: School of Biological Sciences Staff and Students**

**Target Date/Status: Ongoing**

## APPENDICES

### Appendix 1: Group 2 Biological Agents

#### *Prolab Frozen Microorganisms*

| Vial No. | Organism                                      | Colour Vial |
|----------|---|-------------|
| 1        | <i>Bacillus subtilis</i> (amylase production) | Yellow      |
| 2        | <i>Bacillus cereus</i>                        | Yellow      |
| 3        | <i>Bacillus subtilis</i>                      | Blue        |
| 4        | <i>Bacillus stearothermophilus</i>            | Yellow      |
| 5        | <i>Clostridium perfringens</i> × 2            | Yellow      |
| 6        | <i>Escherichia coli</i>                       | Blue        |
| 7        | <i>Enterococcus faecalis</i>                  | Yellow      |
| 8        | <i>Enterobacter</i>                           | Blue        |
| 9        | <i>Klebsiella</i>                             | Yellow      |
| 10       | <i>Lactobacillus 10302</i>                    | Blue        |

|    |                                |        |
|----|--------------------------------|--------|
| 11 | <i>Micrococcus</i>             | Blue   |
| 12 | <i>Moraxella</i>               | Green  |
| 13 | <i>Oxford staphylococcus</i>   | Blue   |
| 14 | <i>Proteus</i>                 | Yellow |
| 15 | <i>Pseudomonas aeruginosa</i>  | Yellow |
| 16 | <i>Pseudomonas fluorescens</i> | Green  |
| 17 | <i>Salmonella bredeney</i>     | Blue   |
| 18 | <i>Salmonella Dublin</i>       | Yellow |
| 19 | <i>Salmonella London</i>       | Blue   |
| 20 | <i>Salmonella mbandaka</i>     | Yellow |
| 21 | <i>Staphylococcus aureus</i>   | Blue   |
| 22 | <i>Serratia marcescens</i>     | Yellow |
| 23 | <i>Streptococcus pneumonia</i> | Red    |

### Selectrol Freeze Dried Cultures

|    |                                 |            |
|----|---------------------------------|------------|
| 1  | <i>Aeromonas hydrophila</i>     | ATCC 7966  |
| 3  | <i>Bacillus subtilis</i>        | ATCC 6633  |
| 3  | <i>Bacteroides fragilis</i>     | ATCC 25285 |
| 4  | <i>Campylobacter jejuni</i>     | NCTC 11322 |
| 5  | <i>Clostridium sporogenes</i>   | ATCC 19404 |
| 6  | <i>Clostridium perfringens</i>  | ATCC13124  |
| 7  | <i>Candida albicans</i>         | ATCC 2091  |
| 8  | <i>Enterococcus faecalis</i>    | ATCC 33186 |
| 9  | <i>Enterobater cloacae</i>      | ATCC 2335  |
| 10 | <i>Escherichia coli</i>         | ATCC 10536 |
| 11 | <i>Haemophilus influenzae</i>   | NCTC 9528  |
| 12 | <i>Haemophilus influenzae</i>   | ATCC 35056 |
| 13 | <i>Klebsiella aerogenes</i>     | NCTC 9528  |
| 14 | <i>Listeria monocytogenes</i>   | NCTC 7973  |
| 15 | <i>Mycobacterium smegmatis</i>  | CIP 7326   |
| 16 | <i>Salmonella typhimurium</i>   | ATCC 14028 |
| 17 | <i>Shigella sonnei</i>          | ATCC 25931 |
| 18 | <i>Streptococcus agalactiae</i> | ATCC 13813 |
| 19 | <i>Streptococcus pneumoniae</i> | ATCC 6303  |
| 20 | <i>Streptococcus pyogenes</i>   | ATCC 19615 |
| 21 | <i>Yersinia enterocolitica</i>  | ATCC 9610  |

These cultures are all purchased in freeze dried disc format. They are all Class 2 Biological Agents.

## Appendix 2: Laboratory Safety Rules

1. Lab coats must be worn buttoned up
2. Safety glasses must be worn when handling hazardous chemicals or when you are instructed to do so by staff
3. Open toed shoes/sandals are not allowed in the laboratories
4. Food, chewing gum or drink must not be consumed in laboratories
5. Make up, lip balm etc must not be applied in laboratories
6. Personal items should not be stored in lab coat pockets
7. Lab coats must not be worn outside labs
8. Mouth pipetting is prohibited



9. Broken or damaged glassware must be disposed of in the sharps bin
10. Winchesters must not be carried by the neck
11. Long hair must be tied back.
12. Horseplay, practical jokes and running are strictly prohibited in laboratories
13. All chemicals must be labelled with the chemical name (s) and hazard warning label at a minimum
14. All accidents must be reported to the member of staff on duty

### Appendix 3: Chemical Incompatibilities

| Chemical   | Is Incompatible With   |
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| Acetic acid  | Chromic acid, nitric acid, hydroxyl compounds, ethylene glycol, perchloric acid, peroxides, permanganates.   |
| Acetylene  | Chlorine, bromine, copper, fluorine, silver, mercury   |
| Acetone  | Concentrated nitric and sulphuric acid mixtures  |
| Alkali and alkaline earth (e.g. powdered aluminium or magnesium, calcium, lithium, sodium, potassium). | Water, carbon tetrachloride or other chlorinated metals hydrocarbons, carbon dioxide, halogens.  |
| Ammonia (anhydrous)  | Mercury (e.g. in manometers), chlorine, calcium hypochlorite, iodine, bromine, hydrofluoric acid (anhydrous)   |
| Ammonium nitrate   | Acids, powdered metals, flammable liquids, chlorates, nitrates, sulphur, finely divided organic or combustible materials.                                |
| Aniline  | Nitric acid, hydrogen peroxide   |
| Arsenical materials  | Any reducing agent   |
| Azides   | Acids  |
| Bromine  | See Chlorine   |
| Calcium oxide  | Water  |
| Carbon (activated)   | Calcium hypochlorite, all oxidising agents   |
| Carbon tetrachloride   | Sodium   |
| Chlorates  | Ammonium salts, acids, powdered metals, sulphur, finely divided organic or combustible materials   |
| Chromic acid and chromium trioxide   | Acetic acid naphthalene, camphor, glycerol, alcohol, flammable liquids in general  |
| Chlorine   | Ammonia, acetylene, butadiene, butane, methane, propane (or other petroleum gasses), hydrogen, sodium carbide, benzene, finely divided metals turpentine |
| Chlorine dioxide   | Ammonia, methane, phosphine, hydrogen sulfide  |
| Copper   | Acetylene, hydrogen peroxide   |
| Cumene hydroperoxide   | Acids (organic or inorganic)   |
| Cyanides   | Acids  |
| Flammable liquids  | Ammonium nitrate, chromic acid hydrogen peroxide, nitric acid, sodium peroxide, halogens   |
| Fluorine   | Everything   |

| Chemical | Is Incompatible With |
|----------|----------------------|
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| Hydrocarbons (e.g. butane, propane, benzene) | Fluorine, chlorine, bromine, chromic acid, sodium peroxide  |
| Hydrocyanic acid                             | Nitric acid, alkali   |
| Hydrofluoric acid (anhydrous)                | Ammonia (aqueous or anhydrous)  |
| Hydrogen peroxide                            | Copper, chromium, iron, most metals or their salts, alcohols, acetone, organic materials, aniline, nitromethane, combustible materials      |
| Hydrogen sulfide                             | Fuming nitric acid, oxidizing gases   |
| Hypochlorites                                | Acids, activated carbon   |
| Iodine                                       | Acetylene, ammonia (aqueous or anhydrous) hydrogen  |
| Mercury                                      | Acetylene, fulminic acid, ammonia   |
| Nitrates                                     | Sulphuric acid  |
| Nitric acid (concentrated)                   | Acetic acid, aniline, chromic acid, hydrocyanic acid, hydrogen sulfide, flammable liquids, flammable gases, copper, brass, any heavy metals |
| Nitrates                                     | Acids   |
| Nitroparaffins                               | Inorganic bases, amines   |
| Oxalic acid                                  | Silver, mercury   |
| Oxygen                                       | Oils, grease, hydrogen, flammable liquids, solids or gases  |
| Perchloric acid                              | Acetic anhydride, bismuth and its alloys, alcohol, paper, wood, grease, oils  |
| Peroxides, organic                           | Acids (organic or mineral) avoid friction, store cold   |
| Phosphorus (white)                           | Air, oxygen, alkalis, reducing agents   |
| Phosphorus pentoxide                         | Water   |
| Potassium                                    | Carbon tetrachloride, carbon dioxide, water   |
| Potassium chlorate                           | Sulphuric and other acids   |
| Potassium perchlorate (see also chlorates)   | Sulphuric and other acids   |
| Potassium permanganate                       | Glycerol, ethylene glycol, benzaldehyde, sulphuric acid   |
| Selenides                                    | Reducing agents   |
| Silver                                       | Acetylene, oxalic acid, tartaric acid, ammonium compounds, fulmonic acid  |
| Sodium                                       | Carbon tetrachloride, carbon dioxide, water   |

| Chemical        | Is Incompatible With   |
|-----------------|--|
| Sodium nitrate  | Ammonium nitrate and other ammonium salts  |
| Sodium peroxide | Ethyl or methyl alcohol, glacial acetic acid, acetic anhydride, benzaldehyde, carbon disulfide, glycerin, ethylene glycol, ethyl acetate, methyl acetate, furfural |
| Sulfides        | Acids  |
| Sulfuric acid   | Potassium chlorate, potassium perchlorate, potassium permanganate (similar compounds of light metals, such as sodium, lithium)                                     |
| Tellurides      | Reducing agents  |

#### Appendix 4: Groups A & B

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| <b>Group 1-A</b><br>Bases<br><i>Potential consequences: Heat generation; violent reaction</i>   | <b>Group 1-B</b><br>Acids   |
| <b>Group 2-A</b><br>Aluminium<br>Beryllium<br>Calcium<br>Lithium<br>Magnesium<br>Potassium<br>Sodium<br>Zinc powder<br>Other reactive metals and metal hydrides<br><i>Potential consequences: Fire, Explosion, or generation of flammable hydrogen gas.</i> | <b>Group 2-B</b><br>Any Acid or Bases   |
| <b>Group 3-A</b><br>Alcohols<br>Water<br><br><i>Potential consequences: Fire, Explosion, or heat generation: generation of flammable or toxic gases.</i>  | <b>Group 3-B</b><br>Any Concentrated Acids or Bases<br>Calcium<br>Lithium<br>Magnesium<br>Sodium<br>Zinc Powder<br>Any Reactive Metals and Metal Hydrides<br>Potassium<br>Sulfonyl chloride<br>Thionyl chloride<br>Phosphorus trichloride<br>Methyl trichloride<br>Methyl trichlorosilane<br>Other water-reactive waste |
| <b>Group 4-A</b><br>Alcohols<br>Aldehydes<br>Halogenated hydrocarbons<br>Nitrated hydrocarbons<br>Unsaturated hydrocarbons<br>Other organic compounds and solvents<br><br><i>Potential consequences: Fire, Explosion, or violent reaction.</i>              | <b>Group 4-B</b><br>Any Concentrated Acids or Bases<br>Reactive Metals and Metal Hydrides   |
| <b>Group 5-A</b><br>Cyanide's and sulphide's<br><br><i>Potential consequences: Generation of toxic hydrogen cyanide or hydrogen sulphide gas.</i>   | <b>Group 5-B</b><br>Any Acids   |
| <b>Group 6-A</b><br>Chlorates<br>Chlorine   | <b>Group 6-B</b><br>Acetic acid and other organic acids<br>Concentrated mineral acids   |

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| Chlorites<br>chromic acid<br>Hypochlorites<br>Nitrates<br>Nitric acid, fuming<br>Perchlorates<br>Permanganates<br>Peroxides<br>Other strong oxidizers<br><br><i><b>Potential consequences: Fire, Explosion, or violent reaction.</b></i> | Reactive Metals and Metal Hydrides<br>Organic Compounds and Solvents<br>Other flammable and combustible chemicals |
| The following two groups are added to facilitate the economical disposal of the wastes. They are not necessarily reactive.   |   |
| <b><u>Group 7-A</u></b><br>Heavy metal Compounds containing arsenic, barium, cadmium, chromium, lead, selenium, silver<br>Polychlorinated biphenyls (PCBs) Dioxins<br>Mercury Containing Compounds                                       | <b><u>Group 7-B</u></b><br>Flammable Liquids  |
| <b><u>Group 8-A</u></b><br>Polychlorinated biphenyls (PCBs)<br>Dioxins<br>Mercury Containing Compounds   | <b><u>Group 8-B</u></b><br>All other chemicals and each other   |