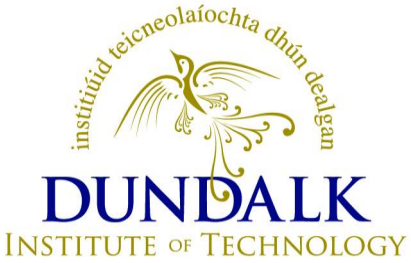

School of Engineering

Dept of Mechanical & Electronic Engineering

Electronic Engineering Laboratories

C206, C207, C208

Health and Safety File

File 1

Rev: April 2016

School of Engineering

Dundalk Institute of Technology

Ancillary Safety Statement

April 2016

This Ancillary Safety Statement is to be read in conjunction with the Parent Safety Statement of Dundalk Institute of Technology

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1. Introduction

Under the provisions of The Safety, Health and Welfare at Work Act 2005, Dundalk Institute of Technology is required to ensure so far as is reasonably practicable the health, safety and welfare of all its employees and students engaged in work or study, and all visitors to the Institute premises.

In view of the recent extensive expansion that has taken place on the campus and in order to comply with the requirements of the 2005 Act, the Institute has decided to review and update its Safety Statement. Dundalk Institute of Technology's safety management programme consists of a Parent Safety Statement supplemented by seven ancillary Safety Statements, which apply to different functional areas of the Institute. These ancillary Safety Statements take account of the diverse range of activities, which apply across the Institute.

The Institute's overall Safety Statement is comprised of the following documents:

- Parent Safety Statement
- Ancillary Safety Statement – School of Business & Humanities
- Ancillary Safety Statement – School of Health & Science
- **Ancillary Safety Statement – School of Engineering**
- Ancillary Safety Statement – School of Informatics & Creative Arts
- Ancillary Safety Statement – Secretary/Financial Controller's Functional Area
- Ancillary Safety Statement – Registrar's Functional Area
- Ancillary Safety Statement – Regional Development Centre Functional Area
- Emergency Evacuations Procedures Manual

The purpose of the Ancillary Safety Statements is to provide details of the specific hazards and control measures which apply in these areas. Each Ancillary Safety Statement should be read in conjunction with the Parent Safety Statement.

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2. General Statement of Policy within the School of Engineering

The School of Engineering Functional Area is committed to ensuring that high standards of health and safety are achieved and maintained throughout all areas under our control. The key mechanism for achieving and maintaining safety is Risk Assessment, by which we identify hazards, which have the potential for harming health or causing accidents, evaluate the risks arising and select and implement appropriate precautions.

Throughout the School of Engineering Functional Area, Risk Assessments are carried out in all areas under our control periodically. Risk Assessments must take account of any changes with regard to the structure of the organization, Academic Staff, work practices; use of machinery, design techniques or equipment all may necessitate periodic changes to this document as well as any periodical amendments or updates to legislation.

It is essential that all staff and students contribute and cooperate to this process, thus ensuring that the School of Engineering Functional Area's stated objective of providing in so far as is reasonably practicable a safe place of work is achieved. Employees are encouraged to contribute to the improvement of health and safety by making suggestions to their departmental manager. The success of this policy depends on the co-operation of all staff and students, and it is therefore extremely important that staff:

Read and understand the safety information provided

Know their role and responsibilities.

Always abide by the arrangements the Institute has put in place to ensure their health, safety welfare, and that of their colleagues and others.

The process of Risk Assessment in the School of Engineering Functional Area enables us to take all relevant precautions to ensure that Dundalk Institute of Technology's legal standard as an employer is fulfilled particularly in relation to:

- Exercising all due care
- Putting in place necessary protective and preventative measures
- Identifying hazards and assessing risks likely to result in accidents or ill-health
- Not being required to take further measures where these would be grossly disproportionate having regard to the unusual, unforeseeable and exceptional nature of the circumstances.

Health and Safety is overseen in the School by the Functional Area Safety Committee which contains representatives from all of the areas within the School (See Appendix I for membership details)

Signed on behalf of School of Engineering, Dundalk Institute of Technology,

_____

Mr. Eugene Roe
Head of School of Engineering

3.0 School of Engineering Functional Safety Area: Description

The School of Engineering is divided into Four Departments, one Research Centre.

1. Department of Electronic & Mechanical Engineering
2. Department of the Built Environment
3. Department of Engineering Trades
4. Centre for Renewable Energy at DkIT(CREDIT)

The School of Engineering is predominantly located in the following areas of the Institute:

Location	Description	Primary Activity
North Block	Dept. Electronic & Mechanical Engineering	○ Lecture rooms ○ Computer Labs ○ Office based activities ○ Work Placements ○ Laboratories ○ Workshops
North Block South Block	Dept. of the Built Environment	○ Lecture rooms ○ Computer Labs ○ Office based activities ○ Laboratories ○ Fieldwork
North Block South Block The Carroll's Building	Dept of Engineering Trades	○ Lecture Rooms ○ Computer Labs ○ Office based activities ○ Drawing Offices ○ Motor Engineering Workshop ○ Plumbing Workshops ○ Carpentry Workshops ○ Electrical Workshops ○ Motor Engineering Lab ○ Electrical Lab ○ Plumbing Lab

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Risk Assessment is carried out at least once per year in each location in the School of Engineering functional area under the direction of the Head of School, Mr. Eugene Roe who is the responsible person.

The wide range of workplace activities and the associated risks to health, safety and welfare within the School of Engineering can be broadly categorized as follows:-

- Offices, (Administration and Lecturing Staff) – low to medium risk.
- Lecture Rooms, Drawing Offices, Computer Labs. – low to medium risk
- Workshops – low to high risk

Refer to Appendix II for School of Engineering safety management organizational layout.

Hard copies of this Functional Area Ancillary Safety Statement are available at the following locations:

1. Administration Office, School of Engineering
2. Workshop locations
3. Laboratories

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4.0 School of Engineering – Overview of Risk Assessment Process.

This Ancillary Safety Statement covers all activities carried out by the School of Engineering, and should be read in conjunction with the Institute Parent Safety Statement.

Dundalk Institute of Technology will adapt the "General principles of prevention" as outlined in the 2005 Act Schedule 3

When a hazard is identified and the risk assessed, the necessary arrangements are put in place to protect safety and health.

Dundalk Institute of Technology will utilize the hierarchy of controls A series of common sense steps for hazard control (often called hierarchy of control) **where elimination of the risk is not reasonably practical**,.

These steps are:

1. Substitute the hazard (e.g. use a less harmful substance).
2. Isolate the hazard.
3. Use engineering controls (e.g. Physical controls).
4. Put in safe work practices (e.g. Instruction, training, supervision).
5. Use Personal Protective Equipment (PPE) such as gloves / overalls.

If a hazard cannot reasonably be eliminated it is the policy to work through this list to minimise exposure to risks. For example, the Institute will try to substitute the hazard first. If this is not possible, will go to the next step and so on. In some cases it may be appropriate to implement a combination of the steps e.g. Steps 3, 4 and 5.

The list above indicates an "order of priority" for remedial measures for any hazard situation which Dundalk Institute of Technology will adapt.

The process of Risk Analysis is by numerical format.

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

The above risk analysis is incorporated into the School's **Safe Work Practice Sheets**

The Analysis takes into account who is exposed
The initial Risk Rating before controls are implemented
The Reduction Risk Rating after controls is in place

A risk is the probability or likelihood of a hazard actually causing a degree of injury or damage.

A hazard is anything that can potentially cause harm.

After a hazard has been identified, it is evaluated in order to assess what its impact would be if steps to control it were not taken. In practical terms, one determines the likelihood of an accident happening and the consequences of it happening.

There are inevitable difficulties in assessing risks. Some risks such as exposure to e.g.- Chemicals / Manual Handling / Lone Workers / Trainees may require physical or organisational measurements to be taken. Risk depends on many (often related) circumstances:-

Is anyone exposed to the hazard? Is the hazard likely to cause injury?
Is the hazard well controlled? Is the level of supervision adequate?
How long people are exposed and what are are the levels of exposure that should not be exceeded (e.g. Equipment, chemicals, poor lifting techniques)

Risk Assessment will be carried out at least once a year in all of the different sites in the School. The Risk Assessment process adopted by the School of Engineering identifies hazards posed by activities within the School and quantifies the risk posed by same.

In most cases these hazards can be controlled by adhering to procedures detailed in the School's **Safe Work Practice Sheets** (Appendix III) which are developed on an as-needed basis and identified through regular area-by-area risk assessment / Inspection. As part of the annual Risk Assessment process, all Safe Work Practice Procedure Sheets will be reviewed and updated to ensure that they take account of any changing circumstances that have arisen during the course of the year, any changes to work practices, introduction of equipment, changes in legislation will also require updating as is necessary.

Safe Work Practice Sheets are available in the School of Engineering Administrative office, Heads of Departments, Workshop Locations, Laboratories and on the Institute's website

The list of these SWPS is also included in Appendix III of this document. More generic college wide SWPS are also to be adhered to and are available at:

The primary objective of the Safe Work Practice procedures is to eliminate, reduce or control any risks posed as a result of the hazards that exist throughout the School. These Safe Work Practice Procedures are also made available to all staff and students operating in any lab, workshop or classroom environment that is the subject of a risk assessment and safe work practice procedures.

Adherence to the Safe Work Practice Procedures is the primary means of risk control in the School of Engineering. However, hazards may arise from time to time, which are not covered by

these procedures. Under Section 13 (h)(i - iii) of the 2005 Safety, Health & Welfare at Work Act, all staff are required to report any hazards that they notice or observe to their employer. Within the School of Engineering, any hazard noted or observed by any member of staff must be reported to their immediate superior.

Incidents and Dangerous Occurrences must be notified to the relevant supervisor using the forms included in Appendix IV.

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5.0 Functional Area Safety Records

Functional Area safety records include but are not limited to the following documents:

1. Ancillary Safety Statement, including Safe Work Practice Sheets
2. Health and Safety Training Records
3. Accident, Incident and Near Miss Dangerous Occurrence Reports
4. Functional Area Safety Committee Meeting Records
5. Inspection Certificates (where applicable)

(1-5) can be located as follows for:

(a) **The School of Engineering**

Record Type	Building	Room No.	Contact
Ancillary Safety Statement, including Safe Work Practice Sheets	North Block	School of Engineering Office, NC121	Orlagh Devine orlagh.devine@dkit.ie, ext. 2894
		Offices	
	North Block	Mr. Eugene Roe (HOS) NC126	eugene.roe@dkit.ie ext. 2893
		Mr. Simon O'Neill (HOD) NC124	simon.oneill@dkit.ie ext. 2847
		Mr. Noel McKenna (HOD) NC127	noel.mckenna@dkit.ie ext. 2891
		Mr. Pat McCormick (HOD) NC128	pat.mccormick@dkit.ieext. 2551
		Mr. Padraig McGuigan (Section Head) NW207	padraig.mcguigan@dkit.ie ext. 2698
		Mr James Mulvany (Section Head) NW216	james.mulvany@dkit.ie ext 2520
	South Block	Mr. John Doherty (Section Head) S120	john.doherty@dkit.ie ext. 2692
Training Records	North Block	School of Engineering Office, NC121	Orlagh Devine orlagh.devine@dkit.ie, ext. 2894
Incident & Accident Reports	North Block	School of Engineering Office, NC121	Orlagh Devine orlagh.devine@dkit.ie, ext. 2894
FASC Meeting Records	North Block	School of Engineering Office, NC121	Orlagh Devine orlagh.devine@dkit.ie, ext. 2894
Inspection Certificates	North Block	School of Engineering Office, NC121	Orlagh Devine orlagh.devine@dkit.ie, ext. 2894

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APPENDICES

Appendix I

Functional Area Safety Committee 2015/2016

1. Eugene Roe, Head of School of Engineering (Chairperson)
2. Simon O'Neill, Head of Department of Engineering Trades
3. Pat McCormick, Head of Department of Mechanical and Electronic Engineering
4. Padraig McGuigan, Head of Section: Mechanical Engineering
5. James Mulvany, Head of Section: Electronic Engineering
6. Noel McKenna, Head of Department of the Built Environment
7. John Doherty, Head of Section Carpentry/ Joinery / Plumbing
8. Orlagh Devine, Senior Administration
9. Jim Connolly, Senior Technical Officer
10. Paul Egan, Lecturer
11. William Lyons, Lecturer
12. Brendan Walsh, Lecturer
13. Dermot Clarke, Lecturer
14. Paul Durcan, Lecturer

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Appendix II

List of Responsible Persons within the School of Engineering

Head of School	**Mr. Eugene Roe**
Head of Dept of Mechanical & Electronic Engineering	**Mr. Pat McCormick**
Head of Section: Mechanical Engineering	**Mr. Padraig McGuigan**
Head of Section: Electronic Engineering	**Mr. James Mulvany**
Head of Dept of the Built Environment	**Mr. Noel McKenna**
Head of Dept of Engineering Trades	**Mr. Simon O'Neill**
Head of Section: C&J and Plumbing	**Mr. John Doherty**
Centre for Renewable Energy at Dundalk Institute of Technology (CREDIT)	**Dr. Tom Dooley**

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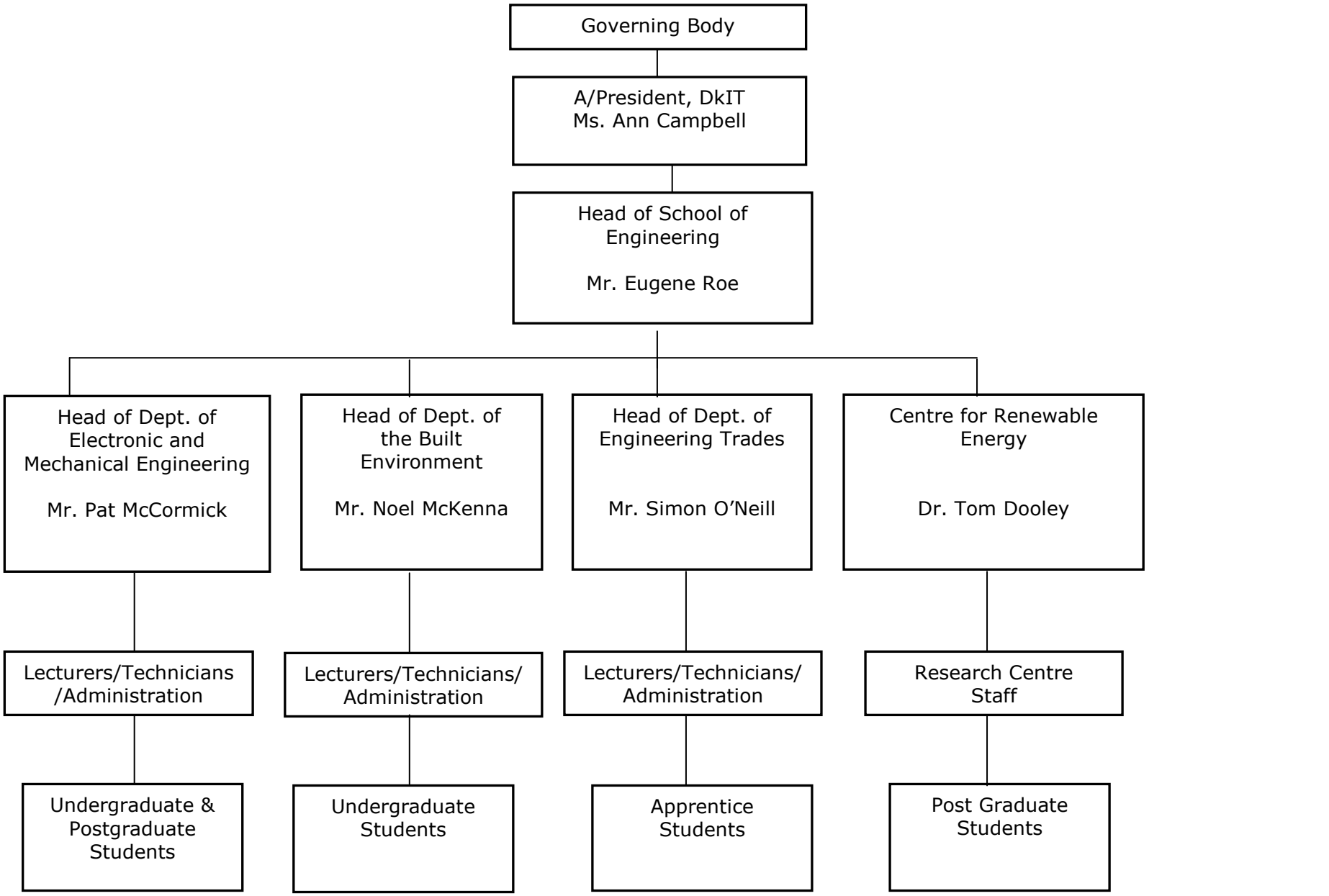

School of Engineering
Safety Management Organisation Chart

Appendix III

Safe Work Practice Sheets

SWPS ID	Electronic Engineering Laboratories	C206, C207, C208

General Routine Safe Work Practice Sheets Used in this Area:

GEN 001	General Rules
GEN 002	Access and Egress
GEN 003	Fire Safety
SWPS 08	Electrical Safety
GEN 005	Chemical Agents Risk Assessment
GEN 009	Slips, Trips and Falls
GEN 010	Lone Person Working
SWPS 09	Manual Handling
GEN 019	Storage Areas
GEN 026	Use of Hand Tools
SWPS 007	Safe Use of Ladders/ Stepladders
GEN 027	Cutters, Scalpels and Stanley Knives

Electronic Engineering Specific Safe Work Practice Sheets Used in this Area:

ELE 001	Soldering – (Manual Soldering Iron)
ELE 002	Mega UV Exposure Unit (Developing PCBs)
ELE 003	Bungard Spray, Etching PCBs
ELE 004	Mega Roller Thinning Machine
ELE 005	Circuit Board Testing
ELE 007	Transporting Test Equipment
ELE 009	CIF Roller Thinning Machine
ELE 010	RS PCB Guillotine
ELE 011	FH2 Test Bed
ELE 013	Light Bulb, Capacitor, Inductor etc. Test Apparatus
ELE 014	Logic Tutors
ELE 017	Prima Drilling Machines
ELE 018	Standard Electronic Equipment (Signal Generation, Measurement-)
ELE 020	Heat Shrink Guns
ELE 021	Equipment, Component Storage & Distribution
ELE 022	Hand Held Tools for Electronics
ELE 023	Hand Held Electric Glue Guns
ELE 024	Projects Design
ELT 010	Corded and Cordless Hand Held Drills
SWPS 015	General Health and Welfare Provisions
SWPS 016	Emergency Response
SWPS 017	Emergency Contact Numbers

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Appendix III

General Routine Safe Work Practice Sheets

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Safe Work Practice Sheet General Rules	Ref: SWPS 001
	Date: July 09
	Assessed by: E. Roe

Hazards

There is always an ever-present risk of accidents occurring due to lack of vigilance and awareness of staff and students

Person Exposed to Risk

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Everyday working environment

Controls

- Smoking, eating and drinking is prohibited in all areas other than designated
- areas. Smoking is prohibited in all areas.
- Exercise care when opening or closing doors on entering or leaving rooms. Never run.
- Conduct yourself in a responsible manner and do not act in a way that could be dangerous to yourself or others. Refrain from indulging inappropriate behavior as it could have serious consequences.
- No student or member of staff should ever work alone in a Laboratory, Workshop, Service Duct or Plant Room, without prior notification to Line Manager.
- All bags and coats are to be left in designated areas. All work and teaching areas should be kept tidy when in use and left tidy when finished.
- All accidents however minor must be reported to immediate superior.
- No member of staff or student is to interfere with any workplace equipment.
- Report any malfunctioning or dangerous or defective equipment to immediate supervisor without delay. Never attempt to effect repairs, no matter how trivial.
- Become familiar with position and use of safety equipment for each area in which you work.
- Study carefully and obey the Safe Work Practice Sheets for any area in which you are required to work.
- Co-operate with Employer in fulfilling duties imposed under Section 13(1)(a- h) of the Safety, Health & Welfare Act 2005

Checks & Inspections

Constant vigilance and awareness

Information, Instruction & Training

Not applicable

Personal protective equipment required (last resort)

Not applicable

Initial Risk Rating (without any control measures)

Probability :	2	x	Severity	3	=	Risk Factor	6 high risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 low / medium risk

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet Access and Egress	Ref: SWPS 002 Date: July 09 Assessed by: E. Roe

Hazards

Inadequate access and egress in the workplace can result in slips, trips and falls. Obstructed access roads and paths can also pose a risk of injury to pedestrians and to vehicle operators and can also delay emergency escape and emergency vehicle access.

Person Exposed to Risk

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Everyday working environment on campus

Controls

1. All doorways and access points in the workplace must be kept clear of obstructions.
2. All passageways and pedestrian routes must be kept clear from obstructions.
3. Materials must be stored in designated areas away from pedestrian and vehicular routes.
4. All stairways with more than 3 steps should be provided with handrails and maintained in good condition.
5. Adequate lighting must be provided throughout the Institute at all entry points, exit points and along corridors and passageways.
6. Workplaces must be kept clean and tidy at all times.
7. All spillages must be cleaned up immediately.
8. All cabling and hosing must be neatly tied off or ramped in order to prevent tripping.
9. Workplace floors must be kept in a level and even condition where possible in so far as is practicable. All holes and trip hazards should be removed, filled in or covered.
10. Trip hazards which cannot be removed must be clearly visible or signed as such.
11. Chairs, desks or drawers should never be used to access shelving or any other elevated area.
12. Stepladders or kick stools must always be used.
13. Vehicle drivers must exercise extreme caution when driving on Institute site.

All defects in flooring, lighting, stairwells, etc must be reported to the Estates Office via the Maintenance Request online system.

Checks & Inspections

Constant vigilance and awareness.

Information, Instruction & Training

Not applicable

Personal protective equipment required (last resort)

Not applicable

Initial Risk Rating (without any control measures)

Probability :	2	x	Severity	3	=	Risk Factor	6

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet Fire Safety	Ref: SWPS 003 Date: July 09 Assessed by: E. Roe

Hazards

The outbreak of fire can lead to:

- Serious bodily injury or fatality
- Damaged property or plant
- Disruption of premises causing loss of facilities **Person**

Person Exposed to Risk

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

There is always an ever-present risk of fire occurring in all workplaces. Common fire hazards include improperly stored combustible or flammable materials, the use of naked flames, faulty electrical equipment, the use of flammable fuels, the use of inappropriate equipment, the build up of flammable materials or wastes in the workplace and smoking in undesignated areas. The accidental release of chemical material may also lead to the outbreak of fire, especially if the material is pyrophoric, extremely flammable or is a strong oxidiser.

Controls

The Institute is committed to providing a fire safety programme that guards against the outbreak of fire in all areas and also makes provisions for the safety of all persons in the event of a fire. The Institute would like to reiterate to all staff at this point that every employee has a responsibility to guard against the outbreak of fire in the workplace through the implementation of good fire safety practises and where applicable the adherence to the control measures outlined below.

Employees should also refer to specific fire risk assessments that apply to their specified places / type of work.

Fire Detection, Equipment & Emergency Lighting

Layout drawings, detailing the location of the fire detection and alarm systems, throughout the campus have been prepared by the Estates Office. Copies of these drawings are held by members of the Caretaking Staff, to assist in the identification of the location of any alarm signal.

Fire detection and alarm systems are installed and maintained in accordance with current standards. Emergency lighting systems are in operation in all parts of the Campus. These are installed to and

regularly maintained in accordance with current standards.

Fire mains and Hydrants and Fire Hose Reels are inspected and maintained in accordance with current standards The date of the most recent inspection is noted on each hose reel. Test reports on ring mains and hydrants are held in the Estates Office and Fire Registers.

Portable fire extinguishers are inspected and maintained in accordance with current standards. The date of testing is noted on each extinguisher.

Copies of all testing and certificates are held in Estates Office in the Fire Register.

Emergency Response

1. Each building has in place an emergency plan detailing the reponse to be taken in the event of the sounding of a fire alarm or the discovery of a fire. Refer to http://ww2.dkit.ie/about_dkit/health_safety/emergency_evacuations_procedures_manual for further details.
2. Fire response procedures are displayed in prominent locations within the area covered by their provisions.
3. Emergency response procedures are tested at least annually by use of a fire drill.

Procedural Controls

1. It is prohibited to use a naked flame (outside of a laboratory area) or to engage in 'hot' work (outside of designated workshops) anywhere within the Institute without first obtaining a 'Hot Work Permit' from the Institute Estates Office. Hot work is defined as grinding, welding (all types), hot cutting, and any other work with the potential to generate a spark or an ignition source.
2. It is prohibited to disengage a fire detection device, remove a fire extinguisher from its designated location or to isolate a component of a fire safety system without the express permission of the Institute Estates Office.

Training

1. It is the responsibly of individuals within the Institute to ensure that they are familiar with the provisions of any relevant emergency procedures.
2. Fire safety training is available through the Staff Training & Development Officer for all interested parties.

Means Of Escape

1. All Institute premises will be provided with clearly signed suitable means of escape and emergency exits for use in the event of a fire.
2. All escape routes and emergency exits throughout a building / premises must be kept clear at all times.
3. It is the responsibility of all Institute employees to ensure that escape routes and emergency exits in their working area are kept free from obstruction.
4. No individual may obstruct or remove from service an escape route or emergency exit without prior arrangement with the Institute Estates Office.
5. In the event that employees have a concern regarding means of escape then they must contact their manager immediately. Urgent concerns can be conveyed directly to the Institute Estates Office.

Hazardous Agents

1. As part of a hazardous agent risk assessment fire safety provisions for handling the agent(s) in question must be detailed.
2. Flammable materials may only be handled and stored in accordance with the requirements of their Material Safety Data Sheets, with due regard being paid to their fire risks.
3. Flammable materials must be stored in a suitable storage area. The requirement for low voltage or flame proof wiring should be considered.
4. The large scale storage of flammable materials (>200l / kg) in a single location requires completion of a specific risk assessment prior to storage taking place.

1. Where new buildings are constructed by the Institute or existing buildings are substantially modified the requirements of Part B of the Building Regulations (1997) Technical Guidance Documents will be adhered to.
2. Smoking is prohibited in all indoor workplaces within the Institute.
3. Employees are encouraged to make themselves familiar with the location of alarm activation points and escape routes in their working areas.
4. Employees must not attempt to repair any electrical equipment unless they are competent to do so. All electrical repairs and installations within the University must only be completed by a competent person, following the rules laid down in the National Rules for the Electrical Installations, as prepared by the Electro-Technical Council of Ireland.
5. The amount of combustible materials stored within the workplace should be kept to a minimum.
6. In the event of an evacuation all persons must leave the workplace without exception and assembly at their designated assembly point.
7. Employees must adhere to any instructions given by Institute Fire Wardens or emergency services personnel in the event of an emergency.
8. Persons must not fight workplace fires unless they have been trained to do so and it is safe to do so.

All employees are reminded of their statuary obligation to protect their own and their co-workers safety by guarding against the outbreak of fire in the workplace through the use of safe systems of work

Checks & Inspections

Information, Instruction & Training

- Fire Drills
- Fire Warden Training
- Use of fire fighting equipment

Personal protective equipment required (last resort)

Not applicable

Initial Risk Rating (without any control measures)

Probability :	2	x	Severity	3	=	Risk Factor	6 high risk

KEY

PROBABILITY	SEVERITY	RISK FACTOR
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet Electrical Safety	Ref: SWPS 08
	Date: 30/03/2011
	Approved by: E. Roe

Hazards

- Electrocution
- Electric shock
- Burns
- Inadvertent starting of machines

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☑ Contractors ☐ Visitors

Work Description. A range of electrical appliances are used in the School. This Safe Work Practice Sheet covers Portable Appliance Testing, general electrical safety, lock out procedure

Controls

- Installation or repair work may only be carried out by qualified electricians.
- New installations will comply with the requirements of the General Application Regulations and the Electro-Technical Council of Ireland publication 'National Rules for Electrical Installations'.
- Flexible cables will be adequately protected against external mechanical and heat damage.
- Flexible cables should not be run across floors or walkways. Where electrical cables have to be run across open floor areas ramps will be placed over them to prevent the tripping and damage to cables.
- Adequate fusing or excess protection, e.g. circuit breakers, must be provided for all fixed and portable equipment.
- RCDs in workshops should be tested at the beginning of each term
- Areas around fuse boards will be kept clear of flammable materials and the fuse board cabinets will be kept closed at all times.
- Work on electrical appliances by contractors or work requiring isolation of electrical supplies requires an Electrical Work Permit. Buildings and Estates must be contacted.
- Staff must report defective equipment and take out of service
- Portable AC electrical appliances that may be subject to deterioration as a result of their use such as power supplies and oscilloscopes must be visually inspected and tested at regular intervals. The schedule of testing should be determined by following the Electrical Technical Councils guidelines available at www.etci.ie/docs/ET215(2008).pdf. A record of testing and inspection must be kept by the relevant departments.
- Live working is prohibited except in circumstances where it is not possible to carry out the work in any other manner. The following precautions must include as appropriate;
    - the use of people who are properly trained and competent to work safely on live equipment
    - the provision of adequate information to the person carrying out the work, about the live parts involved, the associated electrical installation and the likely risks,
    - the use of suitable tools including insulated tools, equipment and protective clothing For example, insulating gloves, insulating boots and insulating rubber matting,
    - the use of suitable insulated barriers or screens,
    - the use of suitable instruments and test probes,
    - accompaniment by a second person who is trained and able to act in an emergency, e.g. switch off power and give first aid treatment for electric shock,
    - effective control of any area where there is danger from live parts.

- A safe system of work must be drawn up.

Checks & Inspections

- Portable appliance testing must be carried out on certain portable AC electrical equipment
- RCDs tested once per term
- Electrical circuits tested every 3 years

Information, Instruction & Training

- Trained First Aider/CPR (available when live working is carried out)
- Electrical Technician to wear Personal Alarm (when carrying out live work during lone working Periods)

Personal protective equipment required (last resort)

Safety boots

Initial Risk Rating (without any control measures)

Probability : **3** x Severity **3** = Risk Factor **9 High Risk**

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability : **2** x Severity **2** = Risk Factor **4 Medium risk**

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet Chemical Agents	Ref: SWPS 05 Date: 20/04/2011 Assessed by: P. Killeen Approved by: E. Roe

Hazards

Exposure to certain chemical agents can cause a range of injuries from minor to serious long term damage. Exposure may be through ingestion, inhalation, skin absorption, absorption through the mucous membranes.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Staff and students may be exposed to a range of chemicals in the School including but not limited to;

- Petrol
- Cutting/cooling fluids
- Ferric chloride
- Solder
- Glues
- Cement/ Bitumen
- Hardwood dust
- Welding fume

Exposure frequency and duration is variable depending on the activity.

Controls

- Material safety data sheets are obtained for all potentially hazardous chemicals or chemical agents and hard copies are kept with the School Safety Statement.
- A chemical agents risk assessment form (attached to this Safe Work Practice Sheet) is completed for each activity involving the use of chemicals as required by the Chemical Agents Regulations.
- Where a number of chemicals are associated with an activity they must be assessed together.
- The hazards associated with each chemical substance and the precautions that must be taken are brought to the attention of the users through the chemical agents risk assessment form.
- Where necessary local exhaust ventilation is installed and maintained.
- Appropriate personal protective equipment (PPE) is provided for staff. Students are alerted to the requirement for PPE.
- Hazardous chemicals are stored in accordance with the requirements set out in the Material Safety Data Sheet. Chemicals re not decanted into unmarked containers. Where chemicals are placed in other containers an appropriate hazard warning label is attached.

Checks & Inspections

- Local exhaust ventilation should be checked annually to ensure it is extracting efficiently.

Information, Instruction & Training

The hazards associated with each chemical substance are brought to the attention of the users (Senior technical staff are responsible for informing other technical staff, lecturers are responsible for informing students)

Personal protective equipment required (last resort)

Care must be taken in the selection of personal protective equipment, e.g. select the correct glove to ensure that the chemical does not readily break through

Personal protective Equipment should be CE marked.

Initial Risk Rating (without any control measures)

Probability :	2-3	x	Severity	2-3	=	Risk Factor	4-9

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	variable	x	Severity	variable	=	Risk Factor	variable

Risk Assessment Review

As and when process changes or yearly

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Form 2: DKIT School of Engineering Chemical Agents Risk Assessment.
Ferric Chloride

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1. Location: ***Electronics Lab C208***

2. Assessment carried out by: ***Paula Killeen***

3. Date 20/04/2011

4. Short description of the process involving the use of the chemical(s)

Developing and etching metal surfaces. This process is carried out by staff only. 10 litres of Ferric Chloride used every 2 years approx. Exposure time is low. See "SWPS IRS 003" on procedure.

5. Hazardous Chemical Agents to be used Amount Physical Form

Ferric Chloride: The product may undergo hazardous decomposition, condensation or polymerization, it may react violently with water to emit toxic gases or it may become self-reactive under conditions of shock or increase in temperature or pressure. Risks of explosion of the product in presence of static discharge. Corrosive to stainless steel, mild steel, bronze, iron, aluminum, copper and concrete.	**Approx 2 Litres 3 times a year**	**Liquid**

6. **Person Exposed to Risk**

☐ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

7. Indicate Hazard Classification (for all chemicals used)

Explosive: ☑ Oxidising: ☐ Extremely Flammable: ☐

Highly Flammable: ☐ Flammable: ☐ Very Toxic if ingested: ☑ Toxic: ☐

Harmful: ☐ Irritant: ☐ Sensitiser: ☐

Corrosive: ☑ Teratogen: ☐ Hazardous to the environment: ☐

8. Potential routes of exposure

Inhalation: ☑ Skin Contact: ☑ Ingestion: ☐ Sharps: ☐

9. Control Measures to ensure safe use of chemicals

9.1. PPE Required: ***Lab Coat*** (non static) Safety Glasses: Safety Goggles: *Safety Goggles or Face Shield*

Gloves: *Heavy Duty Rubber Gloves,*
Other: *Rubber soled shoes*

Respirator: *Certified vapor and dust respirator with appropriate cartridges where insufficient extraction.*

9.2. Engineering Controls: Fume Hood: ☑ Local exhaust ventilation ☐

Special storage arrangements*: Corrosive to stainless steel, mild steel, bronze, iron, aluminum, copper and concrete. Storage tanks may be rubber, PVC, Teflon can be safely used. Keep locked up Keep container dry. Keep away from heat. Keep away from sources of ignition. Avoid shock and friction. Store small quantity. Change solution each term.*

9.3. Emergency Response

***(a)*Fire** *Water,CO2 or dry chemicals can be used*

(b)First Aid *(consult relevant MSDS for further information)*

An MSDS must accompany all victims of exposure when seeking medical advice. Always consult an MSDS following an exposure to a hazardous agent.

Eye Contact:

Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Maintain eye wash station. Seek medical attention.

Skin Contact:

Remove the contaminated clothes as quickly as possible, protecting your own hands and body. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds in skin. Cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

Extremely destructive to tissues of the mucous membranes and upper respiratory tract. Symptoms may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Seek immediate medical attention.

***(c)*Spill Response:**

Do not touch spilled material. Neutralize with lime, soda ash, or sodium bicarbonate. Wear full Personal Protective Clothing, Heavy duty rubber gloves and Rubber soled shoes. Wear Respirator if large spill with appropriate cartridge.

9.4. Further Risk Control Measures required

Waste Disposal:

Dispose of in line with the Institutes disposal procedures and in line with local authority requirements at approved landfill and by permit holder. The products of degradation are more toxic.

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 high

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	2	=	Risk Factor	2 Low

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Form 2: DKIT School of Engineering Chemical Agents Risk Assessment.
Lead Free Solder Wire

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1. Location : Electronic Labs – C206, C208, W219, W220,W228(a), W228(b)

2. Assessment carried out by: Paula Killeen

3. Date 28/03/2011

4. Short description of the process involving the use of the chemical(s) –

Soldering is a process in which two or more metal items are joined together by melting and flowing a filler metal into the joint, the filler metal having a relatively low melting point. In this context the process is used for assembling electronic components to printed circuit boards (PCBs). An electrically heated rod is used as the heat source for melting the filler metal. The heated rod and filler metal are handled and manipulated manually.
See SWPS Manual Soldering

5. Hazardous Chemical Agent	**Amount**	**Physical Form**
Lead Free Solder Wire: Not considered hazardous as a product, however may become hazardous in use. The flux fumes given off during soldering will irritate the eyes, nose and respiratory system. Prolonged or repeated exposure to flux fumes may cause an asthmatic reaction in sensitive individuals. May cause skin irritation and sensitisation. Composition of Tin, Silver and copper derivates can vary. Lead free solder has no known chronic effects. Solder will react with Oxides	**Varied/**	**Solid**

6. **Person Exposed to Risk**

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

7. Indicate Hazard Classification (for all chemicals used)

Explosive: ☐ Oxidising: ☐ Extremely Flammable: ☐

Highly Flammable: ☐ Flammable: ☐ Very Toxic: ☐ Toxic: ☐

Harmful: ☐ Irritant: ☑ Sensitiser: ☑ Known Human Carcinogen ☐

Corrosive: ☐ Teratogen: ☐ Hazardous to the environment: ☐

8. Potential routes of exposure
Inhalation: ☑ Skin Contact: ☑ Ingestion: - Not an anticipated route of exposure

9. Control Measures to ensure safe use of chemicals

9.1. PPE Required: Gloves: ☑ Safety Goggles: ☑

9.2. Engineering Controls: Fume Hood: ☐ Extraction Unit attached to manual soldering iron ☑

When soldering is being carried out, fume extraction unit must be in operation and working effectively.

9.3. Emergency Response

(a)Fire *(consult relevant MSDS for further information)*

Extinguishing Media: - Dry Chemical, Carbon Dioxide or Sand. Allow spill to solidify and cool

(b)First Aid *(consult relevant MSDS for further information)*

An MSDS must accompany all victims of exposure when seeking medical advice. Always consult an MSDS following an exposure to a hazardous agent.

Eye Contact –

Flux fumes may irritate the eyes. The flux may spit during soldering. Flush immediately with plenty of water for at least 15 minutes. In cases where spitting flux has entered the eye seek medical attention.

Skin Contact –

Wash hands with soap and water after handling solder. If any skin irritation develops seek medical attention.

Inhalation -

Fumes given off by fluxes may irritate the nose and throat. Remove operative to fresh air. obtain medical attention if there is any respiratory distress.

9.4. Further Risk Control Measures required

Handling: Do not eat, drink or smoke during use. Wash hands after handling solder wire.

Storage:

Store away from oxidizing agents and acids. Store in a cool dry area and keep in the original boxes to be stored away from food and drink.

Initial Risk Rating (without any control measures)

Probability :	2	x	Severity	2-3	=	Risk Factor	4 -6 medium/ high risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	1-2	=	Risk Factor	3 Low / Medium risk

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Safe Work Practice Sheet Slips, Trips & Falls	Ref: SWPS 009
	Date: July 09
	Assessed by: E. Roe

Hazards

Slips are caused by the presence of substances such as water, grease, oil, fats, soaps, granules, plastic sheets, packaging, leaves, ice etc deposited on the floor arising from the working conditions or in some cases the weather. Slip hazards can be found on both wet and dry surfaces.

Trips can be caused by such features as electric cables or compressed-air lines across walkways, curled-up or worn carpets, uneven floor surfaces and steps, or discarded work items.

Falls may be caused by slips or trips or when adjacent surfaces are at different levels leading to persons losing their balance because they had not anticipated the change in level. Slips or trips on stairs are particularly dangerous.

The hazards listed above are so ordinary and commonplace that people often accept them as part of normal living until they or someone close to them has an accident and is seriously hurt.

Person Exposed to Risk

✓ Students ✓ Employees ✓Public ✓ Contractors ✓ Visitors

Work Description
Everyday activity on campus

Controls

Observe & Adhere to Health & Safety Authority Guidelines as below

- The starting point lies with everybody becoming aware of these hazards and taking appropriate action.
- Management must take responsibility for controlling these hazards and must assign appropriate responsibilities to staff. Clear policies should address what people need to do to identify and monitor slip, trip and fall hazards and the action to take once they identify a hazard.
- Slips, trips and falls must be considered in the workplace hazard assessment that is required by law. This assessment should take account of:
- The type of hazard including how likely it is to occur
- Characteristics of the workplace such as the nature and condition of floor surfaces, quality
- of lighting
- Influence of the weather (e.g. rain, frost or leaves)
- Maintenance and cleaning procedures
- Workplace users
- Where workplaces are being modified or constructed there is an excellent opportunity to prevent slips and trips by selecting appropriate floor materials that are slip resistant and
- installed so as to minimise trip hazards.

Nature of the hazard

In some work areas such as certain food processing activities slip hazards may not always be completely avoidable and the control measures will need to assume the hazard is always present.

- In other situations the floor surface may be non-slippery for most of the time but leaks from
- plant or bad weather may lead to the creation of a slip hazard. It only takes a small amount
- of liquid on a smooth floor to create a hazard. In these situations the immediate control
- measures will focus upon detection of liquids and the actions to be taken to remove the

hazard or reduce it by the provision of warnings and cordoning off areas.
- Permanent trip hazards should be removed as far as possible by such measures as the rerouting of pipes or cables, provision of more sockets to reduce long cable lengths, use of battery powered tools and the repair of uneven floor and stair surfaces.
- A good housekeeping regime will go a long way to reduce intermittent hazards from badly stored or discarded items. Materials should never be left or stored on stairs.
- Where changes in floor level cannot be avoided they should be clearly marked and the provision of handrails to control the movement of persons may be appropriate.
- Changes in level should not take people by surprise.

Characteristics of your workplace

- It is better to eliminate slip hazards by choosing a suitable surface rather than depending on cleaning regimes to keep a floor safe. Building designers should ensure that the intended appearance of a building does not compromise the choice of inherently safer floor options.
- Macro-rough surfaces (i.e. those that contain an aggregate) are recommended for areas that are expected to experience high levels of contamination. Floors that have hard particles throughout their thickness can maintain their slip resistance throughout their life but floors with a superficial layer of grit or slip resistant paint can become slippery as the layer is worn away.
- Profiled floors (ridges or blisters) are sometimes used in areas subject to slip hazards but these can become slippery over time as the profile becomes worn and contaminants can be left trapped within the profiles.
- Carpets or mats placed on smooth floors can pose both slip and trip hazards and, if used, should be securely fixed to the floor at their edges and at any joints.
- The slip resistance of steps is improved by the fitting of nosings which protect the edge of the step from wear and help users to the place their feet more accurately on it. Care has to be taken that the nosing itself does not constitute a hazard.
- The design of stairways in buildings will need to take account of Technical Guidance Documents B (Fire Safety), K (Stairways, etc) and M (Access for People with Disabilities) produced by the Department of Environment, Heritage and Local Government.
- Adequate lighting, including the avoidance of glare and shadows, is necessary to expose slip /trip hazards. Higher lighting levels are needed where older people are present.
- Poorly sited or excessive signage can distract people who are then less likely to notice slip or trip hazards.
-

The weather

- Building entrances can become slippery due to the ingress of moisture, mud and debris in bad weather. Measures such as having a slightly higher internal air pressure in the vestibule or the provision of a suitably designed shelter or canopy above the entrance can reduce the ingress of rain. Another simple measure is the installation of doors that do not blow open in the wind.
- Where matting is provided it should be aligned with the way pedestrians use the entrance. It should be laid immediately inside the door entrance and extend across the full width of the door. The existence of wet footprints beyond the entrance or matting is usually a sign that existing controls are not sufficient.
- Where mats in mat-wells are prone to becoming waterlogged the provision of drainage holes should be considered.

Maintenance and cleaning procedures

- Floor cleaning procedures should be incorporated in the operation and maintenance procedures for a company. The procedure should specify the methods and materials to be

used as the use of the wrong cleaning method can increase the area of hazard and level of risk. The cleaning agent used should be suitable for the floor surface and the type of contamination encountered. A build -up of polish or detergent residues should be avoided. The drying of floors after cleaning is most important for the control of slip hazards. Staff should be informed, trained and supervised with regard to:

- Cleaning and drying floors
- Importance of dealing with spillages/leaks

"Cleaning as you go"

- Reporting hazards as they arise and any equipment defects contributing to slip hazards or problems with the cleaning equipment itself
- Prompt incident reporting
- Use of suitable footwear
- Cleaning should, where practical, be carried out when there are less people around.
- Cleaning activity should be organised so as to provide dry paths through areas being cleaned. It is better to restrict access to areas that are being cleaned by the use of barriers rather than depending on the use of cones or signs alone.
- Research has shown that forewarning people of a hazard can lead them to modifying their gait so as to anticipate the situation but attention must be paid to removing signs when the hazard has been dealt with; otherwise people will tend to ignore them if their experience tells them that the signs are always displayed irrespective of the conditions underfoot.
- Where existing unsuitable floor surfaces are identified, the hazard can be reduced by controlling contamination, using mats, treating the surface or in some cases replacing it altogether with a safer material.

Workspace users

- Where there is control over access to the workspace, the risk of falls can be reduced by the introduction of a "sensible shoe" policy i.e. no high heels or loose fitting shoes. In addition: Shoe soles should have deep cleating and a well defined tread pattern.
- Safety footwear may not always be slip-resistant and purchasers should check that it is suitable for the conditions under which it is going to be used.
- Slip resistant shoes will not remain so if they become worn or contaminated underfoot.
- The risk of slipping while barefoot is often greater than when wearing shoes, so this factor needs to be taken into account in shower areas and in other tiled areas associated with swimming pools, etc
- Disposable plastic overshoes can have poor resistance on smooth floors
- In other workspaces where there is general public access there will greater dependence on the selection of floor material in combination with maintenance regimes to control slip, trip and fall hazards.

Checks & Inspections

- Visual checks and Risk Assessments as required in each Functional Area

Information, Instruction & Training

Not applicable

Personal protective equipment required (last resort)

Not applicable

Initial Risk Rating (without any control measures)

Probability :	**2**	x	Severity	**3**	=	Risk Factor	**6 High RISK**

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	2	=	Risk Factor	**2 Low Risk**

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet Lone Person Working	Ref: SWPS 010
	Date: March 09
	Assessed by: E.Bell

Hazards

- Persons working alone using hazardous chemicals or equipment may not be able to summons
- help in the event of an accident or spillage.
- Certain exit routes may not be available during out of hours working.
- Entrapment in areas or spaces due to negligence or accident

Person Exposed to Risk

☐ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Definition of lone working

Lone working/out of hours working is defined as follows

Any Laboratory / Experimental work carried outside of 9 am - 5 pm Monday – Friday when there are no persons aware of your work within calling distance.

Any other work undertaken outside of 7 am-10 pm Monday – Friday and during the hours of 9am - 6pm on Saturday, Sunday & Bank Holidays.

All buildings must be vacated by 6pm on Saturdays, Sundays and Bank holidays to allow for full lock up. At Christmas & Easter the campus will close down for a specified number of days and access will only be granted under exceptional circumstances .

Lone working includes carrying out field work in hazardous terrain or in areas where there is a risk to personal safety.

Lone working may also include carrying out routine maintenance work in isolated areas such as roofs or plant-rooms.

Controls

General

- Lone working in laboratories is not permitted unless a risk assessment has been carried out in conjunction with an academic supervisor and the risk is deemed to be low. Typical work that may be allowed includes work on PCs, microscope work, viewing plates, taking items in and out of incubator.
- The supervisor may allow working on high risk activities if the person is competent (typically an experienced member of staff) and a buddy is in attendance.
- The supervisor may allow work on medium risk activities for competent researchers (with or without a buddy present).
- Where a person is working alone without other persons within shouting distance then a phone or mobile phone must be readily available. They must also notify a colleague of their intention, how long they intend to be working in the isolated area, and check back with the colleague at an agreed, pre-determined time, when the work in the isolated area is complete.
- Field work in hazardous terrain or where there is a risk of personal injury as a result of confrontation must not be carried out alone (see SWPS Fieldwork).
- Hazardous experiments must not be left unattended overnight.

Out of hours access

- If out of hours work is required permission must be sought from the Head of Department.
- All persons requiring 'Out of Hours' access must be aware of what to do in the event of an emergency, i.e. what emergency exit doors are available, how to raise the alarm, where to go etc.
- The Head of School must provide Security with the names and locations of persons working out of hours. The person must contact Security on leaving the building.
- Persons authorised to work out of hours must not admit any other person to the building out of hours. Persons claiming to be authorised but without a swipe access card or key should be referred to Security for access.
- Where the fire alarm is activated in the building after hours, those evacuating the building must assemble at the building fire assembly point. Otherwise emergency services will assume that they are still in the building.
- Researchers or Staff members who in exceptional circumstances, due to the nature of their research work, require access during 'Lock-Up' must seek authorisation for such access from Buildings and Estates.

Checks & Inspections

Visual checks and Risk Assessments as required in each Functional Area

Information, Instruction & Training

Not applicable

Personal protective equipment required (last resort)

Not applicable

Initial Risk Rating (without any control measures)

Probability :	2	x	Severity	2-3	=	Risk Factor	4-6

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	2-3	=	Risk Factor	2-3

Risk Assessment Review

As and when process changes or yearly

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Lone working/Out of Hours working

	Name	Position	Date
Prepared by			
Reviewed by:			
Approved by			

Revision	Date	By	Description
1			
2			
3			

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Safe Work Practice Sheet Manual Handling	Ref: SWPS 09
	Date: 30/03/2011
	Approved by: E.Roe.

Hazards

Incorrect method of lifting
Attempting to lift something which is to heavy
Lifting sharp/awkward shapes
The main injuries associated with manual handling and lifting are:
Back strain, slipped disc, hernia,
Lacerations, crushing of hands or fingers.
Repetitive Strain Injury.
Bruised or broken toes or feet.
Various sprains, strains, etc.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Staff and students may be required to lift or move heavy items from time to time including large pieces of wood, bags of aggregate, metal piping, moving rotating electrical boards, pushing/pulling trolleys and lifting engines and transmissions and various motor parts

Controls

- Risk assessments must carried out on manual handling tasks normally performed by staff. As a rule of thumb an assessment is required where weights are above the guideline weights set out by the Health and Safety Authority and reproduced overleaf in figure 1. The assessment should be in writing and set out on form 1 Manual handling assessment attached to this procedure.
- Manual handling will be avoided where possible. Mechanical or other means of moving or lifting will be used such as trolleys and winches.
- Staff will be provided with manual handling training where manual handling is a regular part of their job.
- Seek assistance where possible when lifting heavy items.

Consideration must be given to the arrangement of stored items so that heavier items are not stored near floor or above shoulder height.

Risks

The injuries associated with objects involving, lifting, lowering, manoeuvring and handling objects are:

- Back injury, including slipped disks. The effect of the injury may be cumulative over a period of years (as with chronic backache).
- Pulled muscles and strained ligaments.
- Note: once the back or any other part of the body “goes”, then it is easier to go again.

Primary controls

- Trained in the correct manual handling techniques and requirements
- Whenever and wherever possible and practicable use the correct mechanical means to lift, lower or manoeuvre heavy or awkwardly shaped loads.
- Split large loads into several smaller loads if possible.

Basic controls

1 Assessment

Carry out the following assessment process before you begin:

- Is it too heavy, too large, unwieldy or unstable?
- Will it require an unstable body posture position?
- Is the ground, floor or surface uneven or slippery?
- Are you able to maintain good posture while lifting?
- Will it require excessive lifting, lowering or carrying distances?
- Are you physically suited to carry out the task (e.g. physique, fitness, body strength)?
- Are you wearing suitable PPE (e.g. gloves, safety footwear)?

2 Safe to Manual Handle

When your assessment indicates that you can safely undertake the manual handling task, then proceed as detailed in section 3

Even when considered safe you should still use the correct mechanical means whenever and wherever possible and practicable.

3 *If there is no alternative way then:*

Protect your back

- If you must lift, carry and move an object yourself or with others, then you must do so in accordance with the correct techniques that you have learned in training. These correct techniques are summarised as follows:
- Lifting: Stand close to the load, bend the knees, not the back. Get a firm grip of the load and rise up straight.
- Carrying: Keep the load close to the body, with back straight, and turn by pivoting your feet.
- Lowering: Lower the entire body bending the knees, with back straight.

Special Controls
Loading, transporting
& off-loading materials

- Use mechanical means to load heavy and awkward loads
- Wear gloves and boots to protect body from getting trapped between the load and any other surface.
- Secure and store safely on the transport vehicle

Checks & Inspections

- Senior technician to monitor that correct manual handling technique is being used.
- Trolleys should be visually checked before use. Trolleys with damaged wheels should be taken out of service.

Information, Instruction & Training

- Manual Handling Training provided to relevant staff. Manual Handling activities are monitored and refresher training and /or reinstruction is an integral part of the safety management programme.

Personal protective equipment required (last resort)

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	**High Risk**

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	2	x	Severity	1-2	=	Risk Factor	2-4 Low-medium risk

Risk Assessment Review

As and when process changes or yearly

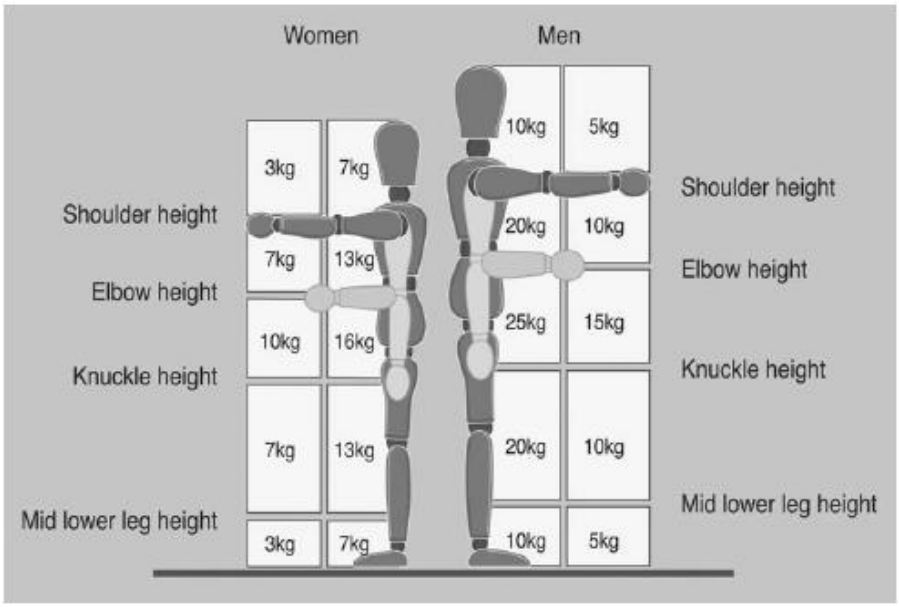

Figure 1. Guideline weights issued by the Health and Safety Authority.

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Form 1 Manual handling risk assessment

Section A – Preliminary *** Circle as appropriate**

Job Description Factors beyond the limits of the guideline weights? (See SWPS Manual handling)	Is an assessment needed? (i.e. Is there a potential risk for injury, and are the factors beyond the limits of the guidelines?) Yes / No*

If 'yes' continue. If 'no' the assessment need go no further.

Operations covered by this assessment (detailed description): Locations: Personnel involved: Date of assessment:	Diagrams or other information:

Section B – See over for detailed analysis

Section C – Overall assessment of the risk of injury? Low/Med/High*

Section D – Remedial action to be taken:

Remedial steps that should be taken, in order of priority:

1.
2.
3.
4.
5.
6.
7.
8.

Date by which action should be taken:

Date for reassessment:

Assessor's name: Signature:

Section B – More detailed assessment, where necessary:					
Questions to consider:	If yes, tick appropriate level of risk			Problems occurring from the task (Make rough notes in this column in preparation for the possible remedial action to be taken).	Possible remedial action (Possible changes to be made to system/task, load, workplace/space, environment. Communication that is needed.
	Low	Med	High		
The tasks – do they involve: • holding loads away from trunk? • twisting? • stooping? • reaching upwards? • large vertical movements? • long carrying distances? • strenuous pushing or pulling? • unpredictable movement of loads? • repetitive handling? • insufficient rest or recovery? • a work rate imposed by a process?					
The loads – are they: • heavy? • bulky / unwieldy? • difficult to grasp? • unstable / unpredictable? • intrinsically harmful (e.g. sharp / hot)?					
The working environment – are there: • constraints on posture? • poor floors? • variations in levels? • hot/cold humid conditions? • strong air movements? • poor lighting conditions?					
Individual capability – does the job: • require unusual capability? • hazard those with a health problem? • hazard those who are pregnant? • call for special information / training?					
Other factors: Is movement or posture hindered by clothing or personal protective equipment?	YES / NO				

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Safe Work Practice Sheet Storage Areas	Ref: SWPS 019
	Date: July 09
	Assessed by: E. Roe

Hazards

Slips, trips, falls
Cut
Back Injury
Sprains
Falling object
Fire

Person Exposed to Risk

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Storage of hazardous and non-hazardous substances and materials

Controls

Checks & Inspections

- Keep all pathways clear
- Do not climb on shelves or storage racks
- Do not climb on shelves to reach heights – use stepladders only
- Keep aisleways clear
- Do not keep any hazardous materials and substances in general storage areas – they must be kept in designated protected store located in Maintenance Building.
- Store heavy items at low level.
- Store medium weight items on middle shelves.
- Store light items on high shelves.
- Store items on shelves in such a way that they can not fall off.
- Keep all hazardous materials and substances, papers, boxes, etc. away from electric heaters.
- Store material lengths or racking parallel to the aisle.
- Storage areas to be kept locked at all times.
- Only authorized personnel are allowed access to Storage Areas.
- Do not attempt to lift any loads unless you have received appropriate training in safe manual handling techniques.
- Smoking, eating and drinking is prohibited in all storage areas.

Information, Instruction & Training

Not applicable

Personal protective equipment required (last resort)

Not applicable

Initial Risk Rating (without any control measures)

Probability :	2	x	Severity	2	=	Risk Factor	4

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	2	=	Risk Factor	2

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet **Use of hand tools**	Ref: SWPS 026
	Date: Aug 09
	Assessed by: E. Roe

Hazards

Cuts
Ejection of material
Eye damage
Stab injuries
Head injuries

Person Exposed to Risk

☐ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Using hand tools such as chisels, Stanley knives, hammers, drills etc.

Controls

- Only staff with appropriate training or experience may use hand tools.
- The tools should be checked before use for signs of wear and tear. Damaged items should be taken out of service for repair or replacement.
- No power tools or electrical equipment of greater voltage than 110 volts shall be used in external locations.
- Where power tools have to be used off the main supply the source of supply must be fitted with residual current devices (ELCB) rated at 30 mAmps at 30 msecs.
- All cable connections must be properly made; under no circumstances is insulation tape to be used for any repair or joint in extension.
- Power tools must be maintained in good condition with casing intact and label fitted showing voltage and other information. An annual formal documented inspection should be carried out by a competent person.
- Mains operated equipment must be electrically tested.
- Where there is a risk of particles hitting the eye, eye protection must be worn.
- Ear defenders will not normally be required as the duration of exposure is expected to be low and infrequent.
- Tools should not be left unattended in public areas when going for breaks.
- Staff should not repair tools unless they are trained to do so.
- Only use tools in the manner in which they were designed to be used.
- Return tools to the workshop at the end of each day.

Checks & Inspections

- Check all tools before each use.
- Annual electrical test for mains operated equipment.

Information, Instruction & Training

- Only trained staff may operate equipment. Training may be provided in house by another
- competent member of staff.

Personal protective equipment required (last resort)

Personal protective equipment varies with tool being used. Where there is a risk of flying particles then eye protection should be worn.

Initial Risk Rating (without any control measures)

Probability :	2	x	Severity	3	=	Risk Factor	6 High Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet **Use of Ladders / Stepladders**	Ref: SWPS 007 Date: 10/05/2011 Assessed by: P. Killeen Approved by: E. Roe

Hazards

- Physical injury due to fall of persons from ladder
- Objects dropped by ladder / stepladder user

Person Exposed to Risk

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

NOTE:

The use of Ladders / stepladders is restricted to activities where the risk is deemed to be low (that it would be unlikely to cause injury), the work is of short duration (30mins max) or brief periods at a time, and where the risk assessment shows the use of other work equipment (e.g. working platforms) is not justified.

Low Risk is considered when: where the operator can maintain a handhold / grip on stile whilst placing a box on a shelf and where the user's both feet are fully supported on the same step / rung.

Ladders/ stepladders are not suitable for strenuous or heavy work or where the work involves carrying awkward objects, tools or equipment.

Work Description

The use of Ladders / Stepladders by staff is infrequent. As part of their work technicians on occasions access shelving and storage areas to gain access to materials or parts.

Controls

- Ladder work is restricted to work which can be carried out using one hand only and of short duration.
- The base of the ladder must be on firm and level ground.
- For extension ladders they must be at the correct angle of rest 75 degrees or a base to height ratio of 1:4 (1 out to every 4 units up) and made secured (tying at the top or bottom)
- Stepladders must be fully opened out.
- There must be no sideways loading.
- Maintain 3 points of contact (both feet on the same rung, firm grip on the stile or handrail)
- Over reaching from ladders / stepladders will be avoided.
- Do not work on the top 3 rungs of a ladder, or top 2 steps for stepladders (regardless of length)
- Do not straddle (or sit at the top) of an A frame ladder.

Checks & Inspections

- Ladders will be checked for the correct type of equipment for the job at hand.
- Ladders / Stepladders must be visually inspected before use.

- Inspection of ladders must be recorded on form GA3 for every 7 day of use or used for the first time.

Information, Instruction & Training

- Operatives will be instructed to the safe use of ladders and the hazards which are to be avoided.
- Operatives to follow the controls
- Operatives to report any defects
- A further risk assessment will be necessary where the work activity is deemed to be medium or a high risk.

Personal protective equipment required (last resort)

- PPE may be a requirement dependant on the Risk Assessment

Initial Risk Rating (without any control measures)

Probability :	2	x	Severity	2	=	Risk Factor	4

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	2	=	Risk Factor	2

Risk Assessment Review

Risk Assessment will be reviewed periodically

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Safe Work Practice Sheet Use of cutters, scalpel and stanley knives	Ref: SWPS 027
	Date: March 09
	Assessed by: E. Bell

Hazards

- Cuts when taking blades in and out of handle
- Cuts while using equipment
- Cleaning staff receiving cuts if blades disposed of to general waste
- Eye injury if blade breaks while used with force for tasks other than cutting

Person Exposed to Risk

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

A range of cutting equipment is used in some areas by staff and students

Controls

- Where possible retractable blades or safety knives will be used.
- Blades must be disposed of to a designated sharps bin with a closable lid. Blades must never be disposed of to general waste.
- Users should use only sharp blades – blunt blades require more force and their use may result in injury
- Users should cut away from the body keeping the restraining hand well away from the blade.
- Unsheathed blades must never be carried in pockets or bags.
- Unsheathed blades must not be left in drawers or toolboxes.

Checks & Inspections

- Knives cutters used in classroom situations should be visually checked annually and damaged equipment removed from circulation.

Information, Instruction & Training

Students receive specific instruction on safe use of blades

Personal protective equipment required (last resort)

Initial Risk Rating (without any control measures)

Probability : **2** x Severity **3** = Risk Factor **6 High Risk**

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	2-3	=	Risk Factor	2-3 Low Risk

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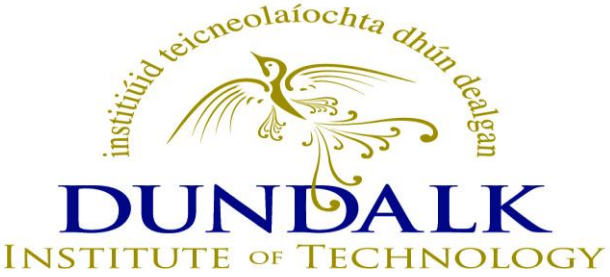

Appendix III

Specific Safe Work Practice Sheets

Safe Work Practice Sheet Soldering – (Manual Soldering Iron)	Ref: SWPS ELE 001
	Date: 22/07/2014
	Review 001
	Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Poorly maintained, installed or damaged electrical cables can result in electrocution-Death or first, second and third degree burns.

Hot surfaces
Contact with heated soldering iron or melted metals can result in first second and or third degree burns to the hands and fingers.

Fire
Combustible liquids (alcohol etc.) igniting when in contact with hot soldering iron resulting in fire, minor burns and respiratory illness from smoke inhalation.

Chemicals
Contact with alcohol, flux etc. can result in acute or chronic skin disease and illness and minor skin irritation. Inadvertent ingestion of lead from contaminated hands can result in central nervous system illness and disease.

Fumes
Inhalation of fumes from soldering can result in acute or chronic respiratory illness or disease.

Falling object
Soldering equipment placed at work bench edges can fall and cause minor burns, cuts and bruises to the legs.

Person Exposed to Risk

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Soldering is the process of joining two metals by the use of a solder alloy and heated electrical soldering iron. Solder for electronics is pre manufactured and can be made up of tin and lead of varying mixing ratios, lead free solder can also be obtained. Solder can melt at temperatures from 183 C (361 F) to 261 C (420 F) and change to a flowing hot liquid. The heated flowing liquid solder binds to Printed Circuit Boards and components where heat is also applied via the soldering iron.

Controls

- Food or drinks is not permitted in the electronics lab.
- Students are permitted to use the equipment, under correct instruction and the lecturer or technician's supervision.
- Students must request soldering iron from the lecturer or technician.

- Students must check the soldering iron tip, cable and plug for defects prior to use.
- Inspect the Iron, cable and plugs for damage or defects prior to use. Do not use if damaged or defected in any way and remove from use for repair or replacement.
- Students must not carry out electrical repairs.
- Electrical repairs must be carried out by a competent person.
- Ensure Iron is switched off prior to use.
- Ensure extraction on the soldering unit is working effectively prior to use.
- Flammable solvents are not permitted in the vicinity of hot surfaces or materials.
- Flammable solvents must be stored in small quantities in the technical support office/store. If solvent is required ask the lecturer, technician for the solvent.
- Where solvents (flux) are being used, use a small plastic pipette for dispensing.
- Soldering irons must be kept clear of combustible materials.
- Allow for soldering Iron to cool sufficiently prior to returning to storage.
- Soldering irons must be switched off when not in use and returned to storage.
- Ensure the Iron is placed in from the workbench edge when in use.
- Ensure the soldering equipment in use is securely placed in from the work bench edge.
- All soldering must be performed on the work bench edge.
- Where possible use substitute non lead solder.
- Never put hands or finger to your mouth when soldering.
- Always wash your hands thoroughly when finished soldering.

Checks & Inspections

- Regular inspections and maintenance to be carried out on all soldering irons and records kept by the School
- Lecturers and Technicians to monitor compliance with control measures
- Lecturers and technicians to monitor the wearing of PPE
- Ensure filter on iron is working (replace filter if necessary)

Information, Instruction & Training

- Students must be trained in how to solder before being allowed to carry out soldering.
- Lecturers must inform students of the hazards and dangers associated with soldering.

Personal protective equipment required (last resort)

Safety glasses must be worn when soldering.

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 High Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk

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Safe Work Practice Sheet Mega UV Exposure Unit (Developing PCBs)	Ref: SWPS ELE 002 Date: 22/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Poorly maintained, installed or damaged electrical cables can result in electrocution-Death or first, second and third degree burns.

Mechanical
Inadvertent crushing of fingers when closing the lid of the machine. Loose clothing long hair getting trapped in between lid of the machine & frame resulting in neck injuries.

Radiation
Lid of the machine open when machine is started causing acute minor skin burns or chronic skin damage, or cataracts on the eyes.

Chemicals
Splashes to the eyes and exposed skin when mixing photoresist with water can result in acute temporary eye and skin irritation. Contaminated clothing from splashing can result in acute minor skin irritation.

Manual Handling
Lifting and carrying loads can result in neck and lower back injuries.

Fumes
Inhalation of fumes from mixed chemicals can result in acute or chronic respiratory illness and minor eye irritation.

Slips, trip and falls
Poor housekeeping, personal belongings, wet floors can result in trips and slips causing falls and head impact injuries.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Printing PCB circuitry onto copper based boards by using vacuumed UV light machine.

Controls

- Developing must be carried out in a separate room to the lab class.
- Trained lecturers or technicians must carry out this task.
- Students are not permitted to operate the machine or enter the room.
- Ensure electrical cables are free from damage or defects prior using the machine.
- Do not use the machine if cable or plugs are damaged in any way.
- Competent persons must only carry out electrical repairs to the machine.

- Always place hands and fingers on top of the lid when closing on PCBs & never between moving parts.
- Loose clothing must not be worn when operating the machine.
- Long hair must be neatly tied bask or a well fitted cap worn.
- Ensure the lid is down and fastened prior to running the machine.
- Wear appropriate PPE when mixing and handling Photoresist developer.
- Ensure suitable undamaged water tray is chosen for mixing chemical & holding Copper boards.
- Always mix chemicals in a tray in the sink, proceed with adding water and then photoresist.
- If required use a plastic stick to mix the solution and avoid splashing.
- Remove and replace clothing contaminated with photoresist solution.
- Follow the manual handling training at all times when lifting, carrying etc.
- Ensure the extract system is turned on before mixing chemicals or operating the machine.
- Ensure the floor is maintained in a dry condition.
- Maintain good housekeeping at all times.
- Personal belongings are not permitted at or near the workspace.
- Follow the manufacturer's machine operating procedures at all times.
- Turn off the machine when it is no longer required.
- Always wash your hands when work is completed.

Checks & Inspections

- Eye wash station to be flushed once per term.
- Operator to check extraction is operational before starting process.
- Machine to be maintained as recommended by the manufacturer and records kept by the School

Information, Instruction & Training

- Only trained staff allowed to carry out procedure. New operator will be trained by technician if required.
- Corrosive. Keep locked up.
- Manual Handling training
- Chemical Handling training
- PPE Training
- MSDS

Personal protective equipment required (last resort)

- Lab coat
- Safety Goggles
- Heavy duty rubber gloves
- Safety Boots

Initial Risk Rating (without any control measures)

Probability :	**3**	x	Severity	**3**	=	Risk Factor	**9 High Risk**

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)							
Probability :	1	x	Severity	3	=	Risk Factor	3 Low risk

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet	Ref: SWPS ELE 003
	Date: 22/07/2014
Bungard Spray, Etching PCBs	Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Poorly maintained, installed or damaged electrical cables can result in electrocution-Death or first, second and third degree burns.

Chemicals
Splashes to the eyes and exposed skin when mixing ferric chloride with water can result in acute temporary eye and skin irritation. Contaminated clothing from splashing and dripping PCBs can result in acute minor skin irritation and sever burning. Minor to major skin irritation on hands and fingers from removing ferric chloride powder from its storage container. Ingestion or inhalation can result in death, liver damage, nausea, headache, vomiting upper respiratory tract damage.

Slips, trip and falls
Poor housekeeping, personal belongings, wet floors can result in trips and slips causing falls and head impact injuries.

Fumes
Inhalation of fumes from handling and mixing chemicals can result in acute or chronic respiratory illness and minor eye irritation.

Manual handling
Lifting out chemical from drums, carrying PCBs and heavy loads can result in lower back injuries.

Mechanical
Contact with rotating shaft can result in entanglement and cuts and bruises.

Person Exposed to Risk

☐ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description
The machine sprays a liquid chemical solution onto a copper PCB to etch out printed circuitry.

Controls

- The wearing of loose clothing is not permitted when operating eh machine.
- Long hair must be neatly tied back or a well fitted cap worn.
- Etching must be carried out in a separate room to the lab class.
- Students are not permitted to operate the machine or enter the room.
- Only trained staff (lecturer / technician) are permitted to carry out procedure.
- Ensure electrical cables are free from damage or defects prior using the machine.
- Do not use the machine if cable or plugs are damaged in any way.
- Competent persons must only carry out electrical repairs to the machine.

- Wear appropriate PPE when handling and mixing ferric chloride.
- Ensure the machine has an adequate level of clean water in it.
- Use a plastic scoop or container to remove ferric chloride from its storage container.
- Carefully decant ferric chloride into machine water container, avoid splashing.
- Remove and replace any clothing contaminated with ferric chloride or mixed solution.
- Eye wash station must be within close proximity of work station.
- Ensure the floor is maintained in a dry condition.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Ensure the extract system is turned on before mixing chemicals or operating the machine.
- Follow the manual handling training at all times.
- Ensure the machine lid is in place when operating the machine.
- Allow PCBs covered in chemical liquid to drain into the machine prior to washing them in the sink.
- Follow the manufacturer's machine operating procedures at all times.
- Do not touch rotating machine parts and ensure machine guards are in place at all times.
- Turn off the machine when it is no longer required.
- Always wash your hands when work is completed.

Checks & Inspections

- Eye wash station to be flushed once per term
- Operator to check extraction is operational before starting process.
- Machine to be maintained as per manufacturers recommendations and records kept by the School.

Information, Instruction & Training

- Only trained staff permitted to carry out procedure. New operators must be trained by technician if required.
- Corrosive chemical. Keep locked up.
- Manual handling training
- Chemical handling training
- PPE training
- MSDS

Personal protective equipment required (last resort)

- Lab coat
- Safety glasses/goggles
- Heavy duty rubber gloves

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 High Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)							
Probability :	1	x	Severity	3	=	Risk Factor	3 Low risk

Risk Assessment Review

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Safe Work Practice Sheet Mega Roller Tinning Machine	Ref: SWPS ELE 004 Date: 22/07/2014 Revision No. 001 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Handling cover salt crystals,
Harmful if swallowed. Acute skin and eye irritation if in contact with. Chronic effect of dermatitis from handing.

Fumes
Inhalation of lead or salt and flux fumes may cause acute respiratory illness, Long term exposure may result in severe irreversible damage to the lungs, heart, kidneys, liver and central nervous system.

Liquid flux
Contact dermatitis from long term exposure, minor skin irritation, burns to the eyes from splashing.

Electricity
Poorly installed or maintained, or damaged electrical cable and plugs can result in electrocution-death or first second or third degree burns.

Hot Surfaces
Contact with the solder bath, roller can result in first, second and or third degree burns to the hands and fingers.

Ejected material
Too much flux on the PCBs can result in ejected hot solder from the machine and cause burns to eyes resulting in loss of sight and burns to the skin.

Fire
Flammable materials, nylon clothing in contact with hot solder can ignite resulting in sever burning to the body..

Manual Handling
Moving the machine into position can result in acute or chronic lower back and or musculoskeletal injuries.

Falling Machine
Unsecure machine on work bench edge can fall, resulting in lower leg and feet crush injuries.

Slips trips and falls
Poor housekeeping, personal belongings can result in slipping and tripping & cause head impact injuries from falls.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The Process of developing circuit boards for electronics through the use of a soldering machine and chemicals.

Controls

- Work is carried out in a separate room.

- Only trained staff (lecturer or technician) are permitted to carry out this task
- Students are not allowed to carry out this task or to enter room.
- Fumes are extracted by local exhaust ventilation.
- Exposure time is low – work is carried out infrequently.
- Eye wash station must be close to work area (provide additional eye wash bottles as water pressure may be low I this area)
- Lab coats or overalls, approved chemical safety glasses or eye shields, hand protection, gloves to be worn.
- Check that the machine cable and plugs are in good working order and free from defects prior to use.
- Do not use the machine if the electrical cable or plug is damaged in any way.
- Never touch the heated solder bath or rollers with hands.
- Ensure all guards are in place prior to operating the machine.
- Sparingly apply flux to PCBs for soldering.
- Nylon clothing must not be worn when operating the machine.
- Flammable or combustible materials must not be stored at or near the machine.
- Follow the manual handling training guidelines at all times when moving heavy loads.
- Ensure that the machine is secure and not near the edge pf the work bench.
- Ensure that good housekeeping is maintained at all times and free from personal belongings.
- Wash hands after work is complete.
- Wear the appropriate PPE.

Checks & Inspections

- Only trained staff allowed to carry out procedure. New operator will be trained by technician if required.
- Machine to be maintained as per manufacturers recommendations and records kept by the School.

Information, Instruction & Training

- Eye wash station to be flushed once per term
- Operator to check extraction is operational and effective before starting process. Where there is insufficient extraction suitable respiratory protection must be worn
- Operator to report any symptoms.
- Manual handling training.
- Chemical handling training.
- PPE Training
- MSDS

Personal protective equipment required (last resort)

- Face shield
- Suitable protective gloves
- Where there is insufficient ventilation; suitable respiratory protection must be worn.
- Safety boots

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 High Rik

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet Circuit Board testing	Ref: SWPS ELE 005 Date: 22/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Slips, trips and falls
Trailing cables, personal belongings can cause trips that result in fall impact head and body injuries.

Electricity
Poorly fitted, maintained, damaged or defected electrical cables and plugs can result in electrocution-death, first second and or third degree burns.

Manual Handling
Carrying test equipment to and from storage can result in acute or chronic lower back injury and or musculoskeletal injury.

Fire
Flammable materials in contact with and ignition source can result in first second and or third degree burns.

Explosion
Explosion of components may occur due to incorrect wiring when circuit board is powered up by electricity and result in flying missiles and permanent or temporary damage to the eye/s.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Employees and students are required to test the electrical functionality of their made up Printed Circuit Board (PCB) by wiring them to a required Multi Metre, Power Supply Oscilloscope, Signal Generators etc.

Controls

- Students are permitted to carry out this task, under correct instruction and the lecturer or technician's supervision.
- Food and drink is not permitted to be consumed in the lecture room.
- Workstation must be maintained free from clutter and waste rubbish.
- Carry one testing unit (multi metre etc.) at a time to the work station. Use a trolley to assist in dispensing several test units.
- Avoid the trailing of cables by utilizing sockets mounted on workbenches.
- Never store flammable sources or materials at or near the test area.
- Inspect the power socket of testing equipment, power cable and plug prior to use.
- Do not use testing equipment or power cable if damaged or defected in any way.

- Students must not repair damaged equipment.
- Competent persons must only carry out electrical repairs.
- Wear safety glasses when testing equipment.
- Hand, damaged equipment or parts to the lecturer or technician for repair or replacement.
- Ensure testing equipment is switched off prior to powering up.
- On completion of testing return the testing machine and cable to their storage location.

Checks & Inspections

- Ensure that the testing equipment and power cables are free from defects prior to use. Follow the manufacturer's maintenance of equipment.
- Ensure that the workstation is maintained free from clutter.

Information, Instruction & Training

- PPE
- Manual handling
- Chemical training

Personal protective equipment required (last resort)

- Safety Glasses

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 High Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk

Risk Assessment Review

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Safe Work Practice Sheet Transporting Test Equipment	Ref: SWPS Ref: ELE 007 Date: 22/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Manual Handling
Lifting and carrying of test equipment, pushing and pulling trolleys to and from storages can result in acute or chronic lower back injury and or upper body arm and shoulder injuries.

Slips trips and Falls
Trailing cables, poor hose keeping can result in head, arm and hand injuries from falls. Minor cuts and bruises.

Sharps
Damaged cracked steel and plastic trolleys can result in puncture wounds and or major to minor cuts on hands and arms.

Tipping trolley
Damaged wheels or overloading of equipment on the trolley can result in it tipping over and causing lower body impact injuries.

Falling equipment
Unsecure test equipment falls off the trolley and results in lower body impact injuries.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The technician is required to use a trolley for transporting various testing equipment and other items to the work benches of the students.

Controls

- Maintain good housekeeping and work area free from personal belongings at all times.
- Students are not permitted to transport test equipment on trolleys.
- Lecturers or technicians are only permitted to transport equipment on trolleys.
- Inspect the trolley for damage or defects prior to use and remove from use if damaged or defected in any way.
- Competent person/s must carry out repairs on trolleys.
- Avoid trailing cables from the trolley when transporting equipment.
- Do not overload the trolleys with test equipment.
- Ensure test equipment is secure on the trolley prior to transporting.
- Never stand or sit on a trolley.
- Follow the manual handling safety training guidelines.

Checks & Inspections

- Ensure wheels of the trolley are free from defect.
- Ensure the structure of the plastic and steel trolleys are not damaged.
- Lecturers and technicians to monitor compliance with control measures.

Information, Instruction & Training

- Manual Handling training

Personal protective equipment required (last resort)

Initial Risk Rating (without any control measures)

Probability :	2	x	Severity	2	=	Risk Factor	4 Medium Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	2	=	Risk Factor	2 Low Risk

Risk Assessment Review

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Safe Work Practice Sheet CIF Roller Tinning Machine	Ref: SWPS ELE 009 Date: 22/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Handling cover salt crystals,
Harmful if swallowed. Possible skin and eye irritation if in contact with. Chronic effect of dermatitis.

Fumes
Inhalation of lead or salt and flux fumes may cause acute respiratory illness, Long term exposure may result in severe irreversible damage to the lungs, heart, kidneys, liver and central nervous system.

Liquid flux
Contact dermatitis from long term exposure, minor skin irritation, burns to the eyes from splashing.

Electricity
Poorly installed or maintained, or damaged electrical cable and plugs can result in electrocution-death and or first second or third degree burns.

Hot Surfaces
Contact with the solder bath, roller can result in first, second and or third degree burns to the hands and fingers.

Fire
Flammable materials, nylon clothing in contact with hot solder bath can result in catching fire and causing sever burning to the body.

Manual Handling
Moving the machine into position can result in lower back or musculoskeletal injuries.

Falling Machinery
Unsecure machine on work bench edge falling & causing lower leg and feet crush injuries.

Slips trips and falls
Poor housekeeping, personal belongings can result in slipping and tripping causing head impact injuries from falls.

Person Exposed to Risk

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The Process of developing circuit boards for electronics with the aid of chemicals.

Controls

- Work is carried out in a separate room.
- Only trained staff (lecturer or technician) are permitted to carry out this task
- Students are not allowed to carry out this task or to enter room.
- Fumes are extracted by local exhaust ventilation.
- Exposure time is low – work is carried out infrequently.

- Eye wash station must be close to work area (provide additional eye wash bottles as water pressure may be low I this area)
- Lab coats or overalls, approved chemical safety glasses or eye shields, hand protection, gloves to be worn.
- Check that the machine cable and plugs are in good working order and free from defects prior to use.
- Do not use the machine if the electrical cable or plug is damaged in any way.
- Never touch the heated solder bath or rollers with hands.
- Ensure all guards are in place prior to operating the machine.
- Sparingly apply flux to PCBs for soldering.
- Nylon clothing must not be worn when operating the machine.
- Flammable or combustible materials must not be stored at or near the machine.
- Follow the manual handling training guidelines at all times when moving heavy loads.
- Ensure that the machine is secure and not near the edge pf the work bench.
- Ensure that good housekeeping is maintained at all times and free from personal belongings.
- Wash hands after work is complete.
- Wear the appropriate PPE.

Checks & Inspections

- Only trained staff, are permitted to carry out procedure. New operator will be trained by technician if required.
- Machine must be inspected in accordance with manufacturer's recommendations and records kept by the school.

Information, Instruction & Training

- Eye wash station to be flushed once per term
- Operator to check extraction is operational and effective before starting process. Where there is insufficient extraction suitable respiratory protection must be worn
- Operator to report any symptoms of illness or complaint.
- Manual Handling training
- Chemical handling training
- PPE Training
- MSDS

Personal protective equipment required (last resort)

- Safety glasses
- Suitable protective gloves
- Safety Boots

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 Medium Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk.

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Safe Work Practice Sheet	Ref: SWPS ELE 010
	Date: 22/07/2014
RS PCB Guillotine	Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Manual handling

Lifting or carrying the machine into position can result in acute or chronic lower back and or musculoskeletal injuries.

Mechanical

Severing of fingers when in contact with the descending shearing blade and the machine base. Crushing of hand from failed guillotine lever resulting in hand impact injuries.

Falling Machine

Lower leg and feet crush impact injuries from unsecure falling machine.

Lead

Handling and tidying up cut PCBs with bare hands can result in inadvertent ingestion of lead particles and result in acute or chronic damage to the lungs, heart, kidneys, liver and central nervous system.

Slips trips and falls

Poor housekeeping, personal belongings can result in slipping and tripping causing head impact injuries from falls.

Person Exposed to Risk

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The guillotine is used to cut PCB boards into various different sizes.

Controls

- Only trained staff (lecturer or technician) are permitted to carry out this task
- Students are not permitted the use of the machine under any circumstances.
- Students are not permitted to enter the room where the machine is set up.
- Follow the manual handling training guidelines when moving the machine.
- Ensure all machine guards are in place when operating the machine.
- Never place hands or fingers in-between moving parts of the machine.
- Ensure that the machine is placed securely on top of and in from the edge of the workbench.
- Maintain good housekeeping at all times and work area free from personal belongings.
- Wear gloves when using the machine.
- Food or drink is not permitted in the lab.
- Wash hands completely when all work has commenced.

Checks & Inspections

- Regular inspections and maintenance to be carried out on the machine, records kept by the School
- Lecturers and Technicians to monitor compliance with control measures
- Lecturers and technicians to monitor the wearing of PPE

Information, Instruction & Training

- Manual Handling Training
- Chemical Handing Training
- PPE Training
- MSDS

Personal protective equipment required (last resort)

Safety glasses to be worn when soldering

Initial Risk Rating (without any control measures)

Probability :	2	x	Severity	3	=	Risk Factor	6 High Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk

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Safe Work Practice Sheet FH2 Test Bed	Ref: SWPS ELE 011 Date: 22/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Incorrectly installed, poorly maintained, damaged electrical cables and plugs can result in electrocution-death or first, second or third degree burns.

Manual handling
Lifting, carrying, pulling and dragging the machine and parts (test motors) etc. into position can result in acute or chronic lower back and or musculoskeletal injuries.

Mechanical
Loose clothing, long hair in contact with rotating motor shaft can result in entanglement and minor cuts and bruises. Contact with rotating motor shaft can result in minor cuts to the hands and fingers.

Falling Machinery & parts
Lower leg and feet crush impact injuries from unsecure falling machinery. Dropping motors and other parts when removing or replacing can result in lower leg and feet crush injuries.

Slips trips and falls
Poor housekeeping (machine parts etc.), personal belongings, trailing cables can result in slipping and tripping causing head impact injuries from falls.

Person Exposed to Risk

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The machine is used to test the performance of TechQuipment fractional horse power machines including AC and DC motors and generators.

Controls

- Ensure that all electrical cables and are free from damage or defects prior to using the machine.
- Do not use the machine where cables and plugs are damaged or defected in any way.
- Competent persons must only carry out electrical repairs.
- Students are permitted the use of the machine, under correct instruction and the lecturer / technicians supervision.
- Follow the manual handling training guidelines when moving the machine, seek assistance if required.
- Ensure all machine guards are in place when operating the machine.
- Never place hands or fingers on moving parts of the machine.
- Ensure that the machine and parts are placed securely on top of and in from the edge of the workbench.

- Maintain a firm hold of machine parts when removing and installing from the machine.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Ensure that the machine is plugged into the socket above the selected workbench when in use.

Checks & Inspections

- Regular inspections and maintenance to be carried out on the machine, records kept by the School
- Lecturers and Technicians to monitor compliance with control measures
- Lecturers and technicians to monitor the wearing of PPE

Information, Instruction & Training

- Manual Handling Training

Personal protective equipment required (last resort)

- Safety Boots

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 Medium Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk

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Safe Work Practice Sheet Light Bulb, Capacitor, Inductor etc. Test Apparatus	Ref: SWPS ELE 013
	Date: 22/07/2014
	Assessed by: G. Caffrey Approved by: E. Roe

Information, Instruction & Training

- Manual Handling

Personal protective equipment required (last resort)

- Safety Boots

Initial Risk Rating (without any control measures)

Probability : **3** x Severity **3** = Risk Factor **9 High Risk**

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability : **1** x Severity **3** = Risk Factor **3 Low Risk**

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Safe Work Practice Sheet Logic Tutors	Ref: SWPS ELE 014 Date: 22/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Incorrectly installed, poorly maintained, damaged electrical cables and plugs can result in electrocution-death or first, second or third degree burns.

Manual handling
Lifting, carrying and holding the machine to and from storage can result in acute or chronic lower back and or musculoskeletal injuries.

Falling Machine
Unsecure hold of machine when transporting, machine placed on the edge of the workbench can result in a falling machine and lower leg and feet impact injuries.

Slips trips and falls
Poor housekeeping, personal belongings, trailing electrical cables can result in slipping and tripping causing head impact injuries from falls.

Falling Trolley
Wheels of the trolley fail and collapse resulting in a falling trolley and lower leg and feet impact injuries.

Person Exposed to Risk

☑ Students ☑Employees ☐ Public☐ Contractors ☐ Visitors

Work Description

The machines are used as an aid for teaching digital circuit concepts.

Controls

- Ensure that all electrical cables and plugs are free from damage or defects prior to using the machine.
- Do not use cable or plug if damaged in any way.
- Competent person/s must carry out electrical repairs.
- Students are permitted the use of the equipment under correct instruction and the lecturer / technicians supervision.
- Follow the manual handling training guidelines when moving the machine.
- Use a trolley to transport the logic tutors to work benches.
- Ensure that the machine is placed securely on top of and in from the edge of the workbench.

- Maintain a secure hold of the machine when moving and installing.
- Maintain good housekeeping at all times and work area free from personal belongings.
- Ensure that the machine is plugged into the socket on the selected workbench when in use.
- Ensure that the trolley and wheels are free from damage prior to using.

Checks & Inspections

- Regular inspections and maintenance to be carried out on the machine, records kept by the School
- Lecturers and Technicians to monitor compliance with control measures
- Lecturers and technicians to monitor the wearing of PPE

Information, Instruction & Training

- Manual Handling Training
- PPE Training

Personal protective equipment required (last resort)

- Safety Boots

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 High Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	2 Low Risk

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Safe Work Practice Sheet Prima Drilling Machines	Ref: SWPS ELE 017 Date: 22/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Incorrectly wired, damaged machine power cables or plugs can result in electrocution-death or first second and third degree burns.

Mechanical
Loose clothing, long hair can result in entanglement with rotating drill causing cuts and bruises to the head and arms. Contact with rotating drill piece can result in cuts to the hands and fingers. Entrapment of hand with descending cutting tool and base table.

Slips, trips and falls
Poor housekeeping, personal belongings, waste material, trailing power cables on the ground can cause trips and slips resulting in fall impact head injuries.

Flying Debris / Objects
Waste drilled pieces of PCBs, disintegrated cutting tool can create flying debris and result in loss of sight. Unsecured work piece or clamp/vice can result in flying object and cause impact injuries to the head and body parts.

Sharps / Needle Sticks
Contact with rotating drill piece can result in lacerations to the hands and fingers. Handling drill pieces for replacement or removal can result in puncture wounds to the hands and fingers

Fire
Flammable materials in contact with waste drilled material can result in a fire causing first, second and third degree burns to the skin or respiratory illness from inhalation of smoke.

Manual Handling
Lifting and carrying the drill to and from storage / workbench or from area to area can result in acute or chronic lower back and or musculoskeletal injuries.

Falling Machine
Drilling machine placed at the work bench edge, not secured on trolley, unsecure hold of when carrying can fall and cause lower leg and feet impact injuries.

Dust
Drilling PCBs can result in the inhalation of dust causing acute or chronic respiratory illness. Emptying the dust vacuum canister can result in acute or chronic respiratory illness.

Person Exposed to Risk

☑Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The machines are used for drilling holes in to PCBs for projects work.

Controls

- Students are permitted to use the machine, under correct instruction and the lecturers/technicians supervision.
- Inspect the machine power cable and plug prior to use. Do not use if damaged or defected in any way and report to the lecturer or technician for removal from use.
- Electrical repairs must be carried out be a competent person.
- Loose clothing must not be worn when operating the machine.
- Long hair must be neatly tied back or a cap worn.
- Hands or arms must never come between the descending drill piece and material for drilling.
- Follow manual handling training guidelines at all times.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Ensure that the machine is powered from the mains supply on the workbench.
- Ensure all machine guards are in place prior to use.
- Safety glasses must be worn at all times when operating the machine.
- Inspect the cutting tool prior to use, do not use if damaged, hand back damaged cutting tool and request a new one from the lecturer / technician.
- Ensure to hold the work material firmly or clamp the work piece securely when operating the machine.
- Flammable materials must not be stored at or near the machine.
- Use a trolley when transporting drills from storage to workbenches or area to area.
- Maintain a secure hold of the drill when carrying.
- Always place the machine in from the workbench edge and flat and secure on the trolley when being transported.
- Never leave the machine running unattended.
- Always wait for the machine to come to a complete stop before adjusting or removing drilled material or parts.
- Ensure the cutting tool is adequately tightened before using.
- Ensure that the machine built in dust vacuum is working on the drill prior to use. Wear a mask when emptying dust from the vacuum tube and dispose of waste carefully.
- Ensure that there is adequate ventilation when operating the machine.
- Switch off the machine when it is no longer required for use.

Checks & Inspections

- Regular maintenance to be carried out according to manufacturer's recommendations and records kept by the School.
- Lecturers and technicians to monitor compliance with control measures
- Lecturers and technicians to monitor the wearing of PPE

Information, Instruction & Training

- Manual handling training

- PPE training

Personal protective equipment required (last resort)

- Safety Glasses
- Safety Boots
- Safety Mask

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 High Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk

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Safe Work Practice Sheet **Standard Electronic Equipment** **(Signal Generation, Measurement & Power Supply)**	Ref: SWPS ELE 018 Date: 25/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Incorrectly wired, damaged or defected electrical power cables, plugs, poorly maintained equipment can result in electrocution-death or first second and third degree burns.

Slips, trips and falls
Poor housekeeping, personal belongings, trailing power cables on the ground can cause trips and slips resulting in fall impact head injuries.

Manual Handling
Lifting and carrying the equipment to and from storage / workbench or from area to area can result in lower back and or musculoskeletal injuries.

Falling Equipment
Equipment stored over the edge of shelving, workbench or trolley, unsecure hold of equipment when carrying can fall and cause lower leg and feet impact injuries.

Toppling Trolley
Transporting the equipment to and from storage can result in a toppling trolley due to damaged or defected wheels, locked wheels, obstructed walk ways, from carpet to corridors resulting in impact injuries to the lower legs and feet.

Person Exposed to Risk

☑Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The equipment is used for laboratory practical work to assist in the measuring of electronic circuitry and the provision of low voltage.

Controls

- Students are permitted to use the equipment, under correct instruction and the lecturer or technicians supervision.
- Inspect the machine power cable and plug prior to use. Do not use if damaged or defected in any way and report to the lecturer or technician for removal from use.
- Electrical repairs must be carried out be a competent person.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Avoid the trailing of power cables by using the electrical power sockets mounted on the workbenches.
- Follow the manual handling training guidelines at all times.
- Use a trolley for transporting the equipment.
- Ensure that equipment is stored in from the edge of shelving and workbenches.
- Ensure that equipment is placed flat and secure and in from the edge of trolleys when being transported.

- Maintain a secure hold of the equipment when lifting to and from storage.
- Heavy items of equipment must be stored on the bottom of shelving.
- Place the heaviest items of equipment on the bottom of the trolley when transporting.
- Inspect the wheels of the trolley for damage or defects prior to use, do not use if damaged or defected in any way and remove from use for repair by a competent person.
- Ensure the wheels of the trolley are unlocked prior to moving.
- Ensure walks ways are free from obstructions.
- Slowly wheel the trolley from a carpet surface to a flat level surface on corridors or labs.

Checks & Inspections

- Regular maintenance of the equipment to be carried out according to manufacturer's recommendations and records kept by the School.
- Lecturers and technicians to monitor compliance with control measures
- Lecturers and technicians to monitor the wearing of PPE

Information, Instruction & Training

- Manual handling training

Personal protective equipment required (last resort)

- Safety Boots

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 High Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk

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Safe Work Practice Sheet Heat Shrink Guns	Ref: SWPS ELE 020 Date: 25/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Incorrectly wired, damaged or defected electrical power cables, plugs, poorly maintained equipment can result in electrocution-death or first second and third degree burns.

Slips, trips and falls
Poor housekeeping, personal belongings, electrical cables, component parts lying on the ground can cause trips and slips resulting in fall impact head injuries.

Temperature
Handling PCBs or cables that are heat treated, hands, fingers and or body parts in direct line of hot air flow can result in first second and or third degree burns.

Fire
Flammable materials in contact with hot air can catch fire resulting in first, second and or third degree burns.

Fumes
Insulation of wiring over exposed to heat can result in burning of plastic resulting in the inhalation of fumes and causing acute or chronic respiratory illness.

Person Exposed to Risk

☑Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The heat gun is used to shrink wrap protective covering for cable connections.

Controls

- Students are permitted to use the equipment, under correct instruction and the lecturer or technicians supervision.
- Inspect the machine electrical power cable and plug for damage or defects prior to use. Do not use if damaged or defected in any way and remove from use for repair or replacement.
- Electrical repairs must be carried out be a competent person.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Ensure that component parts are not lying on the ground.
- Avoid the trailing of electrical cables by using the power sockets mounted on the work benches or walls.
- Allow for heated materials to cool sufficiently prior to handling.
- Never place hands, fingers or body parts in direct line of the air flow from the heat gun. Maintain hands and fingers at a sufficient distance from the material being shrunk wrapped.
- Flammable materials must not be stored at or near the heat shrink gun when in use.
- Do not wear nylon clothing when operating the heat shrink gun.

- Long hair must be neatly tied back or a well fitted cap worn.
- Ensure that there is good ventilation when operating the heat gun.
- Expose shrink wrap material to temperature as recommended by the manufacturer.
- Always use the heat shrink gun as intended by the manufacturer.
- Never leave the heat shrink gun running idly in hands or on a workbench.
- Never point the heat shrink gun in the direction of individuals.
- Wear safety glasses when operating the machine.
- Return the heat shrink gun to storage when it is no longer required.

Checks & Inspections

- Regular maintenance of the equipment to be carried out according to manufacturer's recommendations and records kept by the School.
- Lecturers and technicians to monitor compliance with control measures
- Lecturers and technicians to monitor the wearing of PPE

Information, Instruction & Training

- PPE training

Personal protective equipment required (last resort)

- Safety Glasses
- Safety Boots

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 High Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk

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Safe Work Practice Sheet Equipment, Component Storage & Distribution	Ref: SWPS ELE 021 Date: 25/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Manual Handling
Placing and removing materials, components and equipment to and from storage can result in acute or chronic lower back and or musculoskeletal injuries.

Falling Equipment and Storage Bins
Components, equipment and linbins fall from storage location, carrying equipment or component to and from storage, equipment or components fall from the trolley resulting in head, upper and lower body impact injuries.

Slips Trips and Falls
Poor housekeeping, personal belongings, components or storage bins on the ground, water, worn carpets, and unravelled wire cables on reels can result in slipping and tripping causing falls and head and body impact injuries.

Sharps
Using wire cutting snips, wire strippers or knives on components, wiring or XPCB projects can result in lacerations to the hands and fingers.

Toppling Trolley
Transporting the equipment or components to and from storage can result in a toppling trolley due to damaged or defected wheels, locked wheels, obstructed walk ways, from carpet to corridors resulting in impact injuries to the lower legs and feet.

Flying Debris
Snipping wires or component pins can result in flying debris and loss of sight.

Fall from Heights
Using a ladder to gain access to storage space above head height, the ladder fails, ladder not used as intended by the manufacture result in an individual falling and in curing head and body impact fall injuries.

Person Exposed to Risk

☑Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Equipment and component parts are stored in various storage rooms and labs and are distributed to students as they are required.

Controls

- Students are permitted use and access to storage areas under the lecturer or technicians supervision.
- Follow the manual handling training guidelines at all times.
- Ensure that equipment, components and storage bins are in from the edge of storage shelving.
- Maintain a secure hold of equipment when transporting to and from storage locations.
- Ensure trolleys are not over loaded with equipment when transporting.
- Maintain good housekeeping and storage areas free from personal belongings at all times.

- Immediately clean and dry up and water lying on the ground.
- Inspect carpets on floors for damage or defects.
- Ensure wire cabling is securely wrapped around reels and not protruding on to the walkways.
- Walkways must be maintained free from loose components and storage bins.
- Always use the correct tool for cutting materials.
- Always cut away from the body when using a knife.
- Never handle a cutting tool by its cutting blade/s.
- Never place hands or fingers in between the closing blades or jaws of a hand tool.
- Inspect the wheels of the trolley for damage or defects prior to use, do not use if damaged or defected in any way and remove from use for repair by a competent person.
- Ensure the wheels of the trolley are unlocked prior to moving.
- Ensure walks ways are free from obstructions.
- Slowly wheel the trolley from a carpet surface to a flat level surface on corridors or labs.
- Place equipment and components and storage bins flat and secure on trolleys when in use.
- Wear safety glasses when sipping or cutting wires or components.
- Always snip or cut away from the body and not in the direction of bystanders.
- Where possible cut or snip into waste bins.
- Storage areas under lock and key must be maintained locked at all times.
- Ensure that the store room controlled by combination lock is closed securely when exiting.
- Inspect the step ladder for damage or defects prior to use, do not use of damaged or defected in any way and remove from use for safe disposal of.
- Always use the ladder as intended by the manufacturer.

Checks & Inspections

- Regular maintenance of the equipment to be carried out according to manufacturer's recommendations and records kept by the School.
- Lecturers and technicians to monitor compliance with control measures
- Lecturers and technicians to monitor the wearing of PPE

Information, Instruction & Training

- Manual handling training
- PPE training

Personal protective equipment required (last resort)

- Safety Glasses
- Safety Boots

Initial Risk Rating (without any control measures)

Probability : **2** x Severity **3** = Risk Factor **6 High Risk**

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk

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Safe Work Practice Sheet	Ref: SWPS ELE 022
	Date: 22/07/2014
Hand Held Tools for Electronics	Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Carrying out repair work on devices connected to the mains can result in electrocution-death or first second and or third degree burns.

Sharps
Incorrect handling and misuse of saws, screwdrivers, snips etc. can result in lacerations, puncture wounds or abrasions to hands and fingers.

Damaged Tools
Poor storage, misuse, wear and tear of tools can result in damage to the handles resulting in minor cuts and blisters to hands and fingers. Repairing or replacing damaged cutting tools, saw blades etc. can result in lacerations the hands and fingers.

Falling Hand Tools
Incorrect hold of, tool lying at the workbench edge, carrying too many at a time can result in a falling hand tool causing lower leg and feet puncture wounds, cuts and bruises.

Slips Trips and Falls
Poor Housekeeping, personal belongings, falling hand tools lying, waste cut offs from wiring. and components etc. on the ground can result in slips, trips and fall impact head injuries.

Ergonomics
Use of tools for extended periods of time can result in work related upper limb disorder.

Flying Debris
Use of various hand tools can result in flying debris from PCBs, wires, connector pins etc. resulting in the loss of sight.

Mechanical
Fingers or hands in between closing jaws or blades of hand tools can result in pinching of fingers or severing of finger tips.

Inadvertent Stabbing
Using your body as resting support for a component, PCB or material etc. resulting in self stabbing.

Manual Handling
Lifting or carrying equipment for repair or modification can result in acute lower back injuries.

Person Exposed to Risk

☑Students ☑ Employees ☐ Public☐ Contractors ☐ Visitors

Work Description

Hand held tools are required to enable operators to build and or repair or modify electronic projects. The hand held tools can comprise of files, rasps, screwdrivers, snips, plyers, hack saws, PCB saws, reamers and hand held drills etc.

Controls

- Students are permitted use of the hand held tools, under correct instruction and the lecturer or technicians supervision.
- Students must request the tools from the lecturer or technician.
- Ensure that equipment or machinery being repaired is disconnected and isolated from the mains supply prior to conducting repairs etc.
- Inspect the tool for damage or defects prior to use, do not use if damaged or defected in any way and hand back to lecturer or technician for removal from use.
- Wear safety glasses when using hand held tools.
- Always lift or carry a hand tool by its handle.
- All hand tools must be used in accordance with the manufacturers intended use and design.
- Students are not permitted to carry out repairs to damaged tools. All repairs, replacement blades or cutting tools must be carried out by a lecturer or technician.
- Ensure that tools required are resting in from the workbench edge.
- Falling hand tools must be picked up from the ground immediately.
- Maintain good housekeeping and work area free form personal belongings at all times.
- Ensure that the floors are swept clean from material cut offs as soon as possible.
- Avoid the use of hand tools for extended periods of times by tending to other duties where possible or periodically take small breaks.
- Always cut and snip materials away from the body and never in the direction of bystanders or other workbenches.
- Never place hands or fingers in between the closing jaws of plyers or snips and ensure to keep hands and fingers at a safe distance when in use.
- Never use your body as a supporting aid for work being carried out, always use the work bench as a means of support.
- Follow the manual handling training guidelines at all times.

Checks & Inspections

- Lecturers and technicians to monitor compliance with control measures
- Lecturers and technicians to monitor the wearing of PPE

Information, Instruction & Training

- PPE training
- Manual Handling Training

Personal protective equipment required (last resort)

- Safety Glasses
- Safety Boots

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 High Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	2	=	Risk Factor	2 Low Risk

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet Hand Held Electric Glue Guns	Ref: SWPS ELE 023 Date: 22/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Incorrectly wired, damaged or defected electrical power cable of the glue gun, plugs or poorly maintained equipment can result in electrocution-death or first second and third degree burns.

Slips, trips and falls
Poor housekeeping, personal belongings, electrical cable, glue sticks lying on the ground can cause trips and slips resulting in fall impact head injuries.

Hot Surfaces
Handling the tip of the glue gun, touching melted glue can result in first, second and or third degree burns to the hands or fingers.

Fire
Flammable materials, liquids or nylon clothing in contact with heated glue gun or glue can catch fire resulting in first, second and or third degree burns.

Fumes
Melting of glue and applying to materials can result in the inhalation of fumes causing acute respiratory illness.

Ergonomics
Working in the same position for extended periods of time can result in acute or chronic lower back and or musculoskeletal injuries.

Person Exposed to Risk

☑Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

The glue gun is used to repair cracked or damaged plastic moulds.

Controls

- Students are permitted use of this equipment, under correct instruction and the lecturers or technicians supervision.
- Ensure the glue gun is stored under lock and key.
- Always use the glue gun as intended by the manufacturer's standard operating procedures.
- The gun must only be used indoors in dry conditions.
- Never carry or drag the gun by its electrical cable.
- Inspect the electrical power cable and plug of the glue gun for damage or defects prior to use. Do not use if damaged or defected in any way and remove from use for repair or replacement.
- Electrical repairs must be carried out by a competent person.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Ensure that glue sticks are never lying on the ground and are stored away.

- Avoid the trailing of electrical cables by using the power sockets mounted on the work benches or walls.
- Never touch the tip of the glue gun or heated glue with hands or fingers.
- Allow for heated materials to cool sufficiently if and when required to handle.
- Flammable materials or liquids must not be stored at or near the glue gun when in use.
- Do not wear nylon clothing when operating the glue gun.
- Long hair must be neatly tied back or a well fitted cap worn.
- Ensure of good ventilation when operating the glue gun.
- Always disconnect the glue gun from the mains supply when it is no longer required.
- Avoid working in the same position for extended periods of times, where possible tend to other duties for periods of rest.
- When in use, do not leave the gun lying on its side, use the stand provided and rest the gun upright.
- Wear safety glasses when operating the equipment.
- Wear a fume mask where required
- Return the glue gun to storage when it is no longer required.

Checks & Inspections

- Regular maintenance of the equipment to be carried out according to manufacturer's recommendations and records kept by the School.
- Lecturers and technicians to monitor compliance with control measures
- Lecturers and technicians to monitor the wearing of PPE

Information, Instruction & Training

- PPE training
- Manual Handling
- Chemical Handling Training
- MSDS

Personal protective equipment required (last resort)

- Safety Glasses
- Safety Boots
- Fume Mask

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 High Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk

Risk Assessment Review – As and when process changes or yearly Back to contents page

Safe Work Practice Sheet Projects Design	Ref: SWPS ELE 024 Date: 22/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Electricity
Contact with AC or DC, Loose wires, exposed PCB electrical circuits, incorrectly wired motors, PCBs etc., damaged cables, faulty electrical equipment can result in electrocution-death or first second and or third burns.

Manual Handling
Pulling, pushing, lifting, carrying test equipment, machinery, electrical devices etc. can result in acute or chromic lower back and or musculoskeletal injuries.

Fire
Flammable sources exposed to heat pads, damaged or unprotected electrical wiring, soldering irons, live circuit boards, electrically charged light bulbs can result in fires and first, second and or third degree burns.

Slips trips and falls
Trailing cables, poor housekeeping, personal belongings, project equipment etc. can result in slips and trips causing falls and head and body impact injuries. Wet, icy, uneven surfaces can result in slipping causing fall injuries.

Falling Materials / Equipment
Project materials (motors, materials pieces etc.) test equipment placed on edge of workbench, resulting in crush injuries to the lower legs/feet. Unsecure hold of materials, equipment, over loading of body when carrying to work benches or test area.

Hot Surfaces
Contact with heat pads, soldering irons, light bulbs etc, resulting in first, second & or third degree burns to hands & fingers.

Mechanical
Entanglement, entrapment of long hair, loose clothing with rotating motor shafts, wheels, minor cuts and bruises. Pinching, loss of fingers with shaft, conveyor drive belt etc,

Pneumatics
Operating project piece with air, poorly maintained, damaged or loose air lines resulting in whipping airlines causing loss of sight cuts and bruises.

Sharps
Contact with knives, blades, recycled machine parts and materials etc. can result in severe lacerations to the hands and fingers and other body parts.

Chemicals
The use of lead, glues, paints, oils, and other chemical compounds (powders, aerosols etc.) can result in acute or chronic respiratory illness from inhalation, burns to the eyes & skin. Major organ damage may occur to the liver, kidney etc. when handling.

Outdoor Testing
Crossing road ways without looking, listening etc., struck by moving vehicles, cyclists, pedestrians, resulting in death or severe body injuries, major cuts and bruises. Test pieces striking tester and other outdoor users. Burns form sun exposure, Dehydration from long periods outside.

Person Exposed to Risk

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Level 8 student's project design, electronic and mechanical projects involving PC based simulation to assembly of prototype devices.

Controls

- Ensure all electrical cables and plugs are free from defect and damage prior to using.
- Students are permitted to carry out project work under the lecturer of technician's supervision.
- Ensure that all machinery, electrical motors and components being recycled are free from damage and defects prior to use.
- Follow the manual handling training guidelines at all times and seek assistance if required.
- Flammable materials must not be stored at or near work benches when working with electricity, heat pads, light bulbs, soldering, live circuit boards etc.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Avoid the trailing power cables by using work bench power sockets.
- Lab walkways must be maintained clear at all times.
- Ensure project materials and test equipment are placed securely in from the edge of the work bench.
- Never over load the body when carrying project materials and test equipment etc.
- Ensure that all airline fixtures and fittings are in good working order prior to use.
- Allow all heated materials & parts to cool down adequately before handling, if required wear heat resistant gloves.
- Loose clothing must not be worn when working on projects.
- Long hair must be neatly tied back or a well fitted cap worn.
- Never place hands or fingers in-between or on moving or closing parts etc.
- Never remove safety guards from equipment.
- Exercise caution when handling knives and other sharps. Always cut away from the body. Use retractable blades where possible.
- Ensure any recycled machine parts and materials are free from sharps or pointed parts when installing on a project.
- Ensure to obtain the MSDS for all chemicals prior to handling.
- Always consult the MSDS for additional advice on PPE required, storage conditions, First Aid etc.
- Assess the external weather and surface conditions prior to outdoor testing and field work.
- Always follow the safe cross code when negotiating road ways.
- Wear hi visibility jackets when testing outside.
- Be aware of other outside users.
- Avoid exposing skin to Sun UV rays, and cover up where possible.
- Use sun filter protection if required.
- Maintain hydration levels when working outside.
- Follow good hygiene practice at all times and wash hands thoroughly when work in complete.

Checks & Inspections

- Test apparatus and electrical equipment must be inspected in line with machine maintenance program and record kept by the Institute.

Information, Instruction & Training

- Manual Handling Training.
- Chemical Training
- PPE training
- MSDS

Personal protective equipment required (last resort)

- Safety glasses
- Heat resistant gloves
- Safety gloves
- Safety knives
- Hi visibility jacket

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 High Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk

Risk Assessment Review

As and when process changes or yearly

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Safe Work Practice Sheet Corded and Cordless Hand Held Drills	Ref: SWPS ELT 010 Date: 23/07/2014 Assessed by: G. Caffrey Approved by: E. Roe

Hazards

Electricity
Poorly or incorrectly connected, fitted, damaged or defected electrical cables and plugs can result in electrocution-death or first, second and or third degree burns.

Slips Trips and Falls
Poor housekeeping, personal belongings or a trailing electrical cable, hand tool lying on the ground can result in slipping and tripping causing fall impact head and body injuries.

Mechanical
Entanglement of long hair or loose clothing with rotating tool or chuck head can result in minor cuts and bruises. Cuts to hands and fingers when in contact with rotating cutting tools.

Ergonomics
Operating the tool in crunched awkward positions and for extended periods of time can result in acute or chronic lower back and or upper body musculoskeletal injuries**.**

Vibration / Torque
Drilling various materials can result in vibration and cause hand and vibration injuries (white finger). Drilling various materials can result in sprains to the wrist and elbow when the drill comes to a sudden stop.

Flying Debris
Drilling various materials can generate flying debris (swarf) and result in loss of sight, drill bits can shatter when in use and fly resulting in loss of sight or minor cuts.

Noise
Drilling various materials can result in the generation of noise and cause temporary hearing discomfort**.**

Sharps
Drill bits can contain sharps and result in minor lacerations to the hands and fingers when handled.

Falling Machine
Unsecure hold of hand tool when operating it, hand tool placed on the edge of a work bench can result in a falling tool and cause lower leg and feet impact injuries.

Person Exposed to Risk

☑Students ☑ Employees ☐ Public☐ Contractors ☐ Visitors

Work Description

The hand tools are used for drillings holes or screws into or cleaning down various materials.

Controls

- Students are permitted use of the equipment, under correct instruction and the lecturer or technicians supervision.
- Where possible always use a battery operated or 110v drill. If required to use a 240v drill ensure that it is plugged in to a socket with a Residual Control Device (RCD).
- 240v power tools are not permitted to be used for external work.
- Inspect the electrical cable, plugs and drill for damage or defects prior to use.
- Do not use if cable or drill is defected or damaged in any way and remove from use for repair by a competent person or safe disposal of.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Avoid the trailing of electrical cables where possible.
- Never leave a hand tool lying on the ground, use a nearby work bench to rest it on.
- Loose clothing must not be worn when operating the machine.
- Long hair must be neatly tied back or a well fitted cap worn.
- Never touch a rotating cutting tool.
- Never assist in stopping or slowing down a rotating tool or chuck head.
- Do not use the hand tool for extended periods of time and tend to other duties for periods of rest or split the work load with another work colleague if possible.
- Maintain a firm and secure hold of the hand tool when drilling materials.
- Always place the hand tool in from the edge of a work bench when not in use.
- Wear safety glasses when drilling materials.
- Never touch swarf with bare hands.
- Wear safety hearing protection when required.
- Always use the drill as intended by the manufacturer.
- Never hold or handle a drill bit by its cutting tool head, wear gloves if required.
- Never leave a drill unattended and return to storage when no longer required.
- Always hold the tool with both hands when drilling materials.

Checks & Inspections

- Regular maintenance to be carried out according to manufacturer's recommendations and records kept by the School.
- Lecturers and technicians to monitor compliance with control measures
- Lecturers and technicians to monitor the wearing of PPE

Information, Instruction & Training

- PPE training.
- Safe use of operating the tool.

Personal protective equipment required (last resort)

- Safety Glasses
- Safety Boots

- Safety Gloves
- Hearing protection

Initial Risk Rating (without any control measures)

Probability :	3	x	Severity	3	=	Risk Factor	9 High Risk

KEY		
PROBABILITY	**SEVERITY**	**RISK FACTOR**
Probable 3	Critical 3	1-3 Low Risk
Possible 2	Serious 2	4 Medium Risk
Unlikely 1	Minor 1	6-9 High Risk
Risk Factor = Probability x Severity		

Risk Reduction Rating (after controls introduced)

Probability :	1	x	Severity	3	=	Risk Factor	3 Low Risk

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Safe Work Practice Sheet General Health and Welfare Provisions	Ref: SWPS 015 Date: 2/02/2011 Assessed by: P. Killeen Approved by: E. Roe

The workplace regulations (general application) regulations 2007 S.I. No. 299 in particular regulation 18 and 19 gives specific standards to be maintained in the place of work.

These regulations refer to adequate facilities for "taking meals / consumption of food" "cleanliness," also that rest areas are "large enough". These facilities must be kept in a state that is free from accumulations of any dirt, dust etc..

Regulation 18 states:

(f) "the taking of meals by employees is prohibited at any location in the place of work where there is likely to be a risk to safety, health or welfare."

The Electronic Laboratories would not be deemed suitable as a place for taking meals (which includes beverages) for a number of reasons including the space limitations, the location of items stored at height, the lack of hygiene facilities and the fact that it is deemed a work area for a member of staff.

Regulation 19 states:

An employer shall ensure that—
"(a) where, because of—
(i) the type of activity carried out, or
(ii) the presence of more than a certain number of employees, and
(iii) the safety, health and welfare of employees so requires,
employees are provided with an easily accessible rest room or appropriate rest area,"

providing relaxation during breaks,
(b) rest rooms are large enough and equipped with tables with easily cleaned surfaces and seats with backs, adequate for the number of employees,

The Electronic Laboratories would not meet the criteria set out in section 19 above, because of the work activity carried out (where there is a presence of dirt and dust) and (it is deemed a work area) and (Insufficient space). Therefore under both sections of the Safety, Health and Welfare at Work (general application) regulations 2007 DkIT would be breaching the requirements.

Washing, food preparation and eating areas are made available at various locations: Starbucks, The Main Canteen, The Well, The Coffee Dock, The Staff Room.

Information, Instruction

To meet the requirements of Health and Safety Legislation and to ensure that good hygiene practices are employed at all times, it is prohibited to consume or bring into laboratories or workshops any drinks or beverages.

Signed: _____

Head of School of Engineering

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EMERGENCY RESPONSE	Ref: SWPS 016
	Date: 26/01/2011
	Assessed by: P. Killeen Approved by: E. Roe

Person Exposed to Risk

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Emergency protocol for everyday working environment.

Emergency Contacts

- Dial 9 for an outside line, then 999 or 112 and you will be connected directly to the emergency services.
- Be prepared to give the following information:
- Information on the condition of the victim, if there is a casualty.
- Details of any hazards, i.e. fire/chemical/gas/structural collapse etc.
- Exact location of the accident (room number and building).
- Call the Estates Office (2671/2670) and give the above details.
- If deemed necessary, contact the Nurse (2777) and trained Department first aiders.
- Call Reception (500), ask them to alert the caretaker on duty and give them the above details.
- Report to the Head of Department, Head of School, and your Supervisor (where relevant).
- As soon as practically possible, report the accident on an accident/incident report form and submit to the Head of Department/ Head of School of Engineering

- Emergency contact numbers are strategically located throughout the School of Engineering

Fire Fighting Equipment

The majority of fire-fighting equipment points are located in workshops, laboratories and on each floor in the School of Engineering building. There are a number of trained fire wardens in the School. Fire warden courses are run on a regular basis and are available through the
Estates Office. The School abides by the Institute Policy and Procedures on fire safety.

Information, Instruction & Training
All training in First Aid, Emergency Response, and Fire Safety/Wardens is available through consultation with your Head of Dept and HR Office. The School abides by the Institute Policy on first aid safety.

EMERGENCY CONTACT NUMBERS	Ref: SWPS 017
	Date: 26/01/2011
	Assessed by: P. Killeen Approved by: Eugene Roe

Person Exposed to Risk

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

Work Description

Important contact details which are available throughout all Departments in case of emergency

General

- Ambulance/Fire Brigade: 112 or 999
- Health Centre/Campus Nurse: 2777
- Doctor: Dr. Shane Gleeson: 2702/ 042 9320038
- Hospital: Louth Hospital: (042) 933 4701

A List of First Aiders is prominently displayed in all workshops and Lab Locations

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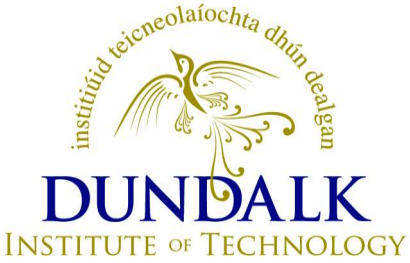

Appendix IV

Accident / Incident, Near Miss and Dangerous Occurrence Reporting Procedures

ACCIDENT, INCIDENT, NEAR MISS AND DANGEROUS OCCURRENCE REPORTING PROCEDURES

Dundalk Institute of Technology is committed to reducing accidents and ill-health to staff and students of the Institute. Procedures are in place in the Institute to ensure that all Accidents, Near Misses and Dangerous Occurrences are recorded. These procedures not only ensure compliance with the law, but are also used as a basis for analysing trends throughout the Institute, in an effort to reduce accidents and ill-health to staff and students. All reports are reviewed at each meeting of the Institute Safety Monitoring Committee.

The purpose of an investigation is to establish all the facts relating to the incident, to draw conclusions from the facts and to make recommendations to prevent reoccurrence. Each incident will be looked at from the point of view of place, plant, procedures and people, to see where the safety system has failed and to tighten controls. It is important to note the definitions of all incidents (Accidents, Near Misses & Dangerous Occurrences) in order to take the correct action.

DEFINITIONS

An **Accident** is defined as an unplanned event resulting in personal injury or property damage. This could include, but is not limited to:

- Sprain
- Laceration
- Broken bone
- Concussion
- Unconsciousness
- Ill-health
- Sickness due to exposure to a dangerous substance, fumes or gases, fire or explosion
- Sickness due to a chemical spill or environmental pollution
- Damage to building
- Damage to property

A **Near Miss** is defined as an incident in which there was no injury or property damage but where the potential for serious consequences existed.

A **Dangerous Occurrence** is one of a number of specific, reportable adverse events, which are defined within the Twelfth Schedule of the General Application Regulations 2007. Dangerous Occurrences are reportable to the Health & Safety Authority (HSA) using Form lR3 or via the HSA online notification process. Any Dangerous Occurrences which are notifiable to the HSA will be forwarded by the Health & Safety Co-ordinator.

These are incidents with a high potential to cause death or serious injury, but which happen relatively infrequently. Dangerous occurrences usually include incidents involving:

- Lifting equipment
- Pressure systems
- Overhead electric lines
- Electrical incidents causing explosion or fire
- Explosions, biological agents
- Radiation generators and radiography
- Breathing apparatus
- Diving operations
- Collapse of scaffolding
- Train collisions
- Wells
- Pipelines or pipeline works

All Accidents are 'Incidents'. However, the definition of an Incident is wider in that it includes Dangerous Occurrences and Near Misses.

REPORTING PROCEDURES

All incidents must be reported immediately using the DkIT relevant incident report forms. These are located in the Parent Safety Statement and also on the DkIT website at https://www.dkit.ie/safety/incidents-accidents-reporting-procedures. All sections of the form must be completed with as much accurate information as possible.

The immediate supervisor must investigate the cause of the incident, and complete the Institute Accident/Incident Report Form or Near Miss Form. A copy of this form must then be made available to the Head of Department/School/Function for review and final sign off. Copies of the completed form should be forwarded to the Health & Safety Co-ordinator, Secretary/Financial Controller and the Estate's Office. Copies of these forms are contained within this document.

Accidents involving visitors and contractors must be investigated by the staff member to whom the injury was reported, in conjunction with the staff member they are visiting or working with.

Accidents, which involve serious or fatal injuries to an employee, student or any third party must be notified to the Health and Safety Co-ordinator and the HSA without delay.

Any accidents at work that involve an employee being unable to carry out his/her duties for three or more consecutive days, or that involve a third party being injured and requiring treatment from a medical practitioner, are reportable to the HSA and must be notified using Form lR1 or via the HSA online process, as soon as practicable. Dangerous Occurrences are reportable to the HSA using Form lR3 or via the HSA online notification process. Any incidents, which are notifiable to the HSA, will be forwarded to the HSA by the Health & Safety Co-ordinator.

Internal Reporting Procedure

It is the responsibility of each Head of Department/School/Function to ensure that the appropriate investigation procedures take place in the event of an Accident, Near Miss or Dangerous occurrence arising in their area. Heads of Department/School/Function must also ensure that the appropriate forms are completed and forwarded to **each** of the relevant parties (i.e. Estates Office, Secretary/Financial Controller, Health & Safety Co-ordinator).

It is the responsibility of the Health & Safety Co-ordinator to ensure that all reported incidents are tabled and discussed at each ISMC meeting.

External Reporting Procedure

Arising from the internal reporting procedure, any incidents, which are notifiable to the HSA, will be forwarded to that body by the Health & Safety Co-ordinator.

ACCIDENT / INCIDENT REPORT FORM

Note:
This form should be completed whenever an accident or incident occurs which results in injury or damage to personnel or property.
If personnel or property WERE NOT injured or damaged during the Accident/ Incident, do not use this form. Use the NEAR MISS REPORT FORM.

Accident / Incident Report Form			
i	**Name of person involved in Accident/Incident:**		
ii	**Address:**		
	Phone:		
iii	**Who was involved in the Accident/Incident:** ☐ **Student** ☐ **Employee** ☐ **Public** ☐ **Contractor** ☐**Visitor**		
iv	**Occupation:**		
v	**If an employee of the Institute please state Department:**		
vi	**If no, please elaborate:**		
vii	**Particulars of Accident/Incident & circumstances under which the Accident/Incident occurred:** *Use additional pages and/or photos if necessary.*		
viii	**Place:**		
ix	**Time:**	**Date:**	
x	**Witness Phone No & Address:**		
	Witness Phone No & Address:		
xi	**When and to whom was the Accident/Incident initially reported?**		

xii	**Details of injury/damage:** Indicate type of injury (put an 'x' in one box only) ☐ Bruising, contusion ☐ Concussion ☐ Internal injuries ☐ Open wound ☐ Abrasion, graze ☐ Amputation ☐ Open fracture (i.e. bone exposed) ☐ Closed fracture ☐ Dislocation ☐ Sprain, torn ligaments ☐ Suffocation, asphyxiation ☐ Gassing ☐ Drowning ☐ Poisoning ☐ Infection ☐ Burns, scalds and frostbite ☐ Effects of radiation ☐ Electrical injury ☐ Property damage, Specify_____ ☐ Other, Specify_____
xiii	**Indicate part of body most seriously injured (put an 'x' in one box only):** ☐ Head, except eyes ☐ Eyes ☐ Neck ☐ Back, spine ☐ Chest ☐ Abdomen ☐ Shoulder, upper arm, elbow ☐ Lower arm, wrist, hand ☐ Fingers, one or more ☐ Hip joint, thigh, knee cap ☐ Knee joint, lower leg, ankle ☐ Foot ☐ Toes, one or more ☐ Extensive parts of the body ☐ Multiple injuries ☐ Other, Specify_____
xiv	**Consequences of the Accident/Incident:** Fatal ☐ Non Fatal ☐ Date of resumption of work if back Year Month Day ____ _____ ___ Anticipated absence if not back 4-7 days ☐ 8-14 days ☐ More than 14 days ☐
xv	**Treatment:**
xvi	**Doctor's report and recommendation:**
xvii	**Steps taken to prevent reoccurrence of this type of Accident/Incident:**
	Signature of person completing report: / **Date:**
	Print Name & Job Title:
	Signature of Head of Department/School/Function: / **Date:**
	Print name:

(Copies of the completed Institute Accident Report are to be sent <u>separately</u> to the Institute Health & Safety Co-ordinator, the Secretary/Financial Controller and the Estates Office)

NEAR MISS REPORT FORM

Note:
This form should be completed whenever a Near Miss occurs - that is an incident WITHOUT injury to person or damage to property.
If personnel or property were injured or damaged during the incident, do no use this form. Use the 'ACCIDENT / INCIDENT REPORT FORM'.

NEAR MISS REPORT FORM			
i	**Date of Near Miss:**	**Time of Near Miss:**	
ii	**Location of Near Miss:**		
iii	**Who was involved in the Near Miss:** ☐ **Student** ☐ **Employee** ☐ **Public** ☐ **Contractor** ☐**Visitors**		
iv	**Name of person(s) involved in Near Miss:**		
v	**Name, Address & Contact details of any witnesses to Near Miss:**		
vi	**Description of Near Miss:**		
vii	**Steps taken to prevent a reoccurrence of this type of Near Miss incident:**		
	Signature of person completing report:		**Date:**
	Print Name & Job Title:		
	Signature of Head of Department/School/Function:		**Date:**
	Print name:		

(Copies of the completed Near Miss Report Form are to be sent to the Health & Safety Co-ordinator, the Secretary/Financial Controller and the Estates Office)

First Aid and Emergency Contacts

	Location	
Jim Connolly	Mechanical Engineering Workshop	Ext 2966
Phil Dillon	Engineering Administration	Ext 2754
Simon O' Neill	Plumbing Workshop	Ext. 2847
Larry Quigley	Plumbing Workshop	Ext. 2594
Nick O'Rourke	Plumbing Workshop	Ext. 2593
Alan Gorham	Plumbing Workshop	042 9396510

- Ambulance/Fire Brigade: 112 or 999
- Health Centre/Campus Nurse: 2777
- Doctor: Dr. Shane Gleeson: 2702/ 042 9320038
- Hospital: Louth Hospital: (042) 933 4701

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